

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION PUBLIC HEARING
NOVEMBER 13, 2018 (TUESDAY)
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.)*

Presentation by the Livingston County Department of Planning of the Livingston County Master Plan.

OLD BUSINESS:

OPEN PUBLIC HEARING # 1... Review of a special use, site plan and environmental impact assessment for a proposed pet day care center (Dog Town and Kitty City Day Care) within an existing commercial building. The property in question is located at 3557 E. Grand River Avenue Howell. The request is petitioned by Paula Vanderkarr.

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

OPEN PUBLIC HEARING # 2... Review of a special use, site plan and environmental impact assessment requesting final site condominium recommendation for a proposed 25-unit site condominium with a special land use to allow for grading within the 25 foot natural features setback. The property in question is located on approximately 61 acres involving parcels 11-33-400-003 and 11-34-300-005 on the east side of Chilson Road, south of Brighton Road along the southern Township boundary with Hamburg Township. The request is petitioned by Chestnut Development LLC.

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

OPEN PUBLIC HEARING #3...Review of site plan and environmental impact assessment for a proposed addition and parking lot expansion to the existing Community Bible Church located at 7372 W. Grand River Avenue Brighton. The request is petitioned by Community Bible Church.

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

ADMINISTRATIVE BUSINESS:

- *Staff Report*
- *Approval of October 9, 2018 Planning Commission meeting minutes*
- *Member discussion*
- *Adjournment*



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: Paula Vanderkarr

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

APPLICANT PHONE: (989) 277-1864 EMAIL: pvanderkarr@gmail.com

OWNER NAME & ADDRESS: Lula, LLC. (Lou Lucaj) 28715 Hovey Ln. New Hudson, MI 48165

SITE ADDRESS: 3557 E Grand River Ave. Howell, MI 48843 PARCEL #(s): 4711-05-300-006

OWNER PHONE: (248) 798-6226 EMAIL: loulucaj@gmail.com

Location and brief description of site and surroundings:

This site was used as banquet hall in the 1980's to mid 2000's. Then was brief home for teenage kids to hang out on Friday and Saturday nights.

To the west sets the empty Pier 1 building and behind that a set of office buildings housing everything from beauty shop ,chiropractic center, Perspectives Therapy Services,Clear Strategy and to the east Payless Shoe store, and the Grand River plaza, and across the road Discount Tire

Proposed Use:

The space will be used as an indoor dog day care with supervised play groups, Boarding and Training and

in a year or so we will be grooming and bathing dogs and cats

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.

Retail shopping is getting harder to lease with the fact you can order just about anything online and have it delivered right to your door so in comes service related business like Doggie Day Care, Boarding for both cats and dogs, and Training. By re purposing this building we are not altering the exterior but cleaning it up and keeping it maintained with the natural tree lines that are there and controlling urban sprawl. This site works in accordance to zoning 7.02.02 (W)

- 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.

There will not be significant alteration to the exterior of the building other than updating lighting fixtures on the outside and painting any exposed wood and cleaning up over grown weeds and trash in the parking lot and re stripping parking spot. A white 6' vinyl fence will be add to the back of the building so the dogs in small supervised go out and play and go to the bathroom. The out side area will have K-9 grass installed that allow urine to filter thru and become water and will not get into the drinking water and any solid waste will be picked up promptly and disposed in a lined trash can.

- 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 police and fire protect will remain the same service as provided for the current existing building.

There is not a need for drainage structures and city and sewer services are currently provided to the existing building.

There will be a need for a medium dumpster that will be used for trash and to dispose of solid waste from the dogs and cats.

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?

There are only two items I can think that could be a nuisance is noise from barking dogs from the outside play area and it will be mitigated by only having 15 dogs in the outside play area that are supervised and if there is a dog that has a barking problem the will promptly brought inside. The inside of the building will be adequately sound proof in accordance to the zoning in section 7.02.02 (W-3). All other zoning ordinances in section 7.02.02 (w) will be followed to insure the public safe and wellbeing of the community.

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.

This property meets all the criteria and here is how. Hours of operation to the public will be 7am to 7pm, we will not have any individual outdoor dog runs, we will make sure the soundproofing of the building is adequate to meet and exceed the zoning requirement, the number of dogs will not exceed (1) pet per (100) square feet of gross floor area, length of stay will be limited to 14 consecutive days. Cleaning measures will be implemented to insure odor control both inside and out, the outdoor area will be made of white vinyl 6' tall and K-9 grass and will be 300 ft away from nearest residential use. No more the 15 dogs will be in outdoor play area with supervised.

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 Lou Lucaj 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: 3557 E Grand River Ave Howell, Mi. 48843

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

Paula Vanderkarr of DayTown & Kitty City, LLC at p Vanderkarr@gmail.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: Paula Vanderkarr DATE: 7/31/2018
PRINT NAME: Paula Vanderkarr PHONE: 989-277-1864



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: Paula VanderKarr 7692 Backer Ct. ²⁰⁵⁵⁰ _{mi. 4886}
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: Lou Lucaj 28715 Hovey LN. New Hudson M. 487

SITE ADDRESS: 3557 E Grand River Ave PARCEL #(s): 4711-05-300-006

APPLICANT PHONE: (989) 277-1864 OWNER PHONE: (248) 798-6026

OWNER EMAIL: loulucaj@gmail.com / Applicant: p Vanderkarr@gmail.com

LOCATION AND BRIEF DESCRIPTION OF SITE: _____

This site used to be the home of the KofC and there are two Building on this property The front Building was where they held thier Meetings and the Back was a Banquet Hall I'm Looking to lease the Banquet Hall.

BRIEF STATEMENT OF PROPOSED USE: _____

I am looking to open a Doggie day care, w/group play, training and Boarding and down the road do ~~str~~ grooming We want to be part of this Community and help educate pet owners on the Responsibility of Pet ownership

THE FOLLOWING BUILDINGS ARE PROPOSED: _____

We would like to lease the Back building that was used as the Banquet Hall

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: Paula Vanderkarr

ADDRESS: 3555 E Grand River Ave Howell Mi. 48843

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

1.) Paula Vanderkarr of Dog Town & Kitty Cdy, LLC. at pvanderkarr@gmail.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: Paula Vanderkarr DATE: 7/31/2018
PRINT NAME: Paula Vanderkarr PHONE: 989-277-1864
ADDRESS: 7692 Badger Ct. Owosso, MI. 48867



June 6, 2018

Genoa Township – Michigan
Attn. Planning/Zoning
2911 Dorr Road
Brighton, MI 48116

RE: Use Application in favor of Paula VanderKarr (Dog Town & Kitty City)
For 3557 E. Grand River, Howell, Michigan.

To Whom it May Concern:

The undersigned is an authorized signatory of Lula, LLC, the owner of that certain parcel of real property commonly known as 3557 E. Grand River, Howell, Michigan. Paula VanderKarr is the Tenant of the property pursuant to a Lease Agreement.

This letter will confirm that Lula, LLC, has authorized Paula VanderKarr and her consultants to apply for and, obtain the necessary governmental approvals to permit Dog Town & Kitty City to operate its business at the referenced location.

Sincerely,

Lula, LLC

Lou Lucaj
Managing Partner

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
October 9, 2018
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, Jim Mortensen, Chris Grajek, Marianne McCreary, Eric Rauch and Jeff Dhaenens. Absent was Jill Rickard. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom of Tetra Teach, Brian Borden of Safebuilt Studio, and an audience of 20.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Moved by Commissioner Grajek, seconded by Commissioner Rauch, 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... Request to POSTPONE TO NOVEMBER 13, 2018 review of special use, site plan, and environmental impact assessment for the re-use of an existing commercial building for a proposed pet day care for Dog Town - Kitty City. The property in question is located at 3557 E. Grand River Avenue, Howell. The request is petitioned by Paula Vanderkarr.

Chairman Brown noted that the applicant has requested to have this item tabled; however, the Planning Commission will hold a public hearing.

The call to the public was made at 6:32 pm.

Ms. Eileen Berger of 3497 Dewdrop Lane is opposed to this proposal because of the noise and the smell. Her condo backs up to this property. She suggested they go to a more rural area. She believes this could decrease the value of their homes.

Mr. Steve Siep of 3536 Snowden Lane appreciates that the Township wants to fill the empty buildings. His home is a tree line away from this property. The tree line is not a buffer for noise. When this building was used as a music venue, the noise sounded like it was in his yard. If this item is approved, he would like the fence to be made of a masonry material. He questioned how many dogs would be allowed outside at one time. He is concerned with the noise and the odor of 63 dogs. He is planning on putting an addition on his home; however, he may not do it if this approved.

Ms. Jackie Rafferty does not believe that this type of use should be on Grand River.

The call to the public was closed at 6:43 pm.

Moved by Commissioner Dhaenens, seconded by Commissioner Grajek, to table the review of special use, site plan, and environmental impact assessment for the re-use of an existing

commercial building for a proposed pet day care for Dog Town - Kitty City until the November 13, 2018 Planning Commission meeting per the petitioner's request. **The motion carried unanimously.**

OPEN PUBLIC HEARING #2... Review of sketch plan for the re-use of an existing commercial building for a proposed retail thrift store located at 2700 E. Grand River Avenue, Howell. The request is petitioned by Volunteers of America.

A. Disposition of Sketch Plan

Brent LaVanway of Boss Engineering, Brian Wilbur of Volunteers of America, and Jeff Peltier, the architect, were present.

Mr. LaVanway stated they have provided revised plans in response to the concerns raised at last month's Planning Commission meeting. He believes they have met the concerns of the consultants and the Planning Commission.

Mr. Borden stated that the applicant has met most of his concerns. He reviewed his letter of October 1, 2018.

- The Planning Commission may reduce the rear parking setback given the presence of shared access drives.
- He suggested pavement markings be provided noting the circulation pattern through the parking lot. The applicant agreed to provide the suggested pavement markings.
- The landscape plan is deficient in terms of total plantings; however, there are existing site limitations precluding full compliance. The Planning Commission has discretion to waive or modify landscaping requirements; however, the larger parking islands could accommodate some of the required trees. Mr. LaVanway noted that the overhead electrical lines are right above the islands.
- There is a minor inconsistency on the landscape plan for the number of Little Business Daylilies. The applicant will make the correction.

Mr. Markstrom reviewed his letter of September 26, 2018. They have met most of his concerns.

- The petitioner should show the existing sanitary sewer lead connection and existing service connection from the well on the plans.
- The practice of the Township has been to require developments that come before the Planning Commission to have curbed parking lots. He added that having it curbed delineates where cars will park, and keeps them off of the grass, as well as controls the storm water. Mr. LaVanway would prefer to have the Township defer to the Livingston County Drain Commissioner on this issue. The discussion continued which included the natural water flow of this site and the neighboring site to the east. Ms. VanMarter noted that the LCDC is currently addressing the storm water issue in this area. She suggested having them best determine how it should be handled.

Chairman Brown reviewed the Brighton Area Fire Authority's letter dated October 3, 2018. The applicant has met all of their concerns except for the building exceeding the allowable square footage as it relates to fire suppression. Mr. Peltier has made a proposal that is being reviewed by the Township Building Department.

The call to the public was made at 7:18 pm with no response.

Moved by Commissioner Mortensen, seconded by Commissioner Grajek, to approve the sketch plan for Volunteers of America dated September 21, 2018 conditioned upon the following:

- The petitioner shall reconcile the landscape plan with regard to the quantity of Little Business Daylilies.

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
September 10, 2018
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, Jim Mortensen, Chris Grajek, Marianne McCreary, Eric Rauch and Jill Rickard. Absent was Jeff Dhaenens. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom of Tetra Teach, Brian Borden of Safebuilt Studio, and an audience of 24.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Moved by Commissioner McCreary, seconded by Commissioner Mortensen, 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 special use, site plan, and environmental impact assessment for the re-use of an existing commercial building for a proposed pet day care for Dog Town - Kitty City. The property in question is located at 3557 E. Grand River Avenue, Howell. The request is petitioned by Paula Vanderkarr.

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

Mr. Brian Biskner with Powell Engineering and Ms. Paula Vanderkarr were present. Mr. Biskner provided a review of the business and showed the proposed site plan and fencing material samples. They will be using canine grass in the dog area. The stone underneath the artificial grass allows the liquid waste to filter more quickly into the ground. The solid waste will be collected and placed into trash containers.

They are asking for relief with some of the landscaping requirements. They are hoping to use the existing vegetation in the rear of the property to meet the requirements. This area is already quite dense. They are not proposing any landscaping along the east and west property lines as they would like to use the existing vegetation in that area also.

There was a discussion regarding the material that will be below the area where the canine grass will be placed and how it will properly filter the pet waste. Mr. Biskner stated the stone that will be under the grass will be the primary location that will trap the bacteria from the liquid waste. Ms. Vanderkarr has spoken to the canine grass company and they advised that 95% of pet waste is water and 5% is protein and other waste.

Commissioner Rickard would like to see additional engineering done to ensure that the bacteria from the pet waste will not enter into the storm sewer system.

Mr. Borden reviewed his letter dated August 29, 2018. The general special land use standards are met; however, with regard to the use standards, the following is still required:

- A noise impact study shall be done

Ms. Biskner stated that the sound study has not been completed at that time. She anticipates it being done within a week to 10 days. Commissioner Mortensen stated he will not vote for a recommendation for approval without the sound study being provided to the Planning Commission.

- The proposed fence does not match the existing building so the applicant will need to explain why the proposed fence is compatible with the building.

Commissioner Rauch believes the type of fence required could be determined by the sound study. Perhaps a masonry wall would be more appropriate. Commissioner Mortensen agrees and stated that if that is the case, he would like to see a rendering of the wall.

- Approvals from outside agencies are needed

Mr. Borden stated these approvals are typically obtained after approval by the Township Board.

Since writing his letter, the applicant provided parking details. They are proposing some parallel parking. He would like to see these spaces marked as "Employee Only" and have the patrons use the other parking spaces. He would also like to have the handicap accessible space relocated.

Additional comments from Mr. Borden's letter are:

- The parking lot pavement should be repaired / improved
- Landscape improvements shall be made. He noted that a revised plan with additional landscaping has been provided; however, he has not been able to review it in detail as of yet.
- The existing floodlights must be removed
- The existing, non-conforming pole sign should be removed and replaced with a ground sign. Because the applicant is not the property owner, she would not be responsible for replacing the sign. Commissioner Mortensen would like the property owner to be required to replace the sign.

Mr. Markstrom reviewed his letter dated August 28, 2018.

- The existing well should be abandoned to ensure there is no cross-contamination with the municipal water supply
- The private sanitary lead between the two buildings and grinder pump are not shown
- The private water lead between the buildings should be shown on the plans

There are no major changes being made to the site and some of the impervious surface is being removed, by removing the asphalt and installing the canine grass. He agrees with Mr. Borden that if pavement issues exist, it should be repaired.

Chairman Brown reviewed the Brighton Area Fire Authority's letter dated September 5, 2018. They are requiring an additional fire hydrant on the site. They also have concerns with the parking spaces.

The Call to the Public was made at 7:29 pm.

Ms. Stephanie Dallakian owns the building directly west of the building in the front of this building. That building's elevation is higher than the buildings to the west. She questioned how the runoff will be controlled. She would like to have landscaping around the fencing.

Mr. Steve Seek of 3536 Snowden Lane is concerned with the sound and the smell from this use. He questioned if the dogs will be left outside alone for a long time.

Mr. Robert Peterson of 3429 East Grand River, which is two properties away from this site, stated there is natural drain in his backyard. He questioned if animals will be left overnight.

Mr. Jim Strand of 3445 Dewdrop Lane is concerned with the waste from the pets. He does not believe it will be cleaned in the winter time. The evaporation of the liquid waste will put the bacteria into the air and that will attract bugs. Those bugs will transport that bacteria into the neighborhoods. He is also concerned with the noise.

The call to the public was closed at 7:46 pm.

There was a discussion about having a small canine grass area in the front of the building for dogs that need to relieve themselves when they are being dropped off or picked up.

Moved by Commissioner Mortensen, seconded by Commissioner McCreary, to table the request from Paula Vanderkarr until the October 9, 2018 Planning Commission meeting. **The motion carried unanimously.**

OPEN PUBLIC HEARING #2... Review of sketch plan for the re-use of an existing commercial building for a proposed retail thrift store located at 2700 E. Grand River Avenue, Howell. The request is petitioned by Volunteers of America.

A. Disposition of Sketch Plan

Brent LaVanway of Bross Engineering, Alex Brodrick and Brian Wilbur of Volunteers of America and Jeff Peltier, the architect, were present.

Mr. LaVanway reviewed the project and showed the site plan and colored renderings of all elevations. They will be repaving the parking lot, adding pavement to the rear of the building to accommodate more parking space, adding a sidewalk along Grand River, and adding landscape islands in the parking lot.

Mr. Brodrick provided a history of Volunteers of America and explained what services they provide.

Mr. Borden reviewed his letter of August 30, 2018. The following ordinance requirements must be met:

- The rear parking setback does not meet the requirements; however, the Planning Commission can waive that requirement because there is a shared access driveway.

November 7, 2018

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Dog Town/Kitty City – Special Land Use and Site Plan Review #3
Location:	3557 East Grand River Avenue – north side of Grand River, east of intersection with Grand Oaks Drive
Zoning:	GCD General Commercial District

Dear Commissioners:

At the Township's request, we have reviewed the revised submittal for Dog Town/Kitty City, including the special land use application (dated 7/31/18) and revised site plan (most recently dated 9/19/18).

A. Summary

1. The special land use standards of Section 19.03 are generally met; however, the use conditions must also be met and any comments by the Township Engineer or Brighton Area Fire Authority must be addressed.
2. In order to demonstrate full compliance with the use conditions of Section 7.02.02(w):
 - a. We request the applicant/sound consultant address whether soundproofing insulation or a more substantial material (masonry) for the screen fence would be beneficial in terms of mitigating exterior noise concerns;
 - b. The proposed vinyl screen fence requires a finding that it is aesthetically compatible with the building and surrounding buildings; and
 - c. Approvals from outside agencies must be obtained. Evidence of such approvals must be provided to the Township for their records.
3. The proposed business will require almost all of the parking provided on-site. The property owner should be aware that re-use of the secondary building on the property will require additional parking.
4. The pavement condition should be repaired/improved as part of this project.
5. The parking spaces must be double-striped (looped), per Ordinance requirements.
6. We request the applicant explain why cross-access should be limited to emergency vehicles.
7. Sizes must be noted for the proposed greenbelt and parking lot trees.
8. The existing floodlights must be removed as part of this project.
9. The existing pole sign should be removed and replaced with a compliant sign as part of this project.



Aerial view of site and surroundings (looking north)

B. Proposal/Process

The project entails a new pet day care center within an existing commercial building. Such uses are allowed with special land use approval in accordance with Table 7.02 of the Genoa Township Zoning Ordinance. The use conditions of Section 7.02.02(w) also apply.

Procedurally, the Planning Commission is to review the requests for special land use, site plan and impact assessment and provide a recommendation on each to the Township Board following a public hearing.

As a side note, the existing site contains several elements that are either non-compliant with current standards or in relatively poor condition. The request for a new special land use on a developed site provides the Township with an opportunity to require improvements that bring site into (or closer to) compliance with current Ordinance standards.

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 General Commercial, which is intended for “businesses which serve the requirements of the community at large including Genoa Township, Howell, Brighton, and pass-by traffic along Grand River Avenue.”

Given the nature of the proposed business, it is generally in keeping with the intent of the General Commercial future land use category.

- 2. Compatibility.** Grand River is the primary commercial corridor through the Township. A pet day care business would generally be considered appropriate for this corridor/zoning designation, provided the use conditions are met and off-site impacts are mitigated.
- 3. Public Facilities and Services.** As a developed property along the main commercial corridor through the Township, we anticipate necessary public facilities and services are in place; however, the Commission should consider any comments provided by the Township Engineer and Brighton Area Fire Authority with respect to this standard.

4. **Impacts.** The use conditions of Section 7.02.02(w) are intended to limit impacts of the proposal upon the site and surrounding properties. Similar to the compatibility comment noted above, provided those standards are met, the proposal is not expected to adversely impact adjacent or surrounding properties and/or uses.
5. **Mitigation.** If further concerns arise as part of the review process, the Township may require additional efforts to mitigate potential adverse impacts.

D. Use Conditions

Pet day care centers are also subject to the use conditions of Section 7.02.02(w), as follows:

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.**

The special land use application and Impact Assessment identify the hours of operation as 7 a.m. to 7 p.m.

2. **There shall not be individual, outdoor dog runs.**

The site plan identifies a group outdoor area, but no individual dog runs.

3. **Walls, partitions and floor/ceilings assemblies separating dog daycare facilities from adjacent uses shall be 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. The applicant shall provide a noise impact study performed by a certified acoustical engineer to ensure the noise levels produced by the pet daycare use will not exceed fifty (50) decibels above ambient noise at the outside of an exterior wall or at the opposite side of a common interior wall. The study shall also confirm compliance with the Township Noise Ordinance in regard to noise levels at the property line.**

The special land use application notes that the building will be adequately soundproofed in accordance with this standard. In support of this claim, the applicant had a sound study prepared with soundproofing recommendations that must be met.

Based upon the study, so long as these measures are provided, the internal noise generated is expected to be in accordance with this requirement. Our only additional comment is that we request the applicant address whether soundproofing insulation or a more substantial material (masonry) for the screen fence would be beneficial in terms of mitigating exterior noise generation.

4. **The number of pets cared for at any one time shall not exceed one (1) pet per one hundred (100) square feet of gross floor area, which is subject to discretionary review by the Planning Commission.**

The Impact Assessment identifies the building as a 6,312 square foot commercial building; thus, the business can provide care for up to 63 pets at any given time. The Assessment further states that average daily usage is expected to be 40 animals (dogs and cats combined), while they expect to be at capacity (63 maximum) during holidays.

5. **Overnight boarding of pets shall be an accessory use to the daycare center. The length of stay for boarded animals shall be limited to fourteen (14) consecutive days, and no outdoor boarding shall be permitted.**

The initial application for special land use states that length of stay for boarding will be limited to 14 days.

6. Adequate odor control measures shall be implemented so that odor from inside or outside the pet daycare center will not be discernible outside the building or unit.

The special land use application states that cleaning measures and proper waste disposal will be implemented for odor control. The Impact Assessment includes additional details on such measures.

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.

The outdoor area is 300 feet from the rear lot line, which is adjacent to a residential development.

8. The outdoor play area for the pets 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 six (6) 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.

The revised submittal provides for a 6-foot tall vinyl privacy fence as screening around the outdoor dog area. Since the proposal does not include a masonry wall, the applicant has noted that the white vinyl screen fence will be compatible with the light colored vinyl siding on the building. The Ordinance requires a finding that the proposed fence is “aesthetically compatible in terms of material, color and finish with the principal and surrounding buildings.”

As noted in standard #3 above, we request the applicant/sound consultant address whether a masonry wall (or the inclusion of soundproofing insulation with the screen fence) would better mitigate any outdoor noise concerns.

9. Any outdoor play area is for periodic use only, and pets shall not be allowed to access the outdoor play area on their own. Not more than fifteen (15) pets 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.

The special land use application states that the proposed operation will comply with these standards.

10. The applicant shall provide a waste management plan detailing both indoor and outdoor waste management procedures to ensure animal waste is not discharged to surface or storm water. Outdoor animal areas shall be designated on the plan and shall consist of properly maintained lawn, special canine grass or other methods with an appropriate drainage system to control surface run-off. The outdoor area surface shall be approved by the Planning Commission following a recommendation by the Township Engineer. 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 pet waste in the outdoor play area must be promptly picked up.

The site plan proposes a 1,340 square foot outdoor area surfaced with K-9 grass. There are also statements throughout the application forms and Impact Assessment noting how and when waste will be picked up and properly disposed of.

The submittal also includes a specification sheet for the K-9 grass, with a description of the cleaning process. A note has also been added to the Impact Assessment stating that “at no time will dog or cat waste, including kitty litter, be allowed down the sewer drains.”

- 11. Any pet 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, Drain Commissioner and Health Department shall be provided as part of the special use application.**

As noted in previous review letters, the applicant must provide approvals from the outside agencies noted under this criterion.

- 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.**

The revised Impact Assessment describes the drop-off/pick-up pattern and ratio.

In previous submittals the applicant also indicated there would be 4 to 6 employees. Based on the maximum number of pets allowed, as well as the maximum number of employees noted, the proposal results in the need for 19 parking spaces.

The revised plan identifies 21 parking spaces, including 4 parallel spaces that are reserved for employees.

The majority of the paved area north of the building will not be striped and will include pavement markings stating “no parking/fire lane.”

- 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 International Boarding and Pet Services Association (IBPSA). 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.**

The application forms and Impact Assessment include waste and noise management details, as well as operating procedures.

E. Site Plan Review

- 1. Dimensional Requirements.** The existing building is nonconforming due to its deficient east side yard setback. However, no external changes are proposed to the building and this condition does not impact the current request.
- 2. Building Materials and Design.** Similar to the comments above, the project does not entail any exterior building changes, although the special land use application notes that some exterior painting may be done.
- 3. Parking.** As noted under our review of the use conditions, the site provides sufficient parking for the proposed business. However, as has been discussed, there is another building on the property for which no parking information is provided.

Given the requirements for the proposed business, there is essentially no parking provided for future use of the other building.

This situation may work so long as the other building remains unoccupied (or if it is demolished); however, the owner of the site should be made aware that re-use of this building will result in the need for additional parking.

Additionally, based on a visit to the site, the existing parking lot appears to be in relatively poor condition. Repair/improvement of the pavement condition should be required as part of this project.

Lastly, the parking spaces must be double-striped (looped), per Ordinance requirements.

4. **Pedestrian Circulation.** The site plan identifies the existing 8-foot pathway along Grand River.
5. **Vehicular Circulation.** The proposal will utilize the existing driveway to/from Grand River. There is also a connection provided to the parking lot on the adjacent site to the west, which is noted as being for emergency access only. If this is a proposed restriction, we request the applicant explain why cross-access should be limited to emergency vehicles.
6. **Loading.** The site plan does not identify an area for loading/unloading; however, the applicant previously noted that they do not expect any large deliveries. Furthermore, there is a large paved area northwest of the building that will suffice should a loading area ever be needed.
7. **Waste Receptacle and Enclosure.** The site does not provide a waste receptacle/enclosure. Instead, the applicant proposes use of roll-away trash receptacles that will be stored within the fenced-in area and placed curbside for regular pick-up.

A statement has also been added to the Impact Assessment noting that if weekly pick-up is not sufficient, arrangements will be made for multiple pick-ups.

8. **Landscaping.** The revised plan includes 4 greenbelt trees (2 canopy trees and 2 evergreen trees), as well as 2 parking lot trees (both canopy) within 108-square foot landscape islands. Plant types are noted, but sizes are not indicated. This information must be added to the plan.

As with previous submittals, the large wooded area in the northerly portion of the site will remain undisturbed.

9. **Exterior Lighting.** The special land use application notes that exterior light fixtures will be replaced, and the previous submittal included a photometric plan and fixture details (though that information is not included with the most recent plan).

The previous plan showed the use of 11 wall mounted fixtures around the building with compliant light intensities (6.6 footcandles maximum) and fixtures (downward directed and cut-off).

Lastly, as was previously discussed, there are existing floodlight fixtures on the site. As noted in each of our review letters, these fixtures must be removed as they do not comply with current Ordinance standards.

10. **Signs.** As noted in each of our review letters and discussed during the meeting, the existing sign is nonconforming (pole signs are prohibited) and we are of the opinion that it should be removed and replace it with a compliant monument sign as part of this project. The applicant previously indicated that that they would consult with the owner about removal of this sign. The current submittal does not provide any updated information.

The previous submittal included a detail of the proposed pole sign replacement, depicting an approximately 8.5-foot tall sign structure with a 24 square foot sign and an additional 12 square feet (approximately) of changeable message copy; however, note of these details were included with the current submittal.

11. **Impact Assessment.** The submittal includes a revised Impact Assessment (dated October 23, 2018).

In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities, surrounding land uses or traffic.

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

Respectfully,
SAFEBUILT STUDIO



Brian V. Borden, AICP
Planning Manager



Stephen Hannon, AICP
Planner



November 7, 2018

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

**Re: Dog Town and Kitty City, LLC
Site Plan Review #3**

Dear Ms. Van Marter:

We have completed a third review of the site plan documents from Powell Engineering & Associates, LLC dated September 7, 2018, for the referenced project. The approximately 3-acre site is located at 3557 Grand River Avenue in Howell. The petitioner is proposing to modify the existing building to meet the requirements of Dog Town and Kitty City.

The petitioner has addressed most of our initial concerns, however there appear to be a couple of concerns that we believe require additional revisions to the plans.

GENERAL NOTES

1. The existing parking lot pavement is in poor condition. The petitioner should include replacing the existing parking lot within the scope of the project. Parking lot improvements should be shown on the site plan.
2. Curb and drainage structures should be included around the parking lot perimeter to control stormwater and vehicle access to the site.
3. In reference to our first letter from August 16, 2018, surface water runoff from the play area will not be permitted, as this represents an illicit discharge to the natural storm water drainage system. The petitioner should include documentation on how they plan to manage surface water runoff including documentation on the underlying soil and its suitability for infiltration. If soil will not be suitable for downward infiltration, additional containment may be required to prevent illicit discharge.

We recommend the petitioner address the above comments and resubmit the site plan for review.

Please call if you have any questions.

Sincerely,

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

Gary J. Markstrom, P.E.
Vice President

A handwritten signature in blue ink, appearing to read 'Shelby Scherdt'.

Shelby Scherdt
Project Engineer

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 1, 2018

Amy Ruthig
Genoa Township
2911 Dorr Rd.
Brighton, MI 48116

Dog Town & Kitty City - Special Use
Pet daycare & boarding
3557 E. Grand River

Dear Amy:

The Brighton Area Fire Authority received a revised set of plans for the above mentioned project on October 29, 2018. This office has reviewed the site plan submitted in connection with a request for change of use from an Assembly hall to Business Occupancy Pet Daycare & Boarding facility located at 3557 E. Grand River in Genoa Township.

The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

It appears that all previous comments from the fire authority have been addressed, and meet the requirements of the fire authority and the adopted fire code.

If there are any questions concerning this matter, please contact the Fire Marshal at 810-229-6640.

Respectfully,

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

Rick Boisvert
Fire Marshal

cc: Kelly VanMarter

Impact Assessment

For
Dog Town and Kitty City, LLC

Applicant:
Paula Vanderkarr
3557 East Grand River Avenue
Howell, Michigan 48844
989-277-1864

Prepared by:
Paula Vanderkarr
In conjunction with property information provided by:
Powell Engineering & Associates, LLC
4700 Cornerstone Drive, White lake, Michigan 48383
Brian Wiggins, Architect
11315 San Jose, Redford, Michigan 48239

July 30, 2018

Revised October 23, 2018

Introduction

This impact assessment has been prepared pursuant to Article 1.3 – Site Plan Review and Impact Assessment of Special Land Use for the Township of Genoa, Livingston County, Michigan. The assessment address the impact of the proposed internal construction of the existing 6,312 square foot commercial building at 3557 East Grand River Avenue.

- a. Name(s) and address(es) of person(s) responsible for preparation:
Paula Vanderkarr, 3557 East Grand River Avenue, Howell, Michigan.
Owner of Dog Town and Kitty City, LLC. This impact assessment has been prepared in conjunction with property information provided by Powell Engineering, LLC
4700 Cornerstone Drive, White Lake, MI 48383
Miss Dig
Garlock – Smith Land Surveying
516 E Grand River Ave, Howell MI 48844
- b. Map(s) and written description/analysis of the project site:
The existing building, pending approval on special use permit, located at 3557 East Grand River Avenue, is located behind the Knights of Columbus building and was their rental Banquet Hall for the past three decades. The building will be renovated in preparation for a pet boarding, daycare and training with grooming to be added at a later date. The site is on 2.83 acres, set back 312 feet from a residential area to the north. To the east is the Grand River Plaza Mall and to the west is the vacant Pier One Imports building. Behind these buildings are a dentist office, a hair salon and multiple small businesses. To the south is Payleess Shoe Store.
-An aerial photograph is provided for your review.
- c. Impact on natural features:
This is not applicable, as the proposed project is for the build out of the interior of a leased space in the existing building.
- d. Impact on storm water management:
This is not applicable, as the proposed project is for the build out of the

interior of a leased space in the existing building and a small exterior play area. In accordance to section 7.02.02(w) of the draft Ordinance Amendment, I have provided a sight plan and photographs of the proposed dedicated outdoor dog run area.

K9 Grass will be placed on a base of 'aggregated washed limestone and sand. This will decrease amount of water runoff. Urine is mostly water (about 95% water) the remaining consists of urea, uric acid, ammonia, hormones, dead blood cells, proteins, salts and minerals, and toxins from their bodies. The purpose of the sand and the washed crushed aggregated limestone acts like a filter. Feces will be promptly picked up and discarded in a waste contained outside the building which will be emptied by the waste collection company. The arrangement for these collections will be made by Dog Town & Kitty City pending approval of the special use permit. According to people who have worked in daycare and boarding place around 60 dogs produce ½ to ¾ of a 5 gallon pail of solid waste. Cat waste will be put in trash cans lined with trash bag.

Trash bags and will be taken to the trash cans outside on a daily routine. Housing 8 cats for 7 days might produce around 10 gallons of waste. If the two 96 gallon trash cans are not adequate for weekly pick up multiple picks will be arranged.

AT NO TIME WILL DOG OR CAT WASTE INCLUDING KITTY LITTER WILL BE ALLOWED DOWN THE SEWER DRAINS..

Impact on surrounding land used:

Noise is the potential impact on surrounding properties. The following methods for noise attenuation include:

- 1) Absorption – Panels will be hung on walls to absorb noise
- 2) Isolation – Provides a noise barrier. Spray foam, staggering 2x4s with insulation in between, rubber matting can be placed between the dry wall and insulation.
- 3) Masking – Calming music will be played throughout the facility to keep dogs from barking. Combining essential oils and pheromones can also be used with the calming music, to keep noise down inside the business.
- 4) fiberglass insulation, soundproofing clip, drywall furring channel, then two layers of 5/8 drywall.

There is a dense canopy of trees behind the building that combined with my proposed noise solutions, will adequately reduce any noise.

Potential for air pollution and waste nuisance can be managed by adding cedar chips to mask the smell of the feces. This method, combined with scheduled waste pick up, along with disinfecting and cleaning protocols, will adequately prevent of any potential air pollution.

The proposed business is consistent with the development of adjacent properties. Growth along the Grand River Avenue corridor has consisted of a mixture of medical, office and commercial uses.

- e. Impact on public utilities:
The property is presently supplied by municipal sewer and water systems. The construction is limited to the interior of the existing building, so impact on public utilities will be minimal. After construction, there will be minimal impact on public utilities from the proposed business. According to Miss Dig, my proposed outdoor K9 Grass will not interfere with the city sewer and water systems.
- f. Storage and handling of any hazardous materials:
Not applicable.
- g. Impact on Traffic and Pedestrians:
The business is located in the site on Grand River Avenue, west of Latson Road, east of Grand Oak Drive. Access to the site will be through the existing driveway, located at the south site of the property. Grand River Avenue at this location is a four lane road with a left turn center lane.

Weekday peak hours will be from 7:00 a.m. -8:30 a.m. and 4:00 pm – 7:00 p.m. The proposed business hours are 7:00 am – 7:00 p.m., seven days a week.

This building is 6,312 square feet which bring my total animal capacity to 63. On average we expect to have 40 dogs and cats regularly and holidays at capacity.

How that relates to traffic in and out 45% will be picks ups to and from hospitals for hospital employee's pets using a climate controlled trailer.

Then 35% would be for commuters traveling to work and dropping off their dogs for daycare and picking up on their way home. The last 20% boarded animal which will be dropped off and left for multiple days.

On most given days saying we have 40 dogs, we would be picking up 18 dogs with one trip in and one trip out. Drop off by commuters would be 14 dogs with 14 drop offs in the morning and 14 pick up at night. As for boarding I would add 3 drop offs and 3 pick up every other day. So in reality this about 17 drop offs and 17 pickups.

Three days a week from 5:45 pm to 6:45 pm will have for training classes. On the weekends training will be scheduled for none peak times 10 am to 12pm with about 10 dogs per class.

- h. Special Provisions:

No special provisions or requirement are currently proposed for this facility.

i. List of sources:

Brian Wiggins, Architect

11315 San Jose, Redford, Michigan 48239

eNoise Control

297 North 9th Street, Noblesville, Indiana 46060

Garlock-Smith, Land Surveying

516 East Grand River Avenue, Howell, Michigan 48844

LULA, LLC

28715 Hovey Lane, New Hudson, Michigan 48165

Powell Engineering & associates, LLC

4700 Cornerstone Drive, White Lake, Michigan 48383

Soundproofing Company, INC

[HTTP://www.soundproofingcompany.com](http://www.soundproofingcompany.com)

Chelsea Storm worked in dog daycare 989-413-2731

Elizabeth Watling worked in dog daycare 989-627-7246

October 22, 2018

Paula Vanderkarr
989-277-1864
pvanderkarr@gmail.com

Dog Town & Kitty City, LLC
7692 Badger Ct.
Owosso, MI 48867

Subject: Dog Town & Kitty City, LLC – Acoustical Report

Dear Paula:

Soundscape Engineering LLC has performed tests and analysis for the Dog Town and Kitty City project site for sound isolation of the building envelope and ambient sound level. The recommendations are presented in this report.

Soundscape Engineering Credentials

Soundscape Engineering LLC is an engineering firm that provides sound and vibration measurement, assessment, and design consulting services. We do not sell any products or have affiliations with any product manufacturers, allowing us to provide an unbiased service to our clients and to recommend solutions that fit their needs. Our principal consultants hold engineering licenses in four States, including Michigan, and are Board Certified by the Institute of Noise Control Engineering. Please refer to Appendix A for further details about our company.

Background

The building at 3557 Grand River Road, Howell, Michigan will house a dog and cat daycare and boarding company. Genoa Township has a specific compliance requirements for dog daycare facilities. The Genoa Township Zoning Ordinance, 7.02.02 Use Conditions, (w) Pet Daycare Centers, paragraph (3) reads:

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. The applicant shall provide a noise impact study performed by a certified acoustical engineer to ensure the noise levels produced by the pet daycare use will not exceed fifty (50) decibels above ambient noise at the outside of an exterior wall or at the opposite side of a common interior wall. The study shall also confirm compliance with the Township Noise Ordinance in regard to noise levels at the property line.

Regarding property line limits, Section 4.0: Decibel Level Prohibitions of the Noise Ordinance reads:

No person shall conduct or permit any activity, including those specific prohibitions listing in section 3 that produces an OBA at or beyond the property line of the property on which it is conducted which exceeds the levels specified in Table I. Such noise levels shall be measured on the property line or on the adjacent property, which is receiving the noise. Where property is used for both residential and commercial purposes, the limitations set forth below for commercial property shall apply.

Table I - Use of Property Producing Sound Use of Property Receiving Sound

Residential to Residential - (75 db from 7:00am to 10:00pm and 50 db from 10:00pm to 7:00am.)

Commercial to Residential - (80 db from 7:00am to 10:00pm and 50 db from 10:00pm to 7:00am.)

Residential to Commercial - (80 db from 7:00am to 10:00pm and 50 db from 10:00pm to 7:00am.)

The second condition, Commercial to Residential, applies at the north property line. All other receiving properties to the east, west and south are zoned commercial and therefore do not have a requirement.

The overnight area and indoor playroom have exterior walls on the north and west sides of the building.

We understand that sound from the outdoor dog walking area will be controlled by bringing barking dogs inside.

Demolition in the building included removing the interior gypsum board on the exterior walls in these areas. The studs are bare and no acoustical insulation is installed. This is the current condition of the building.

Terminology

Glossary of acoustical terminology is included in Appendix B in case you wish to refer to it while reading the report.

Instrumentation

A Larson Davis model 831 sound level meter with a PCB model 377B02 microphone was used for the sound level measurements described herein. The microphone, pre-amp, and sound level meter meet the requirements for a Class 1 instrument in accordance with IEC 61672 or ANSI S1.4. The sensitivity of the sound level meter was checked, in the field, before and after making the measurement reported herein. Sensitivity was checked using a Larson Davis model 250 handheld sound level calibrator conforming to the Class 1 requirements of IEC 60942 and ANSI S1.40.

Observations and Exterior Level Calculations

A site visit was made on September 20, 2018 to observe the building's current condition and measure the outdoor ambient sound level. North of the project site is a residential area, approximately 312 feet north of the project site. To the south, east, and west are commercial areas, shown in Figure 1. Sound level measurements were taken approximately 3:30am to capture the quietest ambient condition, which is the most stringent condition to meet. An ambient sound level of 44 dBA was measured outside the north facade. This is likely the quietest location near the building as the building itself acts as a barrier to traffic noise coming from Grand River. This was the dominant sound source during our measurements.



Figure 1: Site Aerial

Per the noise ordinance, the sound level due to the dog daycare cannot exceed 50 dB above the ambient noise. With a measured ambient of 44 dBA, this produces an allowable level of 94 dBA at the exterior wall. The daycare occupies the entire building and therefore the interior common wall requirement does not apply.

We recorded dog barking sound in a large reverberant space for a different facility and measured a maximum level of 102 dBA inside the building. With the recommended exterior partition at this site, the predicted level outside the exterior wall is 38 dBA, which is less than 94 dBA. The level at the north property line is predicted to be 11 dBA, which is less than the allowable 50 dBA. Both these levels comply with the Township regulation. Supporting calculations are provided in Appendix D.

To put these levels into perspective, a reference of common sound levels is provided in Table 1.

Table 1: Various noise sources and their approximate sound levels

Average, L_{eq} , Sound Pressure Level (dBA)	Noise Source
130	Threshold of pain
120	Loud rock band near loudspeaker
110	Train siren at 50 ft
100	Loud automotive horn at 10 ft
90	Subway train at 20 ft
80	Lawn mower at 10 ft
70	Boeing 757 aircraft cabin during flight
60	Conversational speech at 3 ft
50	Average open office background sound
40	Soft background music or Wind in trees (10 mph)
30	Average residence – no activity
20	Whisper
10	Human breathing
0	Threshold of hearing

Recommendations

Based on the current building construction, we recommend the following steps and materials to achieve the ordinance-required wall and roof rating of over STC 60. Refer to Figure 2 for each wall and ceiling type location. Supporting test data and calculations are provided in Appendix D.



Figure 2: Site Layout

Unmarked exterior walls do not need acoustical upgrading since the rooms do not house dogs and they serve as a buffer space between rooms with dogs and the exterior. The combination of interior wall, buffer space, and exterior wall will achieve the criteria of greater than STC 60.

Blue Walls – These walls border the overnight area, dog suites, and play areas. In our understanding the exterior shell consists of vinyl siding, plywood, 5/8” rigid insulation and 2”x4” wooden studs. To meet the ordinance, we recommended the addition of the following materials. In Figure 3, the vinyl siding and plywood are approximately acoustically equal to and in place of the pictured 5/8” gypsum board.

- Fill stud cavities with 3-1/2” fiberglass batt insulation.
- Install two (2) layers of 5/8” Type ‘X’ gypsum board on resilient clips. In the Indoor Play Areas, the gypsum board must extend to the Dierks/plywood layer.
 - Acceptable manufacturer is Kinetics Noise Control – IsoMax clips <https://kineticsnoise.com/arch/isomax.html> or equal.

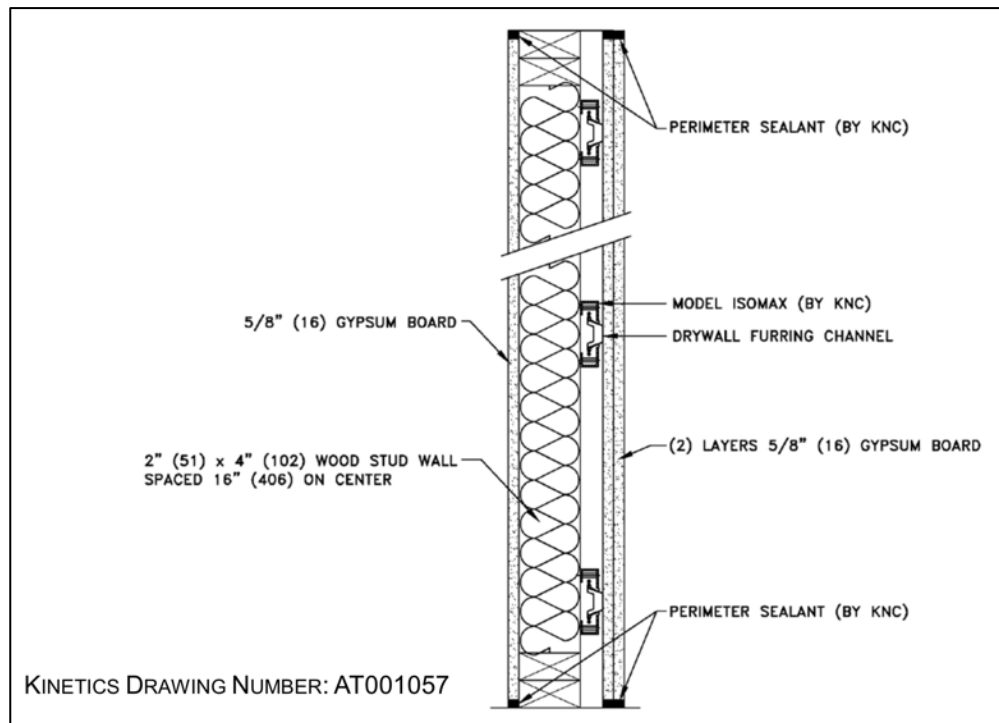


Figure 3: STC 61 Exterior Wall Construction

Orange Wall – This section of wall has metal siding in lieu of the exterior plywood sheeting, which does not perform as well acoustically. It is our understanding that the current construction consists of vinyl siding on profiled metal, both mounted to 2"x4" wooden studs. For this construction on the north wall, we recommend one of the following constructions:

- Exterior wall construction with resilient clips – Option 1
 - Infill the exterior stud side with a layer of 5/8" plywood or 5/8" gypsum board. Seal to the studs with acoustical caulk. The infill panels must extend up to the Dierks/plywood layer. See Figure 4.
 - Seal the exterior partition from the interior with acoustical caulk.
 - Fill the stud cavities with fiberglass batt insulation.
 - Mount two (2) layers of 5/8" Type 'X' gypsum board on resilient clips. This partition must extend to the Dierks/plywood layer.
- Exterior wall with double wall construction – Option 2
 - Erect a second row of studs spaced 5" from the existing studs to form a 12" cavity between the inside metal and gypsum board faces. The studs must extend to the Dierks/plywood layer.
 - Seal the exterior partition from the interior with acoustical caulk.
 - Fill the stud cavities with 10" fiberglass batt insulation.
 - Install three (3) layers of 5/8" Type 'X' gypsum board directly to the new stud row. This partition must extend to the Dierks/plywood layer.

- Install full perimeter seals for the door on the north side of Indoor Play Area “A”. See Appendix C for specifics on the door and seals.

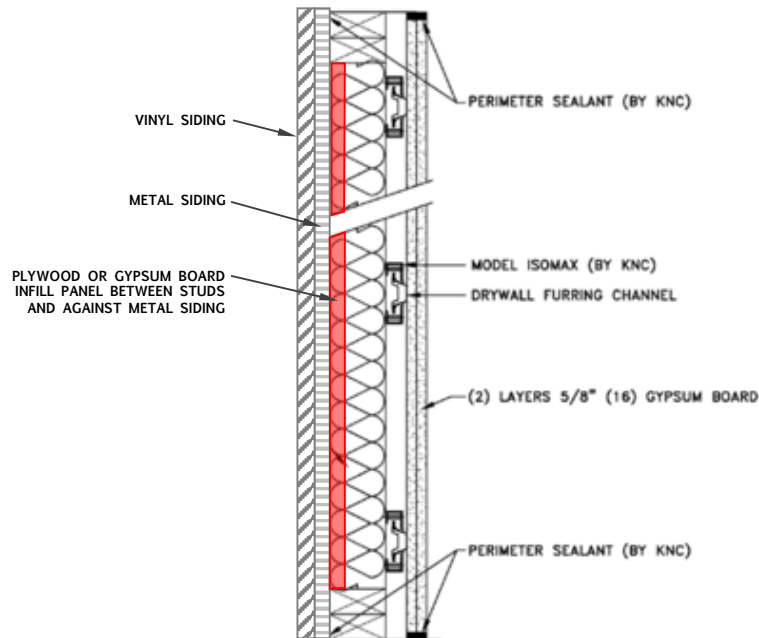


Figure 4: STC 61 Exterior Wall Construction

Refer to the General Notes about Methods and Materials section at the end of this report for typical notes and additional information about partition construction.

Indoor Play Area Ceiling/Roof - Green Shaded Area

Our calculations are based on the current construction, which is asphalt shingles, plywood deck, 1” blown in insulation, an additional layer of ½” plywood, insulation, and a 22” air space to the lay-in grid. We recommend the following upgrades to the construction to achieve an STC 61.

- Patch any holes larger than ¼” diameter that may exist through the existing plywood.
- Install an acoustical ceiling tile with a minimum CAC 35 into the existing lay-in grid.

Overnight Area Ceiling/Roof – Peach Shaded Area

Our calculations are based on the current construction, which is asphalt shingles, plywood deck, insulation, and one layer of gypsum board attached directly to the ceiling joists. We recommend the following upgrades to the construction.

- Install two (2) layers of 5/8" Type 'X' gypsum board on resilient clips over the existing gypsum board. Insert 1" batt or board fiberglass insulation between the existing and new layers of gypsum board. Do not use fasteners for the fiberglass that will bridge between the existing and new layers of gypsum board. This construction was calculated to achieve an STC 62 rating. Alternately, install two (2) layers of 5/8" Type 'X' gypsum board on 2x2 furring and resilient channel over the existing gypsum board. Insert 1" batt or board fiberglass insulation in the cavities formed by the furring associated with the clips. This construction also achieves an STC 62 rating.
- If a rating of STC 60 satisfies the township requirement, then install only one layer of gypsum board in lieu of the two layers above in either construction.
- A minimum batt insulation thickness of 5" is needed in attic ceiling joist cavities. Add additional batt to obtain the thickness as needed.

Refer to the next section of this report for typical construction notes and additional information.

General Notes about Partition Construction Methods and Materials

Gypsum board partitions must adhere to the following conditions:

- a. Use 5/8" thick Type "X" gypsum wallboard with density of 2.2 lb/ft² or greater. Do not use USG Ultralight panels, which do not have the necessary density for the acoustic partitions described in this report.
- b. Where batt insulation is called for in the sketches, it may be standard glass fiber, and it may be paper-faced or unfaced. It is not necessary to use "sound batt insulation" or mineral wool. The glass fiber batt must have 0.6 to 1.0 pcf density or minimum R-3.2 per inch thickness. Manufacturers include but are not limited to Knauf (EcoBatt), Owens-Corning (EcoTouch), Johns Manville and CertainTeed (Smart Batt).
- c. All gaps between panels of gypsum, around gypsum wall or ceiling perimeters, and around gypsum wall/ceiling penetrations (no larger than 1/2" wide) shall be sealed airtight with acoustical sealant, such as Tremco Acoustical Sealant or equivalent.
- d. When resilient clips are specified, use Kinetics Noise Control - IsoMax Clips or approved equivalent.
<https://kineticsnoise.com/arch/isomax.html>
- e. If resilient channels are used, it must be the RC Deluxe model, manufactured by Clarke Dietrich.

Final Note

Please note that our recommendations and comments are exclusive to acoustics. We cannot comment on such things as local codes, life-safety requirements, or any other non-acoustic issues. Our recommendations should be reviewed by an appropriate design professional for code compliance before they are implemented.

This concludes our analysis and recommendations. We will be happy to elaborate on anything contained within this report.

Sincerely,

Soundscape Engineering LLC

Per:



Mandy Kachur, PE, INCE.Bd.Cert.
Principal Consultant
mkachur@SoundscapeEngineering.com
direct: (734) 494-0322



Anna Catton, MSAE
Consultant
acatton@SoundscapeEngineering.com
(734) 418-8663 x106

- Appendix A: Soundscape Engineering Company Literature
- Appendix B: Acoustical Terminology
- Appendix C: Door Seal Description
- Appendix D: Supporting Test Data

Appendix A: Soundscape Engineering Company Literature



Practical Solutions from Professional Engineers

Company Profile

Acoustical design has a direct impact on people's perception and interaction with the built-environment. Functional success of a building includes providing the best acoustical environment for owners and occupants, whether that means speech privacy, ability to clearly hear the spoken word and music, or providing a quiet healthcare environment conducive to patient healing.

Soundscape Engineering LLC is a national engineering consulting firm specializing in acoustics, noise, and vibration control. Our team has consulted on a broad range of project types – engineering practical solutions that respect project budgets, aesthetics, and design constraints.

We utilize electronic communications and computer software to work seamlessly with clients all over North America. And whenever a physical presence is needed, our nationally central locations in Chicago and Detroit allow us to quickly travel to client meetings and perform site visits whether those sites are in Los Angeles, New York City, Atlanta, Vancouver or points in between.

We work closely with architects and engineers to ensure that projects have an acoustical environment that supports the facility programming and creates the impression of a quality space in which people want to work, live, or play.

When you require world-class, experienced and credentialed consultants, call in Soundscape Engineering. All of our consultants have degrees in engineering. Our Principal Consultants hold state engineering licenses and have been Board Certified by the Institute of Noise Control Engineering. They are involved with every project, ensuring that clients receive responsive service, attention to detail, and practical recommendations.

Service Quality

- Proactive approach
- Responsive service
- Extensive experience
- All consultants have engineering degrees
- Senior consultants have professional certifications
- Company owner involved with every project

If you want us to help you avoid or correct noise problems, we're ready with our practical approaches and solutions. If you want a soundscape that is carefully engineered to enhance your project, we're equipped with advanced engineering tools and are eager to assist. Contact us today and ensure that your project receives the attention to acoustics that it deserves.

Services

- Sound Isolation
- Room Shaping and Finishes Selection
- Mechanical and Electrical Systems Noise Control
- Design for Speech Privacy
- Vibration Assessment and Control
- Community Noise Impact
- Acoustical Measurements
- Vibration Measurements



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Sustainable Design

LEED and sustainable design projects are increasingly common. Even when acoustics is not an explicit consideration for these projects, such as the acoustical requirements necessary to accredit a school under the LEED for Schools system, unique acoustical issues do arise when sustainable design strategies are employed. Mr. Sevener is a LEED Accredited Professional and has been working on the design of LEED certified buildings since 2000. He and Soundscape Engineering are ready to address the acoustical challenges of your next LEED project.

Firm Accreditation

Soundscape Engineering LLC is an NCAC member firm. This means that the company has undergone the rigorous vetting necessary to be admitted to the National Council of Acoustical Consultants, the highest level of professional accreditation for acoustical consulting firms.

Firm Ownership Structure

Soundscape Engineering LLC is a limited liability company organized in the State of Indiana and is registered with the Illinois Secretary of State and the Michigan Secretary of State. Soundscape Engineering LLC is owned by partners Nathan Sevener and Mandy Kachur.

Corporate Insurance

Soundscape Engineering LLC carries professional liability coverage, a.k.a. errors and omissions insurance, with an annual aggregate and per claim limit of \$1,000,000. We also carry general liability insurance. Certificates are available upon request.

Commendations

"I consider Mandy an expert in acoustical design and value her ability to understand and enhance each project regardless of program, budget, schedule, or other constraints."

- Jeff Gaines, Manager Planning & Programming
Albert Kahn Family of Companies

"Nathan was able to work with our design to create a better end product."

- Perry Hausman, Senior Associate
TowerPinkster

"Mandy is a person that I have a confidence upon to offer you quality 'sound & noise consulting' design services for your projects."

- Siraj Khan, Director of Engineering
Oakland University

"We have been pleased with Nate's work now at multiple client sites. Nate has been engaged in efforts to analyze noise issues at existing sites as well as recommendations during design to achieve low noise levels."

- Dan Miles, Director Engineering & Planning
BSA LifeStructures

"Nate has a sharp sensibility and patience with explaining acoustic concepts to clients that lends confidence to the decisions they (clients) make regarding complicated interior environmental quality issues."

- Julie Root, Associate Partner
ZGF Architects

Note: Some of the above commendations are based on experiences working with Mr. Sevener & Ms. Kachur prior to the formation of Soundscape Engineering LLC.



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Soundscape Engineering

Practical Solutions from Professional Engineers

Project Experience - Environmental Noise and Vibration Assessment

The following is a sample of the many projects that constitute the career experience of our staff.

- **Central Lake County Joint Water Agency (CLCJAWA)**
Lake Bluff Raw Water Pumping Station environmental noise survey.
Rockland Road Treatment Plant environmental noise survey.
Lake Bluff, Illinois
- **University of Michigan**
Auxiliary Services Building 1 Thermal Hydraulics Laboratory environmental noise impact assessment.
Ann Arbor, Michigan
- **Hobson Hill Development (Pulte Home Company)**
Tollway noise impact assessment for proposed Hobson Hill residential subdivision in Woodridge, Illinois. Scope of services included ambient noise measurements, computer modelling of environmental noise propagation, determination of noise mitigation requirements, and attendance at meetings with Village and Tollway Authority.
Woodridge, Illinois
- **Hamilton County Coal**
Ambient environmental noise survey at properties in vicinity of coal mine.
Dahlgren, Illinois
- **Nicor Gas Ancona Units 33&34**
Community noise impact analysis and noise control recommendations for compressor installation project.
Streator, Illinois
- **Dandy Acres Small Animal Hospital**
Assessment of noise transmission to residential properties and noise control consulting to support design of addition to facility.
Lyon Township, Michigan
- **M/I Homes Woodview Development**
Traffic noise impact assessment for proposed residential development next to Interstate 355.
Woodridge, Illinois
- **Prologis Park**
Noise impact assessment for proposed 200 acre warehouse development with adjacent residential land-use.
Lockport, Illinois
- **Toll Brothers Nixon Farm North**
Traffic noise impact assessment for 68 acre residential development located next to Interstate 23.
Ann Arbor, Michigan
- **Forging Plant (name not disclosed)**
Environmental noise survey to determine compliance of drop forging operations with local noise regulations.
Southeast, Michigan
- **City Hall Artspace Lofts**
Conversion of City Hall buildings into work-live artist lofts. 3-D computer modeling of site and nearby roadways to calculate traffic noise impact on the Dearborn City Hall property and to assess the extent of building façade changes that would be needed to comply with HUD noise guidelines.
Dearborn, Michigan
- **Hoosier Village**
Monitoring of existing sound levels at multiple locations in large senior living community, TNM 2.5 (traffic noise) modeling of new roadway with heavy truck traffic to be constructed through property by City, modeling of alternate roadway proposed by community, determination of noise impact on community and length and height of sound barrier walls needed to mitigate impact. Issued report suitable for submission to City.
Zionsville, Indiana
- **Mor/ryde**
Measurement of noise emitted to environment by existing manufacturing facility, prediction of sound levels at residences near proposed plant expansion, attendance at County planning commission meeting.
Elkhart, Indiana



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- **11 W Quincy Music Venue**
Consulting to project design team with respect to noise isolation of venue from adjacent buildings (butted together) and from other nearby properties, in order for the venue to meet the local noise ordinance. Also, follow-up testing per the requirements placed on the venue by the Village.
Westmont, Illinois
- **City of Des Plaines (Events Venue Noise)**
Consulting to the City with respect to noise produced by the Fountain Blue Banquet & Conference Center during events. Work included peer review of studies performed by Fountain Blue's consultants, meeting with residents, and attendance at City's Zoning Board of Appeals and City Council meetings.
Des Plaines, Illinois
- **Sears Holdings Corporation**
Data Center Expansion
Community noise assessment and noise control, including environmental noise emissions and propagation modeling.
Troy, Michigan
- **Standard Bar & Grill**
Measurement of entertainment sound level in apartment building abutting client's establishment. Issue report for use in judicial proceedings.
Chicago, Illinois
- **Northwestern University**
18 months of monitoring ground vibration associated with construction of new Kellogg School of Management building.
21 months of monitoring ground vibration associated with construction of Mudd Library building addition.
Evanston, Illinois
- **Rs-FUELS**
Measurement of car wash noise at several facilities and prediction of noise at residential property adjacent to proposed new car wash. Submission of report and presentation to Village Board of Trustees.
Wilmette, Illinois
- **The Chapman House**
Prediction and assessment of noise impact by a proposed outdoor event's venue located near residences. Preparation of report and presentation to City Planning Commission.
Rochester, Michigan
- **Fort Knox Studios**
Property line measurement of noise produced in recording studios located adjacent to residential development. Issued report for submission to City.
Chicago, Illinois
- **K9 Club**
Acoustical analysis and design recommendations for proposal animal boarding facility and veterinary clinic with nearby residential land uses. Attendance at zoning board of appeals hearing.
Mundy Township, Michigan
- **Fibertex Nonwovens LLC**
Property line noise level measurements near factory to assess level for compliance with noise code for the Village of Lakemoor.
Lakemoor/Ingleside, Illinois
- **The Woodmont Two Condominiums Inc.**
Assessment of noise produced by air-cooled chiller on adjacent commercial property and submission of report with options for noise mitigation.
Indianapolis, Indiana
- **A. Finkl & Sons Co.**
Ground vibration assessment for forging operations adjacent to residential community
Chicago, Illinois
- **Down Range Tactical**
Firing range noise measurement and assessment to determine compliance with State regulations.
Spring Valley, Illinois
- **Advocate South Suburban Hospital**
Design consulting for transformer upgrade and chiller plant addition, with the goal of maintaining the existing noise level at the hospital property line.
Hazel Crest, Illinois

¹ Work performed by Soundscape Engineering working as sub-consultant to partner firm Daniel Lyzun & Associates Ltd. or Acoustic Arts & Engineering

² Work performed by firm Partner while employed by Ove Arup & Partners, Ltd., Acoustics By Design, Inc., or Albert Kahn Associates, Inc.



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- **Land Rover Dealership**
Noise impact study for proposed Land Rover Dealership, including measurement of existing ambient, identifying and measuring potential noise sources, 3-D computer modelling of noise propagation from dealership to adjacent single-family residential properties, and speaking at Village Board of Trustees meeting.
Hinsdale, Illinois
- **Northeastern Illinois University**
Computer modeling to predict noise emissions from proposed South Campus Central Utility Plant to residential neighborhood and design support to limit emissions to below limits imposed by City ordinance.
Chicago, Illinois
- **Ypsilanti High School**
Measurement of community noise from pool equipment.
Ypsilanti, Michigan
- **Village of East Dundee**
Advising Village on noise control and noise monitoring options for bars with outdoor beer gardens.
East Dundee, Illinois
- **Concert Stage Noise Impact (Residential Client)**
Peer review, for submission to City of Indianapolis, of noise assessment report for proposed outdoor concert stage and beer garden at Bent Rail Restaurant and Brewery.
Indianapolis, Indiana
- **City of East Chicago**
HUD assessment and building envelope design for housing near freight rail line
East Chicago, Indiana
- **Irving Park Place (Pulte Homes)**
Consulting with respect to tollway and railway noise and vibration impact on proposed residential development.
Itasca, Illinois
- **Cottages at Barton Green**
Assessment of noise impact by communal clubhouse and pool to be part of new residential development, on the existing adjacent residences. Services included measurement of existing ambient noise, 3-D computer modelling of sound propagation from pool and clubhouse to neighborhood, and recommendation of sound barrier wall locations and heights.
Ann Arbor, Michigan
- **Nightclub Noise Impact**
Measurement and assessment of noise emitted from bar through wall common to Client's building
Ypsilanti, Michigan
- **Power Solutions International, Inc.**
Design consulting to allow new engine test facility to meet State of Illinois Title 35 noise regulations.
Itasca, Illinois
- **MSP Industries**
Ground vibration and airborne noise assessment for forging facility located near residences.
Oxford, Michigan
- **Food 'n' Fuel**
Environmental impact assessment for new car wash and drive-through window proposed to be constructed on the site of an existing gas station with convenience store and fast-food restaurant. Noise assessed against Will County code and Illinois Title 35. Attendance at zoning board meeting.
Frankfort, Illinois
- **Ryko Solutions, Inc.**
Study commissioned by Ryko Solutions to quantify the sound level produced by MacNeil car wash dryers and determine if the dryers could meet the noise restrictions imposed by the City of McHenry.
McHenry & Herscher, Illinois
- **Lodge at Nordman Lake**
Survey noise emitted to distant residential neighbors during wedding ceremonies and receptions on large rural property with private lake. Issue report for submission to township.
Dexter, Michigan (Lima Township)

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- **Independence Place Apartments**²
Rural Housing and Economic Development (RHED) assessment for apartment complex where train noise dominated; building envelope design for noise control
Linton, Indiana
- **River Point Centre**¹
Cooling tower noise mitigation for ordinance compliance
Winnipeg, Manitoba
- **Saskatoon Police Service Headquarters**¹
New 350,000 sq.ft., police headquarters building with budget of CAD\$122 million. Environmental noise assessment included sound transmission from the 10 position indoor firing range and the building HVAC equipment and emergency gen-sets.
Saskatoon, Saskatchewan
- **Palm Street Middle School**²
Computer modeling to predict noise generated by new freeway to be built near school, peer review of State's predictions, measurement of sound isolation provided by existing building construction, recommendation of building upgrades to isolate classroom from future freeway noise.
Lemon Grove, California
- **Ciena Healthcare**
Property line sound level measurements to determine if rooftop exhaust fan at new skilled nursing facility is in compliance with township noise ordinance. Issue report for submission to township.
Shelby Township, Michigan
- **Triple C Development**
Computer modeling of noise emitted to environment by proposed Zippy's Car Wash. Comparison with State noise regulations and recommendation of noise mitigation options.
Carol Stream, Illinois
- **Car Wash Property Line Noise Study**
Measurement of noise produced by existing car wash and advising owner on mitigation options.
Dearborn, Michigan
- **Perrigo Company**
Measurement of noise produced by temporary air-cooled HVAC chiller and recommendation of options for reducing noise transmission to nearby residential neighborhood.
Holland, Michigan
- **Marlborough Condominium Association**
Measure noise level emanating from electrical vault across street from condominium building and issue report with assessment of whether the noise level exceeds any applicable regulations.
Chicago, Illinois
- **Constellation Place**²
Noise impact assessment and mitigation for bus and auto traffic associated with proposed new commercial tower
Century City, California
- **Stratosphere Hotel and Casino**²
Acoustical Analysis of Proposed Rollercoaster Type Attraction
Las Vegas, Nevada

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Project Experience - Environmental Noise and Vibration Assessment

- **Universal Studios**²
Acoustical assessment to support Master Plan Environmental Noise Impact Report and Noise Mitigation Measures for Theme Park and Studios Universal City, California
- **UCLA Santa Monica Medical Center**²
Environmental Impact Report Santa Monica, California
- **Avalon Del Rey**²
EIR for large residential development Marina Del Rey, California
- **DuPont Fabros Technology Inc.**²
Data center noise control Elk Grove Village, Illinois
- **City of Elkhart**²
Noise and Vibration Assessment for "Mega-Shredder" Elkhart, Indiana
- **Weatherford International**²
Rotaflex Oil Pump Carlsbad, New Mexico
- **Randy's Metal Recycling**²
Environmental noise assessment for proposed metal shredder Benton Charter Township, Michigan
- **DaimlerChrysler AG**²
Kenosha Engine Plant Kenosha, Wisconsin
- **DaimlerChrysler AG**²
Transmission Plant Kokomo, Indiana
- **Chiyoda AES, Inc.**²
DMAX North American Diesel Engine Plant Moraine, Ohio
- **Beck North Corporate Park**²
Community noise assessment and prediction Novi, Michigan
- **Verizon Wireless**²
Murray Hill Condensing Units – impact and mitigation on neighboring condominium complex Cleveland, Ohio
- **School District of the City of Royal Oak**²
Chiller and heat recovery unit noise mitigation Royal Oak, Michigan
- **Troy School District**²
Baker Middle School chiller noise mitigation
- **Linden Group Architects**
Survey noise levels in and near operating dog kennels and issue report with the results. Attend zoning board meeting to describe implications proposed new kennel. Countryside and Oswego, Illinois
- **Doggie in the Window**
Assessment and mitigation of sound from dog day care facility to neighboring building and properties Berkley, Michigan
- **Animal Samaritans SPCA**
Prediction of proposed animal shelter noise impact on nearby residential zone. Thousand Palms, California
- **Humane Society of Huron Valley**²
Design of exterior courtyard and noise barrier for control of dog barking noise to neighboring residences Ann Arbor, Michigan
- **Hayes Properties Inc.**²
Design recommendations to reduce noise transfer from Ravenswood Billboard Factory (Events Space owned and operated by Client) to nearby single-family residential properties. Chicago, Illinois
- **J Paul Getty Villa**²
Construction & operational noise prediction Malibu, California
- **J. Paul Getty Center**²
Tram Noise Assessment & Mitigation Brentwood, California
- **Greek Theater**²
Peer review of proposed community noise impact mitigation for large outdoor amphitheater Los Angeles, California
- **West Pico Drill Site Modernization**²
BrietBurn Energy Company Oil drilling facility located in residential community Beverly Hills, California

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Curriculum Vitae

Since 1991, Mandy Kachur has worked as an acoustics and noise control engineer. At Soundscape Engineering, she is responsible for all aspects of architectural acoustics project work and client development in addition to engineering analysis and measurement in room acoustics, sound isolation, building systems noise and vibration control, and community noise control.

She has worked on over 350 architectural projects, including auditoriums, healthcare facilities, university buildings, K-12 schools, acoustical and other laboratories, corporate offices, government, hotel and residential buildings, performing arts and recording spaces, worship, museums, and industrial facilities.

These projects include the award winning Henry Ford Health System West Bloomfield Hospital (560,000 sq.ft., 300 bed addition and 250,000 sq. ft. renovation), the Indiana Tech Law School Building (70,000 sq.ft. new construction), the LEED Gold Certified Agro-Culture Liquid Fertilizers World Headquarters Building (40,000 sq.ft. new construction), and the State of Michigan Hall of Justice, which houses the State Supreme Court and Court of Appeals (281,000 sq.ft. new construction). Her many small projects are just as important and include the LEED Gold Greenhills School addition in Ann Arbor and room acoustics for the Okemos Community Church.

In addition to working for acoustics consulting firms, she has also been an acoustics specialist at

a medium sized Detroit architectural/engineering firm, where daily integration into multi-disciplinary project teams heightened her sensitivity to the need for practical acoustical solutions to mesh with all aspects of a project's design.

Mandy is a Board-Certified Member of the Institute of Noise Control Engineering, currently serving as the Vice President of Public Relations, and is a prior member of the Board of Directors and chair of the Building Acoustics Technical Committee. She is a member of teams that contribute to the



Mandy Kachur

Principal Consultant
PE, INCE.Bd.Cert.

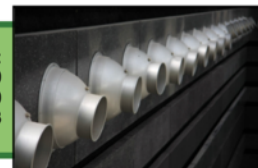
Facilities Guidelines Institute *Guidelines for Design and Construction of Health Care Facilities.*

She is an adjunct professor at Lawrence Technological University, and has been published at INCE conferences, at ASA meetings and in the peer reviewed American Journal of Nursing. Most recently, she was selected as a speaker at the National Academy of Engineering: Japan-America Frontiers of Engineering Symposium, presenting on healthcare acoustics. She is also a violinist with the Dearborn Symphony Orchestra.



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Professional History

2011-present – Partner & Principal Consultant,
Soundscape Engineering LLC

2004-2011 – Senior Consultant, Acoustics By
Design, Inc., Ann Arbor, Michigan

1999-2004 – Acoustics Specialist, Albert Kahn
Associates, Inc., Detroit, Michigan

1998 – Kolano and Saha Engineers, Inc., Project
Engineer, Waterford, Michigan

1994-1998 – Ford Motor Company, Inc., Product
Design Engineer, Sound Quality Group, Dearborn,
Michigan

1992-1994 – The Boeing Company, Inc., Product
Engineer, Noise Engineering, Seattle, Washington

1992 – Kirkegaard & Associates, Inc., Intern,
Downers Grove, Illinois

1991 - The Boeing Company, Inc., Intern, Noise
Engineering, Seattle, Washington

1987-1990 – British Petroleum, Co-op Student,
Cleveland, Ohio

Education

M.E. in Acoustics, The Pennsylvania State
University, 2008

B.S. Mechanical Engineering, Purdue University,
1991

Credentials

Board Certified, Institute of Noise Control
Engineering

Licensed Professional Engineer, State of Michigan,
#6201045637

Professional Associations

Acoustical Society of America

Institute of Noise Control Engineering

American Society of Heating, Refrigerating and Air
Conditioning Engineers

Publications & Presentations

"Managing Noise in Healthcare Environments
to Improve Patient Outcomes," 2014 Japan-
America Frontiers of Engineering Symposium,
National Academy of Engineering

"Acoustical materials for a green world: The
sustainable design transformation of the
architectural acoustics industry," Acoustical
Society of America, Baltimore Meeting 2010

"Architectural acoustics: Emerging opportunities
require new materials and solutions," Acoustical
Society of America, Baltimore Meeting 2010

"Small and Large Room Acoustics: Similarities
and Differences," Presentation to the Detroit
Section of the Audio Engineering Society, 2010

"Ensuring Quieter Hospital Environments,"
American Journal of Nursing, 2009

"A Case Study Of A Successful Patient Unit
Noise Reduction Program," Planetree Webinar,
2009

"Making Music with the DSO," Detroit
Symphony Orchestra PBS interview, 2009

"The greening of sound: Recent inclusion of
acoustics in sustainable building certification,"
Noise-Con Proceedings 2007

"LEED and Acoustics: Compatibility Check,"
Seminars on Sustainability, Detroit Chapter of
ASHRAE and Lawrence Technological
University conference, 2007

"Design and capabilities of a new sound and
vibration laboratory at Valeo" InterNoise
Proceedings 2002

"A survey of sound quality jury evaluation
correlations: Loudness versus A-weighted
sound level" Mandy Kachur Sound Quality
Symposium Proceedings 1998



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Appendix B: Acoustics Terminology

Sound level is measured in units called decibels (abbreviated dB). Decibels are logarithmic rather than linear quantities and thus a doubling of the sound level does not translate to a doubling of decibels. Also, the human ear does not interpret a doubling of sound energy as a doubling of loudness. The logarithmic nature of dB and the human subjective perception of relative sound levels result in the following approximate rules for judging increases in noise.

- 3 dB sound level increase or decrease - barely perceptible
- 5 dB sound level increase or decrease - perceptible and is often considered significant
- 10 dB sound level increase or decrease - perceived as twice as loud/half as loud

These perceived changes in the noise level are mostly independent of the absolute noise level. That is, a 35 dB noise will be perceived as twice as loud as a 25 dB noise, and a 60 dB noise will be perceived as twice as loud as a 50 dB noise.

Audible sound occurs over a wide frequency range, from low pitched sounds at approximately 20 hertz (Hz) to high pitched sounds at 20,000 Hz. These frequencies are commonly grouped into octave bands or 1/3 octave bands. Building mechanical systems generally produce noise in the 63 Hz to 1000 Hz octave bands, with the lower frequency noise generated by large fans. Human speech is predominantly contained in the 250 Hz to 2000 Hz octave bands. The highest sound levels of barking dogs are found in the 500 and 1000 Hz octave bands.

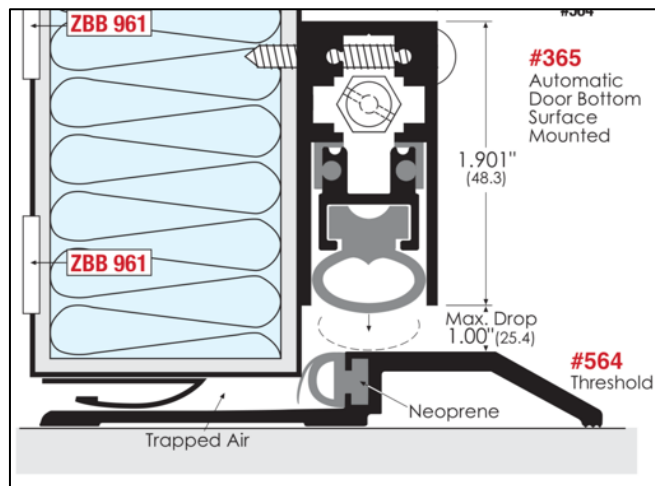
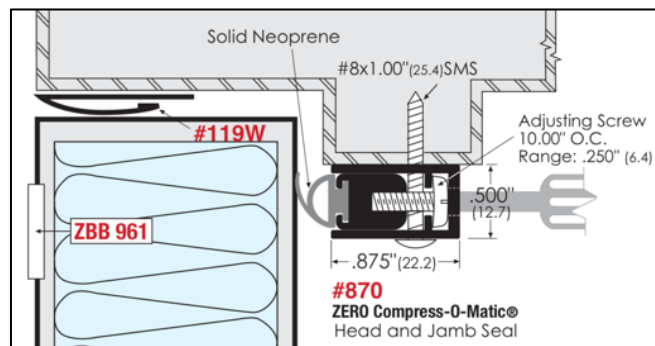
A-weighted sound level - Humans do not hear equally well at all frequencies. We are especially poor at hearing low frequency sound and are best at hearing sound in the frequency range of human speech. A microphone does not have these same characteristics. Therefore, when sound is being measured to determine how well people will be able to hear it, a "weighting" or microphone-to-human correction factor is applied to the sound level measured using a microphone. The most common weighting is the "A-weighting" and the resulting sound level is expressed in A-weighted decibels (dBA). This weighting reduces the low frequency sound, slightly increases the sound at the dominant frequencies of human speech, and slightly lowers the sound level at high frequencies.

Sound Transmission Class (STC) is a single number rating of the amount of sound blocked by a partition as measured or calculated in one-third octave bands. This metric is normalized and can be compared other partitions or test data. It is measured in a laboratory under ideal conditions. STC is most appropriately used to assess the ability of a partition to block noise in the frequency range of speech. The original sound transmission test reports should be consulted when the sound source contains low frequencies, such as music or mechanical noise. A higher number indicates better performance.

Ceiling Attenuation Class (CAC) is a single number rating of the sound blocking ability from room to room of a lay-in ceiling tile and grid system. Higher numbers mean better performance. Most commercial mineral fiber acoustical lay-in ceiling tiles have a CAC of 35 or 40.

Appendix C: Door Seal Description

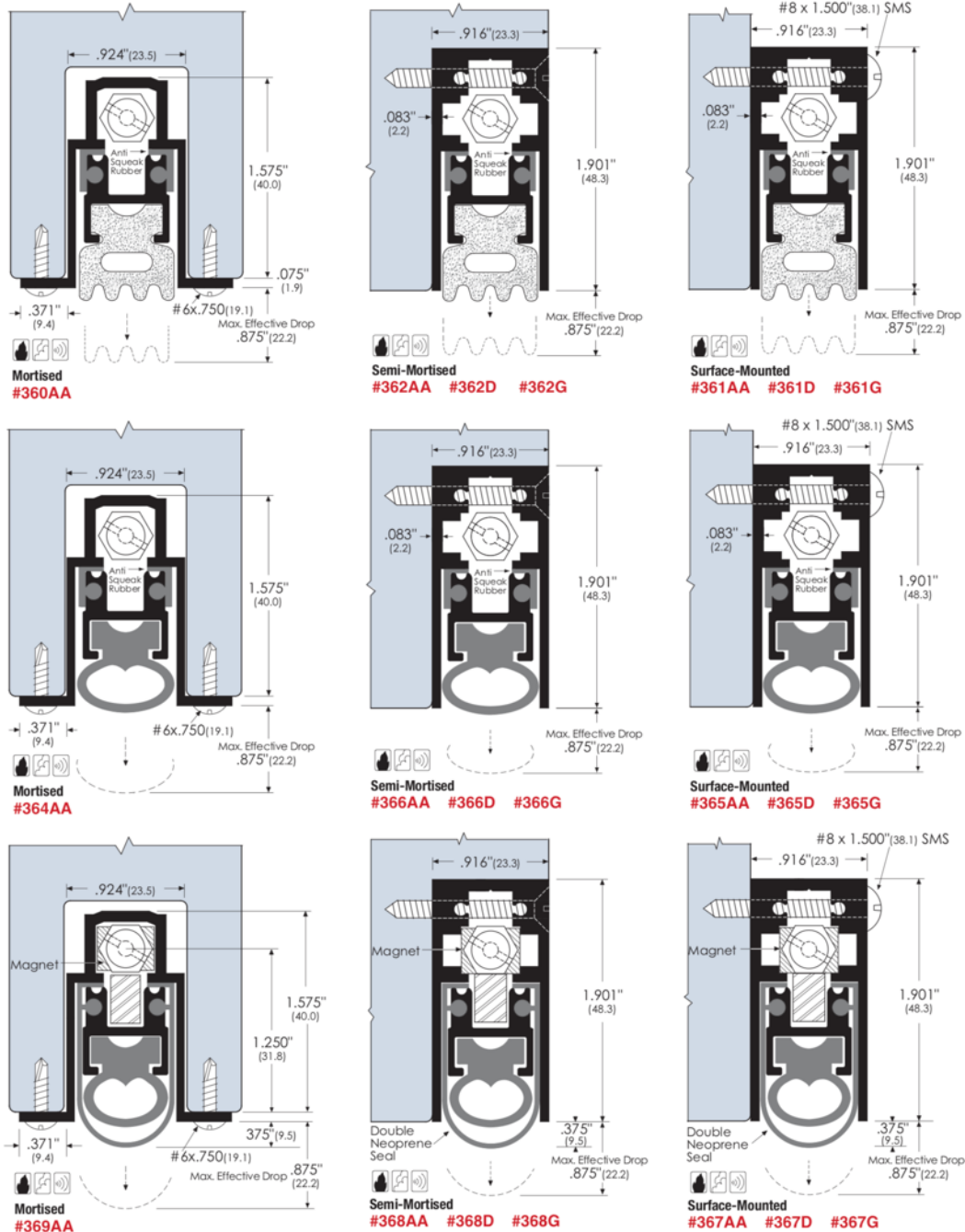
These are 1-3/4" thick solid core wood or insulated 16-18 gauge metal doors. They need to have adjustable acoustic seals at the head and jambs plus an automatic door bottom which seals against a saddle or threshold. Zero International and Pemko can provide such seals.



Zero International acoustical sealing system at head and sill

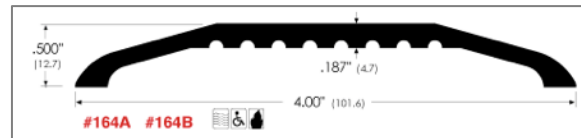
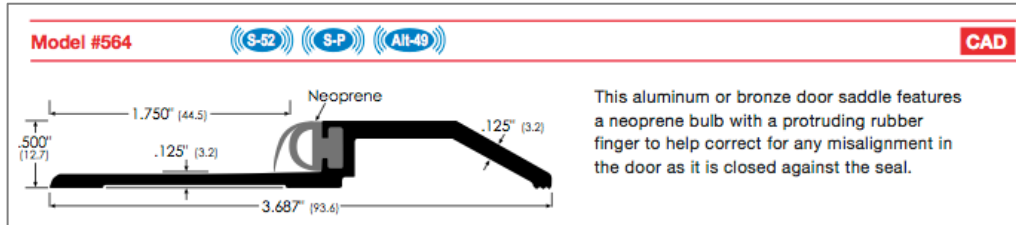
- Install sound rated door head and jamb seals from Zero International, model #870 or Pemko equal. This model has an adjustable seal for optimization over time.
- Install a supplemental bronze spring seal at the head, jambs, and sill (Zero International model #119W or Pemko equal). Attach to the frame.

- Install a mortised, semi-mortised, or surface mounted Zero International model #360 series automatic door bottom or Pemko equal.



Zero International model #367

- Install a metal threshold. Two types are shown below. The Zero International model #564 is preferred since it has an integral seal, thus providing a secondary seal. A smooth flat threshold, such as Zero International model #164B, is also acceptable, though will not perform quite as well due to the lack of the secondary seal. Pemko equals are acceptable. In all cases, the automatic door bottom should seal against the flat smooth surface. Level the threshold and embed in acoustical caulk for an airtight seal. The automatic door bottom must provide a continuous seal over the width of the door, and thus the leveling of the sill is critical.



Zero International model #564 and #164B

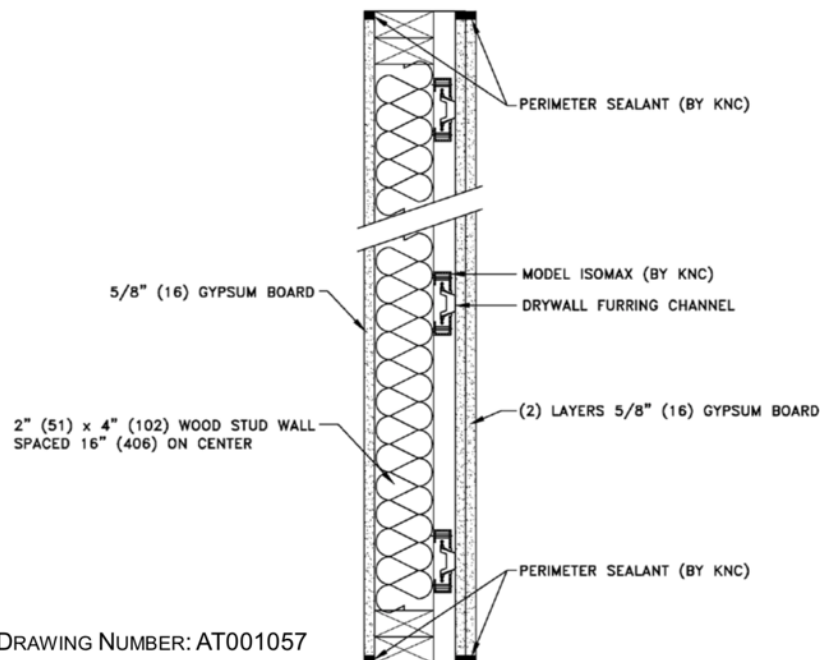
Appendix D: Supporting Test Data and Calculations

Project No. :	1633						
Project :	Dog Town & Kitty City - Building Envelope Design						
Partition Transmission Loss & Sound Propagation to North Property Line							
<i>assumptions: reverberant field near wall in Source Room and SPL is near the wall in Receiver Room</i>							
Partition Dimensions							
	10 ft						
	55 ft						
	Octave Band Center Frequency						
	125	250	500	1000	2000	4000	8000
Sound level of dogs barking in large reverberant space - 102 dBA maximum level	84	90	104	101	93	80	79
transmission loss of recommended partition	-36	-50	-60	-64	-63	-69	-69
Factor for outdoor free field	15000	15000	15000	15000	15000	15000	15000
Sound level just outside exterior wall	43	36	39	32	25	6	5
dBA weighting	-16	-9	-3	0	1	1	-1
dBA per octave band	27	27	36	32	26	7	4
Overall dBA outside building	38						
Propagation to north property line at 312' away	-24						
Credit for 150' of trees	-4						
Overall dBA at north property line	11						

Exterior wall construction at plywood sheeting locations (blue walls)

KINETICS NOISE CONTROL TEST REPORT #AT001057

- **KINETICS NOISE CONTROL PRODUCTS:**
 - ISOMAX CLIPS
- **ACOUSTICAL RATINGS:**
 - STC 61
- **TESTING AGENCY & REPORT NUMBER:**
 - RIVERBANK ACOUSTICAL LABORATORIES
 - RAL TL02-35



6300 IRELAN PLACE, DUBLIN OH
PHONE: 800.959.1229
FAX: 614.889.0540
WEB: WWW.KINETICSNOISE.COM
EMAIL: ARCHSALES@KINETISNOISE.COM

RIVERBANK ACOUSTICAL LABORATORIES

1512 S. BATAVIA AVENUE
GENEVA, ILLINOIS 60134

OF
IIT RESEARCH INSTITUTE

630/232-0104
FOUNDED 1918 BY
WALLACE CLEMENT SABINE

REPORT

FOR: Kinetics Noise Control

Sound Transmission Loss Test
RAL™ TL02-35

ON: Kinetics Wall Isolation Clip on
2 x 4 Timber Framing 16 Inches on Center
With Single Layer 5/8 Inch Gypsum Board Direct
and Double Layer 5/8 Inch Gypsum Board on Clips

Page 1 of 4

CONDUCTED: 21 February 2002

TEST METHOD

Unless otherwise designated, the measurements reported below were made with all facilities and procedures in explicit conformity with the ASTM Designations E90-99 and E413-87, as well as other pertinent standards. Riverbank Acoustical Laboratories has been accredited by the U.S. Department of Commerce, National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP) for this test procedure. A description of the measuring technique is available separately.

DESCRIPTION OF THE SPECIMEN

The test specimen was designated by the client as Kinetics Wall Isolation Clips on 2 x 4 timber framing 16 inches on center with single layer 5/8 inch gypsum board direct and double layer 5/8 inch gypsum board on clips. The overall dimensions of the specimen as measured were 4.27 m (168 in.) wide by 2.74 m (108 in.) high and 171 mm (6.75 in.) thick. The specimen was installed directly into the laboratory's 2.74 m (9 ft) by 4.27 m (14 ft) wood-lined steel frame and was sealed on the periphery (both sides) with a dense mastic.

The description of the specimen was as follows: The test specimen consisted of a two-by-four wood stud wall assembly with 159 mm (6.25 in.) thick R-19 fiberglass and a single layer of 16 mm (0.625 in.) Type X gypsum board on the receive side. Kinetics Wall Isolation Clips and hat track were used on the source side with a double layer of 16 mm (0.625 in.) Type X gypsum board. A more complete description follows.

Floor and Ceiling Plates: The two 89 mm (3.5 in.) wide by 38 mm (1.5 in.) thick and 4.27 m (168 in.) long SPF wood plates were attached to the top and bottom of the test frame with 16d nails on 610 mm (24 in.) centers.

Studs: The twelve 89 mm (3.5 in.) wide by 38 mm (1.5 in.) thick and 2.67 m (105 in.) long SPF wood studs and runners were spaced on 406 mm (16 in.) centers. The studs were attached to the frame with 8d nails.

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



ACCREDITED BY DEPARTMENT OF COMMERCE, NATIONAL VOLUNTARY LABORATORY
ACCREDITATION PROGRAM FOR SELECTED TEST METHODS FOR ACOUSTICS.
THE LABORATORY'S ACCREDITATION OR ANY OF ITS TEST REPORTS IN NO WAY CONSTITUTES
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Kinetics Noise Control

RAL™-TL02-35

21 February 2002

Page 2 of 4

Insulation: The cavities formed by the studs were friction fit with R-19 unfaced fiberglass insulation batts measuring 159 mm (6.25 in.) thick and 381 mm (15 in.) wide.

Kinetics Wall Isolation Clips and Hat Track: On the source side of the wall, Kinetics Wall Isolation Clips were attached to studs on 610 mm (24 in.) centers vertically and on 1.22 m (48 in.) centers horizontally. The bottom row of clips was installed 76 mm (3 in.) from the bottom of the test frame. Clips in subsequent rows were staggered 406 mm (16 in.) vertically from adjacent rows. All clips were attached to studs with two 51 mm (2 in.) long coarse thread drywall screws. A total of thirty clips were used. The hat track was 25 gauge roll-formed furring channel which measured 22 mm (0.875 in.) deep by 65 mm (2.56 in.) wide. Six rows of track were mounted to the clips and were overlapped 152 mm (6 in.) and double wire tied with 18 gauge tie wire as necessary.

Gypsum Wallboard: A double layer of 16 mm (0.625 in.) Type X gypsum board was applied to the hat track on the source side of the wall. The base layer was applied horizontally and the face layer was applied vertically with fasteners on 305 mm (12 in.) centers. The gypsum board was attached using 25 mm (1 in.) and 41 mm (1.625 in.) long Type S bugle head drywall screws, respectively. A single layer of 16 mm (0.625 in.) Type X gypsum board was applied vertically to the studs on the receive side of the wall and attached using 41 mm (1.625 in.) Type W bugle head drywall screws on 305 mm (12 in.) centers. All joints were treated with an acoustical caulk in the joints and covered with aluminum faced tape. Screw heads were covered with tape.

The weight of the specimen as measured was 530.3 kg (1,169 lbs.), an average of 45.4 kg/m² (9.3 lbs/ft²). The transmission area used in the calculations was 11.7 m² (126 ft²). The source and receiving room temperatures at the time of the test were 21±2°C (70±2°F) and 59±2% relative humidity. The source and receive reverberation room volumes were 179m³ (6,298 ft³) and 177 m³ (6,255 ft³), respectively.

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RAL™-TL02-35

21 February 2002

Page 3 of 4

TEST RESULTS

Sound transmission loss values are tabulated at the eighteen standard frequencies. A graphic presentation of the data and additional information appear on the following pages. The precision of the TL test data is within the limits set by the ASTM Standard E90-99.

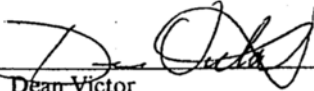
<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>	<u>FREQ.</u>	<u>T.L.</u>	<u>C.L.</u>	<u>DEF.</u>
100	33	0.35	0	800	63	0.37	0
125	37	0.28	8	1000	63	0.29	1
160	42	0.26	6	1250	65	0.22	0
200	46	0.33	5	1600	64	0.25	1
250	52	0.37	2	2000	61	0.20	4
315	57	0.32	0	2500	64	0.18	1
400	59	0.34	1	3150	67	0.16	0
500	61	0.33	0	4000	69	0.14	0
630	61	0.36	1	5000	71	0.11	0

STC=61

ABBREVIATION INDEX


FREQ. = FREQUENCY, HERTZ, (cps)
T.L. = TRANSMISSION LOSS, dB
C.L. = UNCERTAINTY IN dB, FOR A 95% CONFIDENCE LIMIT
DEF. = DEFICIENCIES, dB<STC CONTOUR
STC = SOUND TRANSMISSION CLASS

Tested by


Dean Victor

Senior Experimentalist

Approved by


David L. Moyer

Laboratory Manager

THE RESULTS REPORTED ABOVE APPLY ONLY TO THE SPECIFIC SAMPLE SUBMITTED FOR MEASUREMENT. NO RESPONSIBILITY IS ASSUMED FOR PERFORMANCE OF ANY OTHER SPECIMEN.



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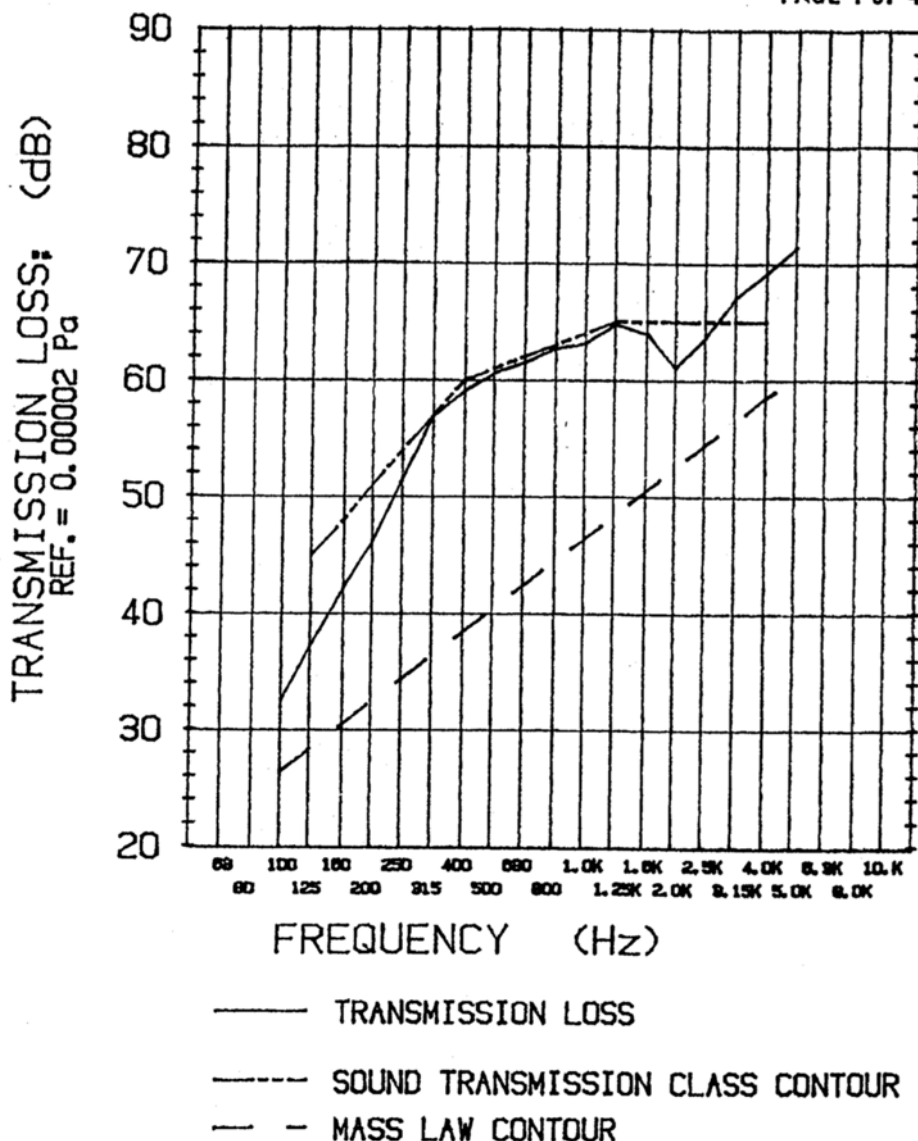
OF
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FOUNDED 1918 BY
WALLACE CLEMENT SABINE

REPORT

TRANSMISSION LOSS REPORT RAL-TL02-35

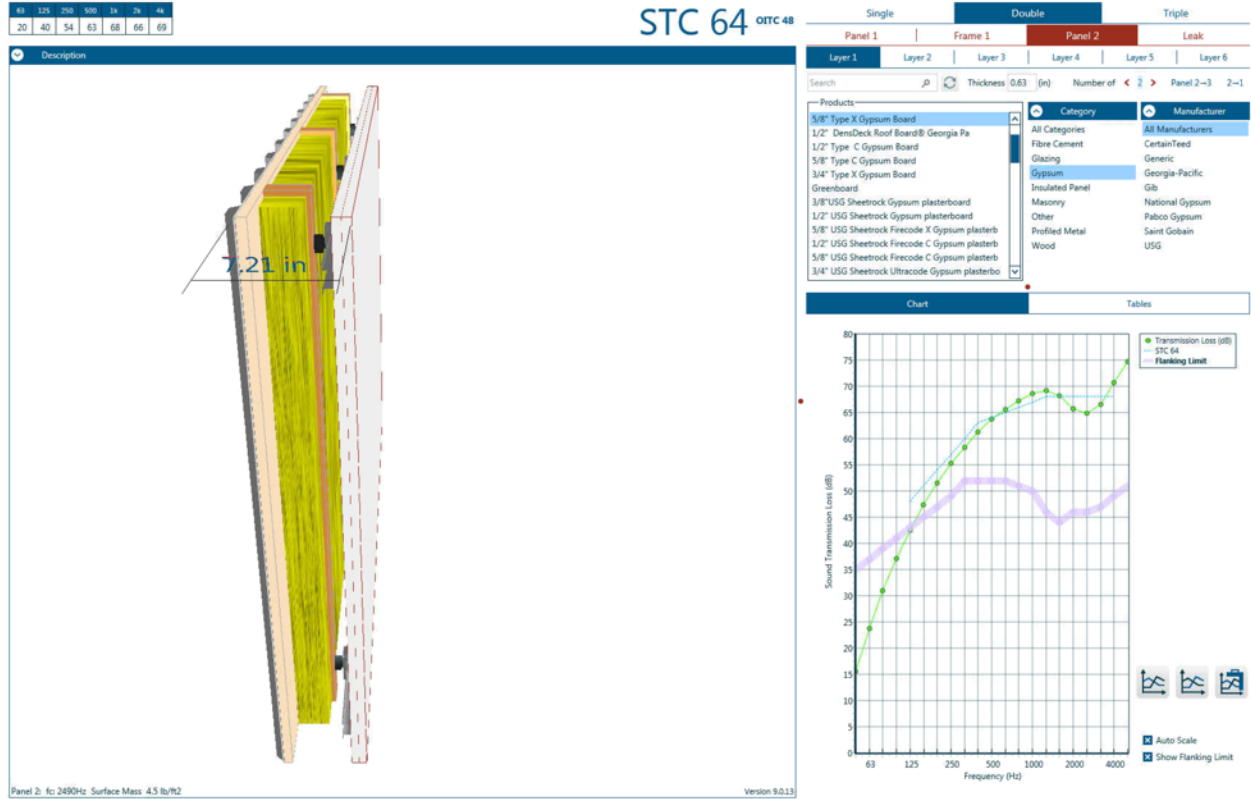
PAGE 4 OF 4



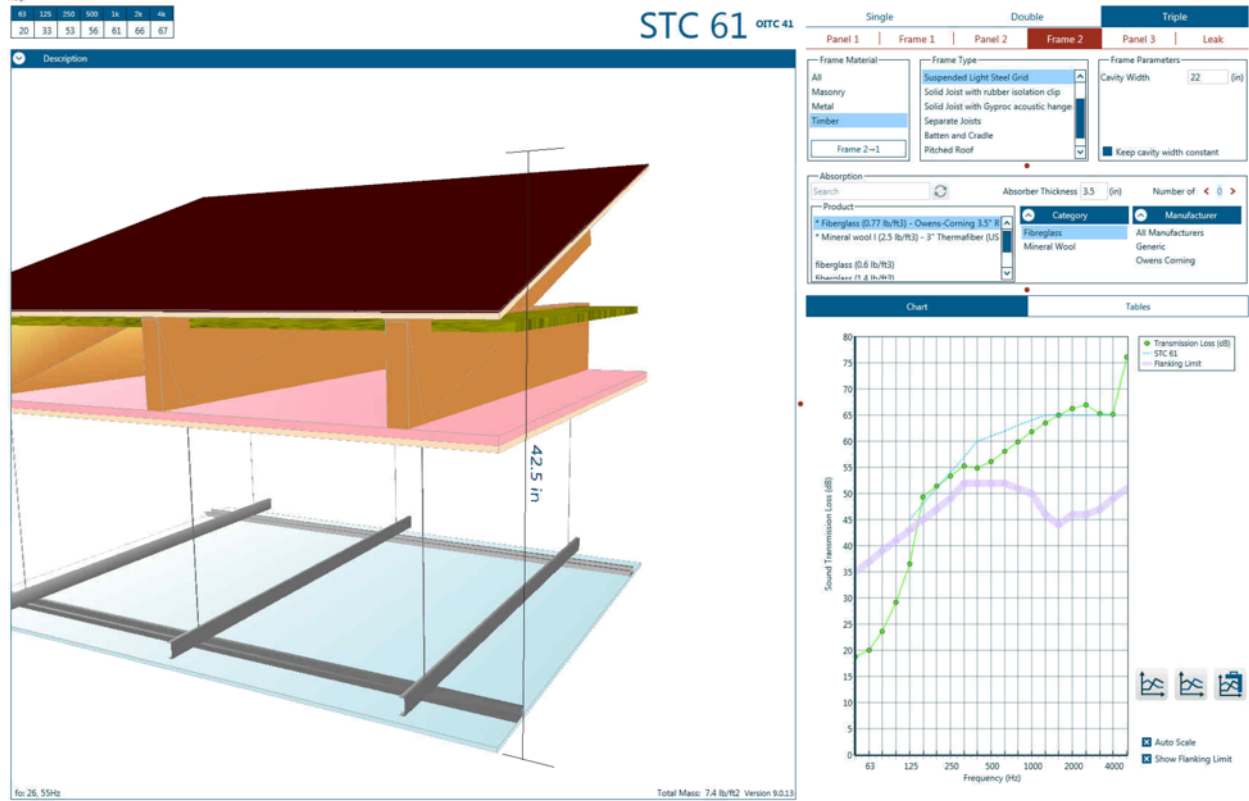
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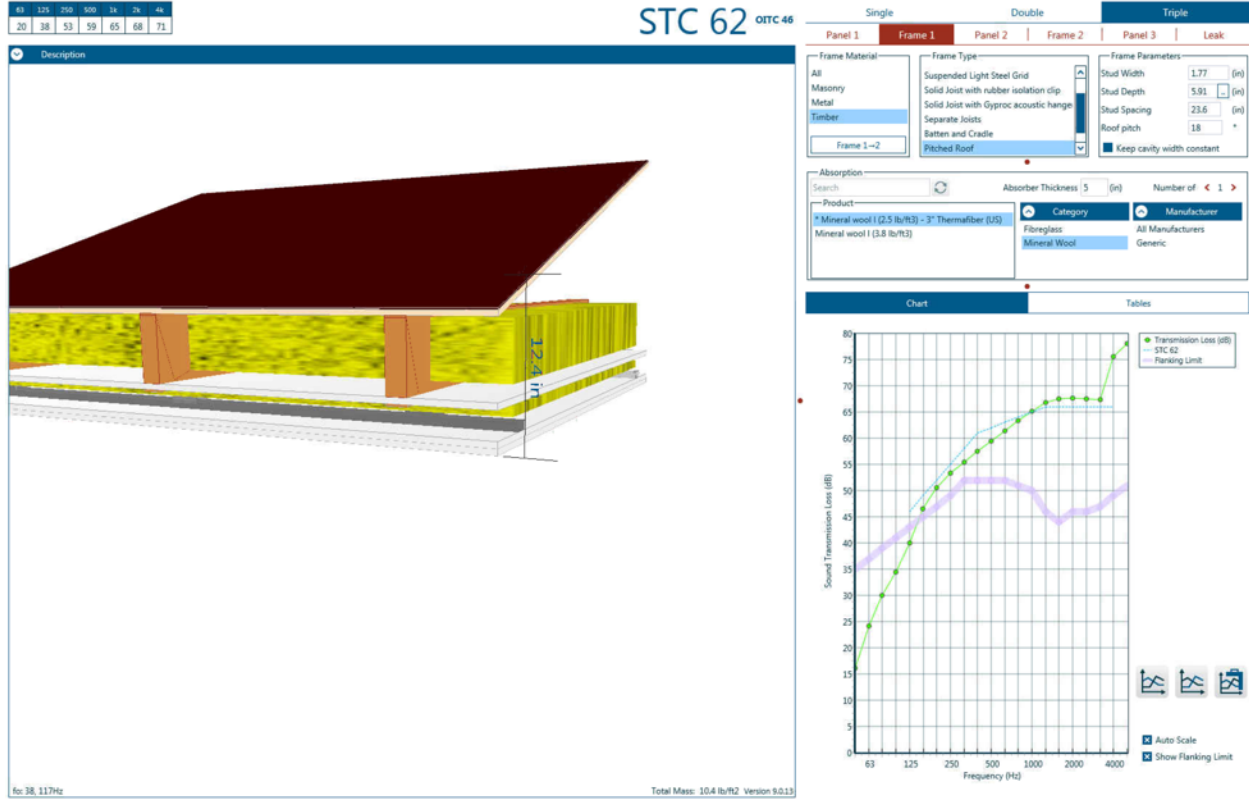
Exterior wall with metal siding (orange walls)



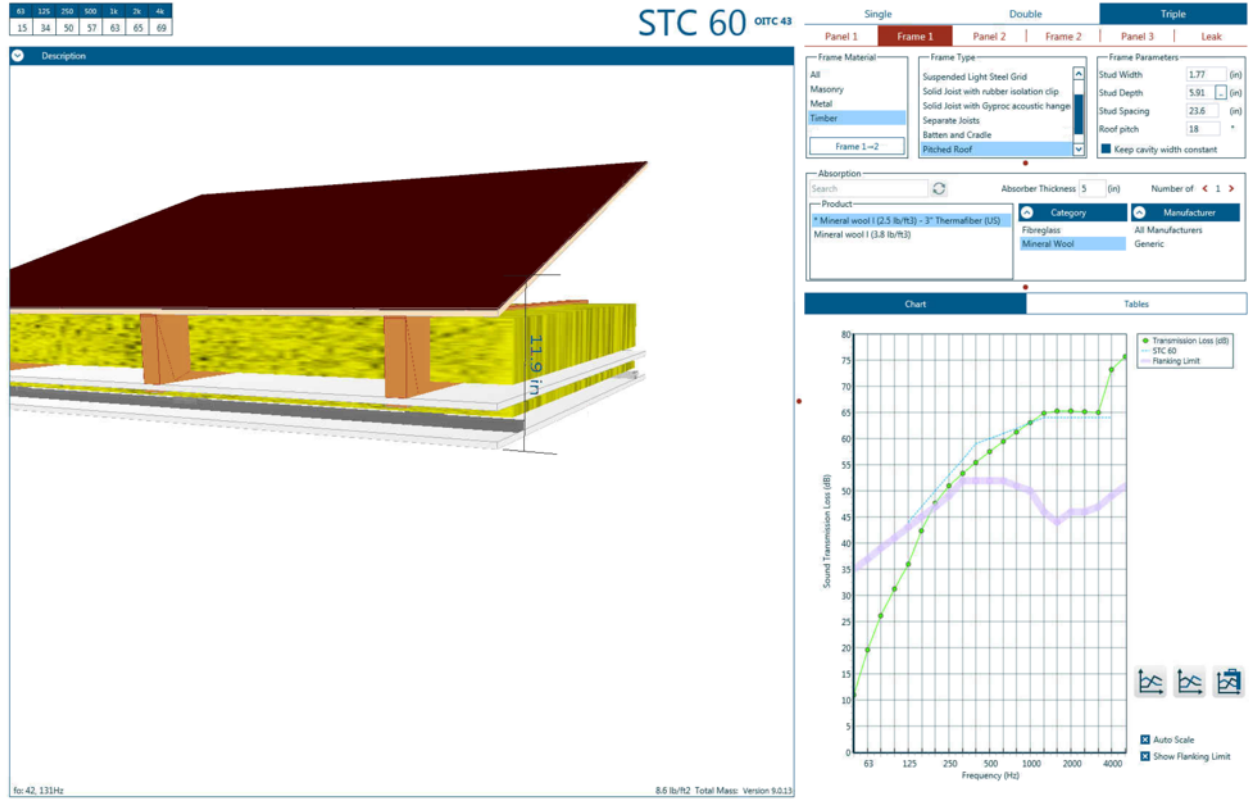
Ceiling/roof over Indoor Play Area



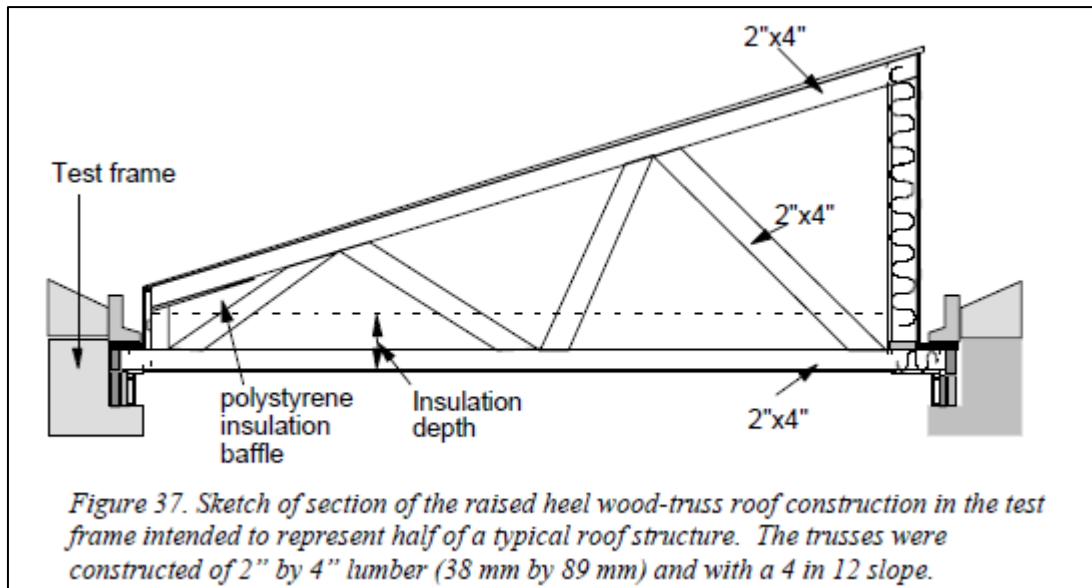
Ceiling/roof over Overnight Area – Two Additional Layers of Gypsum Board



Ceiling/roof over Overnight Area – One Additional Layer of Gypsum Board



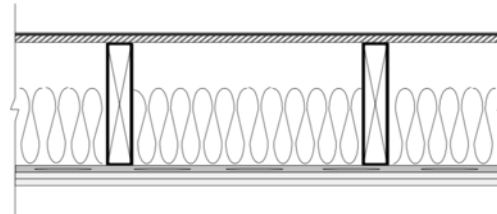
National Research Council Canada (NRC) test data was used as a second reference for pitched roof constructions for comparison to the ceiling/roof of the Overnight Area. It is within one point of our calculations, which indicates a high confidence level that the predictions are accurate.





TLF-98-111a
SHN3_BPAP0.7_OSB11_RHWT1626_GFB264_RC13(610)_2G13
Construction Type: roof

Element	Description
1	3 mm thick asphalt shingles
2	0.7 mm thick building paper
3	11 mm thick oriented strand board
4	1626 mm deep raised heel wood truss
5	264 mm thick glass fibre insulation in cavity
6	13 mm resilient channel at 610 mm on centre
7	13 mm thick regular gypsum board
8	13 mm thick regular gypsum board

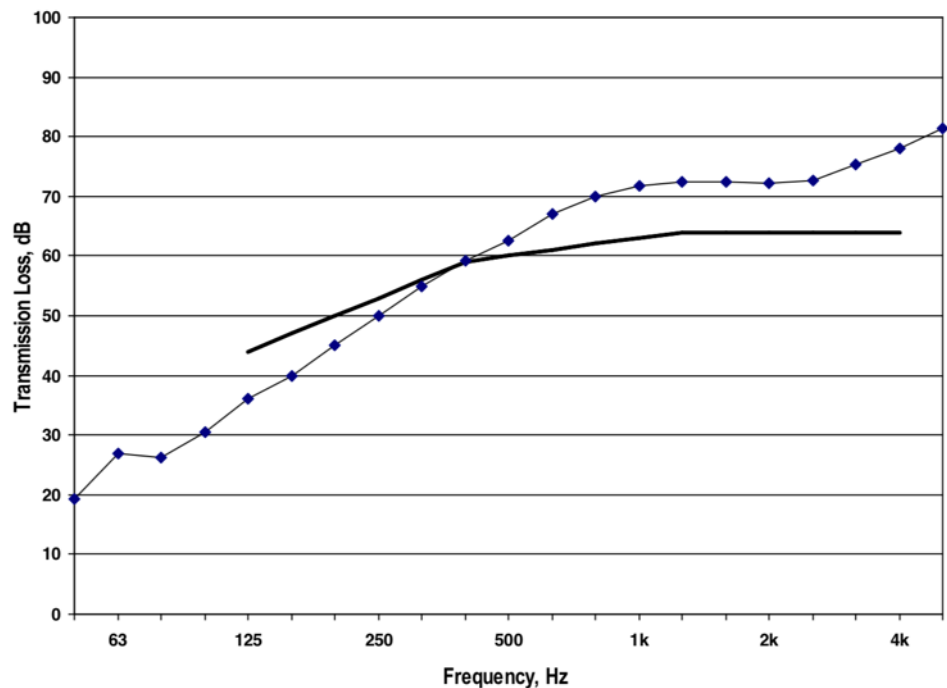


Vents: roof (6)

	element 1	element 2	element 3	element 4	element 5	element 6	element 7	element 8
type	shingles	building paper	subfloor	RH truss	insulation	resilient chan.	gypsum board	gypsum board
material	asphalt	*	OSB	wood	glass fibre	GP	regular	regular
thickness (mm)	3	0.7	11	1626	264	13	13	13
spacing (mm)	*	*	*	610	*	610	*	*
total mass (kg)	201	4.9	109	284	62	6.8	116	116
linear density (kg/m)	*	*	*	6.2	*	0.2	*	*
surface density (kg/m ²)	12	0.2	6.8	*	4.1	*	7.8	7.7
fastener spacing #1 (mm)	*	*	152 edges	*	*	*	610	305
fastener spacing #2 (mm)	*	*	305 field	*	*	*	*	*

* indicates not applicable

Freq. Hz	TL, dB
50	19
63	27
80	26
100	31
125	36
160	40
200	45
250	50
315	55
400	59
500	63
630	67
800	70
1000	72
1250	72
1600	72
2000	72
2500	73
3150	75
4000	78
5000	81
STC	60
OITC	43



A SITE PLAN FOR "DOG TOWN & KITTY CITY, LLC" GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN TAX ID# 4711-05-300-006

LEGAL DESCRIPTION:

BEGINNING AT THE CENTER OF SECTION 5, T2N, R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN AS MONUMENTED; THENCE N88°31'51"W (PREVIOUSLY RECORDED AS S89°01'W) 177.42 FEET ALONG THE EAST-WEST 1/4 LINE OF SAID SECTION AS PREVIOUSLY SURVEYED AND MONUMENTED; THENCE S02°24'39"W 649.99 FEET (PREVIOUSLY RECORDED AS S01°11'W 651.48 FEET) TO A POINT ON THE CENTER LINE OF GRAND RIVER AVENUE; THENCE S60°26'30"E 200.34 FEET (PREVIOUSLY RECORDED AS S62°42'E 200 FEET) ALONG SAID CENTER LINE; THENCE N02°20'38"E 744.32 FEET (PREVIOUSLY RECORDED AS N01°1'E 746.38 FEET) ALONG THE NORTH-SOUTH 1/4 LINE OF SAID SECTION 5 AS PREVIOUSLY SURVEYED AND MONUMENTED TO THE PLACE OF BEGINNING, BEING A PART OF THE SOUTHWEST 1/4 OF SECTION 5, T2N, R5E, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN CONTAINING 2.83 ACRES OF LAND, MORE OR LESS, BEING SUBJECT TO THE RIGHTS OF THE PUBLIC OVER THE SOUTHWESTERLY 50.00 FEET THEREOF, AS IS OCCUPIED BY GRAND RIVER AVENUE, ALSO BEING SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD, IF ANY.

SITE NOTES:

- 1) THE APPLICANT PROPOSES TO REMOVE AN AREA OF EXISTING ASPHALT PAVEMENT AND INSTALL K9 GRASS WITH A VINYL PRIVACY FENCE. ALL OTHER CHANGES WILL BE BUILDING RELATED.
- 2) THE CURRENT STORM DRAINAGE SHEET FLOWS TO THE WEST PROPERTY LINE AND THEN TO THE BACK OF THE PROPERTY. THE K9 GRASS WILL DECREASE THE OVERALL AREA OF IMPERVIOUSNESS OF THE SITE.
- 3) NO ANIMAL WASTE SHALL BE DISPOSED OF IN TWP SEWERS.

UTILITY NOTES:

- 1) NO CHANGE TO THE CURRENT WATER SERVICE IS PROPOSED.
- 2) NO CHANGE TO THE CURRENT SANITARY IS PROPOSED.
- 3) NO CHANGE TO THE STORM DRAINAGE SYSTEM IS PROPOSED.

ENVIRONMENTAL IMPACT NOTE:

THE APPLICANT PROPOSES TO REMOVE A PORTION OF THE ASPHALT PAVEMENT AND INSTALL K9 ARTIFICIAL TURF SYSTEM, REDUCING THE OVERALL STORM WATER RUNOFF FROM THE SITE. THE TURF SYSTEM IS MEANT TO COLLECT AND THEN DISPOSE OF THE LIQUID PET WASTE WITHIN THE STONE BED USING AEROBIC MICROBES. THIS PROCESS IS FASTER AND MORE EFFICIENT THAN THAT OF NATURAL MICROBIAL SOIL BREAK DOWN. ALL SOLID PET WASTE WILL BE COLLECTED AND DISPOSED OF IN THE REFUSE CONTAINERS.

OWNER:

LULA, LLC
28715 HOVEY LANE
NEW HUDSON, MI 48165
PHONE: 248-798-6226

PROPRIETOR/DEVELOPER:

PAULA VANDERKARR
7692 BADGER COURT
OWASSO, MI 48867
PHONE: 989-277-1864

SURVEYOR:

GARLOCK-SMITH
516 EAST GRAND RIVER
HOWELL, MICHIGAN 48843
PHONE: 517-546-3340

PARKING CALCULATION:

BUILDING = 6,312 SF
MAX # OF PETS ALLOWED = 6,312 SF / 100 SF/PET = 63 PETS

SPACES REQUIRED

1 SPACE PER STAFF MEMBER
1 SPACE PER EACH 5 ANIMALS
63 PETS / 5 ANIMALS/SPACE = 13 SPACES
5 EMPLOYEES = 5 SPACES
18 SPACES REQUIRED
21 SPACES PROVIDED

DRAINAGE CALCULATION:

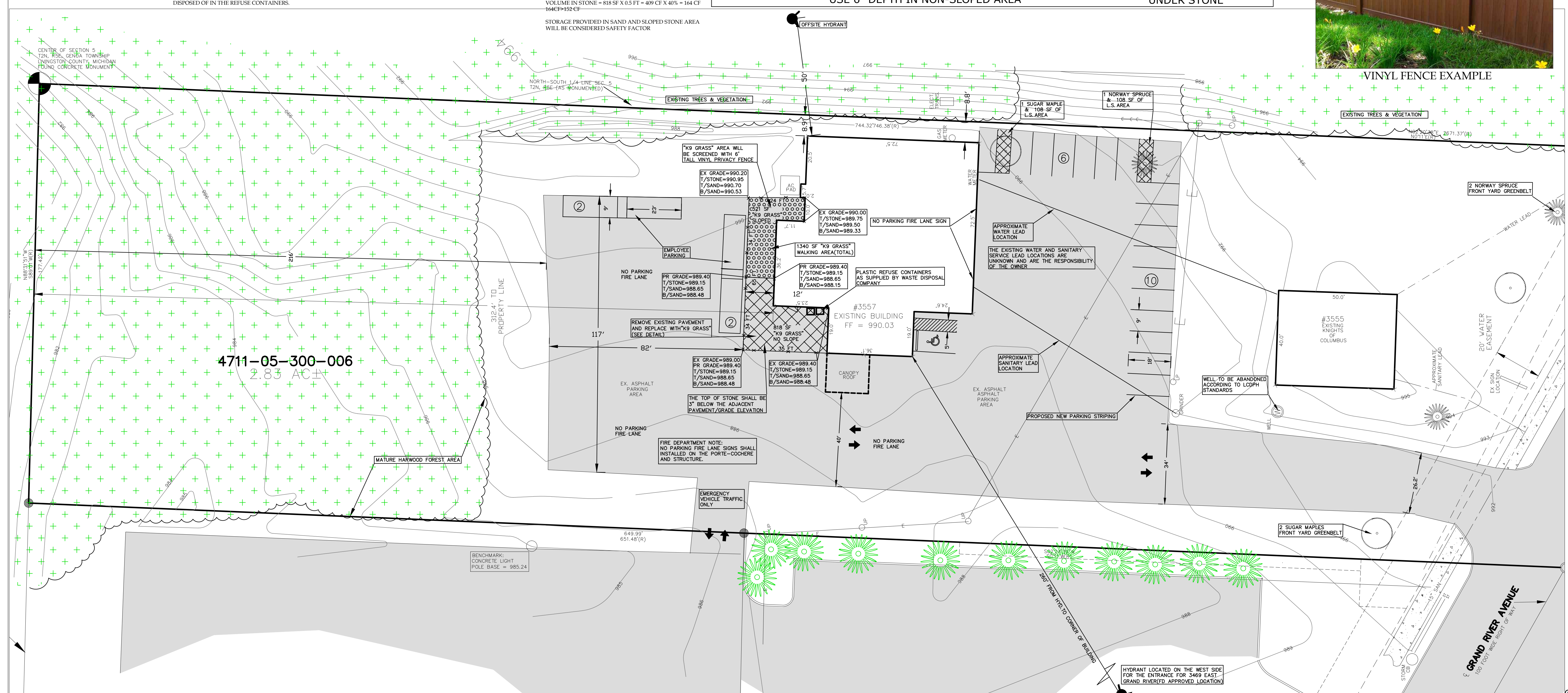
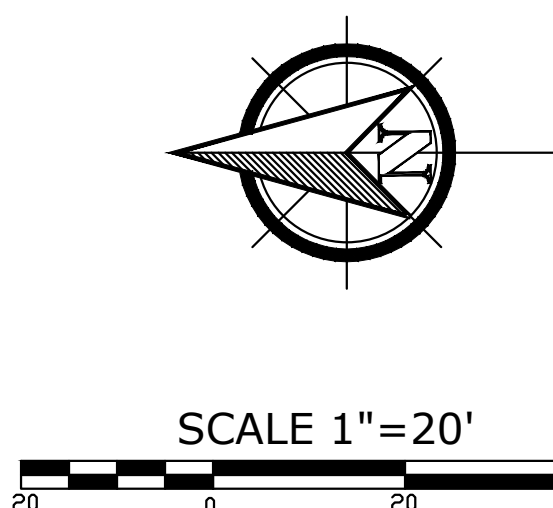
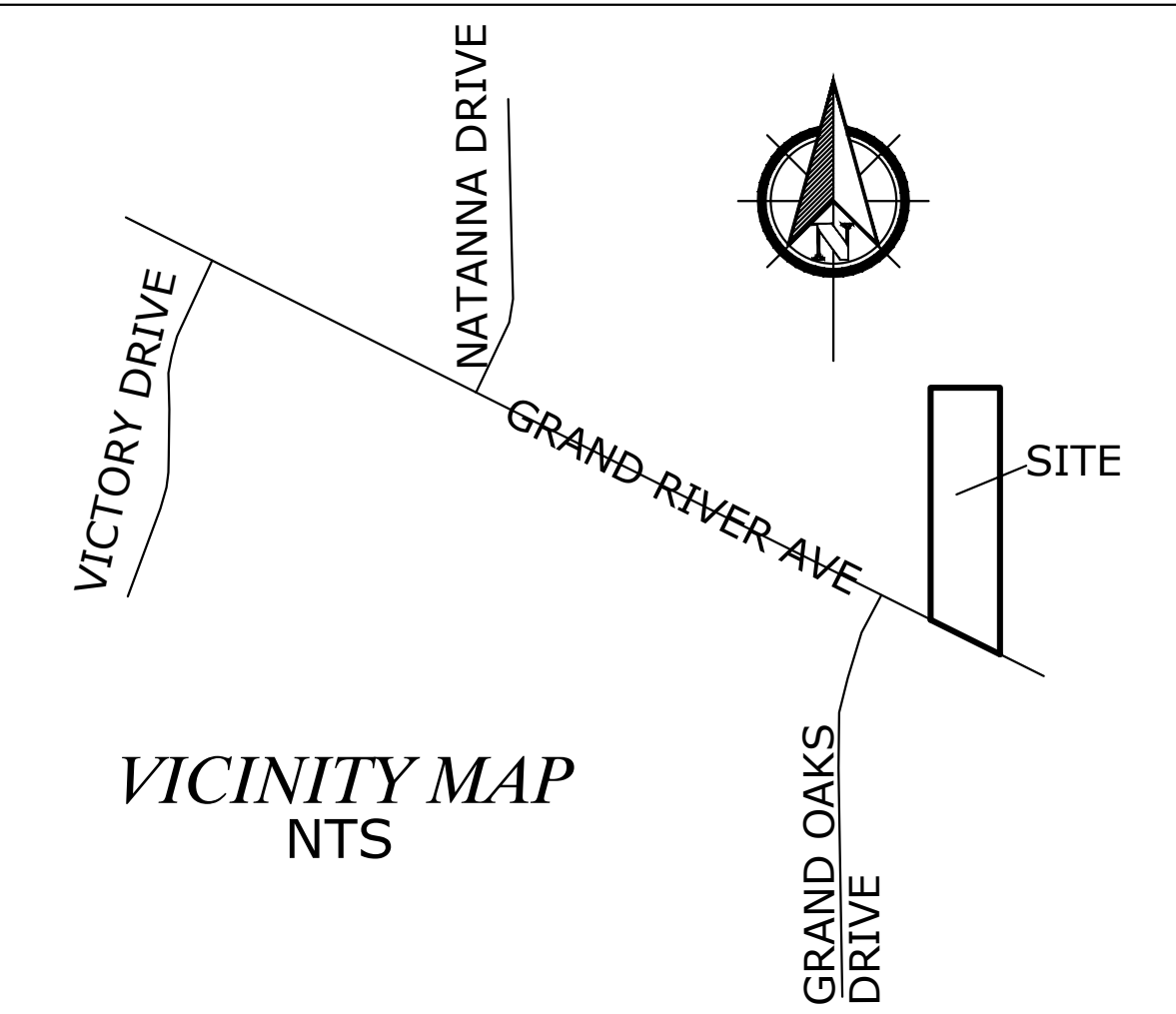
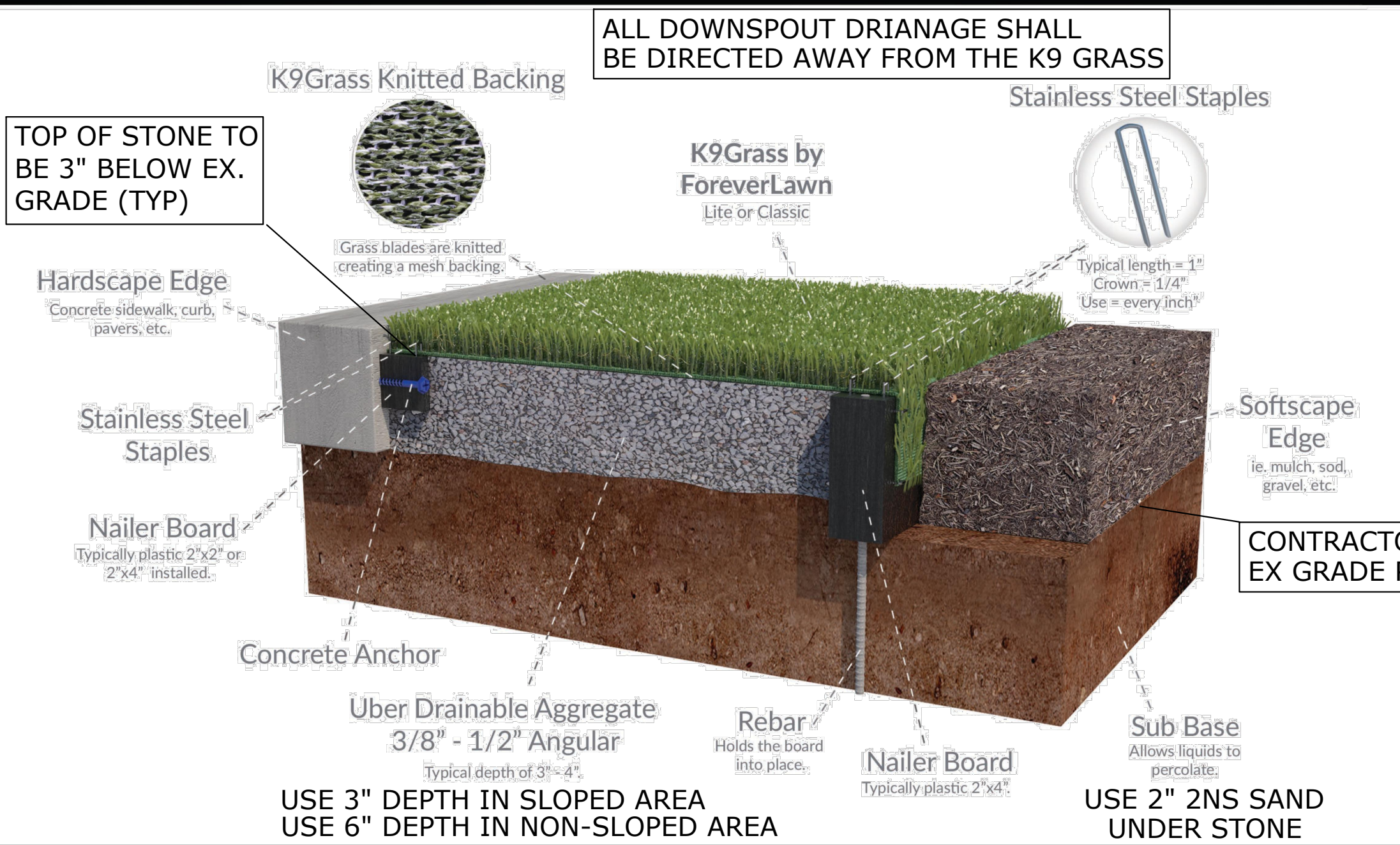
K9 GRASS AREA = 1340 SF = 0.03 AC
C FACTOR = 0.3
STORAGE ONLY IN NON-SLOPED GRASS AREA = 818 SF
40% VOID RATIO
100y V = 16,500(0.3)(0.03 AC) = 152 CF REQUIRED
VOLUME IN STONE = 818 SF X 0.5 FT = 409 CF X 40% = 164 CF
164CF > 152 CF

STORAGE PROVIDED IN SAND AND SLOPED STONE AREA WILL BE CONSIDERED SAFETY FACTOR

K9Grass System

Edge Detail - Installed over soil with hard and soft edges

K9Grass



Consulting Civil Engineers
"Engineering A Better Michigan"

Powell Engineering & Associates, LLC

4700 Cornerstone Drive, White Lake, Michigan 48383
P: 248-214-9895 info@powellengineeringllc.com

NOTE: AS AN AID TO THE CONTRACTOR, UTILITY LOCATIONS AND UNDERGROUND STRUCTURES ARE SHOWN ON THESE PLANS AND PROFILES. ALL INFORMATION ON THESE PLANS AND PROFILES IS TAKEN FROM FIELD NOTES AND AVAILABLE RECORDS. BUT THE OWNER AND ENGINEER DOES NOT GUARANTEE THE ACCURACY OF ANY ADDITIONAL UNDERGROUND STRUCTURES OR UTILITIES NOT BEING RECORDED. IF THE CONTRACTOR DOES ENCOUNTER A PREVIOUSLY UNRECORDED UTILITY AND/OR STRUCTURE, OR DETERMINES THAT ONE OF THE UTILITIES / STRUCTURES LOCATED ON THESE PLANS IS NOT THE ONE LOCATED, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND ENGINEER FOR DIRECTION ON HOW TO PROCEED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES, NOTY PROBE FOR AT START OF ANY CONSTRUCTION.

BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171

PET DAYCARE SITE PLAN

PET DAYCARE
GENOA TOWNSHIP

ISSUE DATES

SITE PLAN	7-27-18
SITE PLAN	7-27-18
SITE PLAN	9-6-18
SITE PLAN	9-7-18
FIRE MARSHAL	9-7-18
TOWNSHIP	9-19-18

DRAWN: BBB
DESIGNED: BBB
APPROVED: MCP
P.E. JOB No.: 18-454
SCALE: AS-SHOWN

S1

K9Grass

Outdoor Maintenance Guidelines



K9Grass®

ForeverLawn®



General Guidelines - Outdoor

Maintenance requirements for K9Grass outdoor installations are typically much less than with most other surfaces. However, proper maintenance is still required and will ensure many years of pet-friendly play. The following general guidelines provide a framework for you to develop a customized protocol for your specific application and desires.

Hair and Debris Removal along with Grass Grooming

K9Grass should be regularly groomed. For smaller applications this can be done manually. However, there are options for appropriately sized equipment that will brush the blades and extract residual debris and hair. A vacuum with a rotating brush and strong suction can be an effective tool. Power brooms and wider commercial grade vacuums are more effective for larger areas. Vacuuming should occur when the grass is dry. Frequency is dependent on use and exposure to hair and debris. Recommendation: vacuum once a week and increase/decrease based on results.

Cleaning

Since K9Grass is made of non-absorbent polyethylene and nylon fibers and contains antimicrobial AlphaSan®, you can be assured that the blades will not stain or retain odor. However, the surface of the blades, the backing, and the area around the grass still needs to be kept clean. K9Grass with its short dense design is a perfect solution.

Solid waste should be removed and disposed of immediately and soiled areas rinsed regularly. It is a good practice to "spot treat" these areas with an enzyme immediately after the waste is removed. It is unwise and not recommended to wash solid waste through the grass.

Required frequency of cleaning is based on multiple variables. Factors such as the number of dogs, the type of use (play or elimination), as well as personal preference should all be considered. Regular rinsing with water will remove much of the residual waste from the blades and will rinse the base material.

Disinfectants are a classification of cleaners that are used to clean (kill germs) the grass, floor, walls, and underlayment material. While "germ kill time" may vary, it is common to leave disinfectant on the surface for 15 minutes prior to being rinsed off. Disinfectants kill germs but they typically do not necessarily eliminate the source of odors (urine and feces).

Enzymes reduce and help eliminate the source of the odor (urine and feces) and should be applied to wet grass after disinfectants have been applied and rinsed off. Enzymes should be applied and left on for anywhere from 4 to 24 hours. While enzymes break down the source of odors, they do not necessarily kill germs. Longer enzyme exposure to organic waste and water will maximize results.

Most cleaning products are safe to use with K9Grass. However, any agent that contains bleach in a solution of greater than 1:20 should not be used. (A 1:32 ratio of bleach to water is sufficient to neutralize Parvovirus). It is recommended that any cleaning product be applied in a small test area first. Water in excess of 160 degrees should not be used on the grass.

The following list is a small sampling of disinfectant cleaning products to get you started:

- Triple 2 made by HTP - Health Technology Professional Products
- WYSIWASH - Available from ForeverLawn
- KennelSol - made by Alpha Tech Pet
- Accel - Accelerated Hydrogen Peroxide
- Bleach (no stronger than 1:20)
- White Distilled Vinegar and Water

The following list is a small sampling of enzyme products to get you started:

- Odor Pet - made by Alpha Tech Pet
- Eliminator - made by HTP - Health Technology Professional Products
- Foreverzyme - available from ForeverLawn
- K9Zyme - available from ForeverLawn West
- Nature's Miracle - available at most pet stores

Other Guidelines

For additional questions regarding the care and maintenance, please contact your local authorized ForeverLawn dealer or ForeverLawn corporate office.

ADDRESS

5801 Mayfair Rd., Suite 4,
North Canton, OH 44720

PHONE

866.992.7876

WEBSITE

k9grass.com



FLOOR PLAN
SCALE: 3/16"=1'-0"

BWA
BRIAN WIGGINS
ARCHITECT
11315 SAN JOSE
REDFORD MICHIGAN 48239
(313) 937-0832
E-MAIL: BWARCHITECTURE@ATT.NET

A NEW INTERIOR BUILD-OUT FOR:
**DOGGY TOWN AND
KITTY CITY
PET DAYCARE / BOARDING
FACILITY**
XXXXX GRAND RIVER AVE.
GENOA TOWNSHIP, MI 48000

project: _____

drawing title:
FLOOR PLAN

issued for / date

owner review

site plan approval

bids

permits

construction

revisions:

SITE PLAN APPROVAL
08/15/2018

job no.
18125

drawn by: _____

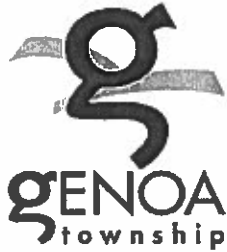
checked by: _____

date: _____

sheet no.
A1
of sheets

do not scale drawings
use written dimensions

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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: Chestnut Development LLC, 6253 Grand River Ave. Suite 700, Brighton, MI 48114

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

APPLICANT PHONE: (810) 599-3984 EMAIL: office@chestnutdev.com

OWNER NAME & ADDRESS: Applicant is the property owner

SITE ADDRESS: _____ PARCEL #(s): 4711-33-400-003 & 4711-34-300-005

OWNER PHONE: (_____) EMAIL: _____

Location and brief description of site and surroundings:

61 acres of undeveloped land, located on the East side of Chilson Rd between Brighton Rd and Bishop Lake Rd. Site is generally described as open grassland with very few trees. Several wetlands exist on site.

Proposed Use:

25 unit residential development designed to meet LDR standards. Minimum 1 acre lot sizes with additional common open space provided. Site access by construction of a paved, open ditch, private road. All lots to be serviced by well and septic.

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.

This request has minimal impact and will not adversely affect township standards.

- 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.

Use has been designed with minimal impact.

- 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?

N/A

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?

N/A

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.

Request meets minimum 10 ft wetland setback.

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: 3800 Chilson Rd. Howell MI 48843-home
6253 Grand River Suite 200 Brighton, MI 48114-office

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

Michael Bearman of Livingston Engineering at Mike@Livingstoneing.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: _____

PRINT NAME: _____ PHONE: _____

16. Consideration of a request for approval of a rezoning (Ordinance Z-18-03) involving 74.8 acres of land located on the east side of Chilson Road, south of Brighton Road along the Township boundary with Hamburg Township on parcels 11-33-400-003 and 11-34-300-005. The application is petitioned by Chestnut Development LLC. and the requested rezoning is from Agricultural (AG) to Low Density Residential (LDR).

Moved by Hunt and supported by Skolarus to approve and adopt the Ordinance No. Z-18-03. The proposed amendment to the Zoning Map is consistent with Section 22.04 of the Township Zoning Ordinance. The motion carried unanimously.

17. Consideration of a request for approval of a site plan and impact assessment requesting preliminary site condominium approval for a proposed 25 unit site condominium. The property in question is located on approximately 74.8 acres involving parcels 11-33-400-003 and 11-34-300-005 on the east side of Chilson Road, south of Brighton Road along the southern Township boundary with Hamburg Township. The request is petitioned by Chestnut Development LLC.

A. Disposition of Environmental Impact Assessment (6/19/18)

Moved by Lowe and supported by Hunt to approve the impact assessment dated June 19, 2018, subject to the following: Reference to the sodium chloride groundwater concern as well as description of the planned mitigation measures shall be added to the impact assessment for the final condominium site plan review process. The motion carried unanimously.

B. Disposition of Preliminary Site Plan (7/27/18)

Moved by Skolarus and supported by Lowe to approve the preliminary site plan dated June 27, 2018 with the following conditions:

- 1.) The line indicating the edge of the regulated wetland surrounding the pond on lot 25 will be added back to the plan.
- 2.) The applicant shall describe why the access road around the north side of the pond was removed from the plans upon submittal for final site condominium approval.
- 3.) In regard to the wetlands on site, the applicant shall comply with all requirements and procedures of Article 13 which shall include but is not limited to the following:
 - a. Variances or special use permits for impacts on the natural features setback as applicable.
 - b. Judicious effort shall be made through final site condo design to preserve the non-MDEQ regulated wetland. Use of non-MDEQ regulated wetlands as detention or retention ponds may be allowed, following review of such plans by the Township Engineer.
 - c. The applicant shall ensure that homes and appurtenances adjacent to the natural features setback can be constructed without impact to the setback.
- 4.) The applicant shall obtain all other governmental regulatory approvals, including water quality from the Livingston County Health Department and wetland permits from the Department of Environmental Quality.
- 5.) In regard to the groundwater concerns the applicant shall provide access easements for well installation, water testing and sampling by the Township.
- 6.) The Township Attorney shall approve the Master Deed, Bylaws, and covenants covering maintenance including, but not limited to:

16. Consideration of a request for approval of a rezoning (Ordinance Z-18-03) involving 74.8 acres of land located on the east side of Chilson Road, south of Brighton Road along the Township boundary with Hamburg Township on parcels 11-33-400-003 and 11-34-300-005. The application is petitioned by Chestnut Development LLC. and the requested rezoning is from Agricultural (AG) to Low Density Residential (LDR).

Moved by Hunt and supported by Skolarus to approve and adopt the Ordinance No. Z-18-03. The proposed amendment to the Zoning Map is consistent with Section 22.04 of the Township Zoning Ordinance. The motion carried unanimously.

17. Consideration of a request for approval of a site plan and impact assessment requesting preliminary site condominium approval for a proposed 25 unit site condominium. The property in question is located on approximately 74.8 acres involving parcels 11-33-400-003 and 11-34-300-005 on the east side of Chilson Road, south of Brighton Road along the southern Township boundary with Hamburg Township. The request is petitioned by Chestnut Development LLC.

A. Disposition of Environmental Impact Assessment (6/19/18)

Moved by Lowe and supported by Hunt to approve the impact assessment dated June 19, 2018, subject to the following: Reference to the sodium chloride groundwater concern as well as description of the planned mitigation measures shall be added to the impact assessment for the final condominium site plan review process. The motion carried unanimously.

B. Disposition of Preliminary Site Plan (7/27/18)

Moved by Skolarus and supported by Lowe to approve the preliminary site plan dated June 27, 2018 with the following conditions:

- 1.) The line indicating the edge of the regulated wetland surrounding the pond on lot 25 will be added back to the plan.
- 2.) The applicant shall describe why the access road around the north side of the pond was removed from the plans upon submittal for final site condominium approval.
- 3.) In regard to the wetlands on site, the applicant shall comply with all requirements and procedures of Article 13 which shall include but is not limited to the following:
 - a. Variances or special use permits for impacts on the natural features setback as applicable.
 - b. Judicious effort shall be made through final site condo design to preserve the non-MDEQ regulated wetland. Use of non-MDEQ regulated wetlands as detention or retention ponds may be allowed, following review of such plans by the Township Engineer.
 - c. The applicant shall ensure that homes and appurtenances adjacent to the natural features setback can be constructed without impact to the setback.
- 4.) The applicant shall obtain all other governmental regulatory approvals, including water quality from the Livingston County Health Department and wetland permits from the Department of Environmental Quality.
- 5.) In regard to the groundwater concerns the applicant shall provide access easements for well installation, water testing and sampling by the Township.
- 6.) The Township Attorney shall approve the Master Deed, Bylaws, and covenants covering maintenance including, but not limited to:

- a. Rights for Township inspection of wells;
 - b. Maintenance agreements of common areas;
 - c. Protection of the required natural features setback areas as well as wetland protection measures for both the regulated and non-regulated wetlands;
 - d. Private Road Maintenance Agreement, which includes the financial and maintenance assurances;
 - e. Education of the property owners on the potential harm of using salt on paved areas.
- 7.) All requirements of Tetra Tech’s letter dated June 26, 2018 shall be met.
- 8.) All requirements of the Brighton Area Fire Authority’s letter dated June 22, 2018 shall be met.

9.) The applicant will work with the Township Attorney and Township Manager to resolve outstanding court order issues prior to final site plan approval. The motion carried unanimously.

18. Request to authorize the Township Attorney to proceed with litigation against Healy Homes related to required improvements at the intersection of Lawson Drive and Grand River Avenue.

Moved by Mortensen and supported by Croft to direct the Township Attorney to pursue legal action against Jack Healy, Western Surety and Healy Homes. The motion carried unanimously.

Member Discussion

Rogers – GFL will continue to provide service to the Township @ \$12.30 per residential parcel. New carts will be delivered Oct. 22nd. Old carts will be collected Oct. 28th.

Croft provided a copy of the SEMCOG new bulletin.

The regular meeting and public hearing of the board was adjourned at 8:15 p.m.

Paulette A. Skolarus, Clerk
Genoa Charter Township Board

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
June 11, 2018
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, Jim Mortensen, Chris Grajek, Jill Rickard and Marianne McCreary. Absent were Eric Rauch and Jeff Dhaenens. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Brian Borden of Safebuilt Studio, Joe Siwek of Tetra Tech, and an audience of nine.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

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

CALL TO THE PUBLIC: The call to the public was made at 6:32 pm with no response.

OLD BUSINESS

OPEN PUBLIC HEARING # 1... Review of a request of a rezoning application and impact assessment to rezone approximately 61 acres from Agriculture (AG) to Low Density Residential (LDR) for the following parcels: 11-33-400-003 and 11-34-300-005. The parcels are located on the east side of Chilson Road, south of Brighton Road along the southern Township boundary with Hamburg Township. The request is petitioned by Chestnut Development LLC.

- A. Recommendation of rezoning
- B. Recommendation of Environmental Impact Assessment

Mr. David LeClair of Livingston Engineering was present and representing the property owner, Steve Gronow. They are requesting to rezone 67 acres from Agricultural (AG) to Low Density Residential (LDR). The Master Plan Future Land Use Map shows this area as being zoned LDR so they feel the rezoning is appropriate.

Mr. Borden agrees that the Master Plan Future Land Use Map designates this area as LDR. He noted that the proposed rezoning is consistent with the zoning and uses in the surrounding area.

Commissioner McCreary questioned if the applicant will need a permit from the DEQ for the wetlands on the site. Mr. LeClair stated yes, they will need a DEQ permit for their storm water discharge. One wetland is regulated; however, they are waiting to learn if the other one is regulated.

The Call to the Public was made at 6:52 pm.

Mr. David Keller owns the 103-acre parcel to the north of this site. For safety reasons, he would like the Planning Commission to require the developer to put up a fence and possibly a landscaped berm to restrict people who will be living in this area from entering into his property. They have a 3-acre pond and large well-drilling equipment.

Chairman Brown advised Mr. Keller that State law prohibits conditions being placed on a rezoning; however, it could be discussed during the next item on the agenda, which is the Site Plan approval for this property.

The call to the public was closed at 6:55 pm.

Moved by Commissioner Mortensen, seconded by Commissioner Grajek, to recommend to the Township Board approval of the rezoning of two parcels: 11-33-400-003 and 11-34-300-005 known as Chestnut Springs and as depicted on a Site Plan prepared by Livingston Engineering dated May 2, 2018 from Agriculture to Low Density Residential. This recommendation is made because the Planning Commission finds that the rezoning is consistent with the requirements of Section 22.04 of the Township Ordinance and is consistent with the surrounding uses, which are also Low Density Residential.

The motion carried unanimously.

Moved by Commissioner Mortensen, seconded by Commissioner Rickard, to recommend to the Township Board approval of the Environmental Impact Assessment for two parcels: 11-33-400-003 and 11-34-300-005 known as Chestnut Springs and as depicted on a Site Plan prepared by Livingston Engineering dated May 2, 2018 conditioned upon the following:

- At this time, descriptions of the site plan details will be removed from the statement by Township Staff until such time as the site plan is recommended for approval by the Planning Commission and forwarded to the Township Board.

The motion carried unanimously.

OPEN PUBLIC HEARING #2... Review of a request of a site plan and impact assessment requesting preliminary site condominium approval for a proposed 25-unit site condominium. The property in question is located on approximately 61 acres involving parcels: 11-33-400-003 and 11-34-300-005 on the east side of Chilson Road, south of Brighton Road along the southern Township boundary with Hamburg Township. The request is petitioned by Chestnut Development LLC.

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

Mr. David LeClair of Livingston Engineering was present and representing the owner, Steve Gronow. He showed and reviewed the proposed site plan. They are proposing 25 units, 24 of which are 1 acre + parcels and then there is one 25 acre parcel where the wetland is located. There will be paved, private roads. There will be an association so the owners will own the homes and the property, but all maintenance will be done by the association. There will be individual wells and septic systems.

They would like lenience from the Township for the following items:

1. The planting requirements around the wetlands. There is existing vegetation.

2. The new plan shall remove the display area that is still shown.

The motion carried unanimously.

OPEN PUBLIC HEARING #2... Review of a request of a site plan and impact assessment requesting preliminary site condominium approval for a proposed 25-unit site condominium. The property in question is located on approximately 74.8 acres involving Parcels #11-33-400-003 and #11-34-300-005 on the east side of Chilson Road, south of Brighton Road, along the southern Township boundary with Hamburg Township. The request is petitioned by Chestnut Development, LLC.

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

Mike Bearman of Livingston Engineering and Steve Gronow, the owner, were present.

Mr. Bearman reviewed the changes they made based on the comments made at the previous Planning Commission meeting. The information regarding the groundwater has not been received as of yet. They are requesting to have this information submitted during final site plan approval. He stated that the DEQ has determined that Wetland C is not regulated.

Mr. Borden stated the applicant has addressed many of his concerns. He reviewed his additional comments from his June 26, 2018 letter.

1. The site plan approval is contingent upon the Township Board's approval of the rezoning
2. Condominium documents are required. Mr. Borden is recommending that the areas that are to be undisturbed and remain natural, as well as their maintenance plan, be clearly noted in these documents.
3. He would still like the building envelope shown for Lot #25.
4. There are encroachments into the 25-foot natural feature setback around the wetland areas, which will require special land use approval. It is also likely that building construction will result in at least temporary encroachment due to the configuration of several building envelopes. He encourages the applicant to minimize the number of units that encroach, even if temporarily, and requests that any such areas be repaired/restored to their prior condition.
5. The applicant should provide a copy of the MDEQ permit to the Township.
6. The applicant must provide a Private Road Maintenance Agreement, which includes the financial and maintenance assurances required by the Ordinance
7. The applicant shall provide proof that the park/open space requirements are met and their preservation must be shown in the condominium documents.

Mr. Siwek reviewed his letter from June 26, 2018. The applicant has addressed some of his concerns and others can be addressed during final site plan approval.

1. A final grading and site development plan must be submitted and comply with the Livingston County Drain Commissioner
2. They agree to allowing the 1,900 foot road. The natural features on this site would make it impossible to loop the road back to the entrance.
3. All drainage, grading, and soil erosion control measures must be approved by the Livingston County Drain Commissioner.
4. The applicant shall obtain an MDEQ permit to use the wetland as a detention pond.
5. A permit for the private road intersection with Chilson Road must be obtained from the Livingston County Road Commission.

He believes that preliminary site plan approval can be granted without the groundwater testing information being provided. This will be addressed during final site plan approval.

It was noted that the applicant has addressed all of the concerns of the Brighton Area Fire Authority's concerns.

Ms. VanMarter stated that although Wetland C is not regulated, it connects to Wetland E which is regulated. She has asked the DEQ for clarification if it changes the status Wetland C. If that is the case, then the same requirements for all wetlands shall also apply to Wetland C.

The call to the public was made at 7:39 pm with no response.

Moved by Commissioner Mortensen, seconded by Commissioner Grajek, to recommend to the Township Board approval of the Impact Assessment dated June 19, 2018 for Chestnut Springs, subject to the following:

1. Approval by the Township Board of the rezoning of the property from Agriculture to Low Density Residential
2. Approval by the Township Board of the preliminary site plan dated June 20, 2018.

The motion carried unanimously.

Moved by Commissioner Mortensen, seconded by Commissioner Grajek, to recommend to the Township Board approval of the preliminary site plan dated June 20, 2018 for Chestnut Springs, conditioned upon the following:

- 1) Approval by the Township Board of rezoning the property to Low Density Residential.
- 2) Approval of the Impact Assessment dated June 19, 2018.
- 3) Clarification to the Township Board regarding the location of the building envelope and setbacks for Lot #25.
- 4) Further acknowledgement by the petitioner of the following:
 - a) The requirements for the final site plan will, at a minimum, include the following:
 - i) Following all procedures of Article 13 of the Township Zoning Ordinance.
 - ii) Obtaining all other governmental regulatory approvals, including water quality from the Livingston County Health Department.
 - iii) Providing access easements for water testing and sampling by the Township.
 - iv) Providing an access easement for a groundwater monitoring well at a location determined by the Township Engineer.
 - v) Approval by the Township Attorney of the Master Deed, Bylaws, and covenants covering maintenance including, but not limited to, rights for Township inspection of wells, maintenance agreements of common areas, including a Private Road Maintenance Agreement, which includes the financial and maintenance assurances, and educating the property owners on the potential harm of using salt on paved areas.
 - vi) The condominium Master Deed and covenants shall clearly note the protected areas that are to be undisturbed and remain natural so the residents do not encroach.
- 5) Requirements of Tetra Tech's letter dated June 26, 2018 will be met.
- 6) Requirements of the Brighton Area Fire Authority's letter dated June 22, 2018 shall be met.

The motion carried unanimously.

OPEN PUBLIC HEARING #3... Consideration of Zoning Ordinance Text amendments to Article 10 of the Zoning Ordinance, entitled "Planned Unit Development" and Article 25, entitled "Definitions". The ordinance is proposed to be amended to add standards and definitions related to "Interchange Commercial PUD" and "Interchange Campus PUD".



November 7, 2018

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Chestnut Springs – Final Condominium Plan and Special Land Use Review #2
Location:	East side of Chilson Road, south of Brighton Road (along Genoa/Hamburg Twp. Border)
Zoning:	LDR Low Density Residential

Dear Commissioners:

At the Township’s request, we have reviewed the revised final condominium plan (cover sheet 10/25/18 per Township review comments) for Chestnut Springs, a 67.12-acre site located on Chilson Road south of Brighton Road. The applicant proposes a 25-unit residential development with minimum 1-acre lot sizes, a private road, and a common open space.

We have reviewed the revised plan submittal for compliance with the applicable provisions of the Genoa Township Zoning Ordinance.

A. SUMMARY

1. The condominium documents are subject to review and comment by the Township Attorney; although we have provided several suggested edits.
2. Remaining outside agency approvals (Livingston County Drain Commissioner, County Road Commission, and County Health Department) must be obtained (with documentation of approval to be submitted to the Township).
3. The Exhibit B drawings should rename the “wetland setback” to “undisturbed natural features setback” and Lot 25 shall be added to the applicable lots.
4. We recommend that the applicant complete the General Note on the General Layout Site Plan sheet (3), which says “homes on lots 7, 12, and 13 will utilize a smaller house footprint to prevent grading” to indicate that this is to prevent grading impacts on the required 25’ natural features setback.
5. The private road/shared drives are subject to review and approval by the Township.
6. If the development is proposed as a gated community, details must be provided for review. Additionally, access codes will be required for all emergency service providers and we suggest the Township require an indemnification agreement.
7. The encroachments into the 25-foot natural feature setback for the road, shared drive, detention outlet, dry hydrant, and grading for Unit 7 require special land use approval.
8. Given a relatively limited area of disturbance in comparison to the area protected/preserved and approval of a wetland permit by MDEQ, we are generally of the opinion that the special land use standards are met.
9. The applicant must address any comments provided by the Township Engineer and/or Brighton Area Fire Authority.



Aerial view of site and surroundings (looking north)

B. PROPOSAL/PROCESS

The applicant proposes to construct 25 new single-family residences on minimum one-acre lots. The development is proposed as a site condominium, whereby each detached dwelling unit has a separate owner, but the remainder of the land, including the open space, private road and shared drives, are the responsibility of a condominium association.

Section 12.07 requires both preliminary and final approval for condominium plans. Procedurally, both reviews go through the Planning Commission for a recommendation to the Township Board, who has final approval authority. The project previously obtained preliminary approval with conditions.

The final submittal includes a request for encroachments into the 25-foot natural feature setback, which are subject to review/approval as a special land use.

C. SITE PLAN REVIEW

1. Submittal Requirements. The submittal includes the required condominium documents (master deed and by-laws). Consistent with past practice, we suggest these documents be reviewed by the Township Attorney.

Furthermore, we provided the following suggested edits:

- The Master Deed cover page should indicate this is a 25-unit site condominium, not 24-unit.
- Bylaws Section 20.13 item (a) shall include a reference to the natural undisturbed natural features setback within 25' of regulated wetlands.
- Bylaws Section 20.13 item (c) shall add statement regarding not within required setback including the natural features setback mentioned in 20.17.
- Bylaws Section 20.16 should remove any references to the "Township's Planned Unit Development ordinance" since this is not a PUD.
- Bylaws Section 20.16 should include a reference to the 25' undisturbed natural features setback.

As previously suggested, the by-laws include language noting that the Association is responsible for maintaining the common elements (including the two open spaces), as well as informing co-owners that no activities are allowed within the wetland areas or natural feature setback surrounding the regulated wetlands.

The site plan cover sheet shows a table of permits and approvals; the MDEQ approved wetland permits (10/11/18) and the Road Commission approved sight distance (5/29/18). (A copy of the MDEQ permit is included with the current submittal.)

Other outside agency approvals (Livingston County Drain Commissioner, County Road Commission, and County Health Department) are still required. Documentation of these approvals must be submitted to the Township once obtained.

2. **Dimensional Requirements.** The LDR District requires minimum lot sizes of 1-acre (area) and 150 feet (width). Based on the plan and table on Sheet 3.0, all 25 units meet or exceed these standards.

The final plan also provides for building envelopes in accordance with minimum LDR setbacks and the required setbacks have been added to Unit 25, as discussed during the preliminary approval. We also recommend that the Exhibit B drawings should rename the “wetland setback” to “undisturbed natural features setback” and Lot 25 shall be added to the applicable lots.

The revised plans also identify the front yards on units accessed via shared driveways, clarifying an issue raised in our previous review letter.

3. **Natural Feature Setback.** Section 13.02.04 requires a 25-foot setback from the edge of a regulated wetland. The final plan highlights four areas of encroachment, detailed on Sheet 4.1, as follows:

- a. Detail A: the roadway just west of Open Space B
- b. Detail B: an area directly behind the proposed house on Unit 7
- c. Detail B: an area between the proposed house and septic field on Unit 7
- d. Detail C: the shared driveway access for Units 9 and 25

The proposal also includes a detention outlet into Wetland E and a dry hydrant connection to the pond near the east end of the site. Details of these elements are described on Sheet 4.1. All encroachments require special land use approval and are reviewed in greater detail under Paragraph D below.

As discussed during preliminary plan review, several units were depicted at or near the natural feature setback line, with the potential for construction to result in further encroachment/disturbance. As noted in our previous review letter, such units included 1, 2, 3, 6, 7, 9, 11, 12 and 13.

The revised submittal indicates that Unit 7 will include some areas of encroachment for grading, which has been included in the details on Sheet 4.1.

The applicant has noted that the dwellings for Units 7, 12, and 13 will be smaller homes, allowing additional area for grading at the rear of the Units. We recommend that the applicant complete the General Note on the General Layout Site Plan sheet (3), which says “homes on lots 7, 12, and 13 will utilize a smaller house footprint to prevent grading” to indicate that this is to prevent grading impacts on the required 25’ natural features setback.

The dwellings on Units 1, 2, 3, 6, 9, and 11 have also been moved closer to the front setback line to provide additional room for grading.

The revised submittal also notes that construction fencing will be placed along the natural feature setback line (or the furthest point of encroachment, if granted) to protect against further disturbance.

4. **Pedestrian Circulation.** The plan includes woodchip walking trails in the two open space areas near Chilson Road. The Ordinance exempts trails and other recreational areas from the required 25-foot setback from the edge of a regulated wetland, although Open Space A is adjacent to an unregulated wetland and Open Space B exceeds the 25-foot minimum setback.
5. **Vehicular Circulation.** Consistent with the approved preliminary plan, the development includes a private road with 3 separate shared driveway extensions. As noted above, portions of the road near the intersection with Chilson Road encroach into the 25-foot natural feature setback.

Section 15.04 requires 16-foot wide shared driveways within a 33-foot easement and restricts access to no more than 4 residences. The proposed development complies with these standards, showing a required 33-foot easement and 18-foot wide shared driveways.

Driveway construction must also be suitable for emergency vehicles. The plans include cross-section details for the shared drives and the road, which are subject to review by the Township Engineer and Brighton Area Fire Authority.

Lastly, private roads are regulated under Section 15.05. We defer to the Township Engineer for a detailed review of the proposed road design. The applicant has also indicated that they will provide a Private Road Maintenance Agreement, as required.

6. **Landscaping.** The landscape plan matches the approved preliminary plan with respect to size, type, quantity and location of proposed plantings.
7. **Park/Open Space.** The final plan matches the approved preliminary plan with respect to size, location and details for the two proposed open spaces (A and B).
8. **Grading, Drainage, and Utilities.** We defer to the Township Engineer for review and comments.
9. **Gated Entrance.** If the development is to be gated, the location, design and vehicle stacking dimensions are subject to review by the Township. Additionally, access codes must be provided to all local emergency service organizations such as EMS, Central Dispatch, Police, and Fire.

Lastly, we suggest the Township require an indemnification agreement in the event emergency access is disrupted or damage is caused to the gates or emergency vehicles. The Township may wish to further discuss this matter with the Township Attorney.

D. SPECIAL LAND USE REVIEW

1. **Master Plan.** The Genoa Township Master Plan and Future Land Use map designate this area as Low Density Residential, which is intended for residential development on minimum 1-acre lots. This category is also consistent with the current zoning designation of LDR.

The Master Plan encourages preservation and protection of existing wetlands within the Township.

Based on Sheet 4.1, the road, drive and grading for Unit 7 encroachments are not into the wetlands themselves, nor are they within 10 feet of the wetlands at their nearest point. The detention outlet and the dry hydrant connect into the wetlands and were approved by MDEQ.

2. **Compatibility.** The site is surrounded by other rural residential areas, recreational lands, and preserved/undeveloped areas. The proposed project is generally expected to be compatible with the established character of the surrounding area.

- 3. Public Facilities and Services.** This project will be served by well and septic, which are subject to outside agency approvals. Additionally, the private road and shared drives are subject to review and approval by the Township (private road and shared drives) and the County Road Commission (work within Chilson Road right-of-way).
- 4. Impacts.** As previously noted, the proposed road and drive are at least 10 feet from the edge of the wetlands and do not encroachment into the wetlands themselves.

Details on Sheet 4.1 indicate that a total of 2,730 square feet within the natural feature setback area will be disturbed. In our opinion, this is relatively minor in relation to the total amount of protected and undisturbed land. For comparison, these two wetland areas comprise approximately 15 acres of land on-site.

Given MDEQ approval of the detention outlet and dry hydrant, we do not anticipate a detrimental impact on the wetlands.

- 5. Mitigation.** The mitigation efforts include silt fence to protect the wetlands from any accumulating sedimentation from runoff caused by construction activities. Mesh construction fencing will also be placed in areas where grading occurs near the wetland setback to prevent encroachment beyond that approved.

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

Respectfully,

SAFEBUILT STUDIO



Brian V. Borden, AICP
Planning Manager



Stephen Hannon, AICP
Planner



November 7, 2018

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

Re: **Chestnut Springs**
(Parcels #4711-33-400-003, #4711-34-300-005)
Final Site Plan Review #5

Dear Ms. VanMarter:


As requested, we have performed a fifth review of the above-referenced site plan and special land use application as prepared by Livingston Engineers on behalf of Chestnut Development LLC, last dated September 22, 2018. The 67-acre parcel is located on the east side of Chilson Road at the southern boundary of the Township. The Petitioner is proposing to develop 25 single-family home sites served by a private road.

GENERAL NOTES

All of our previous comments have been addressed by the revised plans. The Petitioner provided copies of the MDEQ Part 303 Permit, the Livingston County Road Commission Land Split/Sight Distance Review, and the preliminary approval of the Livingston County Health Department of the on-site sewage disposal and water supply. With the revision and these obtained documents, we have no further engineering related comments.

If you have any questions or comments, please call.

Sincerely,



Gary J. Markstrom, P.E.
Vice President



Shelby Scherdt
Project Engineer



BRIGHTON AREA FIRE AUTHORITY

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

November 8, 2018

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Chestnut Development
67.12-acre parcel E. of Chilson Rd. between Brighton Rd. & Bishop Lake 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 September 24, 2018 **and again on October 24, 2018**, and the drawings are dated September 9, 2018, and **October 22, 2018**. The project is a 25 unit single family home development. The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

There is no municipal water supply in this area of the township. This development is proposed with a single access point off of Chilson Road. There are three long shared driveways off of the primary road that each service between two and four lots.

The following comments should be addressed prior to a favorable recommendation from the fire department.

1. The primary access road shall be a minimum of 26' wide, not including gravel shoulders. The plan indicates a road width of 22' with a 5' gravel shoulder on either side. With a width of 26' wide, one side of the street shall be marked as a fire lane. Include the location of the proposed fire lane signage and include a detail of the fire lane sign in future submittals. **(Addressed in plans. Roads have been increased to 26 feet wide with a 3-foot shoulder.)**
IFC 503.2.2
IFC D103.6.1
2. The width of the three shared driveways is not indicated on the plan. The three shared driveway widths shall be a minimum of 20' wide. Based on the length of the shared driveways it is recommended to provide each drive with a means to turn around at each of the dead ends. Turnarounds may be provided using a 120' Hammerhead, 60' "Y" or 96' diameter cul-de-sac. **(Addressed in plans. In speaking with the developer, a compromise was made to allow the shared driveways to be 18 feet wide with the required turnarounds.)**
IFC D103.4
IFC Table D103.4
3. Access roads shall be constructed to be capable of supporting the imposed load of fire apparatus weighing at least 75,000 pounds.
IFC 503.2.3



November 8, 2018

Page 2

Chestnut Development

67.12 acre parcel E. of Chilson Rd. between Brighton Rd. & Bishop Lake Rd.

Site Plan Review

4. Provide details regarding fire flow requirements, and how they will be accomplished for the development. Fire flow requirements are outlined below.

507.1 Required water supply. An approved water supply capable of supplying the required fire flow for fire protection shall be provided to premises upon which facilities, buildings or portions of buildings are hereafter constructed or moved into or within the jurisdiction.

507.2 Type of water supply. A water supply shall consist of reservoirs, pressure tanks, elevated tanks, water mains or other fixed systems capable of providing the required fire flow. (Example: accessible pond, underground tank, well-driven hydrant capable of flowing 250 gallons per minute.)

507.2.1 Private fire service mains. Private fire service mains and appurtenances shall be installed in accordance with NFPA 24.

507.2.2 Water tanks. Water tanks for private fire protection shall be installed in accordance with NFPA 22.

507.3 Fire flow. Fire flow requirements for buildings or portions of buildings and facilities shall be determined by an approved method. **(A dry hydrant is being installed at the end of the shared driveway located on the east side of the property. The hydrant will provide access to the body of water on the east side of the property.)**

5. Provide documentation and schematics of the proposed dry hydrant. (Type, depth, location, pipe sizes and diameters, etc.)

6. Provide names, addresses, phone numbers, emails of owner or owner's agent, contractor, architect, on-site project supervisor.

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

Cordially,

Derrick Bunge
Lieutenant Fire Inspector

cc: Amy Ruthig-Genoa Twp.



LIVINGSTON COUNTY HEALTH DEPARTMENT

2300 East Grand River Avenue, Suite 102
Howell, Michigan 48843-7578

www.lchd.org

PERSONAL/PREVENTIVE HEALTH SERVICES

P: (517) 546-9850

F: (517) 546-6995

ENVIRONMENTAL HEALTH SERVICES

P: (517) 546-9858

F: (517) 546-9853

November 1, 2018

Livingston Engineering
Attn.: Michael Bearman, P.E.
3300 S. Old U.S. 23
Brighton, MI 48114

RE: Preliminary Approval for "Chestnut Springs" Site Condominium Community located in Section 7, Genoa Township, Livingston County, Michigan.

Dear Mr. Bearman:

In accordance with Section 71A of Act 59, P.A. 1978 as amended, and the Environmental Health Division of the Livingston County Health Department (LCHD) has reviewed the information submitted for onsite sewage disposal and onsite water supply for the above mentioned site condominium and is granting preliminary Health Department approval in accordance with the restrictions included in this letter.

The proposed "Chestnut Springs" Site Condominium consists of 25 single-family units with a minimum size of 43,688 sq. ft. per unit. There is no availability to a municipal sanitary sewer or water supply system proposed at this time and none in the foreseeable future. Therefore, each unit will be entirely dependent upon individual onsite water and sewage treatment for long-term use.

The site report and soil data has been submitted, reviewed, and soil conditions confirmed on site. The soil conditions encountered were predominantly sandy clay loam to coarse sand soil conditions, which is acceptable for the treatment of onsite wastewater.

Strata Environmental Services, Inc. have provided the water supply information to us with an assessment of the aquifer proposed to serve the individual wells. As indicated in their report, a total of 3 test wells were drilled on proposed units 4, 12 & 24.

Based on information obtained on the test well records along with neighboring well logs, the wells will most likely be completed at depths ranging between 96 and 113 ft. in strata identified as gravel. Therefore, since the test wells did not encounter protective clay the wells shall be drilled to a depth that will maintain a minimum of 50 ft. from the static water level to the top of the screen. The

horizontal isolation distance between septic systems and wells should be maximized when possible. Minimum isolation distance is 50 feet.

In addition, water samples have been received from the test wells indicating no coliform bacteria present and nitrates were well below the acceptable State limits. Water analysis revealed objectionable chloride, iron and hardness results and serious consideration should be given to installing a filtering and/or water softener system.

The source of elevated chloride is from historic discharge from the Oak Pointe Wastewater Treatment Plant. The wastewater treatment plant was taken off line in 2015 and no longer discharges to the local groundwater. The current drinking water criteria for chloride is aesthetic based, chloride concentrations in excess of the drinking water criteria can give rise to a detectable salty taste in water. Chloride also increases the electrical conductivity of the water and thus can increase its corrosivity, which can have an impact on metal piping.

Therefore, pursuant to Section 71A of Act 59 of P.A. 1978, as amended, the proposed “Chestnut Springs” Site Condominium located in Section 7, Genoa Township is granted preliminary approval by this Department contingent upon the following restrictions:

*** Represents all issues that shall be submitted prior to final master deed approval.**

1. No unit shall be used for other than a single-family dwelling.
2. There shall be no future subdividing of any building units, which would utilize individual onsite sewage treatment and/or water supply systems.
3. “Chestnut Springs” Site Condominium has been approved for 25 individual units as described in Livingston Engineering, Job # 11216-2 site plan dated August 28, 2018, last revision dated October 22, 2018.
4. The wells and septic systems shall be located in the exact area as indicated on the preliminary site plan. There shall be no deviations to these locations due to the potential of making neighboring building sites within this development un-buildable. In the future and ensuring the approvals included in this letter; if for any reason modifications to the originally approved septic areas are considered necessary a written request along with an application for soil evaluation and the associated fees shall be submitted to LCHD for review and approvals.
5. All wells shall be drilled by a Michigan licensed well driller and be drilled to a depth that will maintain a minimum of 50 ft. from the static water level to the top of the screen.
6. Review of the water quality test results has indicated that groundwater within the test wells in Chestnut Springs contained chloride concentrations above naturally occurring background levels although not exceeding the established USEPA Secondary Contaminant Level (SMCLs) of 250 mg/L. The SMCLs represent the suggested maximum levels of a

specific groundwater constituent for desirable aesthetic characteristics of water. Problems associated with high levels of chloride include taste and corrosion of plumbing and fixtures. **Therefore, all wells within the Chestnut Springs development will be required to sample for chloride.** Samples shall be collected from an untreated, raw sample tap.

7. The Recorded Master Deed will reflect that there is not presently any levels above the treatment requirement for Chloride (a component of salt); however, levels are present above natural background. The source of elevated chloride is from historic discharge from the Oak Pointe Wastewater Treatment Plant. The wastewater treatment plant was taken off line in 2015 and no longer discharges to the local groundwater. The current drinking water criteria for chloride is aesthetic based, chloride concentrations in excess of the drinking water criteria can give rise to a detectable salty taste in water. Chloride also increases the electrical conductivity of the water and thus can increase its corrosively, which can have an impact on metal piping.
8. As a precaution, the Township and the Developer have agreed to provide a Township approved Reverse Osmosis system, on each and every unit within the project, treating the kitchen sink and the kitchen refrigerator ice-maker at the cost of the developer.
9. The developer grants the Township a perpetual easement as described on the approved site plan for access to the townships 3 monitoring wells sites, which shall be tested at a frequency determined by Genoa Charter Township. Monitoring well results will be shared with the Michigan Department of Environmental Quality and the Livingston County Health Department. In the event that the water tests above the standard maximum for chloride in the future, the Township shall have the right to test the water at the point of the R/O within the house on an annual basis to verify that the R/O system is working. If necessary, the Township will provide replacement RO filters if the concentration of Chloride increases above treatment requirements.
10. Each buyer in the project will receive a copy of the master deed containing these caveats which will be included within the Master Deed, and sign a document stating they received, reviewed, and agree to the terms and disclosures contained in the master deed.
11. The water softener and/or water conditioning discharge waters shall not be connected or discharged into the onsite sewage disposal system.
12. The test wells used to determine onsite water supply adequacy have been drilled on Units 4, 12 & 24. **Prior to Final Master Deed Approval**, any test well not to be used, as the potable water supply system shall be properly abandoned in according to Part 127, Act 368 of the Groundwater Quality Control Act.
13. The individual unit owners shall be responsible for the maintenance and repair of their individual potable water supply and onsite sewage treatment systems.
14. The reserve septic locations as designated on the preliminary plan on file at the Livingston County Health Department must be maintained vacant and accessible for future sewage

treatment uses.

15. There shall be no underground utility lines located within the areas designated as active and reserve septic system areas.
16. The active and reserve septic areas shall be prepared according to the information submitted by the engineer on Units 1 – 4, 7 & 10 – 24. Elevation and design specifications will need to be submitted to the Livingston County Health Department for review and approval. Engineer certification is required prior to **final master deed approval** indicating that these units have been prepared under engineer guidelines and written certification is required along with “as-built” drawing depicting the original grades and final constructed grades in the cut and filled areas.
17. Prior to issuance of permits for Units 1, 2, 23 & 24 individual engineered site plans showing elevation and design specifications both proposed active and reserve septic areas along with house, well, and utility locations shall be submitted to the Livingston County Health Department for review and approval. Due to the fact that engineered plans shall be required along with written engineer approval after the septic areas have been prepared, the cost of the system may be higher than a typical conventional septic system. These units require the utilization of alternative technology and shall be designed by a registered professional engineer in conformance with “Livingston County Sanitary Code” and “Minimum Requirements for Alternative On-Site Sewage Treatment Systems” guidelines for the design and installation of alternative sewage treatment systems, dated October 21, 2016.
18. The onsite sewage treatment systems for Units 6 & 9 will require the excavation of slow permeable soils to a more permeable soil ranging between 3.5 to 10 ft. in depth. Due to the fact that unsuitable soils will be excavated in the area and replaced with clean, sharp sand, the cost of the system may be higher than a conventional sewage treatment system.
19. Unit 5 will require the bottom of the stone bed to be no deeper than 1.5 ft. below the highest original grade.
20. Unit 6 will require the bottom of the stone bed to be no deeper than 2 ft. below the highest original grade.
21. Unit 8 will require the bottom of the stone bed to be no deeper than 1 ft. below the highest original grade.
22. Units 1, 2, 12, 15 – 20, & 22 - 25 will require an enlarged system due to the heavy soil structure witnessed on this unit. Please refer to the soil conditions on file at the Livingston County Health Department.
23. The engineer must give written certification that any additional grades, filling and/or land balancing that has taken place, as part of the construction of the development has not affected the placement for either the active or reserve sewage treatment systems. This certification must be given stating that there have been no changes on any units affected

prior to master deed approval.

24. **Prior to master deed approval**, written engineer certification must be given which indicates that all storm drains which are within 25 ft. to the proposed active or reserve septic areas have been sealed with a watertight premium joint material.
25. A 2000 sq. ft to 3200 sq. ft. area has been designated on each unit for the active and reserve sewage disposal systems to accommodate a typical three bedroom single family home. Proposed homes exceeding three bedrooms must show that sufficient area exists for both the active and reserve sewage systems, which meet all acceptable isolation distances.
26. There shall be no activity within the regulated wetlands unless permits have been obtained from the Michigan Department of Environmental Quality
27. All restrictions placed on “Chestnut Springs” Subdivision by the Livingston County Health Department are not severable and shall not expire under any circumstances unless otherwise amended or approved by the Livingston County Health Department.

All deed restrictions along with a copy of the Final Master Deed and Bylaws shall be submitted to the Livingston County Health Department for review and approval prior to being submitted to the Livingston County Register of Deed.

All restrictions established by the Livingston County Health Department must be incorporated into the Deeds for recording. **Any changes within this development from what has been reviewed by the Livingston County Health Department will make this approval null and void.**

If you have any further questions, please do not hesitate to contact me at (517) 552-6873.

Sincerely,



Aaron Aumock, REHS, PEM
Field Program Coordinator

cc: MDEQ, Attn.: Kristine Rendon
Genoa Township Zoning
Genoa Township Engineer
Developer, Chestnut Development, LLC.



**LIVINGSTON COUNTY ROAD COMMISSION
LAND SPLIT / SIGHT DISTANCE REVIEW**

****NOTE: THIS IS NOT A
DRIVEWAY PERMIT.****

Review Number 1805-007REV

Property Owner and Applicant Information

Owner: Chestnut Development Co.
 Street Address: 6253 Grand River Avenue, Suite 700
 City, State, ZIP: Brighton, MI 48114
 Day Phone: (810) 599-3984 Fax:
 Applicant: Michael Baerman
 Company: Livingston Engineering
 Address: 3300 S. Old US-23
 City, State: Brighton MI, 48114
 Applicant Phone: (810) 225-7100 Applicant Fax:

Location

Township: Genoa Section: 33
 Development: Chilson Park
 Approach Type: Private Road
 Speed Limit (if posted): 55
 Speed Factors (if any):
 Roadway On: Chilson Road Side of Street: East

Field Measurements

Location of existing property corners from nearest crossroad: and feet North of Bishop Lake Road

Parcel	Property/ Easement Corners	Access Point(s)	Sight Distance Req.		Sight Distance Measured		Sight Distance Comply	Clear Vision Comply	Neighbor Consent Required	Approve
			Std	Min						
Revised Road Approach		3595	875	600	875 South	700 North	Yes	No	No	Yes

Comments:

The center of a private road approach could be located 250 feet from the center of the railroad tracks. A private road approach application will need to be submitted for review and permitting. See the LCRC driveway specification book for more requirements.

Inspection Date: 05/29/2018

Inspector:

Kim Hiller

 Kim Hiller



**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
WATER RESOURCES DIVISION
PERMIT**

Issued To:

Mr. Steve Gronow
Chestnut Development, LLC
6253 Grand River Avenue, Suite 700
Brighton, Michigan 48114

Permit No: WRP013833 v.1
Submission No.: HNF-EC5Y-9AEJD
Site Name: 47-5885 Chilson Rd-Brighton
Issued: **October 11, 2018**
Revised:
Expires: October 11, 2023

This permit is being issued by the Michigan Department of Environmental Quality (MDEQ), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

- | | |
|--|---|
| <input type="checkbox"/> Part 301, Inland Lakes and Streams | <input type="checkbox"/> Part 323, Shorelands Protection and Management |
| <input checked="" type="checkbox"/> Part 303, Wetlands Protection | <input type="checkbox"/> Part 325, Great Lakes Submerged Lands |
| <input type="checkbox"/> Part 315, Dam Safety | <input type="checkbox"/> Part 353, Sand Dunes Protection and Management |
| <input type="checkbox"/> Part 31, Water Resources Protection (Floodplain Regulatory Authority) | |

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

Install a 36-inch diameter outlet control structure, a 48-inch diameter overflow structure, and a 30-inch diameter outlet pipe discharging to wetlands. Construct a 6-inch diameter dry hydrant in wetland.

All work shall be completed in accordance with the attached plans and specifications of this permit.

Waterbody Affected: Wetland
Property Location: Livingston County, Genoa Township, Town/Range/Section 02N05E33,
Property Tax No. 4711-33-400-003

Authority granted by this permit is subject to the following limitations:

- Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.
- The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
- This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.

**DEQ-WRD
WRP013833 v1.0
Approved
Issued On:10/11/2018
Expires On:10/11/2023**

- D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
- E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
- F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
- G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
- H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
- I. Permittee shall notify the MDEQ within one week after the completion of the activity authorized by this permit by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
- J. This permit shall not be assigned or transferred without the written approval of the MDEQ.
- K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
- L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
- M. In issuing this permit, the MDEQ has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, the MDEQ may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
- N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
- O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, the MDEQ may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
- P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from the MDEQ. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by the MDEQ prior to being implemented.
- Q. This permit may be transferred to another person upon written approval of the MDEQ. The permittee must submit a written request to the MDEQ to transfer the permit to the new owner. The new owner must also submit a written request to the MDEQ to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all of the above information may be provided to the MDEQ. The MDEQ will review the request and, if approved, will provide written notification to the new owner.
- R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.
- S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.

- T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).
- U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.
- V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.
- W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.
- X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.
- Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:
1. Prior to the initiation of any permitted construction activities, a sedimentation barrier shall be constructed immediately down gradient of the construction site. Sedimentation barriers shall be specifically designed to handle the sediment type, load, water depth, and flow conditions of each construction site throughout the anticipated time of construction and unstable site conditions. The sedimentation barrier shall be maintained in good working order throughout the duration of the project. Upon project completion, the accumulated materials shall be removed and disposed of at an upland (non-wetland, non-floodplain) site and stabilized with seed and mulch. The sedimentation barrier shall then be removed in its entirety and the area restored to its original configuration and cover.
 2. Prior to the start of construction, all adjacent non-work wetland areas shall be protected by properly trenched sedimentation barrier to prevent sediment from entering the wetland. Orange construction fencing shall be installed as needed to prohibit construction personnel and equipment from entering or performing work in these areas. Fence shall be maintained daily throughout the construction process. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site, the sedimentation barrier shall then be removed in its entirety and the area restored to its original configuration and cover.
 3. All raw areas in uplands resulting from the permitted construction activity shall be effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters or wetlands. Temporary stabilization measures shall be installed before or upon commencement of the permitted activity, and shall be maintained until permanent measures are in place. Permanent measures shall be in place within five (5) days of achieving final grade.
 4. All storm water sediment/detention basin(s) and outlet(s) shall be designed and constructed to capture and treat (at a minimum) the "first flush," the first 0.5 inch of runoff from the contributing drainage area. The basin(s) and outlet(s) shall be designed and constructed in accordance with the Guidebook of Best Management Practice's (BMPs) for Michigan watersheds, including the use of a perforated riser pipe/stone filter controlled discharge structures. Basin(s) shall be maintained in good working order so as to function properly.
 5. No discharge is authorized from the storm water basins until the contributing drainage area is properly stabilized, or proper soil erosion measures are in place, to avoid uncontrolled sediment discharges.

6. This permit is limited to authorizing the construction as specified above and carries with it no assurances or implications that associated wetland or floodplain areas can be developed and serviced by the structures authorized by this permit.
7. Authority granted by this permit does not waive permit or program requirements under Part 91 of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit www.mi.gov/deqstormwater and select "Soil Erosion and Sedimentation Control Program" under "Related Links."
8. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.
9. No fill, excess soil, or other material shall be placed in any wetland, floodplain, or surface water area not specifically authorized by this permit, its plans, and specifications.
10. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.
11. The permit placard shall be kept posted at the work site, in a prominent location at all times for the duration of the project, or until permit expiration.
12. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDEQ, will be for a five-year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.



Issued By: _____

Jeff Pierce
Lansing District Office
Water Resources Division
517-416-4297

cc: Genoa Township Clerk
Livingston County Drain Commissioner
Livingston County Enforcing Agent
Mr. Todd Losee, Niswander Environmental

DEQ-WRD
WRP013833 v1.0
Approved
Issued On:10/11/2018
Expires On:10/11/2023

**Impact Assessment
for
Chestnut Springs
Genoa Charter Township
Livingston County, Michigan**

Prepared By

**Livingston Engineering
3300 S. Old US-23
Brighton, MI 48114
(810) 225-7100
October 25, 2018**

This impact assessment has been prepared in accordance with section 18.07 of the Genoa Township, Livingston County, Michigan Zoning Ordinance. This section states that developments of this nature shall include such a report for review as part of the site plan/re-zoning review and approval process. As such, this report has been prepared to provide the required information and project overview of the development, in accordance with current township requirements.

I. Party Responsible for preparation of Impact Statement

This impact assessment has been prepared by Livingston Engineering, a professional services company offering civil engineering, land surveying, and site planning services throughout southeast Michigan. Livingston Engineering is licensed to provide engineering and surveying services in Michigan, as well as engineering licenses in the states of Arizona, Colorado, New Mexico, Tennessee and Utah.

II. Site Location

The subject site contains approximately 74.8 Acres Total (parcels 4711-33-400-003 and 4711-34-300-005) with 67.12 acres being used for the Chestnut Springs development, located in the Southwest $\frac{1}{4}$ of section 33 and the Southwest $\frac{1}{4}$ of section 34 of Genoa Township, Livingston County, Michigan. These parcels are located on the east side of Chilson Rd between Brighton Rd and Bishop Lake Rd. They are bordered on all sides by vacant parcels, with similar land use to the North and Southeast. State land owned by the DNR borders the property on the East, West, and South. The only developed residential area adjacent to the site is the Pine Lake Subdivision located on the very Southeast corner of the site. A location map and aerial photograph of the subject site is included in this report as Exhibit “A” and Exhibit “B” respectively.

Currently, the site is zoned LDR (Low Density Residential). The site is bordered on the East LDR, to the West by PRF (Public and Recreational Facilities), and to the North by MUPUD (Mixed Use

PUD) A copy of the Genoa Township Zoning Map is included in this report as Exhibit “C”.

The South property line of the subject parcel is the Genoa/Hamburg Township border, and parcels to the south are DNR state land zoned PPRF (Public and Private Recreational Facilities) and RAA (Single Family Low Density Residential).

III. Impact on Natural Features

Currently, the site is vacant and consists of an open field with a small pond and several scattered trees, and both regulated and unregulated wetlands. A wetland delineation map has been included as Exhibit “G”. The developer is currently in the process of acquiring a permit for the activities that impact the MDEQ regulated wetlands, including detention outlet and dry hydrant assembly.

Soils on the site consist primarily of Boyer-Oshtemo loamy sands. Miami loam is described as very deep, well drained soils. A soils map of the subject site is included as Exhibit “D”.

As depicted in Exhibit “E”, the site drains from North to South, and half of the site drains toward a draw through the Eastern wetland which ultimately outlets into the Huron river and the other half drains into onsite wetlands along the West and South side of the property. Storm water runoff will be collected and directed into an existing on-site wetland, with an outlet structure that outlets to the draw on the East side of the site. All regulated wetland impact activities are currently in the permitting process with the MDEQ.

Landscape treatments will be placed along the entrance, and canopy trees will be provided for individual lots. In general, the natural wetland features on site will be undisturbed and utilized as part of the natural aesthetic of the development.

IV. Impact on Storm Water Management

The proposed development will provide storm water quality and flood control treatment using an on-site existing wetland, located on the northwest corner of the site. The wetland detention is designed to meet the current standards of the Livingston County Drain Commissioner's Office and those of Genoa Township. The wetland detention pond is designed to capture storm water runoff from the subject site. Water quality will be provided to storm runoff prior to release into the wetland detention area by utilizing a combination of sediment traps/pools, check dams, and vegetative buffers.

An outlet structure designed in accordance with the Livingston County Drain Commissioner's Office will be provided in the proposed wetland/detention area to control the release rate and provide an emergency overflow route for volume in exceedance of the 100-year storm volume.

Storm water runoff from the adjacent property located to the North of the subject site that currently drains to the existing wetland draw on the East side of the site will continue.

During construction, soil erosion and dust control measures will be implemented. Best management practices including silt fence, check dams, and inlet filter mechanisms will be utilized during this time. For dust control, soil watering to keep the site in a moisture optimum condition will be performed with a water truck on an as needed basis. Upon completion of mass grading and earthmoving operations, permanent restoration including topsoil, seed and mulch along with landscape installation will be performed.

A soil erosion and sedimentation control permit will be required prior to the start of any site grading or construction.

V. Impact on Surrounding Land Uses

As proposed, this development will be in conformance with the future land use map as part of the current township master plan.

Access to this site will be from Chilson Rd.

Noise levels are expected to be that of a typical single-family residential neighborhood, within township standards.

No Site lighting is proposed for this development.

VI. Impact on Public Facilities and Services.

The development proposes 25 single family residential lots. The developers target demographic for buyers will be retirement aged individuals looking to downsize their home and reduce yard maintenance. As such, the project is not expected to have undesirable effects on local schools or recreation facilities.

As this project is consistent with the township's master plans future land use for this area along Chilson Rd, it is not anticipated that this facility will adversely affect emergency services such as fire and police.

VII Impact on Public Utilities

Each lot will be serviced by an individual well and septic system.

Electric and gas service will be extended on-site via underground installation.

VIII. Storage and Handling of Any Hazardous Materials

There is no plan for storage or handling of any hazardous materials on this site.

IX. Impact on Traffic

The location of the site is well suited for a development of this nature. It is located along Chilson Rd that has an existing two-lane cross section; one eastbound lane, and one westbound lane. Using

the ITE Trip Generation Manual, 7th ed., for Single-Family Detached Housing based on number of dwelling units (see Exhibit F & G), we calculated the following trips using the average rate for the A.M. and P.M. peak hours of traffic:

A.M. peak hour:

$$0.70 \times (25 \text{ units}) + 12.05 = 29.55 \text{ trips} \times 74\% \text{ (exiting)} \\ = 21.87 \text{ directional trips}$$

P.M. peak hour:

$$\ln(T) = 0.89 \times \ln(25 \text{ units}) + 0.61 = 3.47 \\ e^{(3.47)} = 32.29 \text{ trips} \times 64\% \text{ (entering)} \\ = 20.67 \text{ directional trips}$$

As calculated above, the development, under the fully developed conditions shown in this site plan, will generate less than 22 directional trips in both the A.M. and P.M. peak hours of traffic. Therefore, a traffic impact assessment or traffic impact study is not required by the Township per the Township Zoning Ordinance for the subject development.

The entrance location has been reviewed and approved by the Livingston County Road Commission (LRCR). A permit will be required by the LCRC prior to constructing the entrance.

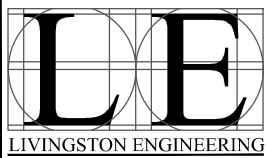
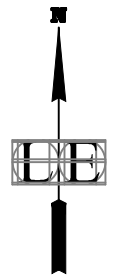
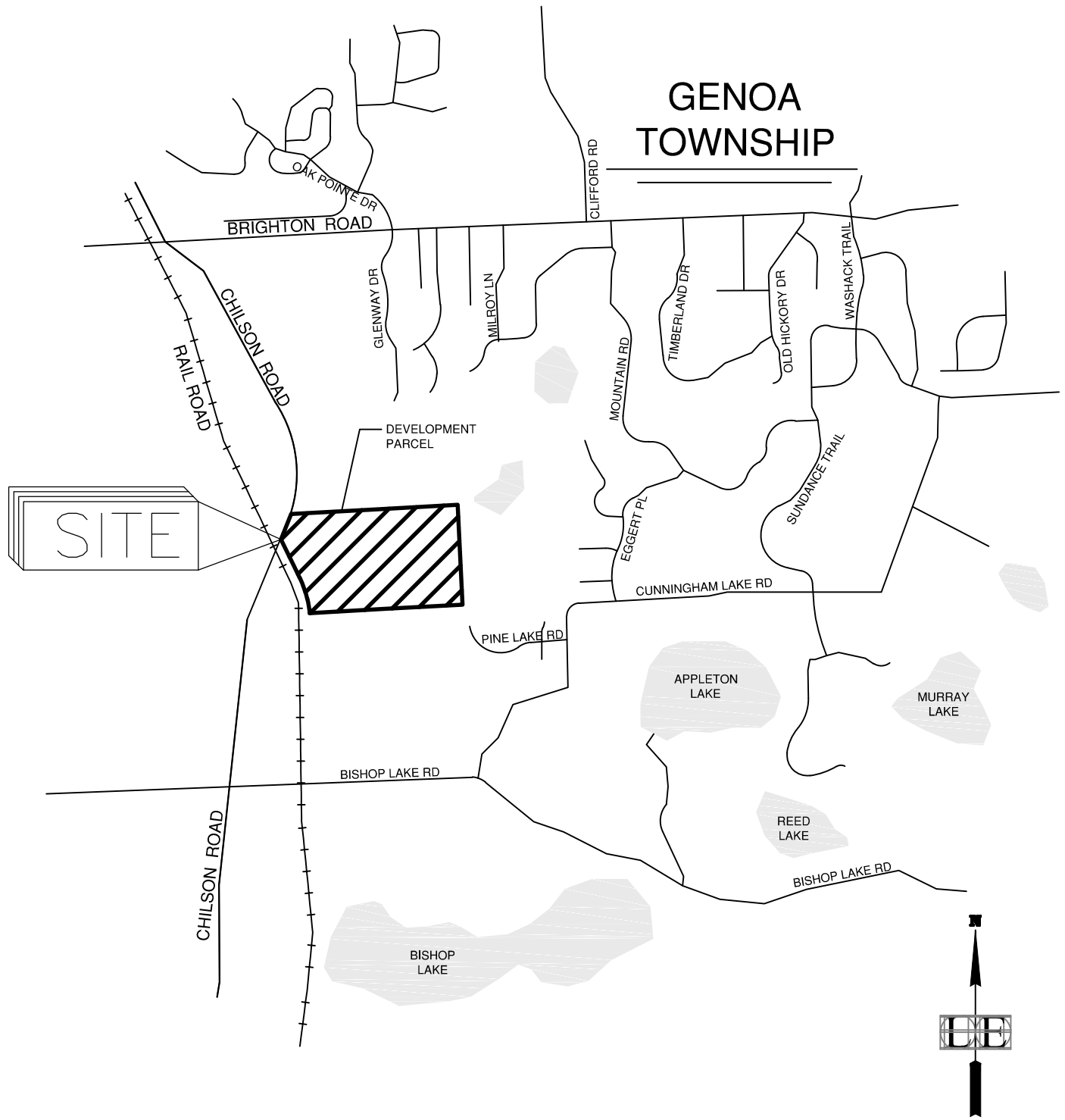
X. Historic and Cultural Resources

It is not believed that this development will have any impact on any historic and/or cultural resources pertaining to the subject parcel and no known historic and/or cultural resources exist on this site that will be affected by this development.

XI. Special Provisions

No special provisions are part of this project.

EXHIBIT A LOCATION MAP



SCALE NOT TO SCALE	
DRAWN MJB	DATE 9/7/2018
SHEET No. 1 of 8	JOB No. 11216-2

DESCRIPTION
CHESTNUT SPRINGS
Impact Assessment
Genoa Township, Livingston County, MI

FILE: C:\Users\User\Dropbox (Liveng)\Projects\2011\11216-2 Chestnut Genoa Chilson Rd\admin\DATA\Impact Assessment\11216-2_Impact Assessment_Exhibits.dwg

EXHIBIT B

AERIAL



SITE

Chestnut Park

Chilson Impoundment

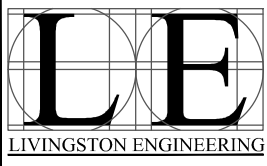
Appleton Lake

Little Appleton Lake

Reed Lake

Bishop Lake

Baetcke La



SCALE	0' 2,000' 4,000'		
	SCALE: 1"=2,000'		
DRAWN MJB	DATE 9/7/2018	SHEET No. 2 of 8	JOB No. 11216-2

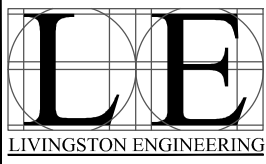
DESCRIPTION
CHESTNUT SPRINGS
Impact Assessment
Genoa Township, Livingston County, MI

EXHIBIT C

SOIL MAP



SITE



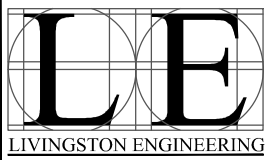
SCALE	<div style="display: flex; justify-content: space-between;"> 0' 400' 800' </div> <p style="text-align: center;">SCALE: 1" = 400'</p>	DESCRIPTION CHESTNUT SPRINGS Impact Assessment Genoa Township, Livingston County, MI
DRAWN MJB	DATE 9/7/2018	SHEET No. 3 of 8
		JOB No. 11216-2

EXHIBIT D

EXISTING DRAINAGE



FILE: C: \Users\User\Dropbox (Liveng)\Projects\2011\11216-2 Chestnut Genoa Chilson Rd\admin\DATA\Impact Assessment\11216-2_Impact Assessment_Exhibits.dwg



SCALE	0'	350'	700'
	SCALE: 1"=350'		
DRAWN	MJB	DATE	9/7/2018
SHEET No.	4 of 8	JOB No.	11216-2

DESCRIPTION
CHESTNUT SPRINGS
Impact Assessment
Genoa Township, Livingston County, MI

EXHIBIT E

TRAFFIC AM

Single-Family Detached Housing (210)

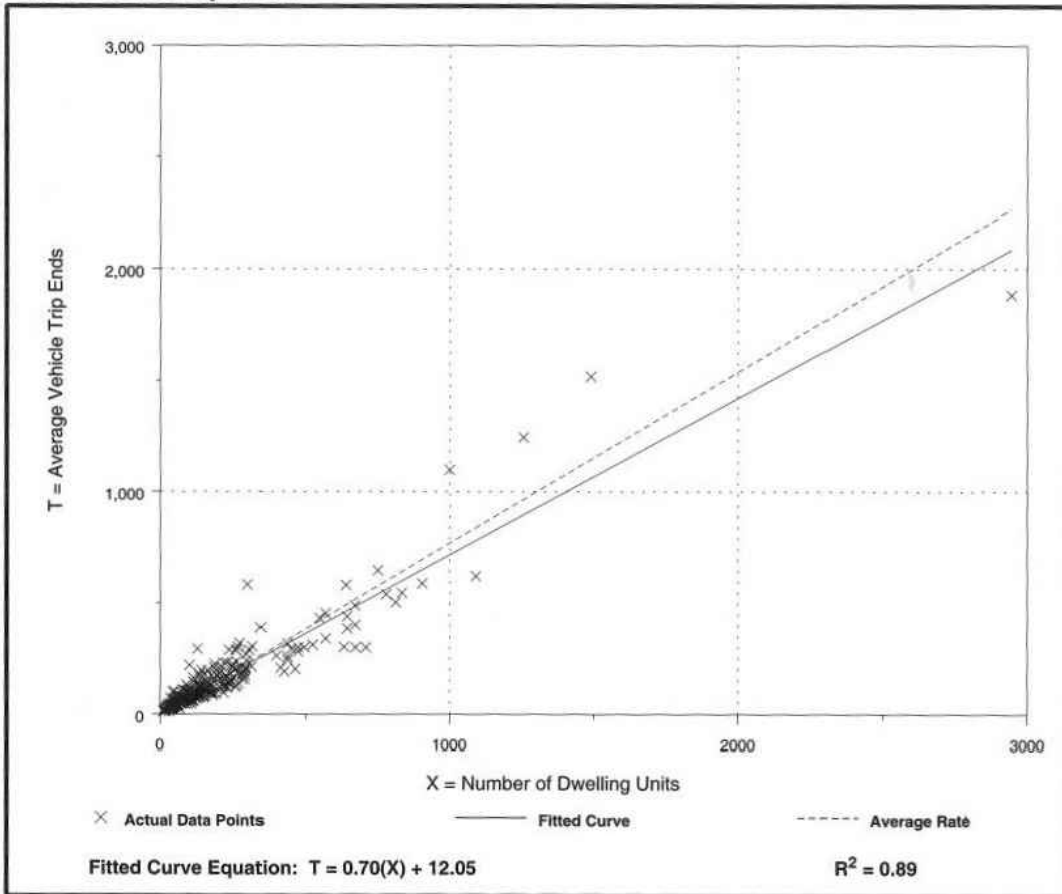
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
A.M. Peak Hour of Generator

Number of Studies: 335
Avg. Number of Dwelling Units: 183
Directional Distribution: 26% entering, 74% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.77	0.33 - 2.27	0.91

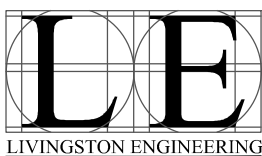
Data Plot and Equation



Trip Generation, 7th Edition

272

Institute of Transportation Engineers



SCALE
NOT TO SCALE

DESCRIPTION
CHESTNUT SPRINGS
Impact Assessment
Genoa Township, Livingston County, MI

DRAWN MJB DATE 9/7/2018 SHEET No. 5 of 8 JOB No. 11216-2

EXHIBIT F

TRAFFIC PM

Single-Family Detached Housing (210)

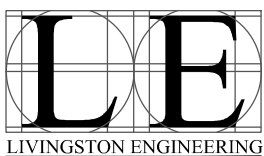
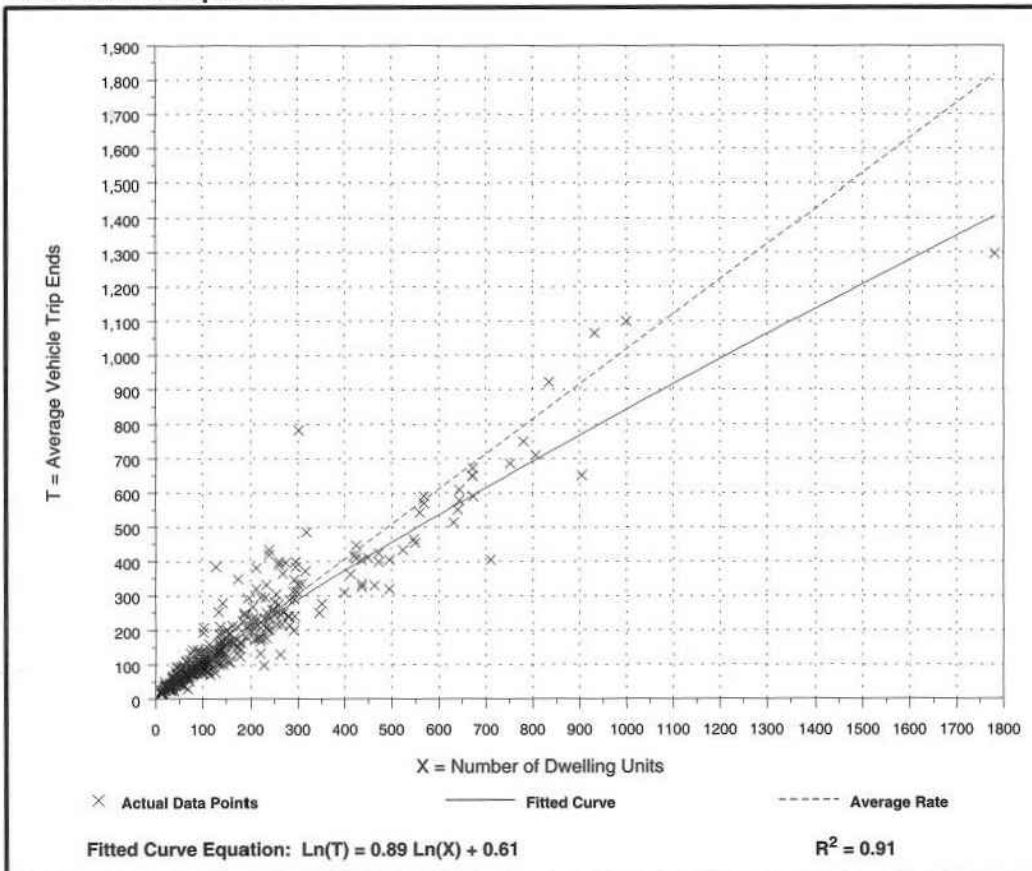
Average Vehicle Trip Ends vs: Dwelling Units
On a: Weekday,
P.M. Peak Hour of Generator

Number of Studies: 354
Avg. Number of Dwelling Units: 176
Directional Distribution: 64% entering, 36% exiting

Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
1.02	0.42 - 2.98	1.05

Data Plot and Equation



SCALE
NOT TO SCALE

DESCRIPTION
CHESTNUT SPRINGS
Impact Assessment
Genoa Township, Livingston County, MI

EXHIBIT G

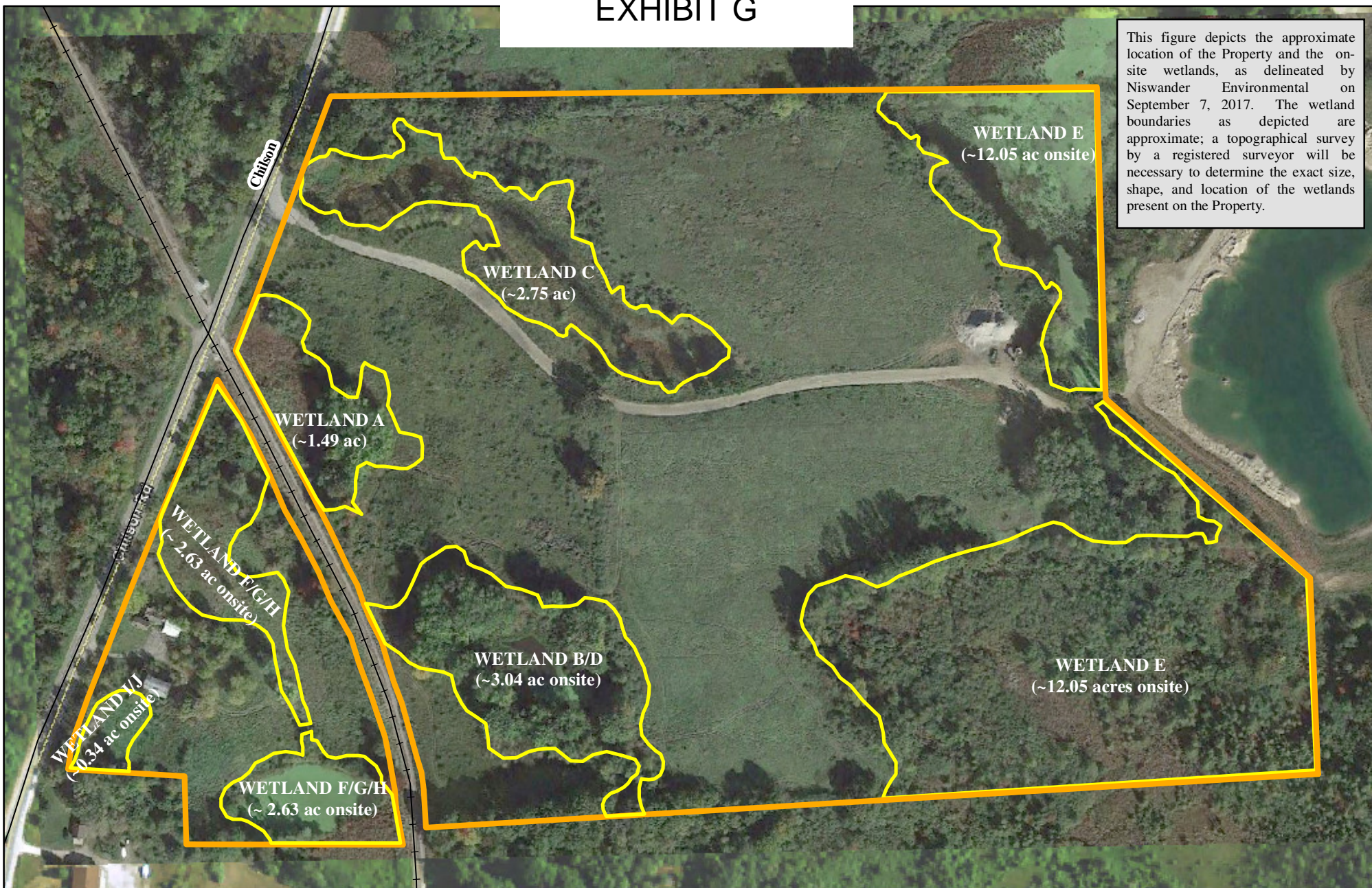
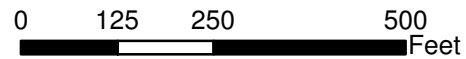


Figure 1. Overall Wetland Location Map

NE 1505 Chestnut Hill Delineation
Client: Chestnut Development
Sections 33 & 34 of Genoa Township
Livingston Co., MI (T02N,R05E)
Delineation Date: September 7, 2017
Map Created: September 8, 2017



NISWANDER ENVIRONMENTAL
9436 Maltby Road, Brighton, MI 48116
810.225.0539 office | 810.225.0653 fax

EXHIBIT H

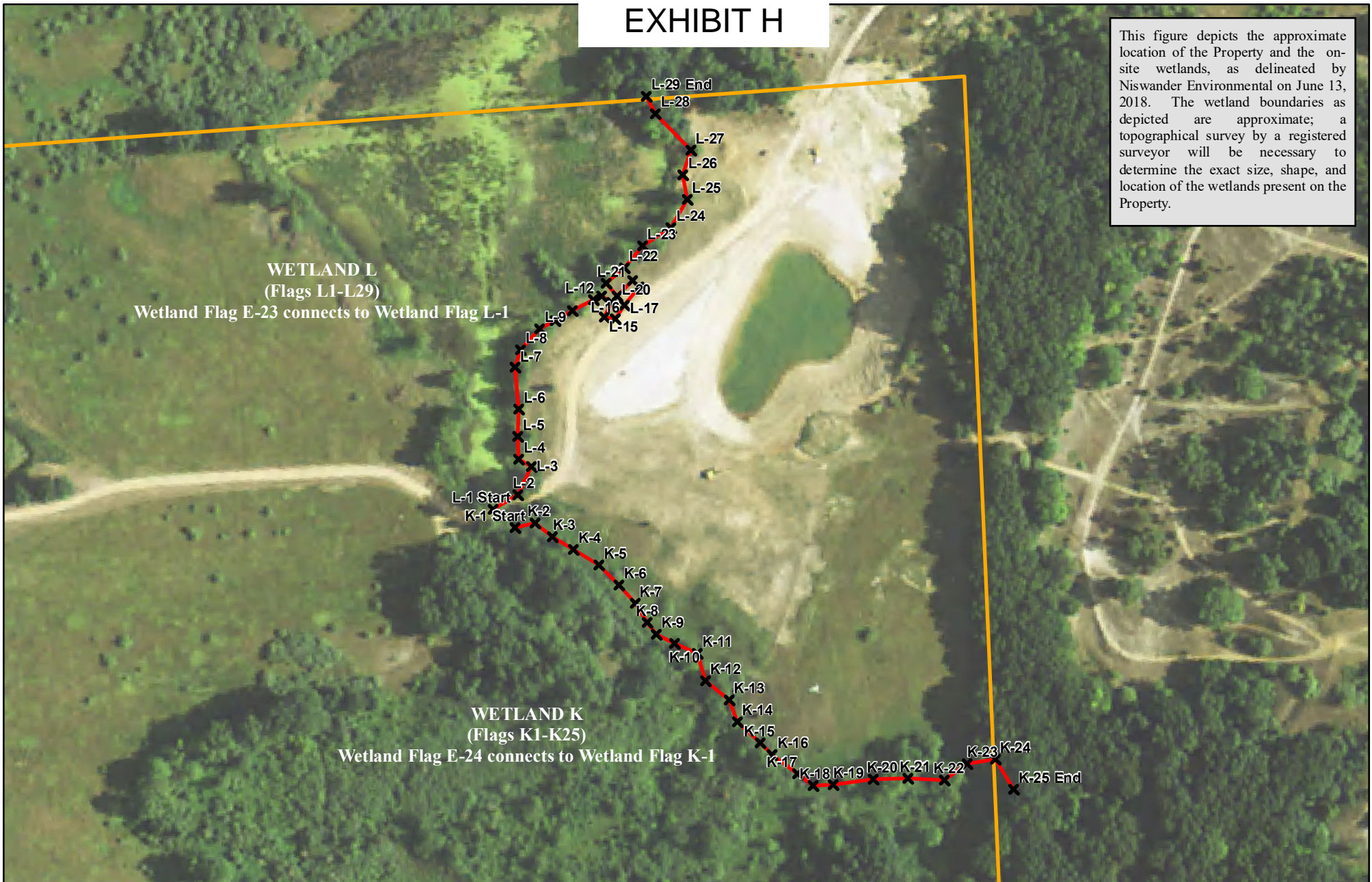
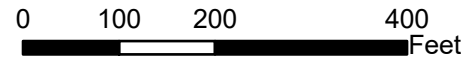


Figure 1. Wetlands L & K Flagging Location Map

NE 1505 Chestnut Hill Delineation
Client: Chestnut Development
Sections 33 & 34 of Genoa Township
Livingston Co., MI (T02N,R05E)
Delineation Date: June 13, 2018
Map Created: June 13, 2018



9436 Maltby Road, Brighton, MI 48116
810.225.0539 office | 810.225.0653 fax

MASTER DEED

CHESTNUT SPRINGS SITE CONDOMINIUM

A 24 UNIT SITE CONDOMINIUM PROJECT LOCATED IN
GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN

Tax ID #(s): _____

MASTER DEED
CHESTNUT SPRINGS SITE CONDOMINIUM

This Master Deed is made and executed on this _____ day of _____, 2018, by CHESTNUT DEVELOPMENT, L.L.C. (hereinafter referred to as the “Developer”), whose office address is 3800 Chilson Road, Howell, Michigan 48843, pursuant to the provisions of the Michigan Condominium Act (Act 59 of the Public Acts of 1978, as amended), hereinafter referred to as the “Act.”

WHEREAS, the Developer desires by recording this Master Deed, together with the Bylaws attached hereto as Exhibit A and the Condominium Subdivision Plan attached hereto as Exhibit B (said exhibits are hereby incorporated herein by reference and made a part hereof), to establish the real property described in Article II below, together with the improvements located and to be located thereon, and the appurtenances thereto, as a residential site condominium project under the provisions of the Act.

NOW, THEREFORE, the Developer, by recording this Master Deed, hereby establishes Chestnut Spring Site Condominium as a condominium project, as defined in Section 4 of the Act, and declares that Chestnut Springs Site Condominium shall be held, conveyed, hypothecated, encumbered, leased, rented, occupied, improved, and otherwise utilized, subject to the provisions of the Act, and the covenants, conditions, restrictions, uses, limitations, and affirmative obligations set forth in this Master Deed and Exhibits A and B hereto, all of which shall be deemed to run with the land and be a burden and a benefit to the Developer, its successors, and its assigns, and any persons acquiring or owning an interest in the Condominium Premises and their grantees, successors, heirs, personal representatives, and assigns, together with the other governing documents as described herein.

ARTICLE I
OVERVIEW

The Condominium Project shall be known as Chestnut Spring Site Condominium, Livingston County Condominium Subdivision Plan No. _____. The Condominium Project is established in accordance with the Act. And in accordance with the laws of the Township of Genoa, the approved plans of which are on file with the Township. The Condominium Project is established in accordance with the Act as a site condominium. The Units contained in the Condominium Project, including the number, boundaries, dimensions, area, and volume of each Unit, are set forth completely in the Condominium Subdivision Plan attached to this Master Deed as Exhibit B. Each Unit is a residential building site capable of individual utilization by virtue of having its own entrance from and exit to either a public road or a General Common Element of the Condominium Project. Each Co-Owner in the Condominium shall have an exclusive right to the Unit owned by said Co-Owner and shall have an undivided and inseparable right to share with other Co-Owners in the General Common Elements of the Condominium Project.

**ARTICLE II
LEGAL DESCRIPTION**

The land that comprises the Condominium Premises established by this Master Deed is located in Genoa Township, Livingston County, Michigan, and is described as follows:

Genoa Township, Livingston County, Michigan, being more particularly described as follows:

Tax ID #(s): _____

Together with and subject to easements, restrictions, and governmental limitations of record, and the rights of the public or any governmental unit in any part of the subject property taken or used for road, street, or highway purpose. The obligations of the Developer under the foregoing instruments are or shall be assigned to, and thereafter performed by, the Association on behalf of the Co-Owners. Also subject to the easements and reservations established and reserved in Article VI.

**ARTICLE III
DEFINITIONS**

Certain terms are utilized in this Master Deed and Exhibits A and B, and are or may be used in various other instruments such as, by way of example and not limitation, the Articles of Incorporation, Association Bylaws, and rules and regulations of the Chestnut Spring Site Condominium Association, a Michigan nonprofit corporation, and various deeds, mortgages, land contracts, easements, and other instruments affecting the establishment or transfer of interests in Chestnut Spring Site Condominium. Whenever used in such documents or any other pertinent Instruments, the terms set forth below shall be defined as follows:

Section 3.1 “Act” means the Michigan Condominium Act, Act 59 of the Public Acts of Michigan of 1978, as amended.

Section 3.2 “Association” means the Chestnut Spring Site Condominium Association, which is the nonprofit corporation organized under Michigan law of which all Co-Owners shall be members and which shall administer, operate, manage, and maintain the Condominium Project in accordance with the Condominium Documents.

Section 3.3 “Board of Directors” or “Directors” shall mean the board of directors of the Association. The Board of Directors will initially be those individuals selected by the Developer and later it will be elected by the Co-Owners, as provided in the Association Bylaws.

Section 3.4 “Bylaws” means Exhibit A, attached to this Master Deed, which sets forth the substantive rights and obligations of the Co-Owners and which is required by Section 53 of the Act to be recorded as part of the Master Deed. The Bylaws shall also constitute the corporate bylaws of the Association, as allowed under the Michigan Nonprofit Corporation Act.

Section 3.5 “Common Elements,” where used without modification, means both the General Common Elements and Limited Common Elements described in Article IV below.

Section 3.6 “Condominium Documents” means this Master Deed and Exhibits A and B attached hereto, the Articles of Incorporation of the Association, and the rules and regulations, if any, of the Association, as well as the Condominium By-Laws, as any or all of the foregoing may be amended from time to time

Section 3.7 “Condominium Premises” means the land described in Article II above, all improvements and structures thereon, and all easements, rights, and appurtenances belonging to Chestnut Spring Site Condominium.

Section 3.8 “Condominium Project,” “Condominium,” “Project,” or “Chestnut Spring Site Condominium” are used synonymously to refer to Chestnut Spring Site Condominium, as shown in the attached Exhibit B, and which is established by the recording of this Master Deed.

Section 3.9 “Condominium Subdivision Plan” means Exhibit B to this Master Deed. The Condominium Subdivision Plan depicts and assigns a number to each Condominium Unit and describes the nature, location, and approximate dimensions of certain Common Elements.

Section 3.10 “Consolidating Master Deed” means the amended Master Deed that shall describe Chestnut Spring Site Condominium as a completed condominium project, as defined in Section 4 of the Act, and shall reflect all Units and Common Elements therein and the percentage of value applicable to each Unit as finally readjusted. Such Consolidating Master Deed, if and when recorded in the office of the Livingston County Register of Deeds, shall supersede this recorded Master Deed for the Condominium and all amendments thereto. In the event the Units and Common Elements in the Condominium are constructed in substantial conformance with the proposed Condominium Subdivision Plan attached as Exhibit B to this Master Deed, the Developer shall be able to satisfy the foregoing obligation by filing a certificate in the office of the Livingston County Register of Deeds confirming that the Units and Common Elements “as built” are in substantial conformity with the proposed Condominium Subdivision Plan and that no Consolidating Master Deed need be recorded.

Section 3.11 “Construction and Sales Period” means the period commencing with the recordation of this Master Deed and continuing during the period that the Developer owns (in fee simple, as a land contract purchaser, or as an optionee) any Unit in Chestnut Spring Site Condominium.

Section 3.12 “Co-Owner” means an individual, firm, corporation, partnership, association, trust, or other legal entity (or any combination thereof) who or which owns or is purchasing by land contract one or more Units in the Condominium. Unless the context indicates otherwise, the term “Owner,” wherever used, shall be synonymous with the term “Co-Owner.”

Section 3.13 “Developer” means Chestnut Development, L.L.C., an organization that

made and executed this Master Deed, and its successors and assigns. Both successors and assigns shall always be deemed to be included within the term “Developer” whenever, however, and wherever such terms are used in the Condominium Documents. However, the word “successor,” as used in this Section 3.13, shall not be interpreted to mean a “Successor Developer” as defined in Section 135 of the Act.

Section 3.14 “First Annual Meeting” means the initial meeting at which non-Developer Co-Owners are permitted to vote for the election of all Directors and upon all other matters that properly may be brought before the meeting.

Section 3.15 “General Common Elements” means those Common Elements of the Condominium described in Article IV, Section 4.1, of this Master Deed, which are for the use and enjoyment of all Unit Owners within the Condominium Project, subject to such charges as may be assessed to defray the cost of the operation thereof.

Section 3.16 “Limited Common Elements” means those Common Elements of the Condominium described in Article IV, Section 4.2, of this Master Deed, which are reserved for the exclusive use of the Co-Owners of a specified Unit or Units.

Section 3.17 “Township” means the Township of Genoa, located in the County of Michigan, State of Michigan.

Section 3.18 “Transitional Control Date” means the date on which a Board of Directors of the Association takes office pursuant to an election in which the votes that may be cast by eligible owners within the Condominium Project unaffiliated with the Developer exceed the votes that may be cast by the Developer.

Section 3.19 “Unit” or “Condominium Unit” each mean a single condominium unit in Chestnut Spring Site Condominium, as the same is described in Section 5.1 of this Master Deed and on Exhibit B hereto, and each shall have the same definition as the term “Condominium Unit” has in the Act. All structures and improvements now or hereafter located within the boundaries of the Unit, including, by way of illustration only, dwelling, water well, septic system, and appurtenances, shall be owned in their entirety by the Co-Owner of the Unit within which they are located and shall not, unless otherwise expressly provided in the Condominium Documents, constitute Common Elements.

Wherever any reference is made to one gender, the reference shall include a reference to any and all genders where the same would be appropriate; similarly, whenever a reference is made to the singular, a reference shall also be included to the plural where that reference would be appropriate, and vice versa.

ARTICLE IV COMMON ELEMENTS

The Common Elements of the Condominium described in Exhibit B to this Master Deed

and the respective responsibilities for maintenance, decoration, repair, replacement, restoration, or renovation thereof are as follows:

Section 4.1 General Common Elements. All General Common Elements for the Condominium Project will be maintained by the Association, and an easement for the use and enjoyment of all General Common Elements of the Condominium will be granted to the Association for the use and benefit of such General Common Elements by all Co-Owners. The General Common Elements for the Project include:

(a) All private roadways and emergency access drives throughout the Condominium Project, together with the entrance area depicted on the Condominium Subdivision Plan attached as Exhibit B, if any, and all signage installed by the Developer and/or the Association in connection therewith; all easement interests appurtenant to the Condominium Project, including, but not limited to, easements for ingress, egress, and utility installation over, across, and through non-Condominium Project property or individual Units in the Condominium Project; and the lawns, trees, shrubs, and other improvements not located within the boundaries of a Unit in the Condominium Project. There is no obligation on the part of the Developer to install an entrance gate or other limited access facility at the entrance of the Condominium Project (except as may be required by the Township as a condition of site plan approval), but Developer reserves the right to do so in its sole discretion. Any entrance area facilities, including any facilities limiting access, shall be maintained, repaired, and replaced by the Association.

(b) The electrical transmission mains and wiring throughout the Condominium Project up to the point of lateral connection for Unit service, which is located at the boundary of the Unit, together with common lighting for the Condominium Project, if any, installed by the Developer or Association in its/their sole discretion. There is no obligation on the part of the Developer to install any particular common lighting, but Developer reserves the right to do so, either within the Common Elements or within any one or more Units. Any common lighting installed within a Unit and designated as such by the Developer shall be maintained, repaired, and replaced by the Association, except that the costs of electrical power consumption therefor shall be paid by each Co-Owner to whose Unit such designated common light is metered. Any street light or other lighting installed within the General Common Elements shall be metered to and paid by the Association unless the Developer determines otherwise.

(c) The telephone system throughout the Condominium Project up to the ancillary connection for Unit service, which is located at the boundary of the Unit.

(d) The gas distribution system throughout the Condominium Project, if and when it may be installed, up to the point of lateral connection for Unit service, which is located at the boundary of the Unit, but excluding the gas meter for each Unit.

(e) The cable television and any other telecommunications systems throughout the Condominium Project, if and when it may be installed, up to the point of the ancillary connection for Unit service, which is located at the boundary of the Unit.

(f) The sidewalks, bike paths, and walking paths (collectively, “Walkways”), if any, installed by the Developer or the Association.

(g) The storm water drainage system throughout the Condominium Project, including open-ditch drainage, below-ground and above-ground drainage systems, retention ponds, and detention ponds, if any, up to the point of Unit service, which is located at the boundary of the Unit.

(h) The landscaped islands, if any, within the roads in the Condominium Project, subject, however, to the rights therein of the public and any governmental unit.

(i) All easements (if any) that are appurtenant to and that benefit the Condominium Project pursuant to recorded easement agreements, reciprocal or otherwise.

(j) Such other elements of the Condominium Project not designated as a Common Element that are not enclosed within the boundaries of a Unit and that are intended for common use or are necessary for the existence, upkeep, or safety of all Co-Owners within the Condominium Project. Developer reserves the right to establish such mailbox system as Developer may elect or as may be required to be installed by a public authority or service agency having jurisdiction and, to that end, may establish an individual mailbox system or may consolidate or cluster the same in such manner as Developer may deem appropriate. If the mailboxes are clustered or consolidated, the Developer or the Association may designate individual compartments in the clustering structure or structures as Limited Common Elements or may assign or reassign the same from time to time for use by Co-Owners on an equitable basis without such designation. Developer may elect, however, to require that Co-Owners install individual mailboxes of a nature and design as required by Developer, and that the same be installed by each Co-Owner at such Co-Owner’s personal expense. Developer also reserves the right, in its sole discretion, to install street signs, traffic control signs, street address signs, and other signage at any location or location as Developer deems appropriate within the General Common Element road rights of way.

Section 4.2 Limited Common Elements. Limited Common Elements shall be subject to the exclusive use and enjoyment of the Co-Owner of the Unit to which the Limited Common Elements are appurtenant. The Limited Common Elements are:

(a) *Driveways.* Each driveway leading from a road to a Unit or from a shared driveway, extending beyond the portion depicted as a General Common Element on Exhibit B, shall be a Limited Common Element limited in use to the Unit of corresponding number as designated in the Condominium Subdivision Plan attached as Exhibit B to this Master Deed.

(b) *Yard Areas.* Any part of the Unit that is outside of the physical structure of the dwelling, including, but not limited to, all lawns, landscaping, sprinkler systems, berms, trees, and plantings appurtenant to a dwelling or other structure within a Unit, excluding the Garden Area (as defined in the Bylaws attached hereto as Exhibit B) (the “Yard Area”) shall be a Limited Common Element limited in use to the Unit of corresponding number as designated in the Condominium Subdivision Plan attached as Exhibit B to this Master Deed.

(c) Water Wells and Water Distribution System. The water well (including well shafts, pumps, and distribution lines) located within or beneath Unit boundaries and serving only the dwelling constructed on that Unit shall be a Limited Common Element limited in use to the Unit of corresponding number as designated in the Condominium Subdivision Plan attached as Exhibit B to this Master Deed.

(d) Septic Systems. The septic tank and drain field (including distribution lines) located within or beneath Unit boundaries and serving only the dwelling constructed on that Unit shall be a Limited Common Element limited in use to the Unit of corresponding number as designated in the Condominium Subdivision Plan attached as Exhibit B to this Master Deed.

Section 4.3 Responsibilities. The respective responsibilities for the installations within and the maintenance, decoration, repair, replacement, renovation, and restoration of the Units and Common Elements are as follows:

(a) Co-Owner Responsibility for Units and Express Exceptions for Limited Common Elements. It is anticipated that a separate residential dwelling (including attached garage and deck) will be constructed within each Unit depicted on Exhibit B. The responsibility for and the costs of maintenance, decoration, repair, and replacement of each dwelling and any appurtenances contained therein, including the well water and water distribution system and the sanitary disposal system, and all other improvements thereto, shall be borne by the Co-Owner of such Unit; provided, however, that the exterior appearance of the dwellings within the Units, to the extent visible from any other dwelling within a Unit or Common Element within the Project, shall be subject at all times to the approval of the Association and to reasonable aesthetic and maintenance standards prescribed by the Association in duly adopted rules and regulations. Each Co-Owner shall be responsible for paying all costs in connection with the extension of utilities from the mains or such other facilities, as are located at the boundary of the Common Element appurtenant to such Co-Owner's Unit to the dwelling or other structures located within the Unit. All costs of electricity, telephone, natural gas, storm drainage, cable television, other telecommunications system, and any other utility services shall be borne by the Co-Owner of the Unit to which the services are furnished. All utility meters, laterals, leads, and other such facilities located or to be located within the Co-Owner's Unit shall be installed, maintained, repaired, renovated, restored, and replaced at the expense of the Co-Owner whose Unit they service, except to the extent that such expenses are borne by a utility company or a public authority, and the Association shall have no responsibility with respect to such installation, maintenance, repair, renovation, restoration, or replacement. In connection with any amendment made by the Developer pursuant to Article VII of this Master Deed, the Developer may designate additional Limited Common Elements that are to be installed, maintained, decorated, repaired, renovated, restored, and replaced at Co-Owner expense or, in proper cases, at Association expense.

(b) Association Responsibility for Units and Common Elements. It is also anticipated that various improvements and structures appurtenant to each such dwelling will or may also be constructed within the Unit and may extend into the Limited Common Element appurtenant to the Unit, which improvements and structures (collectively, "Appurtenances") may include, but are not limited to, a driveway. Except as provided for in Section 4.3(a) and Section 4.5, the Association, acting through its Board of Directors, shall undertake regularly recurring,

reasonably uniform, periodic exterior maintenance, repair, renovation, restoration, and replacement functions with respect to Units, Appurtenances, and Limited and General Common Elements, as it may deem appropriate (including, without limitation, snow removal from driveways). All responsibilities undertaken by the Association in accordance with this section shall be charged to any affected Co-Owner on a reasonably uniform basis and collected in accordance with the assessment procedures established under Article II of the Bylaws. The Developer, in the initial maintenance budget for the Association, shall be entitled to determine the nature and extent of such services and reasonable rules and regulations may be promulgated in connection therewith. The Association, acting through its Board of Directors, may also (but has no obligation to) undertake any maintenance, repair, renovation, restoration, or replacement obligation of the Co-Owner of a Unit with respect to said Unit, and the dwelling, Appurtenances, and other Limited Common Elements associated therewith, to the extent that said Co-Owner has not performed such obligation, and the cost thereof shall be assessed against said Co-Owner. The Association in such case shall not be responsible for any damage thereto arising as a result of the Association performing said Co-Owner's unperformed obligations.

(c) *Residual Damage.* Except as otherwise specifically provided in this Master Deed, any damage to any Unit or the dwelling, Appurtenances, or other Limited Common Elements associated therewith arising as a result of the Association undertaking its rights or responsibilities as set forth in this Section 4.3 shall be repaired at the Association's expense.

Section 4.4 Use of Units and Common Elements. No Co-Owner shall use its Unit or the Common Elements in any manner inconsistent with the purposes of the Condominium or in any manner that will interfere with or impair the rights of any other Co-Owner in the use and enjoyment of its Unit or the Common Elements.

Section 4.5 Maintenance of Detention Areas. End of pipe plunge pools will be used to manage sediment discharge to the detentions area(s). As provided for in Section 4.3(b), the Association, acting through its Board of Directors, shall undertake regularly recurring, reasonably uniform, periodic exterior maintenance, repair, renovation, restoration, and replacement functions with respect to the General Common Elements, which includes the detention area(s). At a minimum, the Association shall inspect and monitor the sediment buildup in the detention area(s) once annually. The Association shall remove any excess sediment buildup, as needed. The Developer, in the initial maintenance budget for the Association, shall be entitled to determine the nature and extent of such services and reasonable rules and regulations may be promulgated in connection therewith.

ARTICLE V UNIT DESCRIPTION AND PERCENTAGE OF VALUE

Section 5.1 Description. Each Unit in the Condominium is described in the Condominium Subdivision Plan attached to this Master Deed as Exhibit B. Each Unit shall consist of the area contained within the Unit boundaries as shown on Exhibit B and delineated with heavy outlines, together with all Appurtenances located within such Unit boundaries. Detailed architectural plans for the Condominium Project will be placed on file with the Township of

Genoa, Livingston County, Michigan.

Section 5.2 Condominium Percentage of Value. The Percentage of Value for each Unit within the Condominium shall be equal. The determination that the Percentages of Value should be equal was made after reviewing the comparative characteristics of each Unit in the Condominium and concluding that there are no material differences among the units that affect the allocation of Percentages of Value. The percentage of value assigned to each Unit shall be determinative of each Co-Owner's respective share of the General Common Elements of the Condominium Project, the proportionate share of each respective Co-Owner in the proceeds and expenses of administration and the value of such Co-Owner's vote at meetings of the Association. The total value of the Condominium is 100%.

If the Condominium convertible space is converted, and this expectation becomes untrue with respect to additional Units, or if a substantial disparity in size exists, the Percentages of Value may be readjusted by the Developer, in its discretion, so long as reasonable recognition is given to the method of original determination of Percentages of Value for the Condominium. All of the Co-Owners and mortgagees of Units and other persons interested or to become interested in the Condominium from time to time shall be deemed to have unanimously consented to such amendment or amendments to this Master Deed to effectuate the foregoing and, subject to the limitations set forth herein, proportionate reallocation of Percentages of Value of existing Units that Developer or its successor may determine necessary in conjunction with such amendment or amendments. All such interested persons irrevocably appoint Developer or its successors as agent and attorney for the purpose of execution of such amendment or amendments to this Master Deed and all other documents necessary to effectuate the foregoing.

ARTICLE VI EASEMENTS AND RESERVATIONS

Section 6.1 Easement For Utilities and Maintenance of Encroachment. In the event any portion of a Unit (or dwelling or Appurtenances constructed therein) or Common Element (or Appurtenances constructed therein) encroaches upon another Unit or Common Element due to shifting, settling, or moving of the dwelling or the Appurtenances or other Limited Common Elements associated therewith, or due to survey errors, construction deviations, replacement, restoration, or repair, or due to the requirements of the Livingston County Health Department or the Township, reciprocal easements shall exist for such encroachment, and for the installation, maintenance, repair, restoration, and replacement of the encroaching property, dwelling, and/or Appurtenances or other Limited Common Elements associated therewith. In the event of damage or destruction, there shall be easements to, through, under, and over those portions of the land, dwellings, and Appurtenances and other Limited Common Elements associated therewith for the continuing maintenance, repair, renovation, restoration, and replacement of all utilities in the Condominium. One of the purposes of this Section is to clarify that Co-Owners have the right to maintain these Appurtenances and other Limited Common Elements that project into the Common Elements surrounding each Unit.

Section 6.2 Easements Retained by Developer.

(a) Utility and Ingress/Egress Easements. The Developer reserves for itself and its agents, employees, representatives, guests, invitees, independent contractors, successors, assigns, the Township, and all future owners of any land contiguous to the Condominium, easements to enter upon the Condominium Premises to utilize, tap, tie into, extend and enlarge, and otherwise install, maintain, repair, restore, renovate, and replace all utility improvements located within the Condominium Premises, including, but not limited to, gas, water, sanitary sewer, storm drains (including retention and detention ponds), telephone, electrical, and cable television and other telecommunications, and all improvements, as identified in the approved final site plan for the Condominium Project and all plans and specifications approved in writing by the Township, as well as any amendments thereto approved in writing by the Township. The Developer also reserves for itself and its agents, employees, representatives, guests, invitees, independent contractors, successors, and assigns a perpetual, non-exclusive easement for ingress and egress for pedestrian and vehicular use, including construction machinery and equipment, over certain private roadways within the Condominium Project depicted as the “Developer’s Easement” in the attached Exhibit B. If any portion of the Condominium Premises shall be disturbed by reason of the exercise of any of the rights granted to Developer, its successors, or its assigns under this Section 6.2(a) or Section 6.2(b), Developer shall restore the disturbed portion of the Condominium Premises to substantially the condition that existed prior to the disturbance.

(b) Additional Easements. The Developer reserves for itself, its successors, and its assigns the right, at any time prior to the expiration of the Construction and Sales Period, to reserve, dedicate, and/or grant public or private easements over, under, and across the Condominium Premises for the installation, utilization, repair, maintenance, decoration, renovation, restoration, and replacement of rights-of-way, Walkways, the storm water drainage system, including retention or detention ponds, water system, sanitary sewer systems, electrical transmission mains and wiring, telephone system, gas distribution system, cable television and other telecommunication system, and other public and private utilities, including all equipment, facilities, and Appurtenances relating thereto, as identified in the approved final site plan for the Condominium Project, and all plans approved in writing by the Township, as well as any amendments thereto approved by the Township. The Developer reserves the right to assign any such easements to governmental units or public utilities or, as to the storm water drainage system, Co-Owners of affected Units, and to enter into maintenance agreements with respect thereto. Any of the foregoing easements or transfers of title may be conveyed by the Developer without the consent of any Co-Owner, mortgagee, or other person who now or hereafter shall have any interest in the Condominium by the recordation of an appropriate amendment to this Master Deed and Exhibit B hereto. All of the Co-Owners and mortgagees of Units and other persons now or hereafter interested in the Condominium from time to time shall be deemed to have unanimously consented to any amendments of this Master Deed to effectuate the foregoing easements or transfers of title. All such interested persons irrevocably appoint the Developer as agent and attorney to execute such amendments to the Master Deed and all other documents necessary to effectuate the foregoing.

Section 6.3 Grant of Easements by Association. The Association, acting through its Board of Directors, shall be empowered and obligated to grant such easements, licenses, rights-of-

entry, and rights-of-way over, under, and across the Condominium Premises as are reasonably necessary or advisable for utility purposes, access purposes, or other lawful purposes, subject, however, to the approval of the Developer during the Construction and Sales Period and subject to the written approval of the Township. No easements created under the Condominium Documents may be modified, nor may any of the obligations with respect to such easements be varied, without the consent of each person benefited or burdened thereby.

Section 6.4 Grant of Easements and License to Association. The Association, acting through its Board of Directors, and all Co-Owners are hereby granted easements, licenses, rights-of-entry, and rights-of-way to and over, under, and across the Common Elements and the Condominium Premises for such purposes as are reasonably necessary or advisable for the full use and enjoyment and the construction, maintenance, repair or replacement of the Common Elements for the benefit of all Co-Owners. No easements created under the Condominium Documents may be modified, nor may any of the obligations with respect to such easements be varied, without the consent of each person benefited or burdened thereby.

Section 6.5 Easements for Maintenance, Repair, Restoration, Renovation, and Replacement. The Developer, the Association, the Township, and all public and private utilities and public authorities responsible for publicly dedicated roads shall have such easements over, under, and across the Condominium, including all Units and Common Elements, as may be necessary to fulfill any installation, maintenance, repair, decoration, renovation, restoration, or replacement responsibilities that are required or permitted to perform under the Condominium Documents, by law, or as may be necessary to respond to any emergency. The foregoing easements include, without limitation, the right of the Association to obtain access during reasonable hours and upon reasonable notice, for purposes of inspecting the dwelling constructed on a Unit and/or other Limited Common Elements and/or Appurtenances constructed therein to ascertain that they have been designed and constructed in conformity with standards imposed and/or specific approvals granted by the Developer (during the Construction and Sales Period) and thereafter by the Association.

Section 6.6 Telecommunications Agreements. The Association, acting through its Board of Directors and subject to the Developer's approval during the Construction and Sales Period, shall have the power to grant such easements, licenses, and other rights-of-entry, use, and access, and to enter into any contract or agreement, including wiring agreements, right-of-way agreements, access agreements, and multi-unit agreements, and, to the extent allowed by law, contracts for sharing of any installation or periodic subscriber service fees, as may be necessary, convenient, or desirable to provide for telecommunications, videotext, broad band cable, satellite dish, earth antenna, and similar services to the Condominium or any Unit therein. Notwithstanding the foregoing, in no event shall the Association, through its Board of Directors, enter into any contract or agreement or grant any easement, license, or right-of-entry or do any other act that will violate any provision of any federal, state, or local law or ordinance. Any and all sums paid by any telecommunications or other company or entity in connection with such service, including fees, if any, for the privilege of installing any telecommunications related equipment or improvements or sharing periodic subscriber service fees shall be receipts affecting the administration of the Condominium within the meaning of the Act and shall be paid over to and shall be the property of

the Association except for funds previously advanced by Developer, for which the Developer has a right of reimbursement from the Association.

Section 6.7 School Bus and Emergency Vehicle Access Easement. Developer reserves for the benefit of the Township, any private or public school system, and any emergency service agency an easement over all roads in the Condominium for use by the Township, private or public school busses, and/or emergency vehicles. Said easement shall be for purposes of ingress and egress to provide, without limitation, school bus services, fire and police protection, ambulances and rescue services, and other lawful governmental or private emergency services to the Condominium Project and Co-Owners thereof. The foregoing easement shall in no way be construed as a dedication of any streets, roads, or driveways to the public.

Section 6.8 Association Assumption of Obligations. The Association, on behalf of the Co-Owners, shall assume and perform all of the Developer's obligations under any easement pertaining to the Condominium Project or Common Elements.

Section 6.9 Termination of Easements. Developer reserves the right to terminate and revoke any utility or other easement granted in or pursuant to this Master Deed at such time as the particular easement has become unnecessary. (This may occur, by way of illustration only, when a utility easement is relocated to coordinate development of property adjacent to the Condominium Project.) No easement for a utility may be terminated or revoked unless and until all Units served by it are adequately served by an appropriate substitute or replacement utility. Any termination or relocation of any such easement shall be affected by the recordation of an appropriate termination instrument or, where applicable, amendment to this Master Deed in accordance with the requirements of the Act, provided that any such amendment is first approved in writing by the Township.

Section 6.10 Water Monitoring Wells. Furthermore, the Developer grants the Township a perpetual easement, as described on the approved site plan for access to the Township's three (3) monitoring well sites, which shall be tested at a frequency determined by Genoa Charter Township. Monitoring well results will be shared with the Michigan Department of Environmental Quality and the Livingston County Health Department.

ARTICLE VII AMENDMENT

Except as otherwise expressly provided in this Master Deed or in the Act, the Condominium shall not be terminated, vacated, revoked, or abandoned except as provided in the Act, nor may any of the provisions of this Master Deed or Exhibit B be amended (but Exhibit A hereto may be amended as therein provided) except as follows:

Section 7.1 Amendments.

(a) *Without Co-Owner and Mortgagee Consent.* The Condominium Documents may be amended by the Developer or the Association without the consent of Co-

Owners or mortgagees for any purpose if the amendment does not materially alter or change the rights of a Co-Owner or mortgagee. Amendments modifying the types and sizes of unsold Units and their appurtenant Common Elements, showing minor architectural variances and modifications to a Unit, correcting survey or other errors made in the Condominium Documents, or for the purpose of facilitating mortgage loan financing for existing or prospective Co-Owners and to enable the purchase or insurance of such mortgage loans by the Federal Home Loan Mortgage Corporation, the Federal National Mortgage Association, the Government National Mortgage Association, the Veterans Administration, the Department of Housing and Urban Development, or by any other institutional participant in the secondary mortgage market that purchases or insures mortgages, shall be examples of amendments that do not materially alter or change the rights of a Co-Owner or mortgagee.

(b) *With Co-Owner and Mortgagee Consent.* An amendment may be made, even if it will materially alter or change the rights of the Co-Owners or mortgagees, with the consent of not less than two-thirds (2/3) of the votes of the Co-Owners entitled to vote as of the record date of such vote and two-thirds (2/3) of the votes of the mortgagees; provided, that a Co-Owner's Unit dimensions or Limited Common Elements may not be modified without its consent, nor may the formula used to determine Percentages of Value for the Project or provisions relating to the purpose of usage, ability, or terms under which a Unit currently is leased or may be rented be modified without the consent of the Developer and each affected Co-Owner and mortgagee. Rights reserved by the Developer herein, including without limitation, rights to amend for purposes of expansion and/or modification of Units, shall not be amended without the written consent of the Developer so long as the Developer or its successors or assigns continue to own or to offer for sale any Unit in the Project, have the right to create one or more additional Units, or continues to own any interest in the Condominium Premises. For purposes of this subsection, a mortgagee shall have one vote for each mortgage held.

(c) *Material Amendment By Developer.* A material amendment may also be made unilaterally by the Developer without the consent of any Co-Owner or mortgagee for the specific purpose(s) reserved by the Developer in this Master Deed. During the Construction and Sales Period, this Master Deed shall not be amended nor shall the provisions of this Master Deed be modified in any way without the written consent of the Developer or its successors or assigns.

(d) *Developer's Reserved Amendments.* Notwithstanding any contrary provision of the Condominium Documents, Developer reserves the right to amend materially this Master Deed or any of its exhibits for any of the following purposes:

- i. To amend the Condominium Bylaws, subject to any restrictions on amendments stated therein;
- ii. To correct arithmetic errors, typographical errors, survey or plan errors, deviations in construction or any similar errors in the Master Deed, Condominium Subdivision Plan, or Condominium Bylaws, or to correct errors in the boundaries or locations of improvements, including revising the Subdivision Plan to fully comply with the applicable regulations;

iii. To clarify or explain the provisions of this Master Deed or its exhibits;

iv. To comply with the Act or rules promulgated thereunder or with any requirements of any governmental or quasi-governmental agency or any financing institution providing mortgages on units in the Condominium Premises;

v. To create, grant, make, define, or limit easements affecting the Condominium Premises;

vi. To record an “as built” Condominium Subdivision Plan and/or consolidating Master Deed and/or to designate any improvements shown on the Plan as “must be built,” subject to any limitations or obligations imposed by the Act;

vii. To terminate or eliminate reference to any right which Developer has reserved to itself herein; and

viii. To make alterations described in this Master Deed, even if the number of Units in the Condominium would thereby be increased or reduced.

Amendments of the type described in this Subsection 7.1(d) may be made by the Developer without the consent of Co-Owners or mortgagees, and any Co-Owner or mortgagee having an interest in a Unit affected by such an amendment shall join with the Developer in amending this Master Deed.

(e) Costs and Expenses; Notice. A person causing or requesting an amendment to the Condominium Documents shall be responsible for costs and expenses of the amendment, except for amendments based upon a vote of the prescribed majority of Co-Owners and mortgagees, the costs of which are expenses of administration. The Co-Owners and mortgagees of record shall be notified of proposed amendments under this Section not less than ten (10) days before the amendment is recorded.

(f) Developer Consent Required. Articles II, IV, V, VI, VII, VIII, IX, X, XI, and XII shall not be amended, nor shall the provisions thereof be modified by any other amendment to this Master Deed, without the written consent of the Developer, so long as the Developer continues to offer any Unit in the Condominium for sale or so long as there remains any Unit that may be created. Developer’s reservation of easement rights for adjacent property and Developer’s right to consent to all easements affecting the Condominium shall be perpetual and cannot be amended.

(g) Township of Genoa Consent Required. No amendment of this Master Deed or the Condominium Documents may be made without the prior written consent of the Township of Genoa, if such amendment would affect a right of the Township of Genoa set forth or reserved with in this Master Deed or in the Condominium Documents.

Section 7.2 Termination. If there is a Co-Owner other than the Developer, the Condominium may be terminated only with consent of the Developer and not less than 80% of the Co-Owners and mortgagees, as follows:

(a) *Execution of Agreement.* Agreement of the required number of Co-Owners and mortgagees to termination of the Condominium shall be evidenced by their execution of the termination agreement or of ratifications thereof, and the termination shall become effective only when the agreement is so evidenced of record.

(b) *Ownership of Condominium.* Upon recordation of an instrument terminating the Condominium, the property constituting the Condominium shall be owned by the Co-Owners as tenants in common in proportion to their Condominium Percentage of Value immediately before recordation. As long as the tenancy in common lasts, each Co-Owner or the heirs, successors, or assigns thereof shall have an exclusive right of occupancy of that portion of the property, which formerly constituted the Unit.

(c) *Notice of Termination.* Notification of termination by first class mail shall be made to all parties interested in the Condominium, including escrow agents, land contract vendors, creditors, lienholders, and prospective purchasers who deposited funds.

ARTICLE VIII DEVELOPER'S RIGHT TO USE FACILITIES

The Developer, its agents, representatives, employees, successors, and assigns may, at all times that Developer continues to own any Units, maintain offices; model Units, parking, storage areas, and other facilities within the Condominium; and engage in such other acts as it deems necessary to facilitate the development and sale of the Condominium. Developer shall have such access to, from, and over the Condominium as may be reasonable to enable the development and sale of Units in the Condominium. In connection therewith Developer shall have full and free access to all Common Elements and unsold Units.

ARTICLE IX CONTRACTABILITY OF CONDOMINIUM

Section 9.1 Limit of Unit Contraction. The Project established by this Master Deed consists of 24 Units and may, at the election of the Developer, be contracted to any number of Units Developer so desires, in Developer's sole discretion.

Section 9.2 Withdrawal of Land. The number of Units in the Project may, at Developer's option, from time to time within a period ending not later than six years after the recording of this Master Deed, be decreased by the withdrawal of all or any portion of the lands described in Article II. However, no Unit that has been sold or is the subject of a binding purchase agreement may be withdrawn without the consent of the Co-Owner or purchaser and the mortgagee of the Unit. Developer may also, in connection with any contraction, readjust the Percentages of Value for Units in the Project in a manner that gives reasonable recognition to the number of remaining Units, based on the method of original determination of the Percentages of Value. Other than as

provided in this Section 9.2, there are no restrictions or limitations on Developer's right to withdraw lands from the Project or on the portion or portions of land that may be withdrawn, the time or order of the withdrawals, or the number of Units or Common Elements that may be withdrawn. However, the lands remaining shall not be reduced to less than that necessary to accommodate the remaining Units in the Project with reasonable access and utility service to the Units.

Section 9.3 Contraction Not Mandatory. There is no obligation on the part of Developer to contract the Project, nor is there any obligation to withdraw portions of the Project in any particular order or to construct particular improvements on any withdrawn lands. Developer may, in its discretion, establish all or a portion of the lands withdrawn from the Project as a separate condominium project (or projects) or as any other form of development. Any development on the withdrawn lands will not be detrimental to the adjoining condominium project.

Section 9.4 Amendments to the Master Deed. A withdrawal of lands from this Project by Developer will be given effect by appropriate amendments to the Master Deed which will not require the consent or approval of any Co-Owner, mortgagee, or other interested person. Amendments will be prepared by and at the sole discretion of Developer and may adjust the Percentages of Value assigned by Article V to preserve a total value of 100 percent for the entire Project resulting from any amendment.

Section 9.5 Additional Provisions. Any amendments to the Master Deed made by Developer to contract the Condominium may also contain provisions as Developer determines are necessary or desirable (i) to create easements burdening or benefiting portions or all of the parcel or parcels being withdrawn from the Project and (ii) to create or change restrictions or other terms and provisions, including designations and definition of Common Elements, affecting the parcel or parcels being withdrawn from the Project or affecting the balance of the Project, as reasonably necessary in Developer's judgment to preserve or enhance the value or desirability of the parcel or parcels being withdrawn from the Project.

ARTICLE X MODIFICATION OF UNITS AND LIMITED COMMON ELEMENTS

Notwithstanding anything to the contrary contained in this Master Deed or the Bylaws, the Units in the Condominium and other Common Elements may be modified and the boundaries relocated in accordance with Section 48 of the Act and this Article X; such changes in the affected Unit or Units and its/their appurtenant Appurtenances or other Common Elements shall be promptly reflected in duly recorded amendment or amendments to this Master Deed.

Section 10.1 Modification of Units and Common Elements. The Developer may, in its sole discretion and without being required to obtain the consent of any person whatsoever (including Co-Owners and mortgagees of Units), except for the Township, whose written consent must be obtained, modify the size, location, or configuration of Units or Limited Common Elements appurtenant or geographically proximate to any Units as described in the Condominium Subdivision Plan attached hereto as Exhibit B or any recorded amendment or amendments hereof.

Any such modifications by the Developer shall be effective upon the recordation of an amendment to the Master Deed. In addition, the Developer may, in connection with any such amendment, re-adjust Percentages of Value for all Units in a manner that gives reasonable recognition to such Unit modifications or Limited Common Element modifications based upon the method by which Percentages of Value were originally determined for the Condominium. All of the Co-Owners and mortgagees of Units and all other persons now or hereafter interested in the Condominium from time to time (except the Township) shall be deemed to have irrevocably and unanimously consented to any amendment or amendments to this Master Deed recorded by the Developer to effectuate the purposes of this Section 10.1 and, subject to the limitations set forth herein, to any proportionate reallocation of Percentages of Value of existing Units that Developer determines are necessary in conjunction with any such amendments. All such interested persons (except the Township) irrevocably appoint the Developer as agent and attorney for the purpose of executing such amendments to the Master Deed and all other documents necessary to effectuate the foregoing.

Section 10.2 Relocation of Boundaries of Units or Common Elements. Subject to the written approval of the Township, the Developer reserves the right during the Construction and Sales Period, and without the consent of any other Co-Owner or any mortgagee of any Unit, to relocate any boundaries between Units. Such relocation of boundaries of Unit(s) and/or Appurtenances shall be given effect by an appropriate amendment or amendments to this Master Deed in the manner provided by law, which amendment or amendments shall be prepared by and at the sole discretion of Developer, its successors, or its assigns. In the event an amendment is recorded in order to accomplish such relocation of boundaries of Units and/or Appurtenances, the amendment shall identify the relocated Unit(s) and/or Appurtenances by Unit number(s) and, when appropriate, the Percentage of Value as set forth herein for the Unit(s) and/or Appurtenances that have been relocated shall be proportionately allocated to the adjusted Unit(s) in order to preserve a total value of one hundred (100%) percent for the entire Condominium following such amendment to this Master Deed. The precise determination of the readjustments and percentages of value shall be within the sole judgment of Developer. However, the adjustments shall reflect a continuing reasonable relationship among percentages of value based upon the original method of determining percentages of value for the Condominium. Any such amendment to the Master Deed shall also contain such further definitions of Common Elements as may be necessary to adequately describe the Units in the Condominium as modified. All of the Co-Owners and mortgagees of Units and all other persons now or hereafter interested in the Condominium from time to time (except the Township) shall be deemed to have irrevocably and unanimously consented to any amendment or amendments to this Master Deed recorded by the Developer to effectuate the purposes of this Section 10.2 and, subject to the limitations set forth herein, to any proportionate reallocation of percentages of value of Units that the Developer determines are necessary in connection with any such amendment. All such interested persons (except the Township) irrevocably appoint the Developer as agent and attorney for the purpose of executing such amendments to the Master Deed and all other documents necessary to effectuate the foregoing. Any such amendments may be accomplished without re-recording the entire Master Deed or its Exhibits.

Section 10.3 Limited Common Elements. Limited Common Elements shall be subject to

assignment and reassignment in accordance with Section 39 of the Act, to accomplish the rights to relocate boundaries described in this Article X, or for other purposes.

ARTICLE XI CONVERTIBLE AREAS

Notwithstanding any other provision in this Master Deed or the Bylaws, Developer retains and may exercise its right of convertibility in accordance with Section 31 of the Act, any applicable local ordinances and regulations, and this Article XI; such changes in the affected Units and/or Common Elements shall be promptly reflected in a duly recorded amendment or amendments to this Master Deed. No such changes shall be made, however, without the approval of the Township. Subject to approval of the Township, Developer reserves the sole right during the Construction and Sales Period and without the consent of any other Co-Owner or any mortgagee of any Unit to do the following:

Section 11.1 Designation of Convertible Areas. All Units and Common Element areas are hereby designated as "Convertible Areas" within which: (a) the individual Units may be expanded or reduced in size, otherwise modified, and/or relocated; (b) Common Elements may be constructed, expanded, or reduced in size, otherwise modified, and/or relocated. Only the Developer or such person or persons to whom it specifically assigns the rights under this Article may exercise convertibility rights hereunder, subject at all times to the approval of the Township.

Section 11.2 The Developer's Right to Modify Units and/or Common Elements. The Developer reserves the right in Developer's sole discretion, from time to time, during a period ending six years from the date of recording this Master Deed, to enlarge, add, extend, diminish, delete, and/or relocate Units, and to construct private amenities on all or any portion or portions of the Convertible Areas. The Developer shall also be entitled to convert General Common Element areas into Limited Common Elements or Units in such areas as it, in its sole discretion, may determine. The precise number, nature, size and location of Unit and/or Common Element extensions and/or reductions and/or amenities that may be constructed and designated shall be determined by Developer in its sole judgment or any other person to whom it specifically assigns the right to make such determination subject only to necessary public agency approvals. Any private amenity other than a dwelling extension may be assigned by the Developer as a Limited Common Element appurtenant to an individual Unit.

Section 11.3 Additional Amenities. The Developer may, in its sole discretion, construct various amenities including, but not limited to, an entrance gate or other limited access structure, pedestrian paths, lighting systems, gazebos, picnic areas, or other related or similar amenities (hereinafter called the "Amenities") and hereby reserves the right to do so anywhere within the General Common Element area described on the Condominium Subdivision Plan. Developer shall pay the costs of such amenities, if constructed pursuant to its sole election. Upon inclusion of the same in the Condominium, all Co-Owners and all future Co-Owners shall thereafter contribute to the maintenance, repair, and replacement of the Amenities as an expense of administration of the Condominium and the maintenance, repair, and replacement thereof shall be the responsibility of the Association at its expense. If a gated entrance is installed, the Developer and the Association

shall provide to the Township Fire Department all keys and/or codes necessary to obtain entry to the Condominium Premises. Developer has no obligation to construct any Amenities or include the same in the Condominium except pursuant to its absolute discretionary election to do so. Final determination of the design, layout, and location of any such Amenities, if constructed, will be at the sole discretion of the Developer. After the expiration of the Construction and Sales Period, the foregoing convertibility rights may be exercised by the Association pursuant to the affirmative vote of two-thirds (2/3) of all Co-Owners, which shall bind all Co-Owners to contribute equally to the costs of installation, maintenance, repair, and replacement of any Amenities that may be installed

Section 11.4 Developer's Right to Grant Specific Right of Convertibility. The Developer shall have the authority to assign to the Co-Owner of a particular Unit the right of future convertibility for a specific purpose. Such assignment shall be by specific written authority duly executed by the Developer prior to the completion of the Construction and Sales Period and shall be granted only at the sole discretion of the Developer

Section 11.5 Compatibility of Improvements. All improvements constructed within the Convertible Areas described above shall be reasonably compatible with the development and structures on other portions of the Condominium Project, as determined by Developer in its sole discretion

Section 11.6 Amendment of Master Deed. The exercise of rights of modification and/or convertibility in this Condominium Project shall be given effect by appropriate amendments to this Master Deed in the manner provided by law, which amendments shall be prepared by and at the discretion of the Developer or its assigns. The Developer shall be obligated to amend the Condominium Subdivision Plan to show all changes in the Units resulting from exercise of convertibility rights pursuant to this Article XI. The Developer shall, however, have the right to close on the sale of a Unit, notwithstanding the fact that the Unit may not conform in size and/or shape to the depiction of the Unit on the Condominium Subdivision Plan, provided that a Consolidating Master Deed depicting the modified Unit is ultimately recorded as required by the Act and this Master Deed.

Section 11.7 Redefinition of Common Elements. Such amendments to the Master Deed shall also contain such further definitions and redefinitions of Common Elements as may be necessary to adequately describe and service the modified Units, dwellings and appurtenances being included in the Project under this Article XI. In connection with any such amendments, the Developer shall have the right to change the nature of any Common Element previously included in the Project for any purpose reasonably necessary to achieve the purposes of this Article XI. In the event a Co-Owner exercises the right of convertibility described herein subsequent to Developer's final recording of a Consolidating Master Deed or other final amendment to the Master Deed, such Co-Owner shall be responsible, at his expense, to cause the Association to prepare and record an amendment to the Master Deed depicting such changes made by Co-Owner to the Unit and/or Common Elements

Section 11.8 Consent of Interested Persons. All of the Co-Owners and mortgagees of Units

and other persons interested or to become interested in the Project from time to time shall be deemed to have irrevocably and unanimously consented to such amendments to this Master Deed as may be proposed by the Developer to effectuate the purposes of this Article XI. All such interested persons irrevocably appoint the Developer as agent and attorney for the purpose of execution of such amendments to the Master Deed and all other documents necessary to effectuate the foregoing. Such amendments may be effected without the necessity of rerecording the entire Master Deed or the Exhibits hereto and may incorporate by reference all or any pertinent portions of this Master Deed and the Exhibits hereto.

**ARTICLE XII
ASSIGNMENT**

Subject to the provisions of any land contract or mortgage, any or all of the rights and powers granted or reserved to the Developer in the Condominium Documents or by law, including the power to approve or disapprove any act, use, proposed action, or any other matter or thing, may be assigned by the Developer to and be assumed by any other entity or the Association. Any such assignment or transfer shall be made by appropriate instrument in writing duly recorded in the office of the Livingston County Register of Deeds.

**ARTICLE XIII
SEVERABILITY**

If any provision of this Master Deed shall be determined to be invalid or unenforceable by a court of competent jurisdiction, such determination shall not render this entire Master Deed invalid or unenforceable, and the provisions of this Master Deed not subject to such determination shall survive, unaffected thereby.

**ARTICLE XIV
CONTROLLING LAW**

The provisions of the Act, and of the other laws of the State of Michigan, shall be applicable to and govern this Master Deed and all activities related hereto.

IN WITNESS WHEREOF, the undersigned has executed this Master Deed as of the date first written above.

CHESTNUT DEVELOPMENT, L.L.C.

By: Steven J. Gronow
Its: Managing Member

STATE OF MICHIGAN)
) ss
COUNTY OF LIVINGSTON)

The foregoing instrument was acknowledged before me this _____ day of _____, 2018, by Steven J. Gronow, Managing Member of Chestnut Development, L.L.C., a Michigan limited liability company, on behalf of said company.

Catherine A. Riesterer, Notary Public
Livingston County, Michigan
My Commission Expires: 4/6/2021

DRAFTED BY AND WHEN RECORDED RETURN TO:
Catherine A. Riesterer
COOPER & RIESTERER, PLC
7900 Grand River Road
Brighton, MI 48114
810-227-3103

EXHIBIT A

CONDOMINIUM BYLAWS

CHESTNUT SPRINGS SITE CONDOMINIUM
ASSOCIATION

CONDOMINIUM BYLAWS

CHESTNUT SPRINGS SITE CONDOMINIUM ASSOCIATION

ARTICLE I ASSOCIATION OF CO-OWNERS

Section 1.1 Formation; Membership. Chestnut Springs Site Condominium (sometimes referred to herein as “Condominium Project”), a residential Condominium Project located in Genoa Township, Livingston County, Michigan, shall be administered by the Chestnut Springs Site Condominium Association, which shall be a non-profit corporation, hereinafter called the “Association,” organized under the applicable laws of the State of Michigan. The Association shall be responsible for the management, maintenance (which term, for purposes of these Bylaws, shall also mean decoration, repair, renovation, restoration, and replacement, unless otherwise specified), operation, and administration of the Common Elements, easements, and affairs of the Condominium Project in accordance with the Condominium Documents and the laws of the State of Michigan. These Bylaws shall constitute both the Condominium Bylaws referred to in the Master Deed and required by Section 53 of the Act and the Association Bylaws provided for under the Michigan Non-Profit Corporation Act. Each Co-Owner shall be a member in the Association and no other person or entity shall be entitled to membership. Co-Owners are sometimes referred to as “Members” in these Bylaws. A Co-Owner’s share of the Association’s funds and assets cannot be assigned, pledged, or transferred in any manner except as an appurtenance to his Unit. The Association shall retain in its files current copies of the Master Deed, all amendments to the Master Deed, and other Condominium Documents for the Condominium Project, all of which shall be available at reasonable hours for review by Co-Owners, prospective purchasers, and prospective mortgagees of Units in the Condominium Project. All Co-Owners in the Condominium Project and all persons using or entering upon or acquiring any interest in any Unit therein or the Common Elements thereof shall be subject to the provisions and terms set forth in the Condominium Documents.

Section 1.2 Definitions. Capitalized terms used in these Bylaws without further definition shall have the meanings ascribed to such terms in the Master Deed or the Act unless the context dictates otherwise.

Section 1.3 Conflicts of Terms and Provisions. In the event there exists any conflict among the terms and provisions contained within the Master Deed or these Bylaws, the terms and provisions of the Master Deed shall control.

ARTICLE II ASSESSMENTS

Section 2.1 Assessments Against Units and Co-Owners. All expenses arising from the management, administration, and operation of the Association in accordance with the authorizations and responsibilities prescribed in the Condominium Documents and the Act shall

be levied by the Association against the Units and the Co-Owners thereof in accordance with the provisions of this Article II.

Section 2.2 Assessments for Common Elements; Personal Property Taxes Assessed Against the Association. All costs incurred by the Association to satisfy any liability or obligation arising from, caused by, or connected with the Common Elements or the administration of the Condominium Project shall constitute expenditures affecting the administration of the Project, and all sums received as the proceeds of or pursuant to any policy of insurance securing the interest of the Co-Owners against liabilities or losses arising within, caused by, or connected with the Common Elements or the administration of the Condominium Project shall constitute receipts affecting the administration of the Condominium Project within the meaning of Section 54(4) of the Act.

Section 2.3 Determination of Assessments. Assessments shall be determined in accordance with the following provisions:

(a) *Budget.* The Board of Directors of the Association shall establish an annual budget ("Budget") in advance for each fiscal year and such Budget shall project all expenses for the ensuing year which may be required for the proper operation, management, and maintenance of the Condominium Project, including a reasonable allowance for contingencies and reserves. An adequate reserve fund for maintenance of the Common Elements that must be repaired or replaced on a periodic basis shall be established in the budget and must be funded by regular annual payments as set forth in Section 2.4 below, rather than by special assessments. At a minimum, the reserve fund shall be equal to 10% of the Association's current annual Budget on a non-cumulative basis. Since the minimum standard required by this subparagraph may prove to be inadequate for the Project, the Association of Co-Owners should carefully analyze the Condominium Project to determine if a greater amount should be set aside or if additional reserves should be established for other purposes from time to time. Upon adoption of a Budget by the Board of Directors, copies of the Budget shall be delivered to each Co-Owner and the assessment for said year shall be established based upon said Budget. The applicable annual assessments, as levied, shall constitute a lien against all Units as of the first day of the fiscal year in which the assessments relate. Failure to deliver a copy of the Budget to each Co-Owner shall not affect or in any way diminish such lien or the liability of any Co-Owner for any existing or future assessments. Should the Board of Directors at any time determine, in its sole discretion, that the assessments levied are or may prove to be insufficient: (1) to pay the actual costs of the Condominium Project's operation and management; (2) to provide for maintenance of existing Common Elements; (3) to provide additions, restoration, renovation, and replacement to the Common Elements not exceeding \$5,000.00 annually for the entire Condominium Project; or (4) in the event of emergencies, the Board of Directors shall have the authority to increase the general assessments and to levy such additional assessment or assessments as it shall deem to be necessary. The Board of Directors shall also have the authority, without Co-Owner or mortgagee consent, to levy assessments for repair, restoration, renovation, and replacement in the event of casualty, pursuant to the provisions of Section 5.4 below. The discretionary authority of the Board of Directors to levy assessments pursuant to this subparagraph shall rest solely with the Board of Directors for the benefit of the

Association and its Members and shall not be enforceable by any creditors of the Association or its Members.

(b) Special Assessments. Special assessments, in addition to those required in Section 2.3(a) above, may be made by the Board of Directors from time to time, subject to Co-Owner approval as hereinafter provided, to meet other needs or requirements of the Association, including, but not limited to: (1) assessments for additions to the Common Elements of a cost exceeding \$5,000.00 for the entire Condominium Project per year; (2) assessments to purchase a Unit upon foreclosure of the lien for assessments described in Section 2.6 below; or (3) assessments for any other appropriate purpose that could not be covered by the annual assessment. Special assessments referred to in this subparagraph (b) (but not including assessments referred to in Section 2.3(a) above, which shall be levied in the sole discretion of the Board of Directors) shall not be levied without the prior approval of the Co-Owners representing 60% or more of all Co-Owners. The authority to levy assessments pursuant to this subparagraph is solely for the benefit of the Association and its Members and shall not be enforceable by any creditors of the Association or its Members.

(c) Remedial Assessments. If any Co-Owner fails to provide proper maintenance of any Limited Common Element that is appurtenant to his Unit, which failure, in the opinion of the Board of Directors adversely affects the appearance of the Condominium Project as a whole or the safety, health, or welfare of the other Co-Owners of the Condominium Project, the Association may, following notice to such Co-Owner, take any actions reasonably necessary to provide such maintenance for the Unit, and the cost thereof shall be assessed against the Co-Owner who has the responsibility under the Master Deed or these Bylaws to maintain such Unit. The Association may also take the actions permitted under Section 4.3(b) of the Master Deed, and the cost(s) thereof shall be assessed as provided in said Section 4.3(b).

(d) Working Capital Contribution. Any Co-Owner who acquires a Unit from the Developer shall pay to the Association, on the date said Unit is conveyed to the Co-Owner, an amount equal to the then current annual assessment, which sum constitutes a one-time non-refundable contribution to the Association's working capital account.

(e) Limitations on Assessments for Litigation. The Board of Directors shall not have the authority under this Section 2.3 or any other provision of these Bylaws or the Master Deed to levy any assessment or to incur any expense or legal fees with respect to any litigation without the prior approval, by affirmative vote, of not less than two-thirds (2/3) of all Co-Owners entitled to vote. This subsection shall not apply to any litigation commenced by the Association to enforce collection of delinquent assessments pursuant to these Bylaws. In no event shall the Developer be liable for , nor shall any Unit owner by Developer be subject to any lien for, any assessment levied to fund the cost of asserting any claim against the Developer, whether by arbitration, judicial proceeding, or otherwise.

Section 2.4 Apportionment of Assessments and Penalty for Default. Unless otherwise provided in these Bylaws or in the Master Deed, all assessments levied against the Co-Owners to cover management, maintenance, operation, and administration expenses shall be apportioned

among and paid by the Co-Owners in accordance with the respective Percentages of Value allocated to each Co-Owner's Unit in Article V of the Master Deed. Annual assessments determined in accordance with Section 2.3(a) above shall be paid by Co-Owners in one (1) installment, commencing with the acceptance of a deed to or a land contract vendee's interest in a Unit, or with the acquisition of fee simple title to a Unit by any other means. A Co-Owner shall be in default of his assessment obligations if he fails to pay any assessment installment when due. A late charge not to exceed \$25.00 per month shall be assessed automatically by the Association upon any assessments in default for ten (10) or more days until the assessment installment(s) together with the applicable late charges are paid in full. Each Co-Owner (whether one or more persons) shall be, and remain, personally liable for the payment of all assessments (including fines for late payments and costs of collection and enforcement of payment) relating to his Unit, which may be levied while such Co-Owner owns the Unit. Payments to satisfy assessment installments in default shall be applied as follows: first, to the costs of collection and enforcement of payment, including reasonable attorneys' fees; second, to any interest charges and fines for late payment on such installments; and third, to the installments in default in the order of their due dates.

Section 2.5 Waiver of Use or Abandonment of Units. No Co-Owner may exempt himself from liability for his assessment obligations by waiving the use or enjoyment of any of the Common Elements or by abandoning his Unit.

Section 2.6 Liens for Unpaid Assessments. The sums assessed by the Association that remain unpaid, including, but not limited to, regular assessments, special assessments, fines, and late charges, shall constitute a lien upon the Unit or Units in the Project owned by the Co-Owner at the time of the assessment and upon the proceeds of sale of such Unit or Units. Any such unpaid sum shall constitute a lien against the Unit as of the first day of the fiscal year in which the assessment, fine, or law charge relates and shall be a lien prior to all claims except real property taxes and first mortgages of record. All charges that the Association may levy against any Co-Owner shall be deemed to be assessments for purposes of this Section 2.6 and Section 108 of the Act.

Section 2.7 Enforcement.

(a) *Remedies.* In addition to any other remedies available to the Association, the Association may enforce the collection of delinquent assessments by a suit at law or by foreclosure on the statutory lien that secures payment of assessments. In the event any Co-Owner defaults in the payment of any annual assessment installment levied against his Unit, the Association shall have the right to declare all unpaid installments of the annual assessment for the pertinent fiscal year to be immediately due and payable. The Association may also discontinue furnishing any utilities or other services to a Co-Owner in default upon seven (7) days' written notice to such Co-Owner. A Co-Owner in default shall not be entitled to utilize any of the General Common Elements of the Project and shall not be entitled to vote at any meeting of the Association until the default is cured; provided, however, this provision shall not operate to deprive any Co-Owner of ingress or egress to and from his Unit or the dwelling or other improvements constructed thereon or in the appurtenant Limited Common Element(s). In a judicial foreclosure action, a receiver may be appointed to collect a reasonable rental for the Unit from the Co-Owner thereof or any persons

claiming under him. The Association may also assess fines for late payment or non-payment of assessments in accordance with the provisions of Section 17.4 of these Bylaws. All of these remedies shall be cumulative and not alternative.

(b) *Foreclosure Proceedings.* Each Co-Owner, and every other person who, from time to time, has any interest in the Project, shall be deemed to have granted to the Association the unqualified right to elect to foreclose the lien securing payment of assessments either by judicial action or by advertisement. The provisions of Michigan law pertaining to foreclosure of mortgages by judicial action and by advertisement, as the same may be amended from time to time, are incorporated herein by reference for the purposes of establishing the alternative procedures to be followed in lien foreclosure actions and the rights and obligations of the parties to such actions. In addition, each Co-Owner and every other person who from time to time has any interest in the Project, shall be deemed to have authorized and empowered the Association to sell or to cause to be sold the Unit with respect to which the assessment(s) is or are delinquent and to receive, hold and distribute the proceeds of such sale in accordance with the priorities established by applicable law. Each Co-Owner of a Unit in the Project acknowledges that at the time of acquiring title to such Unit, he was notified of the provisions of this subparagraph and he voluntarily, intelligently and knowingly waived notice of any proceedings brought by the Association to foreclose any assessment liens by advertisement and waived the right to a hearing prior to the sale of the applicable Unit.

(c) *Notices of Action.* Notwithstanding the provisions of Section 2.7(b), the Association shall not commence a judicial foreclosure action or a suit for a money judgment or publish any notice of foreclosure by advertisements until the expiration of 10 days after mailing, by first class mail, postage prepaid, and addressed to the delinquent Co-Owner at his last known address, of a written notice that one or more assessment installments levied against the pertinent Unit is or are delinquent and that the Association may invoke any of its remedies under these Bylaws if the default is not cured within 10 days from the date of mailing. Such written notice shall be accompanied by a written affidavit of an authorized representative of the Association that sets forth: (i) the affiant's capacity to make the affidavit, (ii) the statutory and other authority for the lien, (iii) the amount outstanding (exclusive of interest, costs, attorney fees, and future assessments), (iv) the legal description of the subject Unit(s), and (v) the name(s) of the Co-Owner(s) of record. Such affidavit shall be recorded in the office of the Livingston County Register of Deeds prior to the commencement of any foreclosure proceeding. If the delinquency is not cured within the 10-day period, the Association may take such remedial action as may be available to it under these Bylaws and under Michigan law. In the event the Association elects to foreclose the lien by advertisement, the Association shall notify the delinquent Co-Owner of the Association's election and shall inform him that he may request a judicial hearing by bringing suit against the Association.

(d) *Expenses of Collection.* The expenses incurred by the Association in collecting unpaid assessments, including interest, costs, actual attorneys' fees (not limited to statutory fees), and advances for taxes or other liens paid by the Association to protect its lien, shall be chargeable to the defaulting Co-Owner and shall be secured by a lien on his Unit.

Section 2.8 Liability of Mortgagees. Notwithstanding any other provisions of the Condominium Documents, the lien holder of any first mortgage covering any Unit in the Project which comes into possession of the Unit pursuant to the remedies provided in the mortgage or by deed (or assignment) in lieu of foreclosure, and any purchaser at a foreclosure sale, shall take the property free of any claims for unpaid assessments or against the mortgaged Unit that accrue prior to the time such holder comes into possession of the Unit (except for claims for a pro rata share of assessments or charges resulting from a pro rata reallocation of assessments or charges to all Units, including the mortgaged Unit).

Section 2.9 Developer's Responsibility for Assessments. The Developer, although a Member of the Association, shall not be responsible at any time for the payment of Association assessments except with respect to Units owned by the Developer that contain a completed and occupied residential dwelling. A residential dwelling is complete when it has received a certificate of occupancy from Genoa Township and a residential dwelling is occupied if it is being utilized as a residence. In addition, in the event Developer is selling a Unit with a completed residential dwelling thereon by land contract to a Co-Owner, the Co-Owner shall be liable for all assessments and the Developer shall not be deemed the owner of the applicable Unit and shall not be liable for any assessments levied up to and including the date, if any, upon which Developer actually retakes possession of the Unit following extinguishment of all rights of the land contract purchaser in the Unit. However, the Developer shall at all times pay the maintenance expenses pertaining to the Units that it owns, together with a proportionate share of all current maintenance expenses actually incurred by the Association (excluding reserves) for utility maintenance, landscaping, sign lighting, and snow removal, but excluding management fees and expenses related to the maintenance and use of Units in the Project that are not owned by the Developer. For purposes of the foregoing sentence, the Developer's proportionate share of such expenses shall be based upon the ratio of all Units owned by the Developer at the time the expense is incurred to the total number of Units then in the Project. In no event shall the Developer be responsible for assessments for deferred maintenance, reserves for maintenance, capital improvements, or other special assessments except with respect to Units that are owned by the Developer that contain completed and occupied residential dwellings. Any assessments levied by the Association against the Developer for other purposes, without the Developer's prior written consent, shall be void and of no effect. In addition, the Developer shall not be liable for any assessment levied in whole or in part to purchase any Unit from the Developer or to finance any litigation or claims against the Developer, any cost of investigating or preparing such litigation or claim, or any similar or related costs.

Section 2.10 Property Taxes and Special Assessments. All property taxes and special assessments levied by any public taxing authority shall be assessed in accordance with Section 131 of the Act.

Section 2.11 Personal Property Tax Assessment of Association Property. The Association shall be assessed as the person or entity in possession of any tangible personal property of the Condominium owned or possessed in common by the Co-Owners, and personal property taxes based thereon shall be treated as expenses of administration.

Section 2.12 Construction Liens. A construction lien otherwise arising under Act No 497 of the Michigan Public Acts of 1980, as amended, shall be subject to Section 132 of the Act.

Section 2.13 Statement as to Unpaid Assessments. The purchaser of any Unit may request a statement from the Association identifying the amount of any unpaid Association regular or special assessments relating to such Unit. Upon written request to the Association accompanied by a copy of the executed purchase agreement pursuant to which the purchaser holds the right to acquire a Unit, the Association shall provide a written statement identifying any existing unpaid assessments or a written statement that none exist, which statement shall be binding upon the Association for the period stated therein. Upon the payment of the sum identified in the statement within the period identified in the statement, the Association's lien for assessments as to such Unit shall be deemed satisfied; provided, however, if a purchaser fails to request such statement at least five (5) days prior to the closing of the purchase of such Unit, any unpaid assessments and the lien securing them shall be fully enforceable against such purchaser and the Unit itself to the extent provided by the Act. Under the Act, unpaid assessments constitute a lien upon the Unit and the sale proceeds thereof, which has priority over all claims except tax liens in favor of any state or federal taxing authority and sums unpaid on a first mortgage of record, except that past due assessments that are evidenced by a notice of lien, recorded pursuant to Section 2.7, have priority over a first mortgage recorded subsequent to the recording of the notice of the lien.

ARTICLE III ARBITRATION

Section 3.1 Scope and Election. Disputes, claims, or grievances arising out of or relating to the interpretation or the application of the Condominium Documents, or any disputes, claims, or grievances arising among or between the Co-Owners and the Association, upon the election and written consent of the parties to any such disputes, claims, or grievances (which consent shall include an agreement of the parties that the judgment of any circuit court of the State of Michigan may be rendered upon any award pursuant to such arbitration), and upon written notice to the Association, shall be submitted to arbitration, and the parties shall accept the arbitrator's decision as final and binding, provided that no question affecting the claim of title of any person to any fee or life estate in real estate is involved. The Commercial Arbitration Rules of the American Arbitration Association as amended and in effect from time to time shall be applicable to any such arbitration.

Section 3.2 Judicial Relief. In the absence of the election and written consent of the parties pursuant to Section 3.1 above, any Co-Owner or the Association may petition the courts to resolve any disputes, claims, or grievances.

Section 3.3 Election of Remedies. The election and written consent by the disputing parties to submit any dispute, claim, or grievance to arbitration shall preclude such parties from thereafter litigating such dispute, claim, or grievance in the courts. Nothing contained in this Article III shall limit the rights of the Association or any Co-Owner described in Section 144 of the Act.

ARTICLE IV INSURANCE

Section 4.1 Extent of Coverage. The Association shall, to the extent appropriate in light of the nature of the General Common Elements of the Project, carry fire and extended coverage, vandalism and malicious mischief coverage, and liability insurance (in a minimum amount to be determined by the Developer or the Association in its discretion); officers' and directors liability insurance and workmen's compensation insurance, if applicable; and other insurance the Association may deem applicable, desirable, or necessary pertinent to the ownership, use, and maintenance of the General Common Elements, and such insurance shall be carried and administered in accordance with the following provisions:

(a) *Responsibilities of the Association.* All of the insurance referenced in this Section 4.1 shall be purchased by the Association for the benefit of the Association, the Co-Owners, and their mortgagees, as their interests may appear, and provision shall be made for the issuance of mortgagee endorsements to the mortgagees of Co-Owners.

(b) *Insurance of Common Elements.* All General Common Elements of the Condominium Project shall be insured against fire and other perils covered by a standard extended coverage endorsement in an amount equal to the current insurable replacement value, excluding foundation and excavation costs, if any, as determined annually by the Board of Directors of the Association in consultation with the Association's insurance carrier and/or its representatives, utilizing commonly employed methods for the reasonable determination of replacement costs.

(c) *Premium Expenses.* All premiums on insurance purchased by the Association pursuant to these Bylaws shall be expenses of administration.

(d) *Proceeds of Insurance Policies.* Proceeds of all insurance policies owned by the Association shall be received by the Association, held in a separate account and distributed to the Association, and the Co-Owners and their mortgagees, as their interest may appear, provided, however, whenever repair, restoration, or replacement of any part of the Condominium shall be required as provided in Article V of these Bylaws, the proceeds of any insurance received by the Association as a result of any loss requiring same shall be retained by the Association and applied for such repair, restoration, or replacement, as applicable.

Section 4.2 Authority of Association to Settle Insurance Claims. Each Co-Owner, by ownership of a Unit in the Condominium Project, shall be deemed to appoint the Association as his true and lawful attorney-in-fact to act in connection with all matters concerning the maintenance of fire and extended coverage, vandalism and malicious mischief coverage, liability insurance, and workman's compensation insurance, if applicable, pertinent to the Condominium Project and the General Common Elements appurtenant thereto. Without limiting the foregoing, the Association shall have full power and authority to purchase and maintain such insurance, to collect and remit premiums thereunder, to collect insurance proceeds, and to distribute the same to the Association, the Co-Owners, and respective mortgagees, as their interest may appear (subject always to the Condominium Documents), and/or to utilize said proceeds for required

repairs, restoration, or replacement, to execute releases of liability, and to execute all documents and to do all things on behalf of such Co-Owner and the Condominium as shall be necessary or convenient to accomplish the foregoing purposes.

Section 4.3 Co-Owner Responsibilities. Each Co-Owner shall be responsible for obtaining fire and extended coverage and vandalism and malicious mischief insurance with respect to the dwelling, appurtenances, and all other improvements constructed or to be constructed within the perimeter of his Unit, any Limited Common Elements appurtenant thereto, and for his personal property located therein or thereon or elsewhere in the Condominium Project. The Association shall have no responsibility whatsoever to provide such insurance. In addition, each Co-Owner shall be obligated to obtain insurance coverage for personal liability (and, where applicable, workmen's compensation insurance) for occurrences within the perimeter of his Unit and any other appurtenant Limited Common Elements, naming the Association and the Developer as additional insureds, and also for any other personal insurance coverage that the Co-Owner wishes to carry. Each Co-Owner shall deliver certificates of insurance to the Association from time to time to evidence the continued existence of all insurance required to be maintained by the Co-Owner under this Section 4.3. If a Co-Owner fails to obtain such insurance or to provide evidence of such insurance to the Association, the Association may, but is not obligated to, obtain such insurance on behalf of the Co-Owner, and the premiums for such insurance shall constitute a lien against the Co-Owner's Unit, which may be collected in the same manner that assessments may be collected Under Article II of these Bylaws.

Section 4.4 Waiver of Subrogation. The Association, as to all policies which it obtains, and all Co-Owners, as to all policies which they obtain, shall use their best efforts to see that all property and liability insurance carried by the Association and any Co-Owner shall contain appropriate provisions whereby the insurer waives its right of subrogation as to any claims against any Co-Owner or the Association.

Section 4.5 Indemnification. Each individual Co-Owner shall indemnify and hold harmless every other Co-Owner, the Developer, and the Association for all damages and costs, including attorney's fees, which the other Co-Owners, the Developer, or the Association may suffer as a result of defending any claim arising out of an occurrence on or within an individual Co-Owner's Unit. Each Co-Owner shall carry insurance to secure the indemnity obligations under this Section 4.5, if required by the Association, or if required by the Developer during the Construction and Sales Period. This Section 4.5 is not intended to give any insurer any subrogation right or any other right or claim against any individual Co-Owner.

ARTICLE V MAINTENANCE, RECONSTRUCTION, OR REPAIR

Section 5.1 Co-Owner Responsibility for Maintenance. Each Co-Owner shall be responsible for all maintenance of the dwelling, driveway, and all personal property within his Unit. If any damage to the dwelling or other improvements constructed within a Co-Owner's Unit

adversely affects the appearance of the Condominium Project, the Co-Owner shall proceed to remove, repair, or replace the damaged property without delay.

Section 5.2 Association Responsibility for Maintenance. The Association shall be responsible for the maintenance of the Common Elements unless otherwise provided for in Section 4.3 of the Master Deed or these Bylaws. Immediately following a casualty to property for which the Association has such maintenance responsibility, the Association shall obtain reliable and detailed cost estimates to repair, restore, or replace, as applicable, the damaged property to a condition comparable to that existing before the damage. If the proceeds of insurance are not sufficient to defray the estimated costs of such repair, restoration, or replacement, or if at any time during such repair, restoration, or replacement, or upon completion of such repair, restoration, or replacement, there are insufficient funds for the payment of such repair, restoration, or replacement, the Association shall make an assessment against all Co-Owners for an amount, which when combined with available insurance proceeds, shall be sufficient to fully pay for the cost of such repair, restoration, or replacement of the damaged property. Any such assessment made by the Board of Directors of the Association shall be governed by Section 2.3(a) of these Bylaws. Nothing contained in this Section 5.2 is intended to require the Developer or the Association to replace mature trees and vegetation with equivalent trees or vegetation.

Section 5.3 Timely Repair, Restoration, or Replacement. If any damage to Common Elements or a Unit adversely affects the appearance of the Project, the Association or Co-Owner responsible for the maintenance thereof shall proceed to repair, restore, or replace, as applicable, the damaged property without delay, and shall use its best efforts to complete such action within 6 months from the date upon which the property damage occurred.

Section 5.4 Eminent Domain. Section 133 of the Act and the following provisions shall control in the event all or a portion of the Project is subject to eminent domain:

(a) *Taking of a Unit or Related Improvements.* In the event all or a portion of a Unit are taken by eminent domain, the award for such taking shall be paid to the Co-Owner of such Unit and the mortgagee thereof, as their interest may appear. If the entire Unit is taken by eminent domain, on the acceptance of such award by the Co-Owner and his mortgagee, they shall be divested of all interest in the Condominium Project.

(b) *Taking of Common Elements.* If there is a taking of any portion of the General Common Elements, the condemnation process relative to such taking shall be paid to the Co-Owners and their mortgagees in proportion to their respective undivided interest in the General Common Elements unless pursuant to the affirmative vote of Co-Owners representing greater than 50% of the total votes of all Co-Owners qualified to vote, at a meeting duly called for such purpose, the Association is directed to repair, restore, or replace the portion so taken or to take such other action as is authorized by a majority vote of the Co-Owners. If the Association is directed by the requisite number of Co-Owners to repair, restore, or replace all or any portion of the General Common Elements taken, the Association shall be entitled to retain the portion of the condemnation proceeds necessary to accomplish the repair, restoration, or replacement of the applicable General Common Elements. The Association, acting through its Board of Directors,

may negotiate on behalf of all Co-Owners for any condemnation award for General Common Elements and any negotiated settlement approved by the Co-Owners representing two-thirds (2/3) or more of the total votes of all Co-Owners qualified to vote shall be binding on all Co-Owners.

(c) Continuation of Condominium After Taking. In the event the Condominium Project continues after a taking by eminent domain, then the remaining portion of the Condominium Project shall be re-surveyed, the Master Deed amended accordingly, and, if any Unit shall have been taken, in whole or part, then Article V of the Master Deed shall also be amended to reflect such taking and to proportionately readjust the percentages of value of the remaining Units, based upon the continuing value of the Condominium Project being 100%. Such amendment may be affected by an officer of the Association duly authorized by the Board of Directors without the necessity of obtaining the signature or specific approval of any Co-Owner, mortgagee, or other person

(d) Notification of Mortgagees. In the event all or any portion of a Unit in the Condominium, or all or any portion of the Common Elements is made the subject matter of any condemnation or eminent domain proceeding or is otherwise sought to be acquired by a condemning authority, the Association shall notify each institutional holder of a first mortgage lien on any of the Units in the Condominium that is registered in the Association's book of "Mortgagees of Units" pursuant to Section 6.1 of these Bylaws.

Section 5.5 Notification of FHLMC. In the event any mortgage in the Condominium is held by the Federal Home Loan Mortgage Corporation ("FHLMC") then, upon request therefor by FHLMC, the Association shall give FHLMC written notice, at such address as it may from time to time direct, of any loss to or taking of the Common Elements of the Condominium, if the loss or taking exceeds \$10,000.00 in amount or if the damage or taking relates to a Unit covered by a mortgage purchased in whole or in part by FHLMC and exceeds \$1,000.00.

Section 5.6 Priority of Mortgagee Interests. Nothing contained in the Condominium Documents shall be construed to give a Co-Owner, or any other party, priority over any rights of first mortgagees of Units pursuant to their mortgages with respect to any distribution to Co-Owners of insurance proceeds or condemnation awards for losses to or a taking of Units and/or Common Elements.

ARTICLE VI MORTGAGES

Section 6.1 Notice to Association. Any Co-Owner who mortgages his Unit shall notify the Association of the name and address of the mortgagee, and the Association shall maintain such information in a book entitled "Mortgages of Units." The Association may, at the written request of a mortgagee of any such Unit, report any unpaid assessments due from the Co-Owner of such Unit. The Association shall give to the holder of any first mortgage covering any Unit written notification of any default in the performance of the obligations of the Co-Owner of such Unit that is not cured within 60 days.

Section 6.2 Insurance. The Association shall notify each mortgagee appearing in the book referenced in Section 6.1 of the name of each company insuring the Condominium Project against fire, perils covered by extended coverage, and vandalism and malicious mischief coverage, and the amounts of such coverage.

Section 6.3 Notification of Meetings. Upon request submitted to the Association, any institutional holder of a first mortgage lien on a Unit shall be entitled to receive written notification of every meeting of the Members of the Association and to designate a representative to attend such meeting.

ARTICLE VII VOTING

Section 7.1 Vote. Except as otherwise specified in those Bylaws, each Co-Owner shall be entitled to one vote for each Condominium Unit owned.

Section 7.2 Eligibility to Vote. No Co-Owner, other than the Developer, shall be entitled to vote at any meeting of the Association until he has presented to the Association evidence that the Co-Owner owns a Unit. Except as provided in Section 10.2 of these Bylaws, no Co-Owner, other than the Developer, shall be entitled to vote prior to the date of the First Annual Meeting of Members held in accordance with Section 10.2. The vote of each Co-Owner may be cast only by the individual representative designated by such Co-Owner in the notice required in Section 7.3 below or by a proxy given by such individual representative. The Developer shall be the only person entitled to vote at a meeting of the Association until the First Annual Meeting of Members and shall be entitled to vote during such period notwithstanding the fact that the Developer may own no Units at some time or from time to time during such period. At the First Annual Meeting and thereafter, the Developer shall be entitled to vote for each Unit which it owns.

Section 7.3 Designation of Voting Representative. Each Co-Owner shall file with the Association a written notice designating the individual representative who shall vote at meetings of the Association and receive all notices and other communications from the Association on behalf of the Co-Owner. If a Co-Owner designates himself as the individual representative, he need not file any written notice with the Association. The failure of any Co-Owner to file any written notice shall create a presumption that the Co-Owner has designated himself as the voting representative. The notice shall state the name and address of the individual representative designated, the address of the Unit or Units owned by the Co-Owner, and the name and address of each person, firm corporation, partnership, association, trust, or other entity who is the Co-Owner. The notice shall be signed and dated by the Co-Owner. An individual representative may be charged by the Co-Owner at any time by filing a new notice in accordance with this Section 7.3. In the event a Unit is owned by multiple Co-Owners who fail to designate an individual voting representative for such Co-Owners, the Co-Owner whose name first appears on record title shall be deemed to be the individual representative authorized to vote on behalf of all the multiple Co-Owners of the Unit(s), and any vote cast in person or by proxy by said individual representative shall be binding upon all such multiple Co-Owners.

Section 7.4 Quorum. The presence in person or by proxy of Co-Owners representing 51% of the total number of votes of all Co-Owners qualified to vote shall constitute a quorum for holding a meeting of the Members of the Association, except for voting on questions specifically required by the Condominium Documents to require a greater quorum. The written vote of any person furnished at or prior to any duly called meeting at which said person is not otherwise present in person or by proxy shall be counted in determining the presence of a quorum with respect to the question upon which the vote is cast.

Section 7.5 Voting. Votes may be cast in person or by proxy by a writing duly signed by the designated voting representative not present at a given meeting in person or by proxy. Proxies and any written votes must be filed with the secretary of the Association at or before the appointed time of each meeting of the Members of the Association. Cumulative voting shall not be permitted.

Section 7.6 Majority. When an action is to be authorized by vote of the Co-Owners of the Association, the action must be authorized by a majority of the votes cast at a meeting duly called for such purpose, unless a greater percentage vote is required by the Master Deed, these Bylaws, or the Act.

ARTICLE VIII MEETINGS

Section 8.1 Place of Meeting. Meetings of the Association shall be held at the principal office of the Association or at such other suitable place convenient to the Co-Owners as may be designated by the Board of Directors. Meetings of the Association shall be conducted in accordance with generally recognized rules of parliamentary procedure that are not in conflict with the Condominium Documents or the laws of the State of Michigan.

Section 8.2 First Annual Meeting. The First Annual Meeting of Members of the Association may be convened by the Developer in its discretion at any time prior to the date the First Annual Meeting is required to be convened pursuant to this Section 8.2. Notwithstanding the foregoing, the First Annual Meeting must be held (i) within 120 days following the conveyance of legal or equitable title to non-developer Co-Owners of 75% of all Units; or (ii) 54 months from the first conveyance to a non-Developer Co-Owner of legal or equitable title to a Unit, whichever is the earlier to occur. The Developer may call meeting of Members for informative or other appropriate purposes prior to the First Annual Meeting of Members and no such meeting shall be construed as the First Annual Meeting of Members. The date, time, and place of such meeting shall be set by the Board of Directors, and at least 10 days written notice thereof shall be given to each Co-Owner's individual representative.

Section 8.3 Annual Meetings. Annual meetings of Association Members shall be held not later than May 30 of each succeeding year following the year in which the First Annual Meeting is held at a time and place determined by the Board of Directors. At each annual meeting, the Co-Owners shall elect members of the Board of Directors in accordance with Article X of these

Bylaws. The Co-Owners may also transact at annual meetings such other Association business as may properly come before them.

Section 8.4 Special Meeting. The President shall call a special meeting of Members as directed by resolution of the Board of Directors or upon presentation to the Association's Secretary of a petition signed by Co-Owners representing one-third (1/3) of the votes of all Co-Owners qualified to vote. Notice of any special meeting shall state the time and place of such meeting and the purposes thereof. No business shall be transacted at a special meeting except as stated in the notice.

Section 8.5 Notice of Meetings. The Secretary (or other Association officer in the Secretary's absence) shall provide each Co-Owner of record or, if applicable, a Co-Owner's individual representative with notice of each annual or special meeting, stating the purpose thereof and the time and place where it is to be held. A notice of an annual or special meeting shall be served at least 10 days, but not more than 60 days, prior to each meeting. The mailing, postage prepaid, of a notice to the individual representative of each Co-Owner at the address shown in the notice filed with the Association under Section 7.3 of these Bylaws shall be deemed properly served. Any Co-Owner or individual representative may waive such notice by filing with the Association a written waiver of notice signed by such Co-Owner or individual representative.

Section 8.6 Adjournment. If any meeting of Co-Owners cannot be held because a quorum is not in attendance, the Co-Owners who are present may adjourn the meeting to a time not less than 48 hours from the time the original meeting was called. When a meeting is adjourned to another time or place, it is not necessary to give notice of the adjourned meeting if the time and place to which the meeting is adjourned are announced at the meeting at which the adjournment is taken and only such business is transacted at the adjourned meeting as might have been transacted at the original meeting. However, if after the adjournment, the Board of Directors fixes a new record date for the adjourned meeting, a notice of adjourned meeting shall be given to each Co-Owner or Co-Owner's individual representative.

If a meeting is adjourned in accordance with the provisions of this Section 8.6 due to the lack of a quorum, the required quorum at the subsequent meeting shall be two thirds (2/3) of the required quorum for the meeting that was adjourned, provided that the Board of Directors provides each Co-Owner (or Co-Owner's individual representative) with notice of the adjourned meeting in accordance with Section 8.5 above and provided further the subsequent meeting is held within sixty (60) days from the date of the adjourned meeting.

Section 8.7 Action Without Meeting. Any action required or permitted to be taken at a meeting of Members may be taken without a meeting, without prior notice, and without a vote if all of the Co-Owners (or their individual representatives) entitled to vote thereon consent thereto in writing. If the Association's Articles of Incorporation so provide, any action required or permitted to be taken at any meeting of Members may be taken without a meeting, without prior notice, and without a vote if a written consent setting forth the actions so taken is signed by the Co-Owners (or their individual representatives) having not less than the minimum number of votes that would be necessary to authorize or take the action at a meeting at which all Co-Owners entitled

to vote thereon were present and voted. Prompt notice of any action that is taken without a meeting by less than unanimous written consent shall be given to the Co-Owners who have not consented in writing.

Section 8.8 Electronic Participation in a Meeting. A Co-Owner may participate in a meeting by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other if such option is available. If there is a cost to this option, the Co-Owner(s) utilizing this option shall bear the cost. Participation in a meeting pursuant to this Section 8.8 constitutes presence at the meeting.

ARTICLE IX ADVISORY COMMITTEE

Within one year after the first conveyance to a non-Developer Co-Owner of legal or equitable title to a Unit in the Condominium Project or within 120 days following the conveyance to non-Developer Co-Owners of one-third (1/3) of the total number of Units that may be created, whichever first occurs, the Developer shall cause to be established an Advisory Committee consisting of at least three non-Developer Co-Owners. The Committee shall be established in any manner the Developer deems advisable. The purpose of the Advisory Committee shall be to facilitate communications between the temporary Board of Directors and the non-Developer Co-Owners and to aid in the transition of control of the Association from the Developer to Co-Owners. The Advisory Committee shall automatically cease to exist when a majority of the Board of Directors of the Association is elected by non-Developer Co-Owners. The Developer may at any time remove and replace, at its discretion, any member of the Advisory Committee.

ARTICLE X BOARD OF DIRECTORS

Section 10.1 Number and Qualification of Directors. The Board of Directors shall initially be comprised of three Directors. At such time as the non-Developer Co-Owners are entitled to elect two members of the Board of Directors in accordance with Section 10.2 below, the Board shall automatically be increased in size from three to five persons. At such time as the Board of Directors is increased in size to five persons, all Directors must be Co-Owners (or officers, partners, trustees, or employees of Co-Owners that are entities). In the event that the Association cannot locate five Co-Owners who are willing to serve as Directors, the Board may operate with less than five persons, and such reduced size shall not affect the validity of any decision made by the Board.

Section 10.2 Election of Directors.

(a) *First Board of Directors.* Until such time as the non-Developer Co-Owners are entitled to elect one of the members of the Board of Directors, the Developer shall select all of the Directors, which persons may be removed or replaced by Developer in its discretion.

(b) Appointment of Non-Developer Co-Owners to Board Prior to First Annual Meeting. Not later than 120 days following the conveyance to non-Developer Co-Owners of legal or equitable title to 25% of the Units that may be created, one member of the Board of Directors shall be elected by non-Developer Co-Owners. The remaining Members of the Board of Directors shall be selected by Developer. Not later than 120 days following the conveyance to non-Developer Co-Owners of legal or equitable title to 50% of the Units that may be created, the Board of Directors shall be increased to five Members and two of the five Directors shall be elected by non-Developer Co-Owners. The remaining Members of the Board of Directors shall be selected by Developer. When the required percentage levels of conveyance have been reached, the Developer shall notify the non-Developer Co-Owners and request that they hold a meeting to elect the required number of Directors. Upon certification by the Co-Owners to the Developer of the Director or Directors elected, the Developer shall immediately appoint such Director or Directors to the Board, to serve until the First Annual Meeting of Co-Owners, unless he is removed pursuant to Section 10.7, he resigns, or he becomes incapacitated.

(c) Election of Directors at and after First Annual Meeting

(i) Not later than 120 days following the conveyance to non-Developer Co-Owners of legal or equitable title to 75% of the Units that may be created, the non-developer Co-Owners shall elect all of the Directors on the Board, except that the Developer shall have the right to designate at least one Director so long as the Developer owns and offers for sale at least 10% of the Units in the Condominium Project or as long as the Units that remain to be created and sold equal at least 10% of all Units that may be created in the Project. Whenever the 75% conveyance level is achieved, a meeting of Co-Owners shall promptly be convened to effectuate this provision, even if the First Annual Meeting has already occurred.

(ii) Regardless of the percentage of Units which have been conveyed, upon the elapse of 54 months after the first conveyance to a non-Developer Co-Owner of legal or equitable title to a Unit on the Project, and if title to not less than 75% of the Units that may be created has not been conveyed, the non-Developer Co-Owners have the right to elect a number of members of the Board of Directors in proportion to the percentage of Units they own, and the Developer has the right to elect a number of members of the Board of Directors in proportion to the percentage of Units that are owned by the Developer and for which assessments are payable by the Developer. This election may increase, but shall not reduce, the minimum election and designation rights otherwise established in Section 10.2(b) or 10.2(c)(i) above. Application of this subsection does not require a change in the size of the Board of Directors.

(iii) If the calculation of the percentage of members of the Board of Directors that the non-Developer Co-Owners have the right to elect under subsection (ii) above, or if the product of the number of members of the Board of Directors multiplied by the percentage of Units held by the non-Developer Co-Owners under subsection (b) results in a right of non-Developer Co-Owners to elect a fractional number of members of the Board of Directors, then a fractional election right of 0.5 or greater shall be rounded up to the nearest whole number, which number shall be the number of members of the Board of Directors that the non-Developer Co-Owners have the right to elect. After application of this formula, the Developer shall have the

right to elect the remaining members of the Board of Directors. Application of this subsection shall not eliminate the right of the Developer to designate one director as provided in subsection (c)(i), above.

(iv) At such time as the non-Developer Co-Owners are entitled to elect all of the Directors, three Directors shall be elected for a term of two years and two Directors shall be elected for a term of one year. At such meeting, all nominees shall stand for election as one slate and the three persons receiving the highest number of votes shall be elected for a term of two years and the two persons receiving the next highest number of votes shall be elected for a term of one year. At each annual meeting held thereafter, either two or three Directors shall be elected depending upon the number of Directors whose terms expire, and the term of office of each Director shall be two years. The Directors shall hold office until their successors have been elected and hold their first meeting.

Section 10.3 Powers and Duties. The Board of Directors shall have the powers and duties necessary for the administration of the affairs of the Association and may do all acts and things as are not prohibited by the Condominium Documents or specifically required to be exercised and done by the Co-Owners.

Section 10.4 Specific Powers and Duties. In addition to the duties imposed by these Bylaws or any further duties which may be imposed by resolution of the Co-Owners of the Association, the Board of Directors shall have the following powers and duties:

- (a) To manage and administer the affairs of and maintain the Condominium Project and the Common Elements.
- (b) To collect assessments from the Co-Owners and to expend the proceeds for the purposes of the Association.
- (c) To carry insurance and collect and allocate the proceeds thereof.
- (d) To reconstruct or repair improvements after casualty.
- (e) To contract for and employ persons, firms, corporations, or other agents to assist in the management, operation, maintenance, and administration of the Condominium Project.
- (f) To acquire, maintain, and improve, and to buy, operate, manage, sell, convey, assign, mortgage, or lease any real or personal property (including any Unit in the Condominium Project and easements, rights-of-way, and licenses) on behalf of the Association in furtherance of any of the purposes of the Association.
- (g) To borrow money and issue evidences of indebtedness in furtherance of any or all of the purposes of the Association, and to secure the same by mortgage, pledge, or other lien on property owned by the Association; provided, however, that any such action shall

also be approved by the affirmative vote of the Co-Owners (or their individual representatives) representing 75% of the total votes of all Co-Owners qualified to vote.

(h) To establish rules and regulations for the General Common Elements.

(i) To establish such committees as the Board of Directors deems necessary, convenient, or desirable, and to appoint persons thereto for the purpose of implementing the administration of the Condominium Project and to delegate to such committees any functions or responsibilities that are not by law or the Condominium Documents required to be exclusively performed by the Board.

(j) To enforce the provisions of the Condominium Documents.

Section 10.5 Management Agent. The Board of Directors may employ for the Association a professional management agent (which may include the Developer or any person or entity related thereto) at a reasonable compensation established by the Board to perform such duties and services as the Board shall authorize, including, but not limited to, the duties listed in Sections 10.3 and 10.4, and the Board may delegate to such management agent any other duties or powers that are not by law or by the Condominium Documents required to be exclusively performed by or have the approval of the Board of Directors or the Members of the Association.

Section 10.6 Vacancies. Vacancies in the Board of Directors that occur after the Transitional Control Date caused by any reason other than the removal of a Director by a vote of the Co-Owners of the Association shall be filled by vote of the majority of the remaining Directors, even though they may constitute less than a quorum, except that the Developer shall be solely entitled to fill the vacancy of any Director whom it is permitted in the first instance to designate. Each person so elected shall be a Director until a successor is elected at the next annual meeting of the Association. Vacancies among non-Developer Co-Owner elected Directors that occur prior to the Transitional Control Date may be filled only through election by non-Developer Co-Owners and shall be filled in the manner as specified in Section 10.2(b).

Section 10.7 Removal. At any regular or special meeting of the Association duly called with due notice of the removal action proposed to be taken, any one or more of the Directors elected by the non-Developer Co-Owners may be removed with or without cause by the affirmative vote of the Co-Owners (or their individual representatives) who represent greater than 50% of the total votes of all Co-Owners qualified to vote, and a successor may then and there be elected to fill any vacancy thus created. Any Director whose removal has been proposed by a Co-Owner shall be given an opportunity to be heard at the meeting. The Developer may remove and replace any or all of the Directors selected by it at any time or from time to time in its sole discretion. Any Director selected by the non-Developer Co-Owners to serve before the First Annual Meeting may also be removed by such Co-Owners before the First Annual Meeting in the manner described in this Section 10.7.

Section 10.8 First Meeting. The first meeting of the elected Board of Directors shall be held within 10 days of election at a time and place fixed by the Directors at the meeting at which

such Directors were elected, and no notice shall be necessary in order to legally convene such meeting, provided a majority of the Board shall be present.

Section 10.9 Regular Meetings. Regular meetings of the Board of Directors may be held at such times and places as shall be deemed from time to time by a majority of the Directors, but at least two such meetings shall be held during each fiscal year of the Association. Notice of regular meetings of the Board of Directors shall be given to each Director, personally, by mail, telephone, or telegraph at least 10 days prior to the date named for such meeting.

Section 10.10 Special Meetings. Special meetings of the Board of Directors may be called by the President on 3 days' notice to each Director, given personally, by mail, telephone, or telegraph, which notice shall state the time, place, and purpose of the meeting. Special meetings of the Board of Directors shall be called by the President or Secretary in like manner on the written request of two or more Directors.

Section 10.11 Quorum and Required Vote of Board of Directors. At all meetings of the Board of Directors, a majority of the members of the Board of Directors then in office shall constitute a quorum. The vote of the majority of Directors at a meeting at which a quorum is present constitutes the action of the Board of Directors, unless a greater plurality is required by the Michigan Non-profit Corporation Act, the Articles of Incorporation, the Master Deed, or these Bylaws. If a quorum is not present at any meeting of the Board of Directors, the Directors present at such meeting may adjourn the meeting from time to time without notice other than an announcement at the meeting, until the quorum shall be present.

Section 10.12 Consent in Lieu of Meeting. Any action required or permitted to be taken at a meeting of the Board of Directors may be taken without a meeting if all members of the Board of Directors consent in writing. The written consent shall be filed with the minutes of the proceedings of the Board of Directors. The consent has the same effect as a vote of the Board of Directors for all purposes.

Section 10.13 Electronic Participation in a Meeting. A Director may participate in a meeting by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other. Participation in a meeting pursuant to this Section 10.13 constitutes presence at the meeting.

Section 10.14 Fidelity Bonds. The Board of Directors may require that all officers and employees of the Association handling or responsible for Association funds furnish adequate fidelity bonds. The premiums on such bonds shall be expenses of administration.

Section 10.15 Compensation. The Board of Directors shall not receive any compensation for rendering services in their capacity as Directors, unless approved by the Co-Owners (or their individual representatives) who represent 60% or more of the total votes of all Co-Owners qualified to vote.

ARTICLE XI OFFICERS

Section 11.1 Selection of Officers. The Board of Directors, at a meeting called for such purpose, shall appoint a president, secretary, and treasurer. The Board of Directors may also appoint one or more vice-presidents and such other officers, employees, and agents as the Board shall deem necessary, which officers, employees, and agents shall hold their offices for such terms and shall exercise such powers and perform such duties as shall be determined from time to time by the Board of Directors. Two or more offices, except that of president and vice-president, may be held by one person who may also be a Director. An officer shall be a Co-Owner (or shareholder, officer, director, employee, or partner of a Co-Owner that is an entity).

Section 11.2 Term, Removal, and Vacancies. Each officer of the Association shall hold office for the term for which he is appointed until his successor is elected or appointed, or until his resignation or removal. Any officer appointed by the Board of Directors may be removed by the Board of Directors with or without cause at any time. Any officer may resign by written notice to the Board of Directors. Any vacancy occurring in any office may be filled by the Board of Directors.

Section 11.3 President. The President shall be a Member of the Board of Directors and shall act as the chief executive officer of the Association. The President shall preside at all meetings of the Association and of the Board of Directors. He shall have all of the general powers and duties which are usually vested in the office of the President of an Association, subject to Section 11.1 above.

Section 11.4 Vice President. The Vice President shall take the place of the President and his duties whenever the President shall be absent or unable to act. If neither the President nor the Vice President is able to act, the Board of Directors shall appoint some other member of the Board to do so on an interim basis. The Vice President shall also perform such other duties as shall from time to time be imposed upon him by the Board of Directors.

Section 11.5 Secretary. The Secretary shall keep the minutes of all meetings of the Board of Directors and the minutes of all meetings of the Co-Owners of the Association. He shall have charge of the corporate seal, if any, and of such books and papers as the Board of Directors may direct; and he shall, in general, perform all duties incident to the office of the Secretary.

Section 11.6 Treasurer. The Treasurer shall have responsibility for the Association funds and securities and shall be responsible for keeping full and accurate accounts of all receipts and disbursements in books belonging to the Association. He shall be responsible for the deposit of all monies and other valuable effects in the name and to the credit of the Association, in such depositories as may, from time to time, be designated by the Board of Directors.

**ARTICLE XII
SEAL**

The Association may (but need not) have a seal. If the Board determines that the Association shall have a seal, then it shall have inscribed thereon the name of the Association, the word “corporate seal,” and the word “Michigan.”

**ARTICLE XIII
FINANCE**

Section 13.1 Records. The Association shall keep detailed books of account showing all expenditures and receipts of administration, which shall specify the maintenance and repair expenses of the Common Elements and any other expenses incurred by or on behalf of the Association and the Co-Owners. Such accounts and all other Association records shall be open for inspection by the Co-Owners and their mortgagees during reasonable working hours. The Association shall prepare and distribute to each Co-Owner at least once a year a financial statement, the contents of which shall be determined by the Association. The books of account shall be audited at least annually by qualified independent auditors; provided, however, that such auditors need not be certified public accountants nor does such audit need to be a certified audit, unless the annual revenues of the Association exceed \$20,000. In the event the annual revenues of the Association exceed \$20,000, then the annual audit shall be performed by a certified public accountant unless a majority of the Members vote to opt out of this requirement. Upon request, any institutional holder of a first mortgage lien on any Unit in the Condominium shall be entitled to receive a copy of such annual audited financial statement within 90 days following the end of the Association’s fiscal year. The costs of any such audit and any accounting expenses shall be expenses of administration.

Section 13.2 Fiscal Year. The fiscal year of the Association shall be an annual period commencing on the date initially determined by the Directors. The Association’s fiscal year may be changed by the Board of Directors in its discretion.

Section 13.3 Bank Accounts. The Association’s funds shall initially be deposited in such bank or savings association as may be designated by the Directors. All checks, drafts, and order of payment of money shall be signed in the name of the Association in such manner and by such person or persons as the Board of Directors shall from time to time designate for that purpose. The Association’s funds may be invested from time to time in accounts or deposit certificates of such bank or savings association that are insured by the Federal Deposit Insurance Corporation of the Federal Savings and Loan Insurance Corporation and may also be invested in interest-bearing obligations of the United States Government.

**ARTICLE XIV
INDEMNIFICATION OF OFFICERS AND DIRECTORS**

Section 14.1 Third Party Actions. To the fullest extent permitted by the Michigan Non-Profit Corporation Act, the Association shall, subject to Section 14.5 below, indemnify any person

who was or is a party defendant or is threatened to be made a party defendant to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative, or investigative (other than an action by or in the right of the Association) by reason of the fact that he is or was a Director or officer of the Association, or is or was serving at the request of the Association as a Director, officer, employee, or agent of another corporation, partnership, joint venture, trust, or other enterprise, against expenses (including actual and reasonable attorney fees), judgments, fines, and amounts reasonably paid in settlement actually and reasonably incurred by him in connection with such action, suit, or proceeding if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the Association or its members, and with respect to any criminal action or proceeding, had no reasonable cause to believe his conduct was unlawful. The termination of any action, suit, or proceeding by judgment, order, settlement, conviction, or upon a plea of nolo contendere or its equivalent, shall not, of itself, create a presumption (a) that the person did not act in good faith and in a manner which he reasonably believed to be not opposed to the best interests of the Association or its members, and (b) with respect to any criminal action or proceeding, that the person had reasonable cause to believe that his conduct was unlawful.

Section 14.2 Actions in the Right of the Association. To the fullest extent permitted by the Michigan Non-profit Corporation Act, the Association shall, subject to Section 14.5 below, indemnify any person who was or is a party defendant to or is threatened to be made a party defendant of any threatened, pending, or completed action or suit by or in the right of the Association to procure a judgment in its favor by reason of the fact that he is or was a Director or officer of the Association, or is or was serving at the request of the Association as a Director, officer, employee, or agent of another corporation, partnership, joint venture, trust, or other enterprise against expenses (including actual and reasonable attorney fees) actually and reasonably incurred by him in connection with the defense or settlement of such action or suit and amounts reasonably paid in settlement if he acted in good faith and in a manner he reasonably believed to be in or not opposed to the best interests of the Association or its members, except that no indemnification shall be made in respect of any claim, issue, or matter as to which such person shall have been adjudged to be liable to the Association unless, and only to the extent that the court in which such action or suit was brought shall determine upon application that, despite the indication of liability but in view of all circumstances of the case, such person is fairly and reasonably entitled to indemnity for such expenses that such court shall deem proper.

Section 14.3 Insurance. The Association may purchase and maintain insurance on behalf of any person who is or was a Director, employee, or agent of the Association, or is or was serving at the request of the Association as a Director, officer, employee, or agent against any liability asserted against him and incurred by him in any such capacity or arising out of his status as such, whether or not the Association would have power to indemnify him against such liability under Sections 14.1 and 14.2 above. In addition, the Association may purchase and maintain insurance for its own benefit to indemnify it against any liabilities it may have as a result of its obligations of indemnification made under Sections 14.1 and 14.2 above.

Section 14.4 Expenses of Successful Defense. To the extent that a person has been successful on the merits or otherwise in defense of any action, suit, or proceeding referred to in

Sections 14.1 and 14.2 above, or in defense of any claim, issue, or matter therein, or to the extent such person incurs expenses (including actual and reasonable attorney fees) in successfully enforcing the provisions of this Article XIV, he shall be indemnified against expenses (including attorney fees) actually and reasonably incurred by him in connection therewith.

Section 14.5 Determination that Indemnification is Proper. Any indemnification under Sections 14.1 and 14.2 above (unless ordered by a court) shall be made by the Association only as authorized in the specific case upon a determination that indemnification of the person is proper under the circumstances because he has met the applicable standard of conduct set forth in Sections 14.1 or 14.2 above, whichever is applicable. Notwithstanding anything to the contrary contained in this Article XIV, in no event shall any person be entitled to any indemnification under the provisions of this Article XIV if he is adjudged guilty of willful or wanton misconduct or gross negligence in the performance of his duties. The determination to extend such indemnification shall be made in any one (1) of the following ways:

(a) By a majority vote of a quorum of the Board of Directors consisting of Directors who were not parties to such action, suit, or proceeding; or

(b) If such quorum described in (a) is not obtainable, then by a majority vote of a committee of Directors who are not parties to the action, suit, or proceeding. The committee shall consist of not less than two (2) disinterested Directors; or

(c) If such quorum described in (a) is not obtainable (or, even if obtainable, a quorum of disinterested Directors, so directs), by independent legal counsel in a written opinion.

If the Association determines that full indemnification is not proper under Sections 14.1 or 14.2 above, it may nonetheless determine to make whatever partial indemnification it deems proper. At least 10 days prior to the payment of any indemnification claim which is approved, the Board of Directors shall provide all Co-Owners with written notice thereof.

Section 14.6 Expense Advance. Expenses incurred in defending a civil or criminal action, suit, or proceeding described in Sections 14.1 and 14.2 above may be paid by the Association in advance of the final disposition of such action, suit, or proceeding, as provided in Section 14.4 above, upon receipt of an undertaking by or on behalf of the person involved to repay such amount unless it shall ultimately be determined that he is entitled to be indemnified by the Association. At least 10 days prior to advancing any expenses to any person under this Section 14.6, the Board of Directors shall provide all Co-Owners with written notice thereof.

Section 14.7 Former Representatives, Officers, Employees, or Agents. The indemnification provided in this Article XIV shall continue as to a person who has ceased to be a Director, officer, employee, or agent of the Association and shall inure to the benefit of the heirs, executors, and administrators of such person.

Section 14.8 Changes in Michigan Law. In the event of any change of the Michigan statutory provisions applicable to the Association relating to the subject matter of this Article XIV, the indemnification to which any person shall be entitled hereunder arising out of acts or omissions occurring after the effective date of such amendment shall be determined by such changed provisions. No amendment to or repeal of Michigan law with respect to indemnification shall restrict the Association's indemnification undertaking herein with respect to acts or omissions occurring prior to such amendment or repeal. The Board of Directors are authorized to amend this Article XIV to conform to any such changed statutory provisions.

ARTICLE XV AMENDMENTS

Section 15.1 By Developer. In addition to the rights of amendment provided to the Developer in the various Articles of the Master Deed, the Developer may, within two years following the expiration of the Construction and Sales Period, and without the consent of any Co-Owner, mortgagee, or any other person, amend those Bylaws provided such amendment or amendments do not materially alter the rights of Co-Owners or mortgagees.

Section 15.2 Proposal. Amendments to these Bylaws may be proposed by the Board of Directors of the Association upon the vote of the majority of Directors or may be proposed by 1/3 or more in number of the Co-Owners by a written instrument signed by the applicable Co-Owners.

Section 15.3 Meeting. If any amendment to these Bylaws is proposed by the Board of Directors or the Co-Owners, a meeting for consideration of the proposal shall be duly called in accordance with the provisions of these Bylaws.

Section 15.4 Voting. These Bylaws may be amended by the Co-Owners at any regular meeting or a special meeting called for such purpose by an affirmative vote of 66-2/3% or more of the total votes of all Co-Owners qualified to vote. No consent of mortgagees shall be required to amend these Bylaws unless such amendment would materially alter or change the rights of such mortgagees, in which event the approval of 66-2/3% of all mortgagees of Units shall be required. Each mortgagee shall have one vote for each mortgage held. Notwithstanding anything to the contrary contained in this Article XV, during the Construction and Sales Period, these Bylaws shall not be amended in any way without the Prior written consent of the Developer.

Section 15.5 Effective Date of Amendment. Any amendment to the Bylaws shall become effective upon the recording of such amendment in the office of the Livingston County Register of Deeds.

Section 15.6 Binding Effect. A copy of each amendment to the Bylaws shall be furnished to every member of the Association after its adoption; provided, however, that any amendment to these Bylaws that is adopted in accordance with this Article XV shall be binding upon all persons who have an interest in the Project irrespective of whether such persons actually receive a copy of the amendment.

ARTICLE XVI COMPLIANCE

The Association or any Co-Owners and all present or future Co-Owners, tenants, future tenants, or any other persons acquiring an interest in or using the facilities of the Condominium Project in any manner are subject to and shall comply with the Act, as amended, and the mere acquisition, occupancy, or rental of any Unit or an interest therein or the utilization of or entry upon the Condominium Premises shall signify that the Condominium Documents are accepted and ratified. In the event the Condominium Documents conflict with the provisions of the Act, the Act shall govern.

ARTICLE XVII REMEDIES FOR DEFAULT

Any default by a Co-Owner of its obligations under any of the Condominium Documents shall entitle the Association or another Co-Owner or Co-Owners to the following relief:

Section 17.1 Legal Action. Failure to comply with any of the terms or provisions of the Condominium Documents shall be grounds for relief, which may include, without limitation, an action to recover damages, injunctive relief, foreclosure of lien (if there is a default in the payment of an assessment), or any combination thereof, and such relief may be sought by the Association or, if appropriate, by an aggrieved Co-Owner or Co-Owners.

Section 17.2 Recovery of Costs. In any legal proceeding arising because of an alleged default by any Co-Owner, the Association, if successful, shall be entitled to recover the costs of the proceeding and such reasonable attorneys' fees (not limited to statutory fees) as may be determined by the court, but in no event shall any Co-Owner be entitled to recover such attorneys' fees. In addition, in the event of a default that does not result in a legal proceeding, the Association shall have a right to assess to any Co-Owner all costs and expenses incurred, including all attorneys' fees.

Section 17.3 Removal and Abatement. The violation of any of the provisions of the Condominium Documents shall also give the Association or its duly authorized agents the right, in addition to the rights set forth above, to enter upon the Common Elements, Limited or General, or into any Unit and the improvements thereon, where reasonably necessary, and summarily remove and abate, at the expense of the Co-Owner in violation, any structure or condition existing or maintained in violation of the provisions of the Condominium Documents. The Association shall have no liability to any Co-Owner arising out of the exercise of its rights under this Section 17.3.

Section 17.4 Assessment of Fines. The violation of any of the provisions of the Condominium Documents by any Co-Owner shall be grounds for the assessment by the Association, acting through its duly constituted Board of Directors, of monetary fines against the applicable Co-Owner. No fine shall be levied for the first violation. No fine shall exceed \$25.00 for the second violation, \$50.00 for the third violation, or \$100.00 for any subsequent violation.

No greater fine may be assessed unless rules and regulations establishing such increased fines have first been duly adopted by the Board of Directors of the Association and notice thereof given to all Co-Owners in the same manner as prescribed in Section 8.3 of these Bylaws. Fines may be assessed only upon notice to the offending Co-Owner and an opportunity for such Co-Owner to appear before the Board no less than seven days from the date of the notice and offer evidence in defense of the alleged violation. All fines duly assessed may be collected in the same manner as provided in Article II of these Bylaws.

Section 17.5 Non-waiver of Rights. The failure of the Association or of any Co-Owner to enforce any right, provision, covenant, or condition that may be granted by the Condominium Documents shall not constitute a waiver of the right of the Association or of any such Co-Owner to enforce such right, provision, covenant, or condition in the future.

Section 17.6 Cumulative Rights, Remedies, and Privileges. All rights, remedies, and privileges granted to the Association or any Co-Owner or Co-Owners pursuant to any of the terms, provisions, covenants, or conditions of the Condominium Documents shall be deemed to be cumulative and the exercise of any one or more of such rights or remedies shall not be deemed to constitute an election of remedies, nor shall it preclude the party exercising the same from exercising such other and additional rights, remedies, or privileges as may be available to such party under the Condominium Documents or at law or in equity.

Section 17.7 Enforcement of Provisions of Condominium Documents. A Co-Owner may maintain an action against the Association and its officers and Directors to compel such persons to enforce the terms and provisions of the Condominium Documents. A Co-Owner may maintain an action against any other Co-Owner for injunctive relief or for damages or any combination thereof for noncompliance with the terms and provisions of the Condominium Documents or the Act.

ARTICLE XVIII RIGHTS RESERVED TO DEVELOPER

Any or all of the rights and powers granted or reserved to the Developer in the Condominium Documents or by law, including the right and power to approve or disapprove any act, use, or proposed action or any other matter, may be assigned by the Developer to any other entity or to the Association. Any such assignment or transfer shall be made by an appropriate written instrument in which the assignee or transferee evidences its consent to the acceptance of such powers and rights. Any rights and powers reserved or retained by Developer or its successors and assigns shall expire, at the conclusion of two (2) years following the expiration of the Construction and Sales Period, except as otherwise expressly provided in the Condominium Documents. The immediately preceding sentence dealing with the expiration and termination of certain rights and powers granted or reserved to the Developer are intended to apply, insofar as the Developer is concerned, only to Developer's rights to approve and control the administration of the Condominium and shall not under any circumstances, be construed to apply to or cause the termination and expiration of any real property rights granted or reserved to the Developer or its

successors and assigns in the Master Deed or elsewhere (including, but not limited to, access easements, utility easements, and all other easements created and reserved in such documents, which shall not be terminable in any manner hereunder) and which shall be governed only in accordance with the terms of the instruments, documents, or agreements that created or reserved such property rights.

ARTICLE XIX SEVERABILITY

In the event that any of the terms, provisions or covenants of these Bylaws or the Condominium Documents are held to be partially or wholly invalid or unenforceable for any reason whatsoever, such invalidity shall not affect, alter, modify, or impair in any manner whatsoever any of the other terms, provisions or covenants of such documents or the remaining portions of any terms, provisions or covenants held to be partially invalid or unenforceable.

ARTICLE XX RESTRICTIONS

All of the Units in the Condominium Project shall be held, used, and enjoyed subject to the following limitations and restrictions:

Section 20.1 Residential Use. No Unit in the Condominium shall be used for other than single family residence purposes. No structure shall be erected, altered, placed or permitted to remain on any Unit other than one (1) single family dwelling with attached garage and deck. All other accessory structures, storage buildings, detached garages, sheds, tents, shacks, and temporary structures are prohibited and shall not be erected, placed, or permitted to remain upon any Unit, unless approved by the Association as further provided in this Master Deed. Temporary buildings may be constructed within a Unit during the construction of a permanent dwelling, provided that the temporary structures shall be removed from the Unit upon enclosure of the dwelling. No old or used structures shall be placed upon any Unit or anywhere within the Condominium Project. There shall be no oil or gas exploration conducted upon the Condominium Premises, including, but not limited to, the following activities: mining, drilling, laying, or maintaining of pipelines (other than utility pipelines installed to serve residential consumers).

Section 20.2 Drinking Water. IMPORTANT, PLEASE READ. Chloride (a component of salt) is present in the groundwater above natural background and the source of the elevated chloride is from Oak Pointe Wastewater Treatment Plant that is no longer discharging to groundwater and has not since 2015. Current drinking water criteria for chloride is aesthetic based, chloride concentrations in excess of the drinking water criteria can give rise to a detectable salty taste in water. Chloride also increases the electrical conductivity of the water and thus can increase its corrosiveness. Monitoring of the groundwater currently shows the chloride levels do not exceed current drinking water criteria, nevertheless the Township will continue to monitor the groundwater. Each Unit shall have installed a reverse osmosis unit that serves both the kitchen sink and refrigerator as part of the development. The reverse osmosis unit shall be approved by the Township prior to installation. The Township has installed 3 monitoring well sites, which shall

be tested at a frequency determined by Genoa Charter Township. Monitoring well results will be shared with the Michigan Department of Environmental Quality and the Livingston County Health Department. In the event that the monitoring well results are above drinking water criteria for chloride in the future, the Township shall have the right to request access to the property to collect an unsoftened raw water sample from the residence and to request a water sample from the reverse osmosis within the house on an annual basis to verify that the reverse osmosis system is working. The Township shall provide once each calendar year a filter for the reverse osmosis unit if chloride exceeds the drinking water criteria and will continue to do so until such time that chloride is below the State's acceptable drinking water criteria.

Section 20.3 Leasing and Rental.

(a) Right to Lease. A Co-Owner may lease or sell his or her Unit for the same purposes set forth in Section 20.1; provided that written disclosure of such lease transaction is submitted to the Board of Directors of the Association in the manner specified in subsection (b) below. With the exception of a lender in possession of a Unit following a default of a first mortgage, foreclosure, or deed or other arrangement in lieu of foreclosure, no Co-Owner shall lease less than an entire Unit in the Condominium, and no tenant shall be permitted to occupy the Unit except under a lease, the initial term of which is at least 6 months unless specifically approved in writing by the Association. The terms of all leases, occupancy agreements, and occupancy arrangements shall incorporate or be deemed to incorporate, all of the provisions of the Condominium Documents. The Developer may lease any number of Units in the Condominium in its discretion.

(b) Leasing Procedures. The leasing of Units in the Project shall conform to the following provisions:

(1) A Co-owner, including the Developer, desiring to rent or lease a Unit, shall disclose that fact in writing to the Association at least 10 days before presenting a lease form or otherwise agreeing to grant possession of a Unit to a potential lessee and, at the same time, shall supply the Association with a copy of the exact lease form for its review for its compliance with the Condominium Documents. If no lease form is to be used, then the Co-Owner or Developer shall supply the Association with the name and address of the potential lessee, along with the rental amount and due dates under the proposed agreement.

(2) Tenants and non-owner occupants shall comply with all of the conditions of the Condominium Documents and all leases and rental agreements shall so state.

(3) If the Association determines that the tenant or non-owner occupant has failed to comply with the conditions of the Condominium Documents, the Association shall take the following action:

(i) The Association shall notify the Co-Owner by certified mail advising of the alleged violation by the tenant.

(ii) The Co-Owner shall have 15 days after receipt of such notice to investigate and correct the alleged breach by the tenant or advise the Association that a violation has not occurred.

(iii) If after 15 days the Association believes that the alleged breach is not cured or may be repeated, it may institute on its behalf or derivatively by the Co-Owners on behalf of the Association, if it is under the control of the Developer, an action for eviction against the tenant or non-owner occupant and simultaneously for money damages in the same action against the Co-Owner and tenant or non-owner occupant for breach of the conditions of the Condominium Documents. The relief provided for in this subparagraph may be by summary proceeding. The Association may hold both the tenant and the Co-Owner liable for any damages to the General Common Elements caused by the Co-Owner or tenant in connection with the Unit or Condominium Project.

(4) When a Co-owner is in arrears to the Association for assessments, the Association may give written notice of the arrearage to a tenant occupying a Co-owner's Unit under a lease or rental agreement and the tenant, after receiving the notice, shall deduct from rental payments due the Co-Owner the arrearage and future assessments as they fall due and pay them to the Association. The deductions do not constitute a breach of the rental agreement or lease by the tenant. If the tenant, after being notified, fails or refuses to remit rent otherwise due the Co-Owner to the Association, then the Association may do the following:

(i) Issue a statutory notice to quit for non-payment of rent to the tenant and shall have the right to enforce that notice by summary proceeding.

(ii) Initiate proceedings pursuant to subsection (3)(iii).

Section 20.4 Architectural Control. No dwelling, structure, landscaping or other improvement of any nature shall be constructed or installed within a Condominium Unit, or elsewhere within the Condominium Project, nor shall any material exterior modification be made to any existing building, structure, or improvement, unless architectural plans (including elevations) and specifications therefor, together with site plans, and building materials and containing such other details as the Developer may require, have first been approved in writing by the Developer. Construction of any building or other improvement must also receive any necessary approvals from the local public authority. Developer shall have the right to refuse or to approve any such plans or specifications that are not suitable or desirable in its opinion for aesthetic or other reasons; and in passing upon such plans and specifications, it shall have the right to take into consideration the suitability of the proposed structure, improvement, or modification, the site upon which it is proposed to be constructed and the degree of harmony thereof with the Condominium Project as a whole. The Developer shall act upon any such application for approval of plans within 30 days after receipt of such plans and specifications by it. If Developer fails to respond to any

such plan approval application within 30 days after receipt, the plan(s) submitted shall be deemed approved. The Developer shall have the exclusive right of approval under this Section 20.3 throughout the entire Construction and Sales Period although it may, if it so elects, establish an architectural committee solely for advisory purposes. Any modifications or improvements which obtain the required approval of the Developer and/or the Association shall always be made strictly in accordance with all requirements of the Ordinances of Genoa Township and any other public agency having jurisdiction, and any Co-Owner failing to obtain any required permits and approvals from pertinent public agencies shall indemnify the Association against all expense or damage which it may incur as a result thereof. Approved construction, once begun, shall proceed promptly and shall be completed within a reasonable time and each Co-Owner shall be duly diligent in pursuance of this requirement. Each Co-Owner shall obtain a certificate of occupancy for his or her residence within one year after commencement, and, notwithstanding issuance of such certificate, no residence shall be left in an incomplete state on the exterior for longer than a year after construction begins.

The purpose of this Section is to assure the continued maintenance of the Condominium as a beautiful and harmonious residential development and shall be binding upon both the Association and upon all Co-Owners (except as the Developer may make exceptions hereto under these Bylaws). Developer's rights under this Section 20.3 may, in Developer's sole discretion, be assigned to the Association or other successor to Developer, either during or after the conclusion of the Construction and Sales Period.

Section 20.5 Alterations and Modification of Units and Common Elements. No Co-Owner shall make structural alterations, modifications, or changes to the exteriors of any structures constructed within any of the Units (as opposed to the interior of the dwelling located within the Unit), or to any of the General or Limited Common Elements without the express written approval of the Board of Directors (and the Developer during the Construction and Sales Period), which approvals shall not be unreasonably withheld (but may be reasonably conditioned) including, without limitation, the erection of antennas of any sort (including dish antennas), aerials, awnings, flag poles, or other exterior attachments or modifications. The policies, procedures, practices, rules, and regulations adopted by the Developer and the Association from time to time with respect to antennae of all sorts may be as restrictive as permitted by the communications laws and regulations of the United States and the State of Michigan concerning, for example, but not by way of limitation, size, location, color, numbers, and all other appearance and functional characteristics which impact neighborhood aesthetics and harmony. The Developer and/or the Association may establish policies or adopt rules and regulations from time to time which observe applicable federal communications laws, but which are designed to limit dish antennas or similar devices to the greatest extent possible for aesthetic reasons. No outbuildings, sheds, above-ground pools, boundary fences or walls, swing sets, or playground equipment shall be permitted under any circumstances. No attachment, appliance, or other item may be installed which is designed to kill or repel insects or other animals by light or which emits a humanly audible sound. No Co-owner shall in any way restrict access to any utility line, or any other element that must be accessible to service the Common Elements or another Unit, or any element which affects an Association responsibility in any way.

Section 20.6 Activities. No immoral, improper, unlawful, or offensive activity shall be carried on in any Unit or upon the Common Elements nor shall anything be done which may be or become an annoyance or a nuisance to the Co-Owners of the Condominium. No unreasonably noisy activity shall occur in or on the Common Elements or in any Unit at any time and disputes among Co-Owners, arising as a result of this provision which cannot be amicably resolved, shall be arbitrated by the Association. No Co-Owner shall do or permit anything to be done or keep or permit to be kept in his or her Unit or on the Common Elements anything that will increase the rate of insurance on the Condominium without the written approval of the Association, and each Co-Owner shall pay to the Association the increased cost of insurance premiums resulting from any such activity or the maintenance of any such condition even if approved. Activities which are deemed offensive and are expressly prohibited include, but are not limited to, the following: any activity involving the use of firearms, air rifles, pellet guns, B-B guns, bows and arrows, or other similar dangerous weapons, projectiles, or devices. Migratory birds and fowl in a state of nature shall not be killed or injured by any person. No pesticides, fertilizers, or other chemical agents generally considered harmful to animal and vegetable life shall be used within the Condominium.

Section 20.7 Animals. Co-Owners may maintain a maximum of three common domestic pets. No other pets or animals shall be maintained by any Co-Owner unless specifically approved in writing by the Association, which consent, if given, shall be revocable at any time for infraction of the rules with respect to animals. All animals kept within the Condominium Premises shall be maintained in strict accordance with Township requirements and each Co-Owner shall obtain from the Township any permit or approval required by law for the maintenance of any animal for which such Co-Owner is responsible. No animal may be kept or bred for any commercial purpose and shall have such care and restraint so as not to be obnoxious or offensive on account of noise, odor, or unsanitary conditions. No animal may be permitted to run loose at any time upon the General Common Elements or upon any Unit other than its owner's Unit, and any animal shall at all times be leashed and attended by some responsible person while on the General Common Elements. Any dog runs or other pet enclosures shall be approved in accordance with Section 20.3. No savage or dangerous animal shall be kept and any Co-Owner who causes any animal to be brought or kept upon the premises of the Condominium shall indemnify and hold harmless the Association for any loss, damage, or liability which the Association may sustain as the result of the presence of such animal on the premises, whether or not the Association has given its permission therefor. Each Co-Owner shall be responsible for collection and disposition of all fecal matter deposited by any pet maintained by such Co-Owner. No dog whose bark can be heard on an obnoxiously continuing basis shall be kept in any Unit or on the Common Elements even if permission was previously granted to maintain the pet on the premises. The Association may, without liability to the owner thereof, cause to be removed any animal from the Condominium that it determines to be in violation of the restrictions imposed by this Section. The Association shall have the right to require that any pets be registered with it and may adopt such additional reasonable rules and regulations with respect to animals as it may deem proper. In the event of any violation of this Section, the Board of Directors of the Association may assess fines for such violation in accordance with these Bylaws and in accordance with duly adopted rules and regulations of the Association.

Section 20.8 Aesthetics. The Common Elements and all Units shall not be used for storage of supplies, materials, personal property, or trash or refuse of any kind, except as provided in duly

adopted rules and regulations of the Association. There shall be no burning of garbage, trash, or other waste (including lawn or yard clippings). All waste shall be kept in covered sanitary containers pending disposal. Trash receptacles shall be maintained in garages, utility rooms, basements, or other approved areas designated therefor at all times and shall not be permitted to remain elsewhere or anywhere on the Common Elements except for such short periods of time as may be reasonably necessary to permit periodic collection of trash. In general, no activity shall be carried on nor condition maintained by a Co-Owner, either in his or her Unit or upon the Common Elements, which is detrimental to the appearance of the Condominium. The Board of Directors shall engage a single trash collector at Association expense in order that trash collection occur on a uniform basis one day each week, at a minimum. All holiday decorations, including, but not limited to, Christmas lights, nativity scenes, pumpkin carve-outs, wreaths, inflatable decorations, and any other type of holiday decoration, no matter the holiday, shall be allowed on the Units, including on the dwelling, Appurtenances, and trees, for a time period of not more than 3 weeks before the particular holiday takes place and not more than 1 weeks after the particular holiday ends, subject to any rules and regulations imposed by the Association. The Developer and the Association shall be entitled to require that any and all holiday decorations installed in certain areas of Units be removed as shall be reasonable under the circumstances and compatible with the nature of the Project in general, in light of the fact that the Project is intended to be a first-class residential development, albeit of a suburban character.

Section 20.9 Vehicles. No house, trailers, commercial vehicles, boat trailers, boats, camping vehicles, camping trailers, motorcycles, all-terrain vehicles, snowmobiles, snowmobile trailers or vehicles, other than automobiles or vehicles used primarily for general personal transportation purposes, may be parked or stored on the Units unless they are stored within garages. The Developer shall have the right to make reasonable exceptions to this requirement and to impose conditions as to screening and limitation of visibility in connection therewith. All vehicles shall be parked in garages to the extent possible, and in no event shall more than two automobiles be parked in the driveway appurtenant to each Unit. Provided, however, that recreational vehicles may be visibly parked on a Unit for a period not to exceed 24 hours for purposes of loading, unloading and cleaning. Garage doors shall be kept closed when not in use. No inoperable vehicles of any type may be brought or stored upon the Condominium Premises either temporarily or permanently. Commercial vehicles and trucks shall not be parked in or about the Condominium (except as above provided) unless while making deliveries or pickups in the normal course of business. The Association may make reasonable rules and regulations in implementation of this Section including exceptions to garage storage requirements if other adequate screening is provided. The purpose of this Section is to accommodate reasonable Co-owner parking but to avoid unsightly conditions which may detract from the appearance of the Condominium as a whole, and to assure that all vehicles and recreational or construction type equipment are not to be visible from the roadway, other Units or the General Common Elements. Parking on private roads within the Condominium Premises shall be limited in accordance with any applicable ordinances of the Township and with such regulations as the Board may adopt. Any on street parking shall be limited to one side of the street.

Section 20.10 Advertising and Signs. No signs or other advertising devices or symbols of any kind shall be displayed which are visible from another Unit or on the Common Elements,

including "For Sale" signs, without written permission from the Association and, during the Construction and Sales Period, from the Developer. After the Construction and Sales Period, one sign, not exceeding six (6) square feet in area advertising a Unit for sale, may be displayed so long as it conforms to the rules and regulations of the Association relative thereto with regard to size, shape, color, placement, and such other criteria as the Association may deem appropriate. All such permitted signs must be maintained in good condition and shall be removed immediately after termination of their immediate use. Garage sales shall be conducted, if at all, only in accordance with such uniform rules and regulations as may be prescribed by the Board of Directors, which shall have the authority to prohibit such sales entirely if deemed in the best interests of the Association. All signage shall comply with applicable ordinances of the Township.

Section 20.11 Rules and Regulations. It is intended that the Board of Directors of the Association may make rules and regulations from time to time to reflect the needs and desires of the majority of the Co-Owners in the Condominium. Reasonable regulations consistent with the Act, the Master Deed, and these Bylaws concerning the use of the Common Elements may be made and amended from time to time by any Board of Directors of the Association, including the first Board of Directors (or its successors) prior to the Transitional Control Date. Copies of all such rules, regulations, and amendments thereto shall be furnished to all Co-Owners.

Section 20.12 Right of Access of Association. The Association or its duly authorized agents shall have access to each Unit from time to time, during reasonable working hours, upon notice to the Co-owner thereof, as may be necessary to carry out any responsibilities imposed on the Association by the Condominium Documents. The Association or its agents shall also have access to Units as may be necessary to respond to emergencies. The Association may gain access in such manner as may be reasonable under the circumstances and shall not be liable to such Co-Owner for any necessary damage to his or her Unit caused thereby. If an emergency does not prevail, then the Association shall not have the right to enter within any Unit without permission of the Co-Owner, which permission shall not be unreasonably withheld. This provision shall not be construed to permit access to the interiors of residences or other structures.

Section 20.13 Maintenance of Yards and Lawns; Landscaping.

(a) Landscaping and Yard Improvements. The Association shall be responsible for all landscaping within the Condominium Project, including with all Limited Common Elements. No Co-Owner shall perform any landscaping or earth moving or plant any trees, shrubs, or flowers, place any ornamental materials, or install any fences or barriers of any kind upon the General Common Elements or within its particular Unit without the prior written approval of the Association and, during the Construction and Sales Period, the Developer. Invisible style electronic pet fences shall generally be permitted with approval. In addition, Co-Owners may install up to three bird feeders within their Units, provided that no feeder exceeds 6 feet in height, and provided further that the placement of the feeders does not interfere in any way with grounds maintenance or general lawn mowing.

(b) Yards and Lawn Maintenance. The Association shall be responsible for all maintenance of the Yard Areas within the Units. No Co-Owner shall perform any

maintenance of its yard and lawn areas within its Units, including, but not limited to, mowing, weeding, fertilizing, repairing, watering, and aerating. The Association shall cause all yards and lawn areas to be well maintained and in keeping with such rules and regulations as may be promulgated from time to time by the Developer and the Association. The Developer and the Association shall be entitled to require that a well-maintained lawn be installed in certain areas of Units as shall be reasonable under the circumstances and compatible with the nature of the Project in general, in light of the fact that the Project is intended to be a first-class residential development, albeit of a suburban character. At a minimum, the Association shall be required to install a lawn and otherwise reasonably landscape the Units, including installation of trees and shrubs, within 90 days (with reasonable extensions for inclement weather) after issuance of a certificate of occupancy with respect to any dwelling constructed within a Unit, unless the Developer decides, in its sole discretion, to install a lawn and otherwise reasonably landscape the Units. The Association's responsibility shall extend to maintaining the area in the General Common Element right-of-way lying between a Unit and the road pavement within the right-of-way. The Township and/or the Association may prescribe the nature and extent of fertilizers which may permissibly be used on the Units in the Condominium.

(c) Self-Maintained Garden. Notwithstanding the foregoing and subject to the approval of Developer during the Construction and Sales period and the Association otherwise, each Co-Owner shall be allowed to install and maintain a garden that is no larger than 100 square feet in size, so long that such garden is not installed within any required setback ("Garden Area"). The Co-Owner shall cause such garden to be well maintained and in keeping with such rules and regulations as may be promulgated from time to time by the Developer and the Association. The Developer may also specify time periods within which gardens shall be installed.

(d) Enforcement. If any of the provisions in this Section 20.21 are violated by the Co-Owner or his or her representatives or if there is a failure to comply, the Developer or Association may hire workmen and buy materials necessary to cure the violation and may charge the Co-Owner the actual expense incurred for such violations plus an administrative fee to cover the expenses attendant in correcting the damage resulting from the violation of these provisions and to help defray the extra expenses incurred by the Developer and the Association in undertaking the necessary repairs and the supervision of such repairs. The Developer and the Association shall also have available all remedies set forth in these Bylaws and under Michigan law, including the right to assess fines, the right to place a lien on the Unit, and such equitable relief as may be reasonable and appropriate.

Section 20.14 Co-Owner Maintenance. Each Co-Owner shall maintain his or her Unit for which he or she has maintenance responsibility in a safe, clean, and sanitary condition. Each Co-Owner shall also use due care to avoid damaging any of the Common Elements including, but not limited to, the telephone, gas, electrical or other utility conduits and systems and any other Common Elements that are appurtenant to or which may affect any other Unit. Each Co-Owner shall be responsible for damages or costs to the Association resulting from negligent damage to or misuse of any of the Common Elements by him or her, or his or her family, guests, contractors,

agents or invitees, unless such damages or costs are covered by insurance carried by the Association (in which case there shall be no such responsibility, unless reimbursement to the Association is limited by virtue of a deductible provision, in which case the responsible Co-Owner shall bear the expense to the extent of the deductible amount). Each individual Co-Owner shall indemnify the Association and all other Co-Owners against such damages and costs, including attorneys' fees, and all such costs or damages to the Association may be assessed to and collected from the responsible Co-Owner in the manner provided in Article II hereof.

Section 20.15 Reserved Rights of Developer.

(a) Prior Approval by Developer. During the Construction and Sales Period, no buildings, or other structures or improvements shall be commenced, erected, maintained, nor shall any addition to, or change or alteration to any structure be made, except interior alterations which do not affect structural elements of any dwelling, unless plans and specifications, acceptable to the Developer, showing the nature, kind, shape, height, materials, location and approximate cost of such structure or improvement of the area to be affected shall have been submitted to and approved in writing by Developer, its successors or assigns, and a copy of said plans and specifications, as finally approved, lodged permanently with the Developer (subject, however, to the review and approval provisions of Section 20.3). The Developer shall have the right to refuse to approve any such plan or specifications that are not suitable or desirable in its opinion for aesthetic or other reasons; and in passing upon such plans and specifications, it shall have the right to take into consideration the suitability of the proposed structure, improvement, or modification, the site upon which it is proposed to effect the same, and the degree of harmony thereof with the Condominium Project as a whole. The purpose of this Section is to assure the continued maintenance of the Condominium as a beautiful and harmonious residential development and shall be binding upon both the Association and upon all Co-Owners.

(b) Developer's Rights in Furtherance of Construction and Sales. None of the restrictions contained in this Article XX shall apply to the commercial activities or signs or billboards, if any, of the Developer during the Construction and Sales Period or of the Association in furtherance of its powers and purposes set forth herein and in its Articles of Incorporation, as the same may be amended from time to time. Notwithstanding anything to the contrary elsewhere herein contained, Developer shall have the right to maintain a sales office, model units, mobile trailer used as a sales office, advertising display signs, storage areas and reasonable parking incident to the foregoing and such access to, from and over the Project as may be reasonable to enable development and sale of the entire Project by the Developer and may continue to do so during the entire Construction and Sales Period. Provided, however, that all signs are subject to Township review.

(c) Enforcement of Bylaws. The Condominium Project shall at all times be maintained in a manner consistent with the highest standards of a beautiful, serene, private, residential community for the benefit of the Co-Owners and all persons interested in the Condominium. If at any time the Association fails or refuses to carry out its obligation to

maintain, repair, replace and landscape in a manner consistent with the maintenance of such high standards, then the Developer, or any person to whom it may assign this right, at its option, may elect to maintain, repair and/or replace any Common Elements and/or to do any landscaping required by these Bylaws and to charge the cost thereof to the Association as an expense of administration. The Developer shall have the right to enforce these Bylaws throughout the Construction and Sales Period which right of enforcement shall include (without limitation) an action to restrain the Association or any Co-Owner from any activity prohibited by these Bylaws.

Section 20.16 Setbacks. Each dwelling constructed in the Condominium Project shall be built within building setback or envelope lines as depicted on the Township-approved Condominium Subdivision Plan, which lines reflect the building setback requirements imposed by the Township zoning ordinances and site plan approval conditions imposed pursuant to the Township's Planned Unit Development ordinance. In certain instances, the Developer may require or impose more stringent standards than the setback requirements of the Township. There shall be no deviations from the foregoing except as specifically approved by the Township to any extent required by its ordinances and/or by the Developer (during the Construction and Sales Period and by the Association thereafter), as each individual case may require. The Developer shall not be subject to this provision except as Township approvals may be required for any deviations or variances from Township imposed minimums.

Section 20.17 Non-Disturbance of Wetlands. Certain portions of the land within the Condominium contain wetlands which are protected by federal and state law. Any disturbance of a wetland by depositing material in it, dredging or removing material from it or draining water from the wetland may be done only after a permit has been obtained from the Department of Environmental Quality or its administrative successor. The penalties specified in the applicable laws are substantial. To avoid any possibility of violation of such laws and to preserve the inherent beauty and environmental quality of the wetlands for all Co-Owners, neither any Co-Owner nor the Association may disturb in any way (including by pedestrian traffic, chemical sprays or any other intrusion) any wetland depicted as such on the Condominium Subdivision Plan. Additionally, there shall be no construction or other disturbance of land or vegetation permitted within 25 feet of the boundary of any wetland as the wetland boundaries have been depicted on the Condominium Subdivision Plan which additional areas shall serve as protective buffers for all wetlands located within the Condominium.

Section 20.18 Flags. Subject to MCL 559.156a, each Co-Owner shall be allowed to place one (1) flag on the front facing, exterior portion of the Co-Owner's Unit. The flag shall only be a flag of the United States of America. No other flag of any kind may be flown on the exterior of the dwelling at any time without the prior written permission from the Association and, during the Construction and Sales Period, from the Developer. After the Construction and Sales Period, the flag may be displayed so long as it conforms to the rules and regulations of the Association relative thereto with regard to size, placement, and such other criteria as the Association may deem appropriate. All such permitted flags must be maintained in good condition.

Section 20.19 General. The purpose of this Article XX is to assure the continued maintenance of the Condominium as a beautiful and harmonious residential development and shall be binding upon all Co-Owners. The Developer may, in the Developer's sole discretion, waive, at any time during the Construction and Sales Period, any part of the restrictions set forth in this Article XX due to unusual topographic, natural, or aesthetic considerations or other circumstances that the Developer deems compelling. Any such waiver must be in writing and shall be limited to the Unit to which it pertains and shall not constitute a waiver as to enforcement of the restrictions as to any other Unit. Developer's rights under this Article XX may, in Developer's discretion, be assigned to the Association or other successor to Developer. Developer may construct any improvements upon the Condominium Premises that Developer may, in Developer's sole discretion, elect to make without the necessity of prior consent from the Association or any other person or entity, subject only to the express limitations contained in the Condominium Documents.

EXHIBIT "B" TO THE MASTER DEED OF

CHESTNUT SPRINGS

A SITE CONDOMINIUM

GENOA TOWNSHIP, SECTIONS 33 & 34, T2N-R5E
LIVINGSTON COUNTY, MICHIGAN

DRAWING INDEX

<u>NO.</u>	<u>TITLE</u>
1.	COVER SHEET
2.	SURVEY PLAN
3.	UNIT AND PERIMETER PLAN (UNITS 1-25)
4.	SITE AND UTILITY PLAN (UNITS 1-25)

DEVELOPER:



CHESTNUT DEVELOPMENT, LLC
6253 GRAND RIVER AVE. SUITE 700
BRIGHTON, MI 48114
PHONE: 810.599.3984
EMAIL: OFFICE@CHESTNUTDEV.COM

PREPARED BY:



LIVINGSTON ENGINEERING
3300 S. OLD U.S. 23
BRIGHTON, MI. 48114
(810) 225-7100

LEGAL DESCRIPTION:

Part of the Southeast ¼ of Section 33 and the Southwest ¼ of Section 34, T2N-R5E, Genoa Township, Livingston County, Michigan, more particularly described as follows: BEGINNING at the Southeast Corner of said Section 33, also being the Southwest Corner of said Section 34; thence along the South line of said Section 33, being the Hamburg-Genoa Township line, S 86°51'02" W, 1005.29 feet (previously surveyed as S 87°12'20" W); thence along the Easterly line of the Ann Arbor Railroad (66 foot wide), the following 4 courses on the arc of a curve left, 188.78 feet, said curve has a radius of 1233.00 feet, a central angle of 08°46'20" and a long chord which bears N 09°20'42" W, 188.59 feet (previously recorded as N 08°59'24" W); thence along the arc of a curve left, 300.68 feet, said curve has a radius of 1504.99 feet, a central angle of 11°26'49" and a long chord which bears N 19°27'17" W, 300.18 feet (previously surveyed as N 19°05'59" W); thence along the arc of a curve left, 184.66 feet, said curve has a radius of 9470.15 feet, a central angle of 01°07'02" and a long chord which bears N 25°44'13" W, 184.66 feet (previously surveyed as N 25°22'55" W); thence N 26°17'44" W 382.92 feet, (previously surveyed as N 25°56'26" W); thence along the centerline of centerline of Chilson Road (66 foot wide Right of Way), N 22°02'33" E, 363.80 feet (previously surveyed as N 22°23'51" E); thence along the North line of the South 1/2 of the Southeast ¼ of said Section 33, N 86°50'49" E, 1189.30 feet (previously surveyed as N 87°12'07" E); thence along the North line of the South 1/2 of the Southwest ¼ of said Section 34, N 86°41'47" E, 1028.59 feet (previously surveyed as N 87°03'05" E); thence along the East line of the West 30 acres of the Southwest ¼ of the Southwest ¼ of said Section 34, S 02°44'41" E, 1329.93 feet (previously surveyed as S 02°23'23" E); thence along the South line of said Section 34 and the Hamburg-Genoa Township line S 86°49'56" W, 1031.98 feet (previously surveyed as S 87°11'14" W to the Point of Beginning. Containing 67.12 acres, more or less and subject to the rights of the public over Chilson Road. Also subject to any other easements or restrictions of record.

ATTENTION: COUNTY REGISTER OF DEEDS

THE CONDOMINIUM SUBDIVISION PLAN NUMBER MUST BE ASSIGNED IN CONSECUTIVE SEQUENCE. WHEN A NUMBER HAS BEEN ASSIGNED TO THIS PROJECT, IT MUST BE PROPERLY SHOWN IN THE TITLE ON THIS SHEET AND IN THE SURVEYORS CERTIFICATE ON SHEET 2.

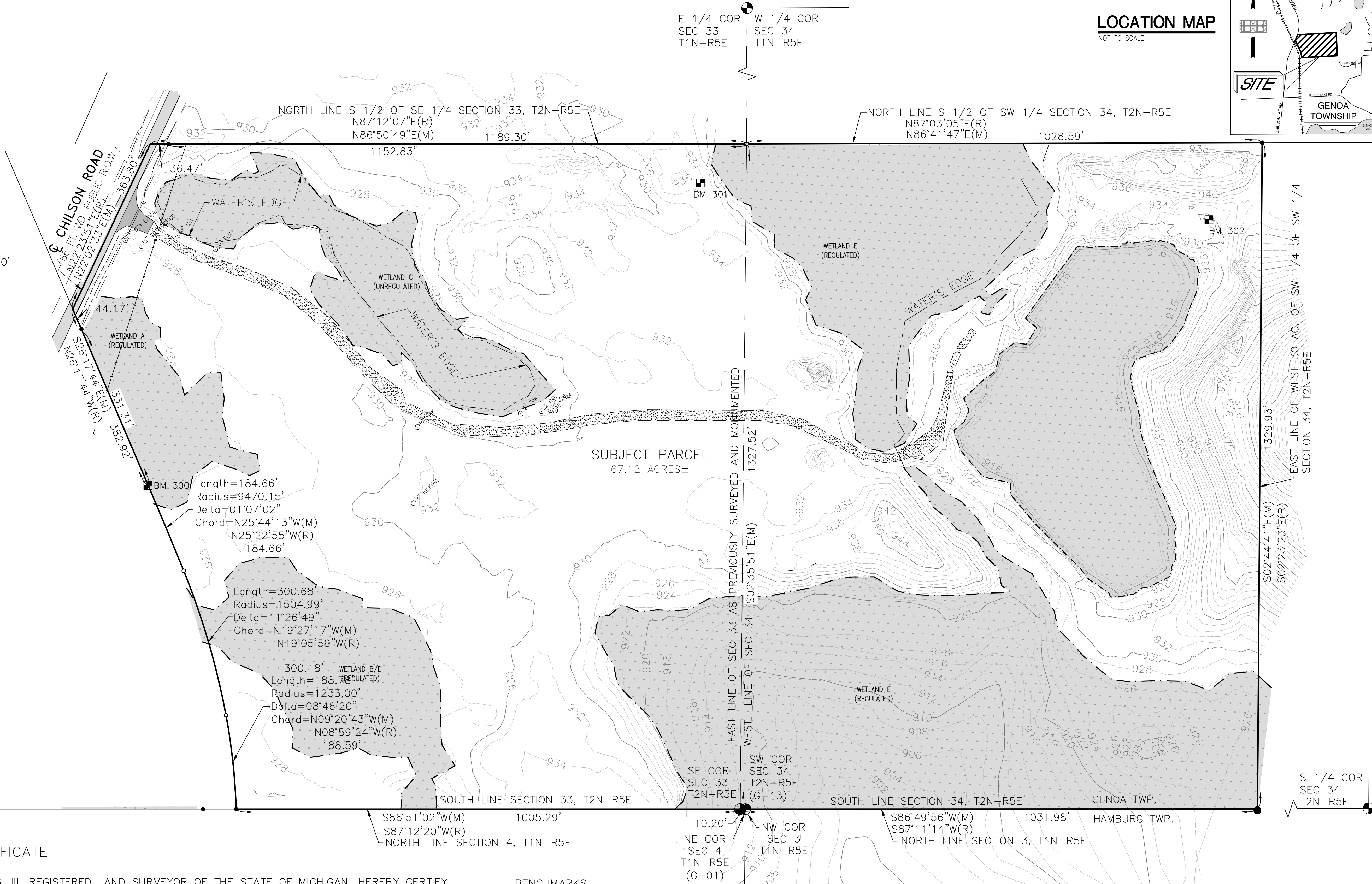
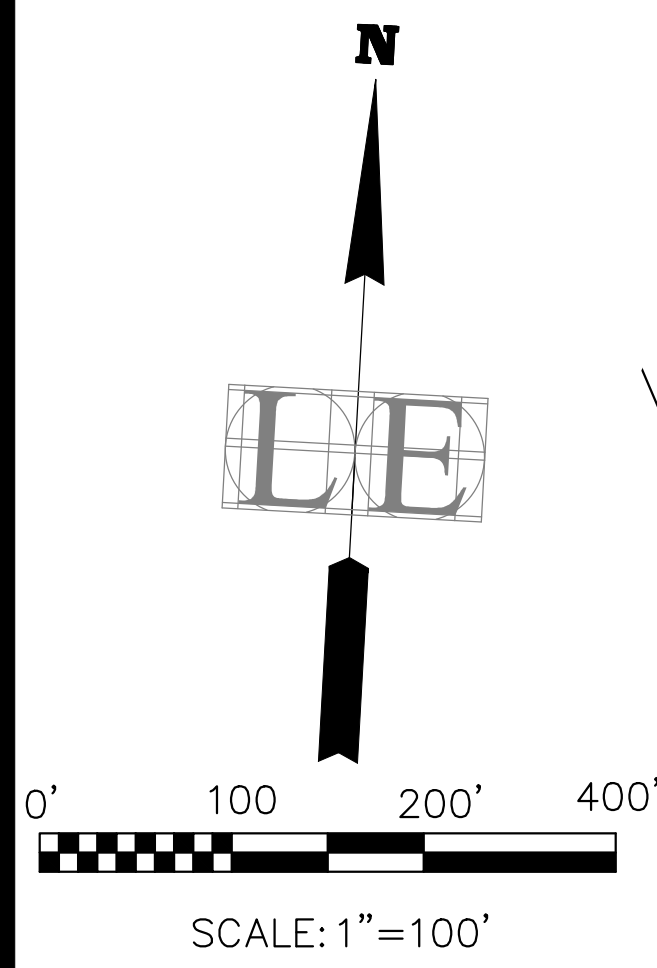
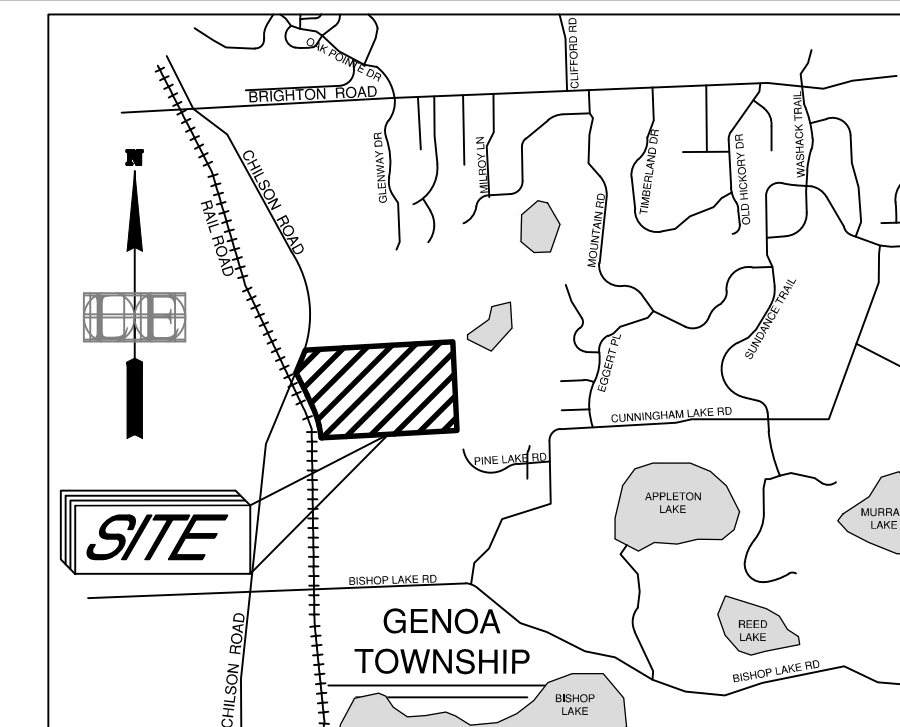
DRAFT

PROPOSED AS OF OCTOBER 25, 2018

SURVEY PLAN

LOCATION MAP

NOT TO SCALE



LE
LIVINGSTON
ENGINEERING

CIVIL ENGINEERING,
SURVEYING, PLANNING

3300 S. OLD US 23
Brighton, MI 48114
PHONE: (810) 225-7100
FAX: (810) 225-7699
<http://www.livingstoneng.com>

Project Title

**CHESTNUT
SPRINGS**

Sheet Title

SURVEY PLAN

Client


CHESTNUT DEVELOPMENT, LLC
6253 GRAND RIVER AVE. SUITE 700
BRIGHTON, MI 48114
PHONE: 810.599.3984
EMAIL: OFFICE@CHESTNUTDEV.COM

REVISIONS	DATE

Scale

Vertical: _____

Horizontal: **1"=100'**

Drawn **N. LEMONS**

Checked _____

Approved _____

Date **10-25-2018**

Job no.

11216-2

Sheet no.

2

SURVEYOR'S CERTIFICATE

I, WILLIAM R. STRUBBING, III, REGISTERED LAND SURVEYOR OF THE STATE OF MICHIGAN, HEREBY CERTIFY: THAT THE SUBDIVISION PLAN KNOWN AS LIVINGSTON COUNTY CONDOMINIUM SUBDIVISION PLAN NO. _____ AS SHOWN ON THE ACCOMPANYING DRAWINGS REPRESENTS A SURVEY ON THE GROUND MADE UNDER MY DIRECTION, THAT THERE ARE NO EXISTING ENCROACHMENTS UPON THE LANDS AND PROPERTY HEREIN DESCRIBED, THAT THE REQUIRED MONUMENTS AND IRON MARKERS HAVE NOT BEEN LOCATED IN THE GROUND, BUT WILL BE PLACED WITHIN 1 YEAR OF THE RECORDING DATE AS REQUIRED BY RULES PROMULGATED UNDER SECTION 142 OF ACT NUMBER 59 OF THE PUBLIC ACTS OF 1978. THAT THE ACCURACY OF THIS SURVEY IS WITHIN THE LIMITS REQUIRED BY THE RULES PROMULGATED UNDER SECTION 142 OF ACT NUMBER 59 OF THE PUBLIC ACTS OF 1978; THAT THE BEARINGS AS SHOWN ARE NOTED ON THE SURVEY PLAN AS REQUIRED BY THE RULES PROMULGATED UNDER SECTION 142 OF ACT NUMBER 59 OF THE PUBLIC ACTS OF 1978.

WILLIAM R. STREBBING, III, REGISTRATION NO. 516886
LIVINGSTON ENGINEERING
3300 S. OLD US 23 HWY.
BRIGHTON, MICHIGAN 48114

BENCHMARKS

BENCHMARK #300
FOUND IRON:
±368 FT SE OF CHILSON RD
ALONG THE RAILROAD ROW
N: 370142.95'
E: 13261141.39'
ELEVATION= 924.70
NAVD88 DATUM

BENCHMARK #301
SET IRON:
±78' SOUTH OF NORTH PROPERTY
LINE &
±91' WEST OF THE EAST LINE OF
SECTION 33
N: 370805.98'
E: 13262209.08'
ELEVATION= 931.33
NAVD88 DATUM

BENCHMARK #302
SET IRON:
±154' SOUTH OF NORTH
PROPERTY LINE &
±105' WEST OF THE EAST
PROPERTY LINE
N: 370788.47'
E: 13263225.57'
ELEVATION= 930.43
NAVD88 DATUM

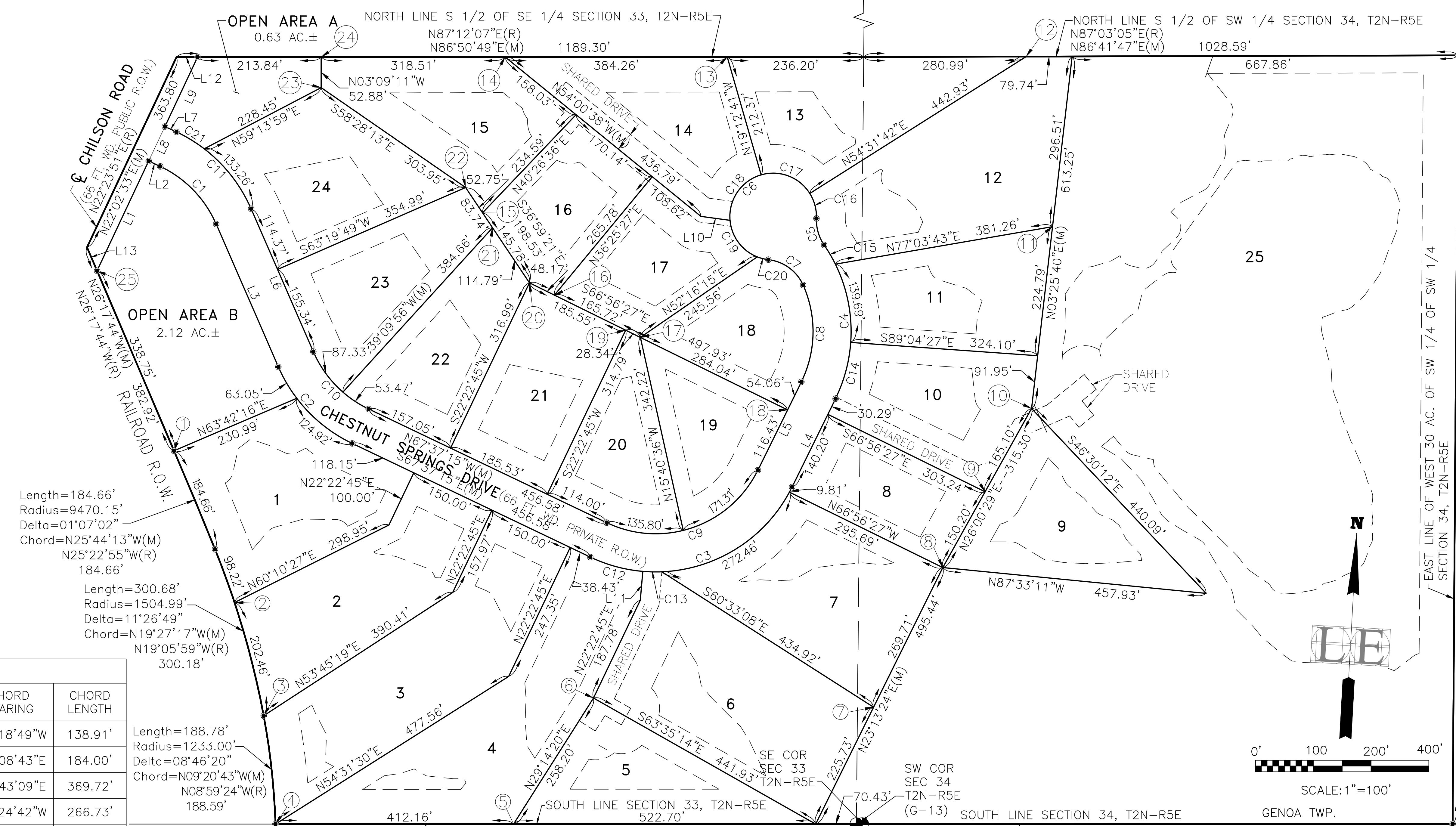
- NOTES:
- BEARINGS BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM, "SOUTH ZONE".
 - THE SUBJECT PROPERTY DOES LIE WITHIN A DESIGNATED 100 YEAR FLOOD PLAIN.

DRAFT

PROPOSED AS OF OCTOBER 25, 2018

LIST OF COORDINATES		
NO.	NORTHING	EASTING
1	370142.9891	13261141.8789
2	369886.4564	13261260.9242
3	369693.6067	13261322.0445
4	369507.5196	13261352.6683
5	369530.1636	13261764.2010
6	369755.4674	13261890.3197
7	369766.3214	13262375.1261
8	370014.1754	13262481.4761
9	370149.1640	13262547.3378
10	370297.5461	13262619.7342
11	370613.7167	13262638.6723
12	370905.1000	13262576.7953
13	370875.9159	13262060.4290
14	370854.7802	13261676.7411
15	370583.3876	13261652.4304
16	370448.0787	13261784.4628
17	370383.1677	13261936.9453
18	370271.9143	13262198.2908
19	370394.2707	13261910.8633
20	370466.9462	13261740.1412
21	370558.6378	13261671.0735
22	370625.5203	13261620.6935
23	370784.4662	13261361.6194
24	370837.2613	13261358.7111
25	370446.6837	13260991.8130

UNIT AND PERIMETER PLAN



E 1/4 COR SEC 33 T2N-R5E
W 1/4 COR SEC 34 T2N-R5E

Length=184.66'
Radius=9470.15'
Delta=01°07'02"
Chord=N25°44'13"W(M)
N25°22'55"W(R)
184.66'

Length=300.68'
Radius=1504.99'
Delta=11°26'49"
Chord=N19°27'17"W(M)
N19°05'59"W(R)
300.18'

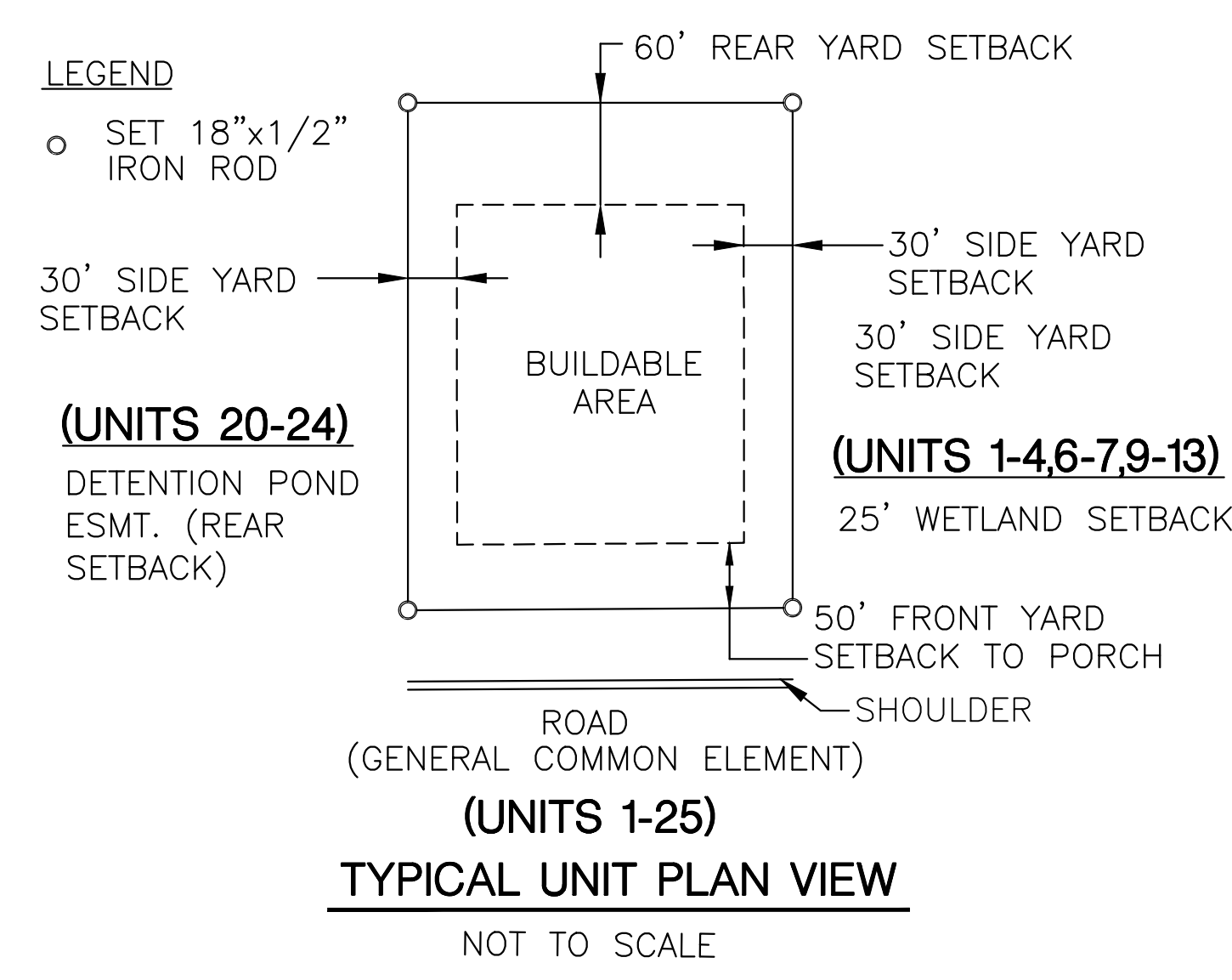
Length=188.78'
Radius=1233.00'
Delta=08°46'20"
Chord=N09°20'43"W(M)
N08°59'24"W(R)
188.59'

CURVE DATA					
CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	141.96'	197.00'	41°17'16"	N47°18'49"W	138.91'
C2	187.97'	263.00'	40°57'04"	S47°08'43"E	184.00'
C3	410.00'	263.00'	89°19'12"	N67°43'09"E	369.72'
C4	279.73'	263.00'	60°56'30"	N07°24'42"W	266.73'
C5	48.68'	75.00'	37°11'14"	N19°17'20"W	47.83'
C6	348.33'	75.00'	266°06'13"	S46°15'11"W	109.61'
C7	77.88'	75.00'	59°29'44"	N57°03'03"W	74.43'
C8	173.16'	197.00'	50°21'44"	N02°07'19"W	167.64'
C9	307.11'	197.00'	89°19'12"	N67°43'09"E	276.94'
C10	140.80'	197.00'	40°57'04"	S47°08'43"E	137.82'
C11	189.52'	263.00'	41°17'16"	N47°18'49"W	185.45'
C12	94.64'	263.00'	20°37'06"	S77°55'48"E	94.13'
C13	33.09'	263.00'	7°12'30"	N88°09'24"E	33.07'
C14	101.60'	263.00'	22°08'00"	N11°59'33"E	100.97'
C15	38.44'	263.00'	8°22'31"	N33°41'41"W	38.41'
C16	45.52'	75.00'	34°46'35"	N18°05'00"W	44.83'
C17	96.53'	75.00'	73°44'23"	N72°20'29"W	90.00'
C18	103.23'	75.00'	78°51'49"	S31°21'24"W	95.27'
C19	82.99'	75.00'	63°23'55"	S39°46'28"E	78.82'
C20	20.06'	75.00'	15°19'30"	S79°08'11"E	20.00'
C21	56.26'	263.00'	12°15'27"	N61°49'44"W	56.16'

UNIT TABLE	
UNIT NO.	AREA (SQ. FT.)
1	81,742
2	79,332
3	104,458
4	106,188
5	56,984
6	105,679
7	84,951
8	44,907
9	66,174
10	61,026
11	61,851
12	97,153
13	67,736

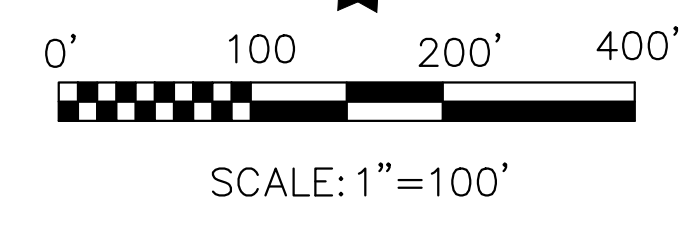
UNIT TABLE	
UNIT NO.	AREA (SQ. FT.)
14	66,765
15	65,871
16	46,444
17	48,547
18	44,498
19	44,028
20	45,046
21	58,608
22	55,330
23	59,966
24	71,063

LINE DATA		
LINE	BEARING	LENGTH
L1	S22°02'33"W	209.88
L2	S67°57'27"E	22.08
L3	S26°40'11"E	269.71
L4	N23°03'33"E	170.49
L5	S23°03'33"W	170.49
L6	N26°40'11"W	269.71
L7	N67°57'27"W	22.08
L8	S22°02'33"W	66.00
L9	N22°02'33"E	132.81
L10	N85°21'58"W	50.74
L11	N01°45'38"E	50.00
L12	N86°50'49"E	36.47
L13	S26°17'44"E	44.17



LEGEND

SFT.	SQUARE FEET
UNIT NO.	12
MONUMENT	•
CURVE NUMBER TAG	C4
LINE NUMBER TAG	L4
COORDINATE POINT LABEL	③
SETBACK LINE	---



SCALE: 1"=100'

LE
LIVINGSTON ENGINEERING
CIVIL ENGINEERING, SURVEYING, PLANNING
3300 S. OLD US 23
Brighton, MI 48114
PHONE: (810) 225-7100
FAX: (810) 225-7699
http://www.livingstoneng.com

Project Title
CHESTNUT SPRINGS

Sheet Title
UNIT AND PERIMETER PLAN

Client
Chestnut
CHESTNUT DEVELOPMENT, LLC
6253 GRAND RIVER AVE. SUITE 700
BRIGHTON, MI 48114
PHONE: 810.599.3984
EMAIL: OFFICE@CHESTNUTDEV.COM

REVISIONS	DATE

Scale
Vertical: _____
Horizontal: 1"=100'

Drawn N. LEMONS
Checked _____
Approved _____
Date 10-25-2018

Job no.
11216-2

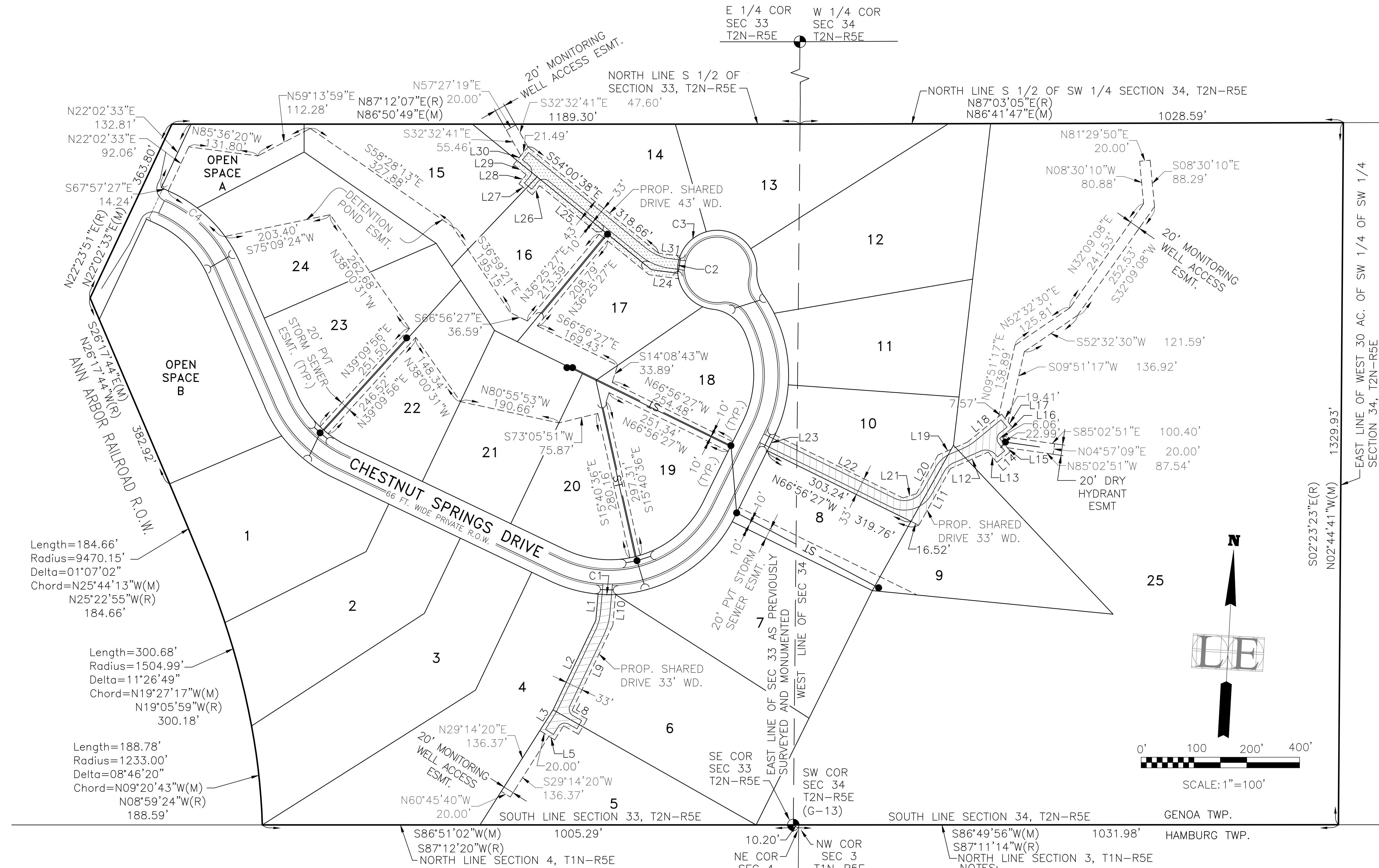
Sheet no.
3

DRAFT
AS OF OCTOBER 25, 2018

SITE AND UTILITY PLAN

E 1/4 COR SEC 33 T2N-R5E W 1/4 COR SEC 34 T2N-R5E

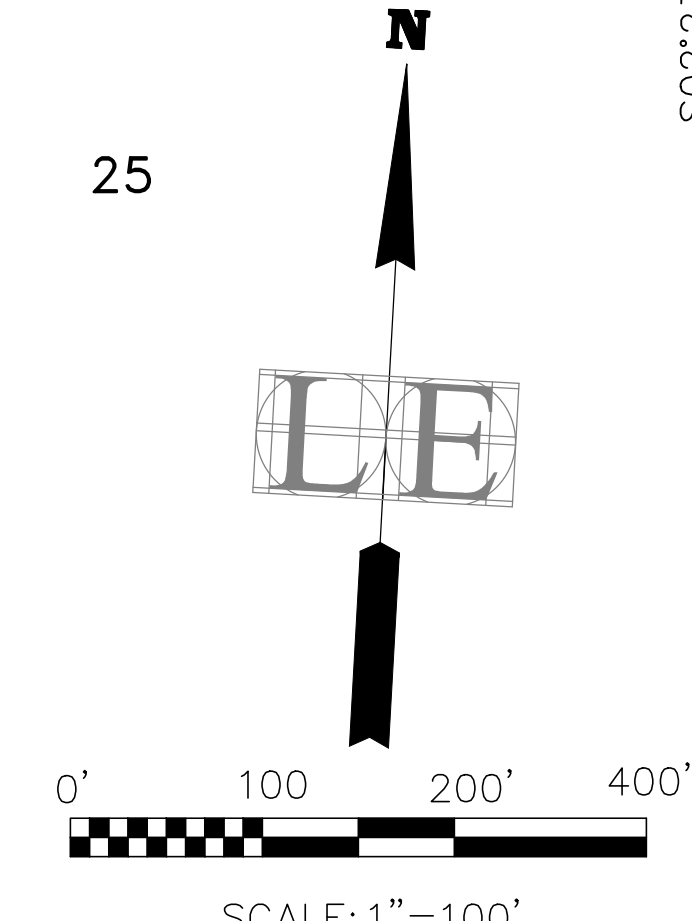
LINE DATA TABLE		
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L3	N29°14'20"E	46.53
L5	S60°45'40"E	33.00
L8	S63°35'14"E	32.75
L9	S22°22'45"W	179.57
L10	S01°45'38"W	58.08
L24	S85°21'58"E	56.55
L25	S54°00'38"E	267.00
L26	N35°59'22"E	22.00
L27	S54°00'38"E	33.00
L28	S35°59'22"W	22.00
L29	S54°00'38"E	30.73
L30	N35°59'22"E	43.00
L31	S85°21'58"E	41.48



Length=184.66'
Radius=9470.15'
Delta=01°07'02"
Chord=N25°44'13"W(M)
N25°22'55"W(R)
184.66'

Length=300.68'
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300.18'

Length=188.78'
Radius=1233.00'
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N08°59'24"W(R)
188.59'



CURVE DATA TABLE					
CURVE	LENGTH	RADIUS	DELTA	CHORD BEARING	CHORD LENGTH
C1	33.09'	263.00'	7°12'30"	N88°09'24"E	33.07'
C2	43.72'	75.00'	33°24'01"	S00°38'34"W	43.10'
C3	69.96'	75.00'	53°26'44"	S44°03'57"W	67.45'
C4	139.78'	264.82'	30°14'35"	N54°23'34"W	138.17'

LEGEND

- UNIT NO. 12
- SECTION CORNER ●
- CURVE NUMBER TAG C4
- LINE NUMBER TAG L4
- EASEMENT
- STORM SEWER — ST —●—
- WATER MAIN — W —●—
- LIMITED COMMON ELEMENT (UNITS 4-6) ▨
- LIMITED COMMON ELEMENT (UNITS 8-10, & 25) ▨
- LIMITED COMMON ELEMENT (UNITS 14-17) ▨

1. WATER SERVICE FOR UNITS 1-25 IS TO BE SUPPLIED BY PRIVATE WELLS AND SHALL BE INSTALLED, MAINTAINED, AND REPAIRED/REPLACED AT THE EXPENSE OF EACH OWNER AND SUBJECT TO APPROVAL BY THE LIVINGSTON COUNTY HEALTH DEPARTMENT.
2. ALL STORM SEWER IS PUBLIC AND SHALL BE MAINTAINED BY THE LIVINGSTON COUNTY DRAIN COMMISSION.
3. SEWAGE DISPOSAL SHALL BE BY INDIVIDUAL SEPTIC SYSTEMS AS APPROVED BY THE LIVINGSTON COUNTY HEALTH DEPARTMENT.
4. ALL UTILITIES SHALL BE SHOWN ON AS-BUILTS.

DRAFT

PROPOSED AS OF OCTOBER 25, 2018

LIVINGSTON ENGINEERING

CIVIL ENGINEERING,
SURVEYING, PLANNING

3300 S. OLD US 23
Brighton, MI 48114
PHONE: (810) 225-7100
FAX: (810) 225-7699
http://www.livingstoneng.com

Project Title

CHESTNUT SPRINGS

Sheet Title

SITE AND UTILITY PLAN

Client

CHESTNUT DEVELOPMENT, LLC
6253 GRAND RIVER AVE SUITE 700
BRIGHTON, MI 48114
PHONE: 810.599.3984
EMAIL: OFFICE@CHESTNUTDEV.COM

REVISIONS	DATE

Scale

Vertical: _____

Horizontal: 1"=100'

Drawn N. LEMONS

Checked _____

Approved _____

Date 10-25-2018

Job no.

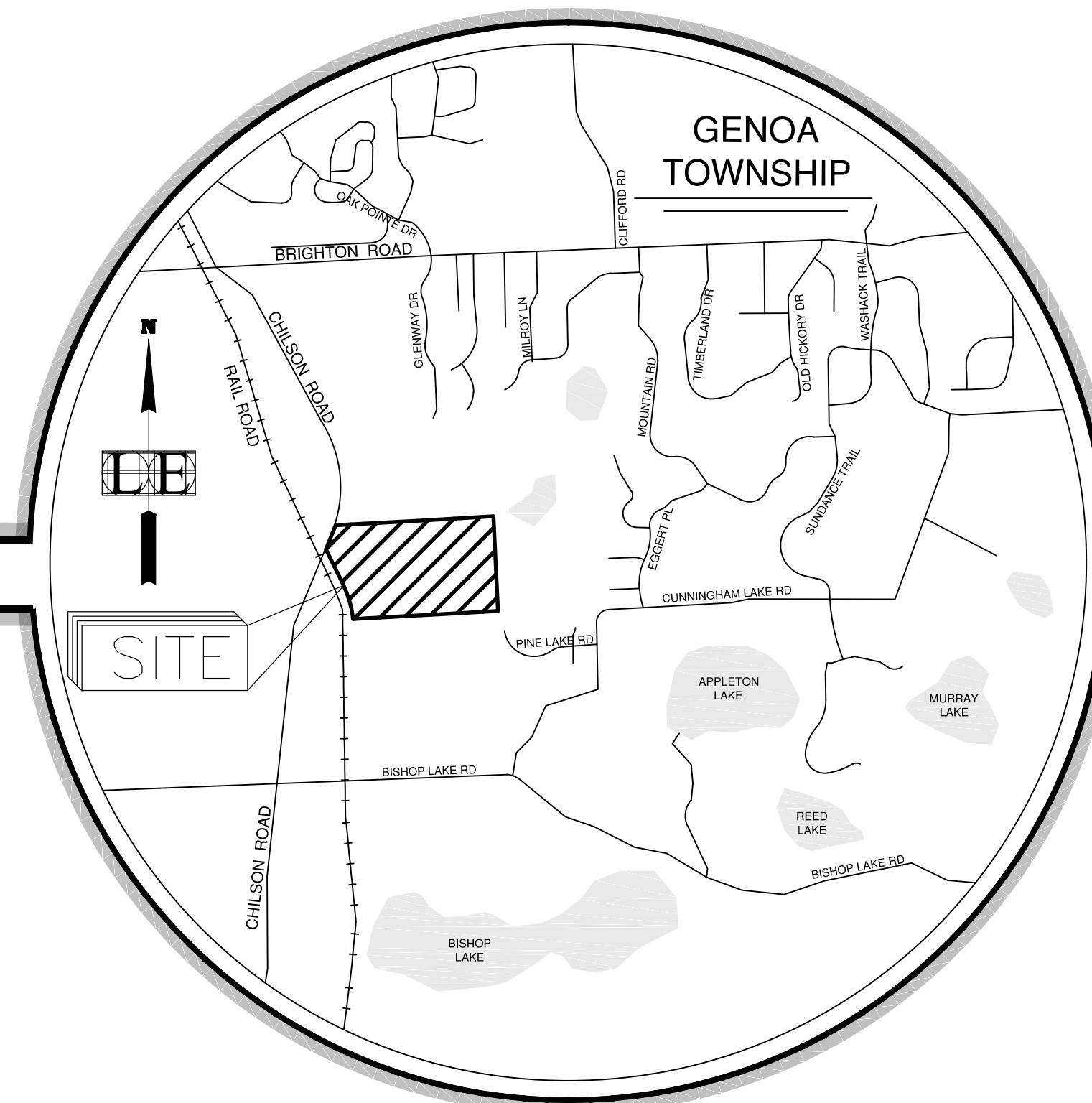
11216-2

Sheet no.

4

FINAL SITE PLAN FOR CHESTNUT SPRINGS CHILSON RD

GENOA CHARTER TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN



LOCATION MAP

NOT TO SCALE

SITE DATA TABLE

	REQUIRED
LOT AREA	1 AC. (min)
LOT WIDTH	150 FT (min)
LOT COVERAGE	NA
FLOOR AREA (PER UNIT)	980 SF (min)
BUILDING SETBACKS:	
FRONT	50 FT (min)
SIDE	30 FT (min)
REAR	60 FT (min)
WETLAND	25 FT (min)

LEGAL DESCRIPTION

Part of the Southeast ¼ of Section 33 and the Southwest ¼ of Section 34, T2N-R5E, Genoa Township, Livingston County, Michigan, more particularly described as follows: BEGINNING at the Southeast Corner of said Section 33, also being the Southwest Corner of said Section 34; thence along the South line of said Section 33, being the Hamburg-Genoa Township line, S 86°51'02" W, 1005.29 feet (previously surveyed as S 87°12'20" W) Thence along the Easterly line of the Ann Arbor Railroad (66 foot wide), the following 4 courses on the arc of a curve left, 188.78 feet, said curve has a radius of 1233.00 feet, a central angle of 08°46'20" and a long chord which bears N 09°20'42" W, 188.59 feet (previously recorded as N 08°59'24" W); Thence along the arc of a curve left, 300.68 feet, said curve has a radius of 1504.99 feet, a central angle of 11°26'49" and a long chord which bears N 19°27'17" W, 300.18 feet (previously surveyed as N 19°05'59" W); Thence along the arc of a curve left, 184.66 feet, said curve has a radius of 9470.15 feet, a central angle of 01°07'02" and a long chord which bears N 25°44'13" W, 184.66 feet (previously surveyed as N 25°22'55" W); thence N 26°17'44" W 382.92 feet, (previously surveyed as N 25°56'26" W); thence along the centerline of centerline of Chilson Road (66 foot wide Right of Way), N 22°02'33" E, 363.80 feet (previously surveyed as N 22°23'51" E); thence along the North line of the South 1/2 of the Southeast ¼ of said Section 33, N 86°50'49" E, 1189.30 feet (previously surveyed as N 87°12'07" E); thence along the North line of the South 1/2 of the Southwest ¼ of said Section 34, N 86°41'47" E, 1028.59 feet (previously surveyed as N 87°03'05" E); thence along the East line of the West 30 acres of the Southwest ¼ of the Southwest ¼ of said Section 34, S 02°44'41" E, 1329.93 feet (previously surveyed as S 02°23'23" E); thence along the South line of said Section 34 and the Hamburg-Genoa Township line S 86°49'56" W, 1031.98 feet (previously surveyed as S 87°11'14" W to the Point of Beginning, Containing 67.12 acres, more or less and subject to the rights of the public over Chilson Road. Also subject to any other easements or restrictions of record.

SHEET INDEX

- 1.0 COVER SHEET
- 2.0 EXISTING CONDITIONS
- 3.0 OVERALL LAYOUT
- 4.0 OVERALL GRADING PLAN
- 4.1 SPECIAL LAND USE, GRADING WITHIN 25 FT WETLAND SETBACK
- 5.0 STORM WATER MANAGEMENT PLAN
- L1 LANDSCAPE PLAN & DETAILS

GENERAL NOTES

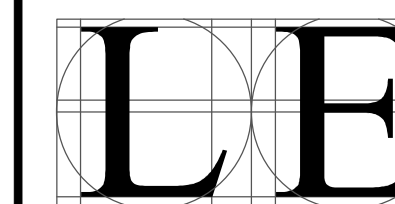
1. Property is zoned: LDR (Low Density Residential).
2. Contractor is responsible for protecting all existing and proposed utilities from damage during all stages of construction.
3. The engineer and applicable agency must approve, prior to construction, any alteration, or variance from these plans.
4. All signs shall meet the requirements of the Genoa Township Zoning Ordinance.
5. Underground dry utilities shall be extended from existing locations to service this site as required by utility companies.
6. Soils are majority Boyer-Oshtemaw loamy sands (U.S.D.A. "Soil Survey of Livingston Co.").
7. All construction shall be performed in accordance with the current standards and specifications of Genoa Township and Livingston County.
8. The contractor shall telephone Genoa Township 72 hours before beginning any construction.
9. Three working days prior to any excavation, the Contractor shall telephone MISS DIG (800-482-7171) for the location of underground utilities and shall also notify representatives of other utilities located in the vicinity of the work. 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 job.
10. On-site wetlands have been flagged as determined by Niswander Environmental on September 7, 2017.
11. Site plan use: Residential
12. Site storm drainage will be detained on site prior to being released to wetland.
13. Property to be serviced by individual well and septic.
14. Roadway within this development shall be private.

OWNER / DEVELOPER



CHESTNUT DEVELOPMENT, LLC
6253 GRAND RIVER AVE. SUITE 700
BRIGHTON, MI 48114
PHONE: 810.599.3984
EMAIL: OFFICE@CHESTNUTDEV.COM

ENGINEER



LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD U.S. 23 , BRIGHTON, MI 48114
www.livingstoneng.com PHONE: (810) 225-7100 FAX: (810) 225-7699

UTILITY DISCLAIMER



Know what's below.
Call before you dig.

Utilities as shown indicate approximate location of facilities only, as described by the various companies and no guarantee is given either as to the completeness or accuracy thereof. Contractor shall call MISS DIG at 811 or 1-800-482-7171 prior to the start of construction. Electric, gas, phone and television companies should be contacted prior to the commencement of field activities.

PERMITS & APPROVALS

AGENCY	REQUIRED	STATUS
GENOA TOWNSHIP	APPROVAL	
GENOA TOWNSHIP FIRE DEPARTMENT	APPROVAL	
LIVINGSTON COUNTY DRAIN COMMISSIONER	S.E.S.C. PERMIT	
LIVINGSTON COUNTY ROAD COMMISSION	APPROACH PERMIT	
LIVINGSTON COUNTY ROAD COMMISSION	SITE DISTANCE APPROVAL	APPROVED 5/29/2018
LIVINGSTON COUNTY HEALTH DEPARTMENT	WELL & SEPTIC PERMITS	
MDEQ	WETLAND IMPACT PERMITS	APPROVED 10/11/2018

CHESTNUT SPRINGS
GENOA CHARTER TOWNSHIP
LIVINGSTON COUNTY, MICHIGAN
SITE PLAN

ENGINEER'S SEAL

REVISIONS	DATE	PROJECT No.
PER LCHD	8/29/18	11216-2
TOWNSHIP SUBMITTAL	9/7/18	SHEET 1 OF 7
PER MDEQ COMMENTS	9/17/18	
PER LCHD COMMENTS	10/8/18	DATE: SEPTEMBER 9, 2018
PER TMP REVIEW COMMENTS	10/25/18	
PER LCHD COMMENTS	10/22/18	

EXISTING CONDITIONS

4711-34-300-003
LUCY LLC
GENOA TOWNSHIP
ZONED: MUPUD
USE: VACANT

4711-33-400-008
LUCY LLC
GENOA TOWNSHIP
ZONED: MUPUD
USE: VACANT

4711-33-400-007
DNR EXEMPT/MDOT
GENOA TOWNSHIP
ZONED: LDR
USE: VACANT

4711-33-300-021
MICHIGAN DNR
GENOA TOWNSHIP
ZONED: PRF
USE: VACANT

PARCEL "A2"
TAX# 4711-33-400-003
7.69 ACRES±
7.69 AC. PARCEL TO
BE SPLIT FROM
PARENT PARCEL
(NOT PART OF
DEVELOPMENT)

PARCEL "A1"
TAX# 4711-33-400-003
35.70 ACRES±

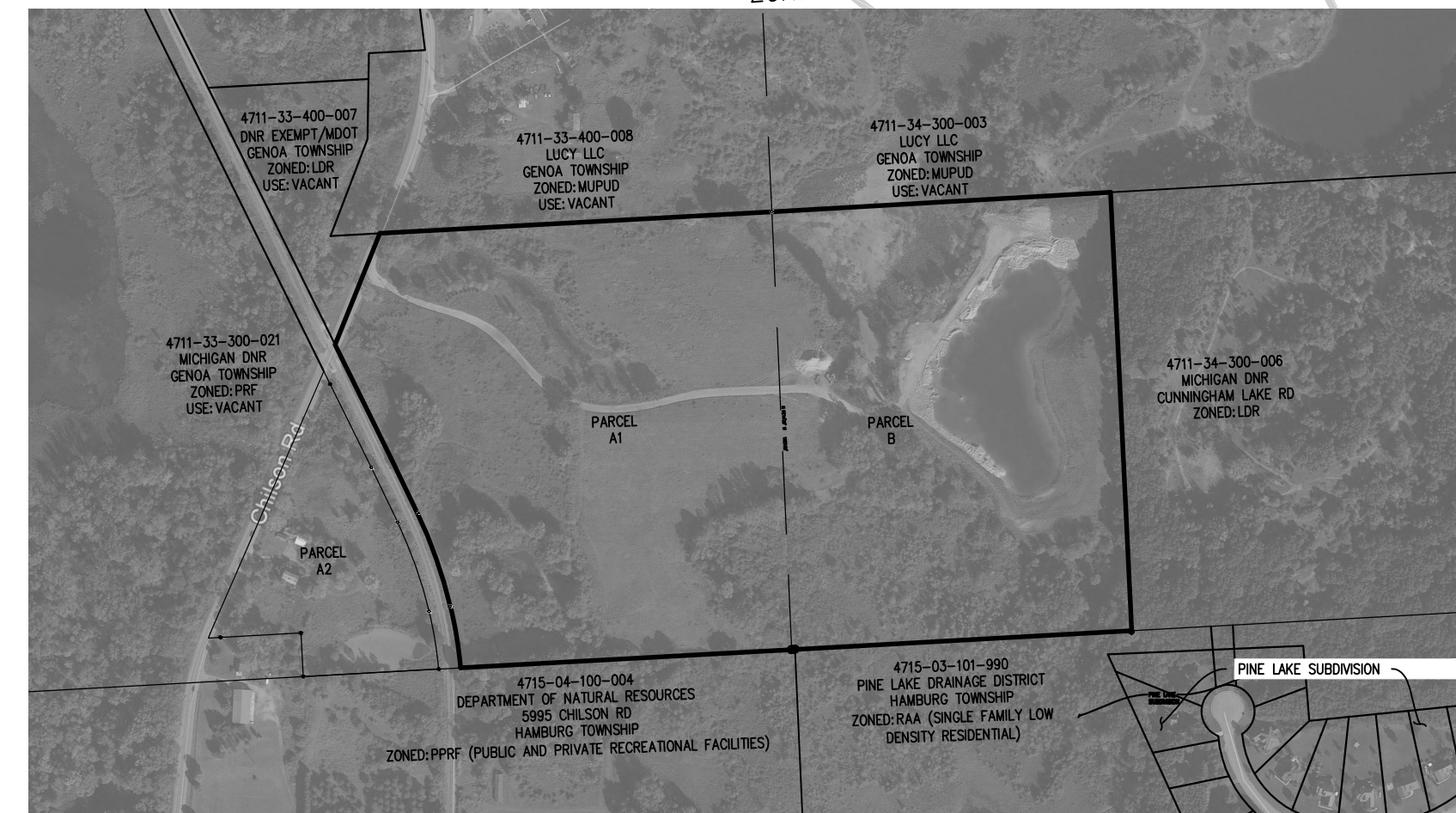
PARCEL "B"
TAX# 4711-34-300-005
31.43 ACRES±

4711-34-300-006
MICHIGAN DNR
CUNNINGHAM LAKE RD
ZONED: LDR

4715-03-101-900
PINE LAKE DRAINAGE DISTRICT
HAMBURG TOWNSHIP
ZONED: RAA (SINGLE FAMILY-LOW DENSITY RESIDENTIAL)

4715-04-100-004
DEPARTMENT OF NATURAL RESOURCES
5995 CHILSON RD
HAMBURG TOWNSHIP
ZONED: PPRF (PUBLIC AND PRIVATE RECREATIONAL FACILITIES)

LEGEND	
WATER MAIN	
SANITARY SEWER	
STORM SEWER	
OVERHEAD	
FENCE	
GAS	
SIGN	
LIGHT POLE	
UTILITY POLE	
BOLLARD	
PEDESTAL	
GATE VALVE IN BOX	
GATE VALVE IN WELL	
DOMESTIC WATER WELL	
EXISTING TELEPHONE FLAG	
EXISTING TELEPHONE RISER	
EXISTING GAS MARKER	
EXISTING GAS FLAG	
SECTION CORNER MONUMENT	
FOUND IRON ROD	
SET IRON ROD	
PERC TEST LOCATION	
ASPHALT	
WETLAND AREA	
WETLAND BOUNDARY	
NATURAL FEATURES SETBACK	
REMOVALS	
TREE TO BE REMOVED	
SOIL TYPE BOUNDARY	
SOIL TYPE	



SITE AERIAL
SCALE: 1" = 500'

N.R.C.S. SOIL SURVEY - CLASSIFICATIONS

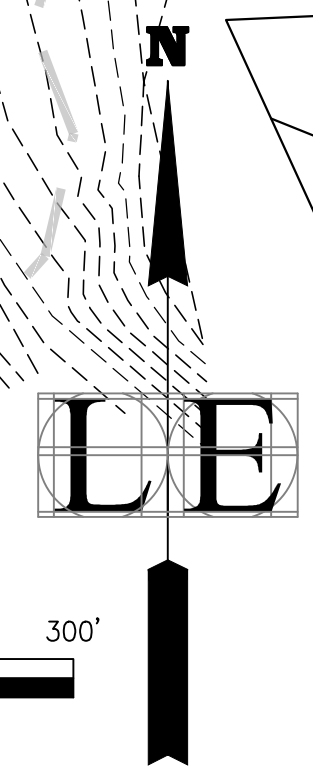
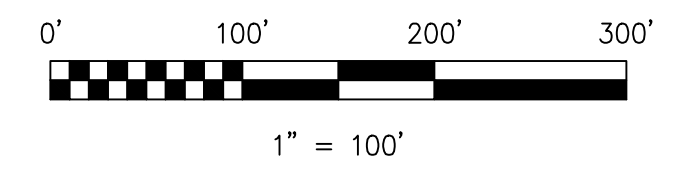
B1A	Boyer-Oshstemo loamy sands, 0 to 2 percent slopes
B1B	Boyer-Oshstemo loamy sands, 2 to 6 percent slopes
B1C	Boyer-Oshstemo loamy sands, 6 to 12 percent slopes
B1D	Boyer-Oshstemo loamy sands, 12 to 18 percent slopes
B1A	Bronson loamy sand, 0 to 2 percent slopes
Cc	Carlisle muck, 0 to 2 percent slopes
FrE	Fox-Boyer complex, 6 to 12 percent slopes
FrE	Fox-Boyer complex, 18 to 25 percent slopes
Gr	Gravel pits
Ho	Houghton muck, 0 to 1 percent slopes
SvE	Spinks-Oakville loamy sands, 18 to 25 percent slopes
W	Water

GENERAL NOTES:

- ALL UTILITY COMPANIES SHALL BE CONTACTED PRIOR TO CONSTRUCTION AND ALL UTILITIES LOCATED. ANY DISCREPANCIES OR CONFLICTS SHALL BE REPORTED TO ENGINEER FOR RESOLUTION PRIOR TO COMMENCING CONSTRUCTION.
- ALL REMOVAL MATERIALS, INCLUDING TREES AND STUMPS, SHALL BE PROPERLY DISPOSED OF AT AN OFF-SITE LOCATION.
- DEVELOPMENT AREA IS COMPRISED OF PARCEL A1 AND PARCEL B (67.13 ACRES). PARCEL A1 IS BEING SPLIT FROM THE PARENT PARCEL AS PART OF THE DEVELOPMENT.

BENCHMARKS

BENCHMARK #300 FOUND IRON: ±368 FT SE OF CHILSON RD ALONG THE RAILROAD ROW N:370142.95' E:13261141.39' ELEVATION= 924.70 NAVD88 DATUM	BENCHMARK #301 SET IRON: ±78' SOUTH OF NORTH PROPERTY LINE & ±91' WEST OF THE EAST LINE OF SECTION 33 N:370805.98' E:13262209.08' ELEVATION= 931.33 NAVD88 DATUM	BENCHMARK #302 SET IRON: ±154' SOUTH OF NORTH PROPERTY LINE & ±105' WEST OF THE EAST PROPERTY LINE N:370788.47' E:13263225.57' ELEVATION= 930.43 NAVD88 DATUM
---	--	---



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Client

CHESTNUT DEVELOPMENT, LLC
688 GRAND PRAIRIE AVE SUITE 700
BRIGHTON, MI 48114
810.588.3884

CHESTNUT SPRINGS
CHILSON RD, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
FINAL SITE PLAN
EXISTING CONDITIONS

REVISIONS	DATE	PER: DWE	REVISION COMMENTS
PER LCHD	8/29/2018		
TOWNSHIP SUBMITTAL	9/7/2018		
PER MDC COMMENTS	9/7/2018		
PER LCHD COMMENTS	10/6/2018		
PER LCHD COMMENTS	10/22/2018		

Drawn: MJB

Checked:

Approved:

Date: 8/29/2018

Job No. **11216-2**

Scale:

Vertical: **1" = 100'**

Horizontal:

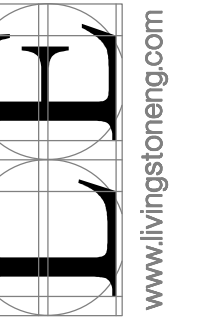


OVERALL LAYOUT

LEGEND

EXISTING		PROPOSED	
CONTOUR		CONTOUR	
WATER MAIN		WATER MAIN	
SANITARY SEWER		SANITARY SEWER	
STORM SEWER		STORM SEWER	
SIGN		ASPHALT	
TREE			
ASPHALT			

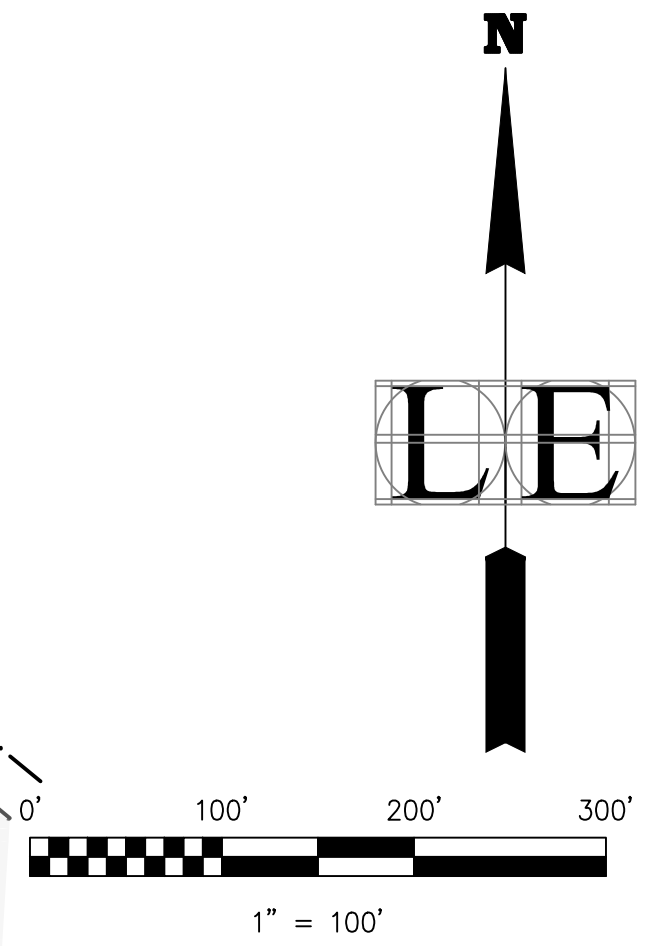
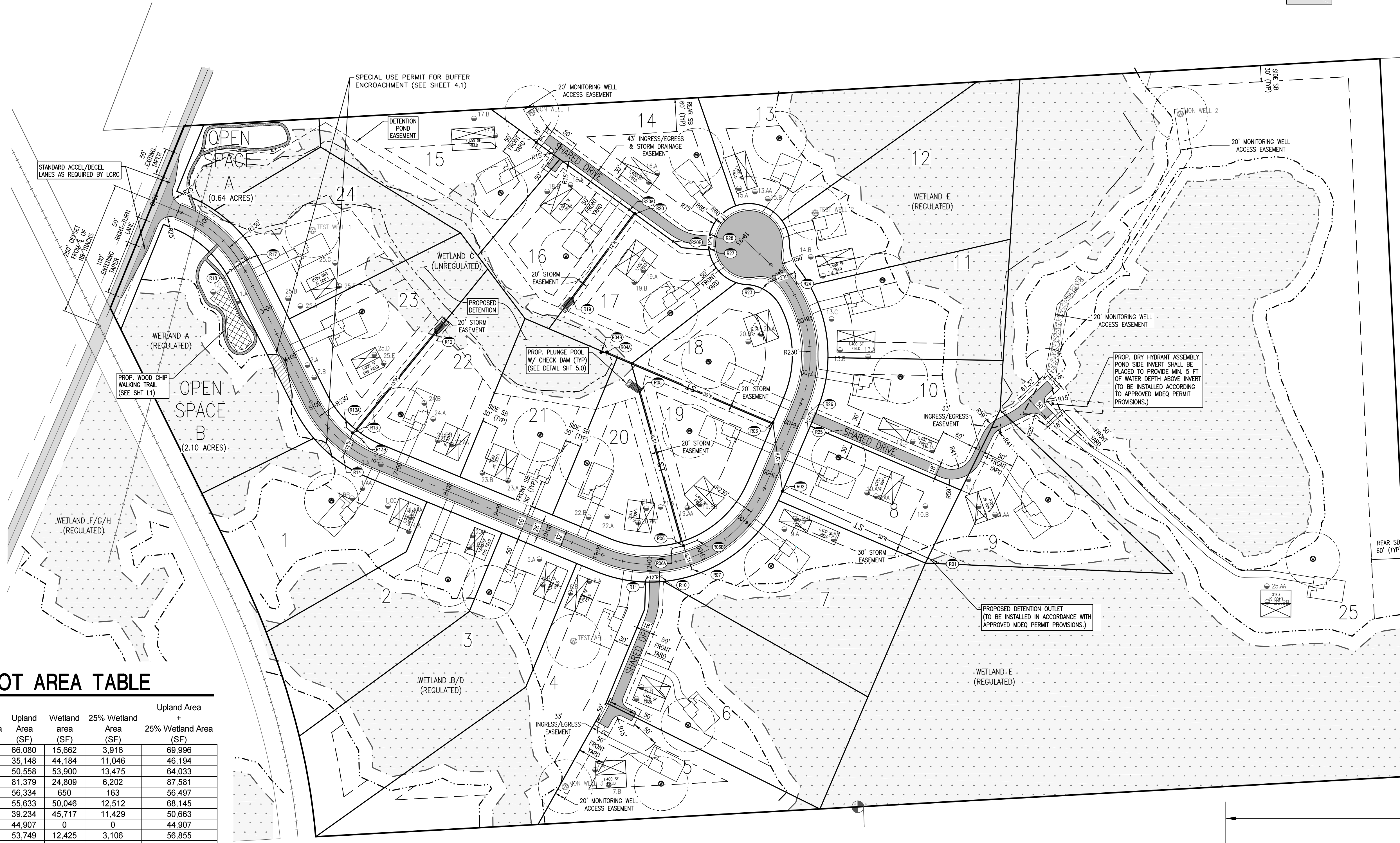
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Client
CHESTNUT DEVELOPMENT, LLC
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 BRIGHTON, MI 48114
 810.596.3984

CHESTNUT SPRINGS
 CHILSON RD, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
 FINAL SITE PLAN
 OVERALL LAYOUT

GENERAL NOTES:
 1. HOUSES ON LOTS 7, 12, AND 13 UTILIZE A SMALLER HOUSE FOOTPRINT TO PREVENT GRADING

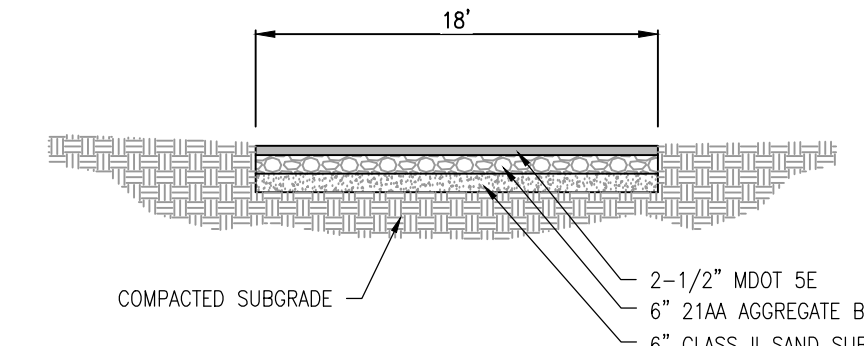


LOT AREA TABLE

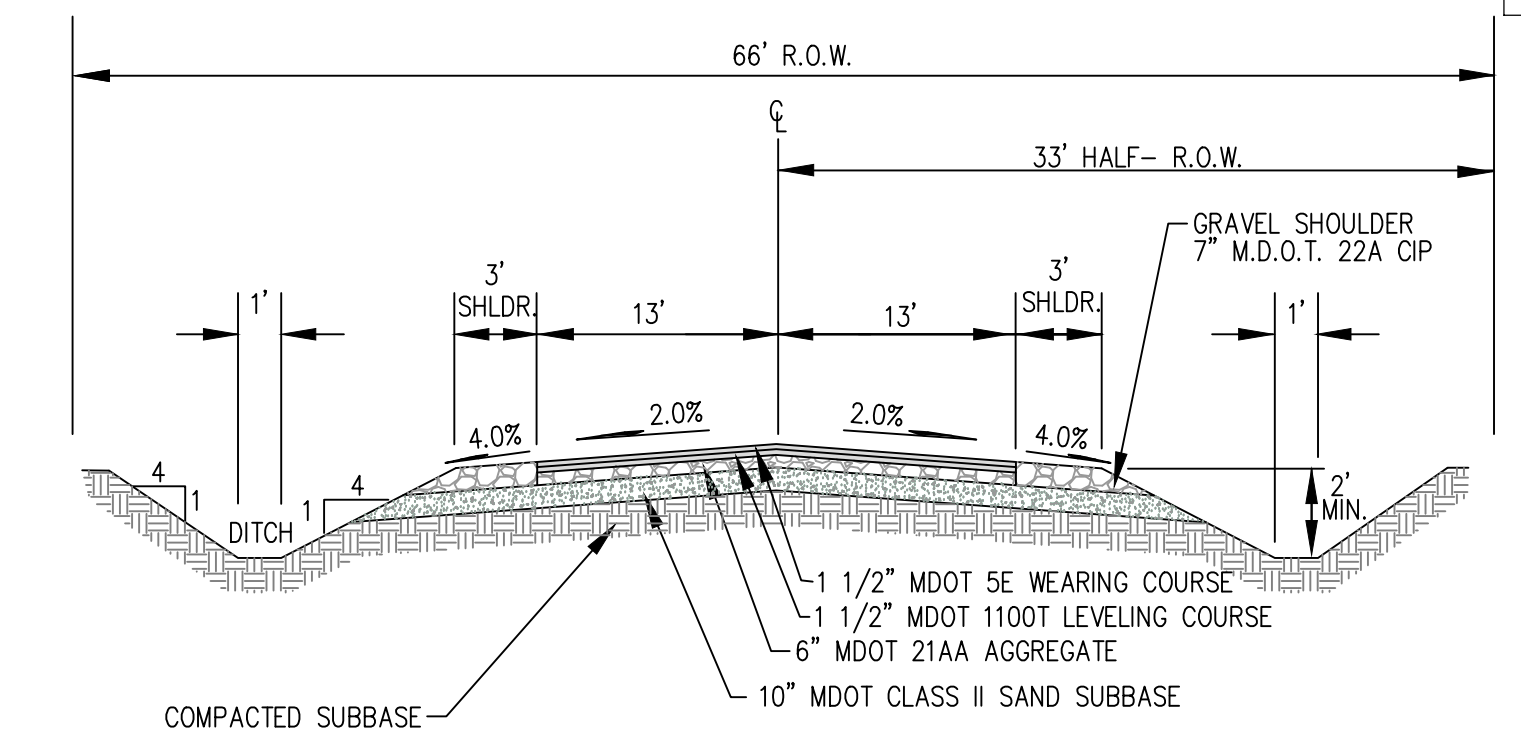
Lot #	Total Area (SF)	Upland Area (SF)	Wetland Area (SF)	25% Wetland Area (SF)	Upland Area + 25% Wetland Area (SF)
1	81,742	66,080	15,662	3,916	69,996
2	79,332	35,148	44,184	11,046	46,194
3	104,458	50,558	53,900	13,475	64,033
4	106,188	81,379	24,809	6,202	87,581
5	56,984	56,334	650	163	56,497
6	105,679	55,633	50,046	12,512	68,145
7	84,951	39,234	45,717	11,429	50,663
8	44,907	44,907	0	0	44,907
9	66,174	53,749	12,425	3,106	56,855
10	61,026	53,489	7,537	1,884	55,373
11	61,851	37,468	24,383	6,096	43,564
12	97,154	28,511	68,643	17,161	45,672
13	67,830	37,418	30,412	7,603	45,021
14	66,762	66,762	0	0	66,762
15	65,871	55,490	10,381	2,595	58,085
16	46,444	43,491	2,953	738	44,229
17	48,547	44,692	3,855	964	45,656
18	44,498	44,498	0	0	44,498
19	44,028	44,012	16	4	44,016
20	45,046	43,825	1,221	305	44,130
21	58,608	38,706	19,902	4,976	43,682
22	55,330	39,690	15,640	3,910	43,600
23	59,966	38,180	21,786	5,447	43,627
24	71,063	34,397	36,666	9,167	43,564
25	1,025,300	378,546	646,754	161,689	540,235
OS A	27,379	21,557	5,822	1,456	23,013
OS B	92,422	33,722	58,700	14,675	48,397

SITE DATA TABLE

LOT AREA	REQUIRED	1 AC. (min)
LOT WIDTH	REQUIRED	150 FT (min)
LOT COVERAGE	REQUIRED	NA
FLOOR AREA (PER UNIT)	REQUIRED	980 SF (min)
BUILDING SETBACKS:	REQUIRED	
FRONT	REQUIRED	50 FT (min)
SIDE	REQUIRED	30 FT (min)
REAR	REQUIRED	60 FT (min)
NATURAL FEATURE	REQUIRED	25 FT (min)



SHARED DRIVE CROSS SECTION
 NOT TO SCALE



ROAD CROSS SECTION
 NOT TO SCALE

FILE:C:\Users\User\Dropbox (Living)\Projects\2011\1216-2 Chestnut Genoa\Draws\Final Site Plan\1216-2_03_Overall Layout.dwg

DATE	REVISIONS	PERMITS REVIEW COMMENTS
8/29/2018	PER LCHD	
9/7/2018	TOWNSHIP SUBMITTAL	
9/7/2018	PER MDO COMMENTS	
10/4/2018	PER LCHD COMMENTS	
10/22/2018	PER LCHD COMMENTS	

Drawn: MJB
 Checked:
 Approved:
 Date: 8/29/2018
 Scale: 1" = 100'
 Vertical:
 Horizontal:

OVERALL GRADING PLAN

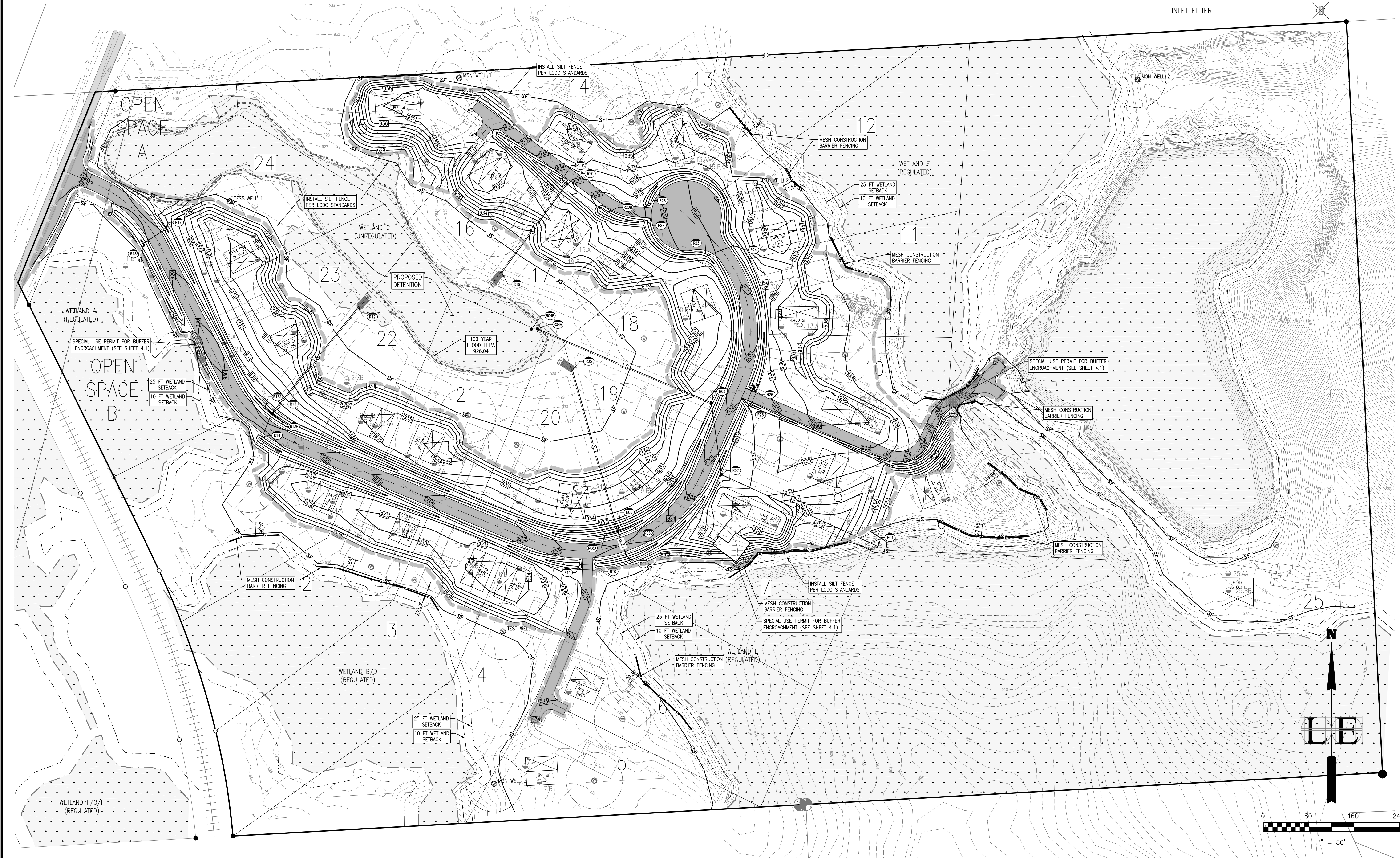


LEGEND

- PR. SPOT GRADE
- PR. CONTOUR
- DRAINAGE ARROW
- PR. SILT FENCE
- MESH CONSTRUCTION BARRIER FENCING
- LIMITS OF GRADING
- INLET FILTER

GENERAL NOTES:

1. MESH CONSTRUCTION FENCING TO BE INSTALLED IN AREAS AS INDICATED ON THE PLANS TO PREVENT GRADING WITH WETLAND SETBACK AREAS.
2. ANY GRADING THAT IS REQUIRED FOR HOME CONSTRUCTION WITHIN THE 25 FT WETLAND SETBACK THAT IS NOT A PART OF THIS PLAN WILL NEED AN ADDITIONAL SPECIAL LAND USE PERMIT.



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LE

Client
CHESTNUT DEVELOPMENT, LLC
6205 GRAND RIVER AVE SUITE 700
BRIGHTON, MI 48114
810.598.3884

CHESTNUT SPRINGS
CHILSON RD., GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
FINAL SITE PLAN
OVERALL GRADING PLAN

REVISIONS	DATE
PER TWP REVIEW COMMENTS	10/25/2018
PER LCHD	8/29/2018
TOWNSHIP SUBMITTAL	9/17/2018
PER MICRO COMMENTS	9/17/2018
PER LCHD COMMENTS	10/6/2018
PER LCHD COMMENTS	10/22/2018

Job No. **11216-2**

Scale:

Vertical: **T = 80'**

Horizontal:

Drawn: MJB

Checked:

Approved:

Date: 8/29/2018

40

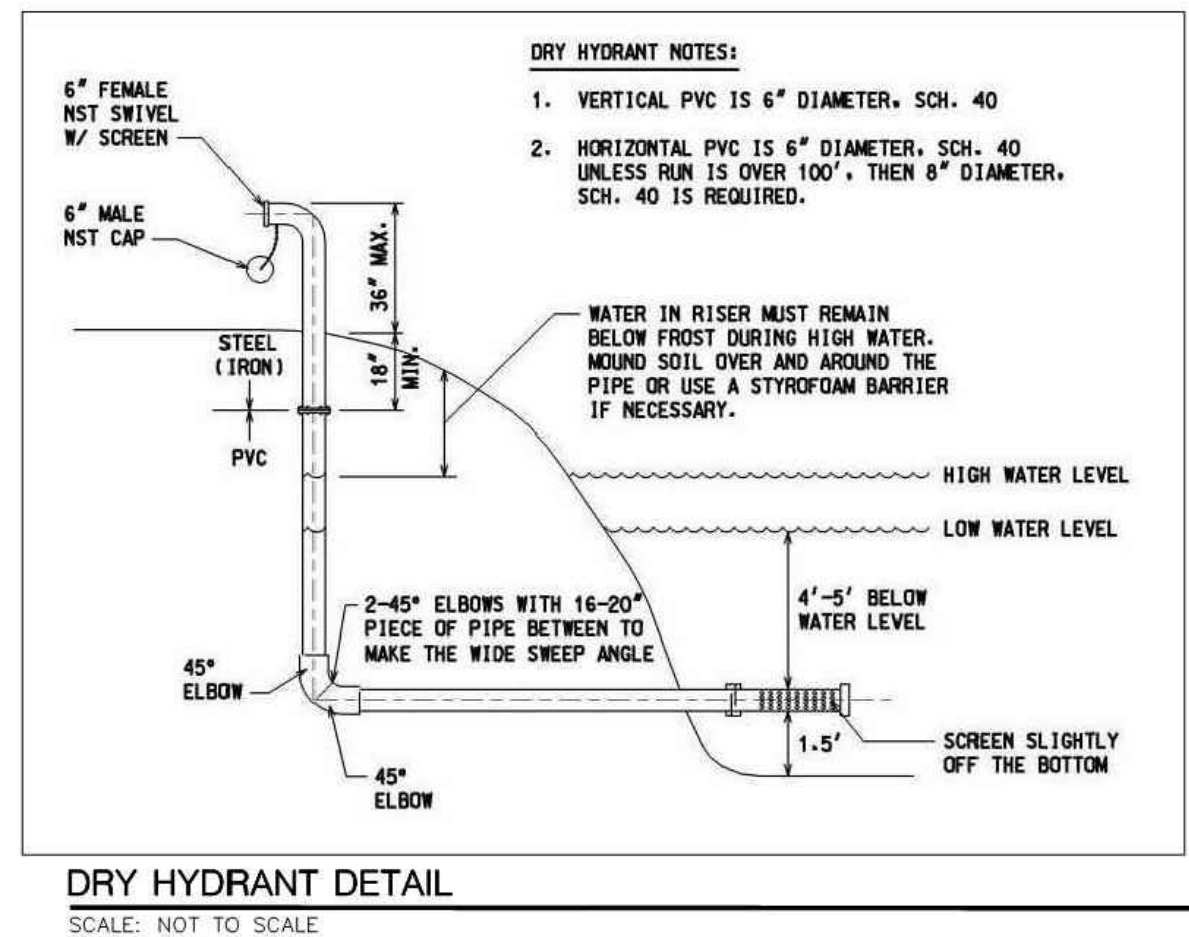
FILE:C:\Users\User\Desktop (Living)\Projects\2011\11216-2_Chestnut_Springs\Drawings\Final_Site_Plan\11216-2_04_Overall_Grading_Plan.dwg

SPECIAL LAND USE: GRADING WITHIN 25 FT WETLAND SETBACK

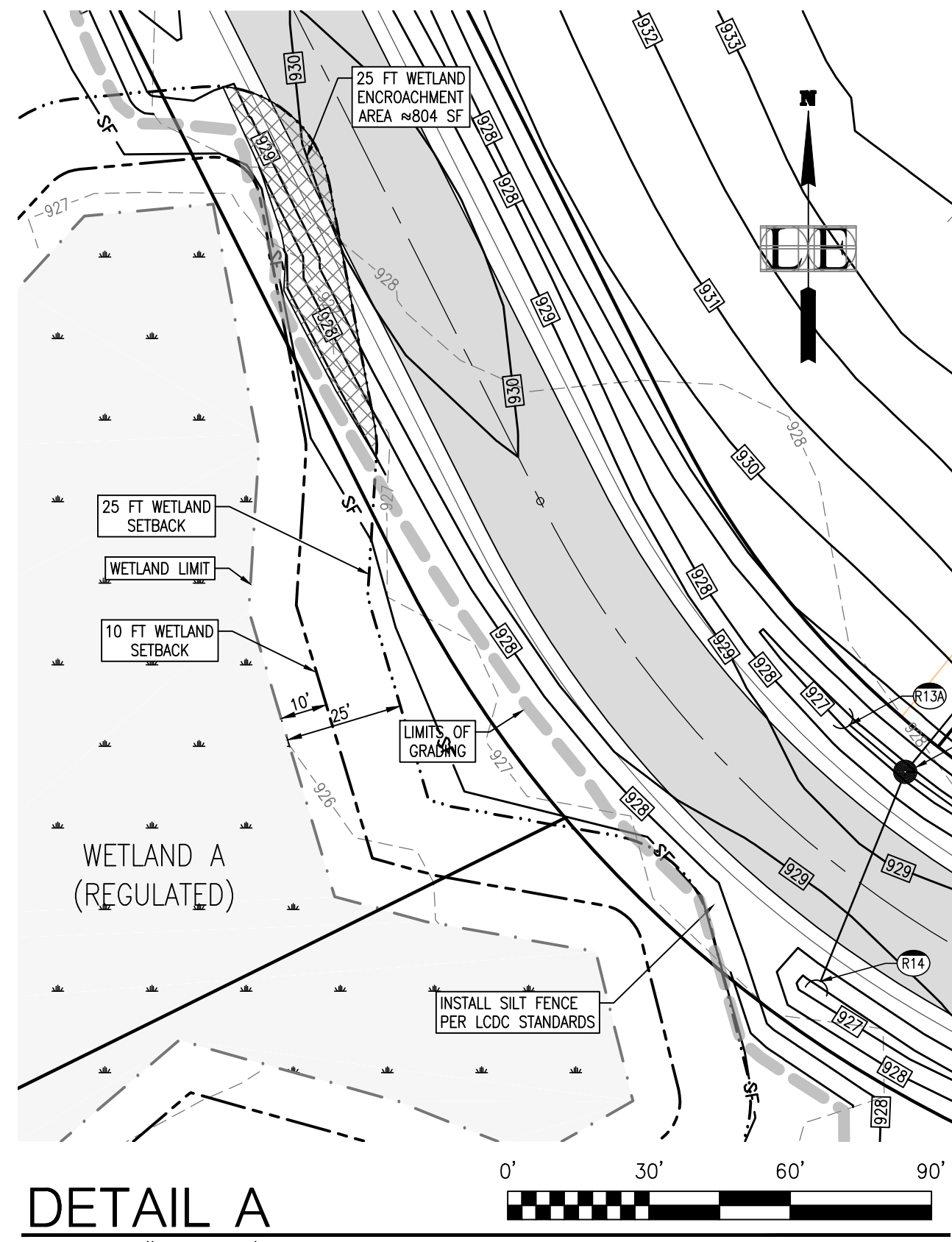
LEGEND

PR. SPOT GRADE	
PR. CONTOUR	
LIMITS OF GRADING	
25 FT ENCROACHMENT AREA	

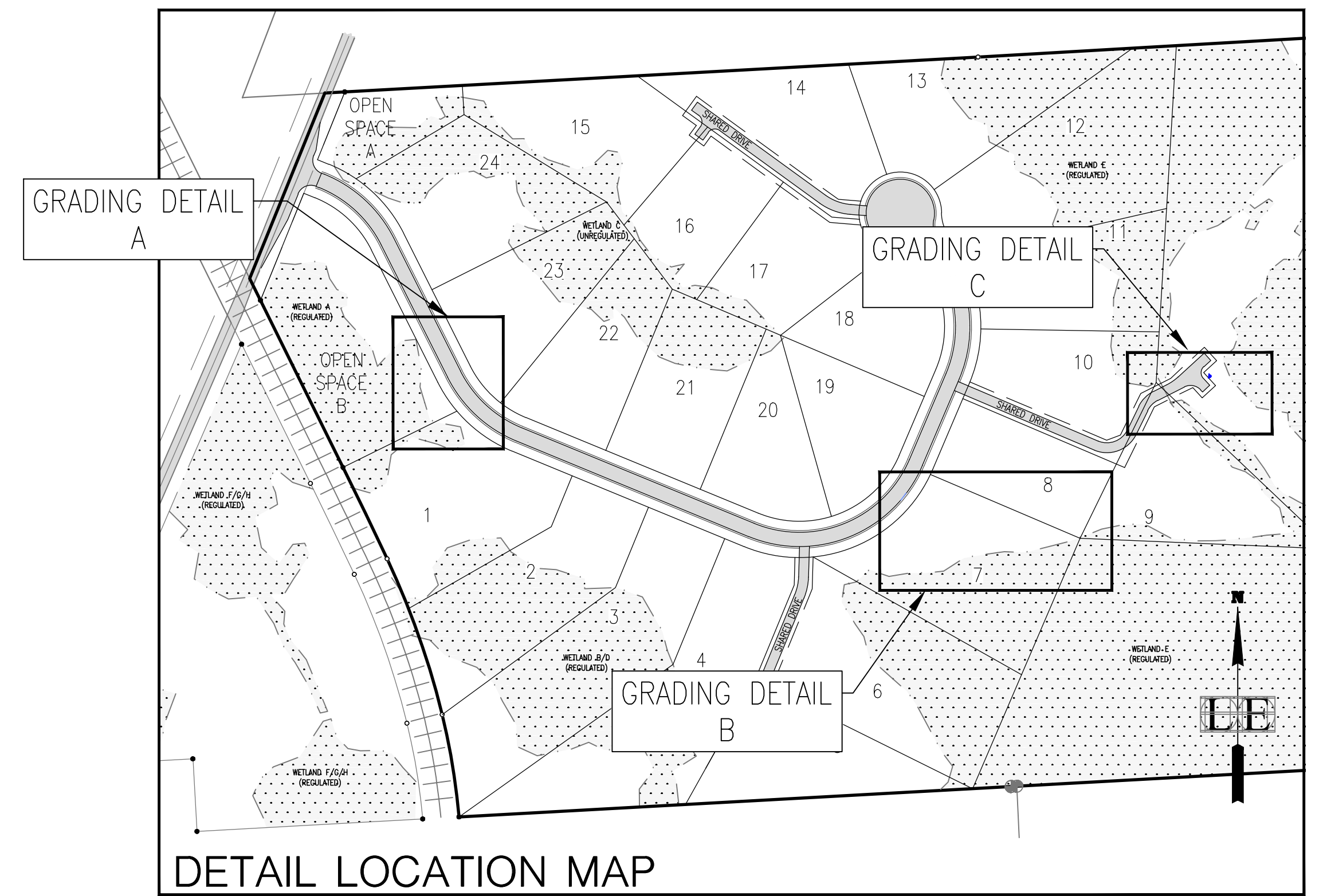
DRY HYDRANT DETAIL



DRY HYDRANT DETAIL
SCALE: NOT TO SCALE



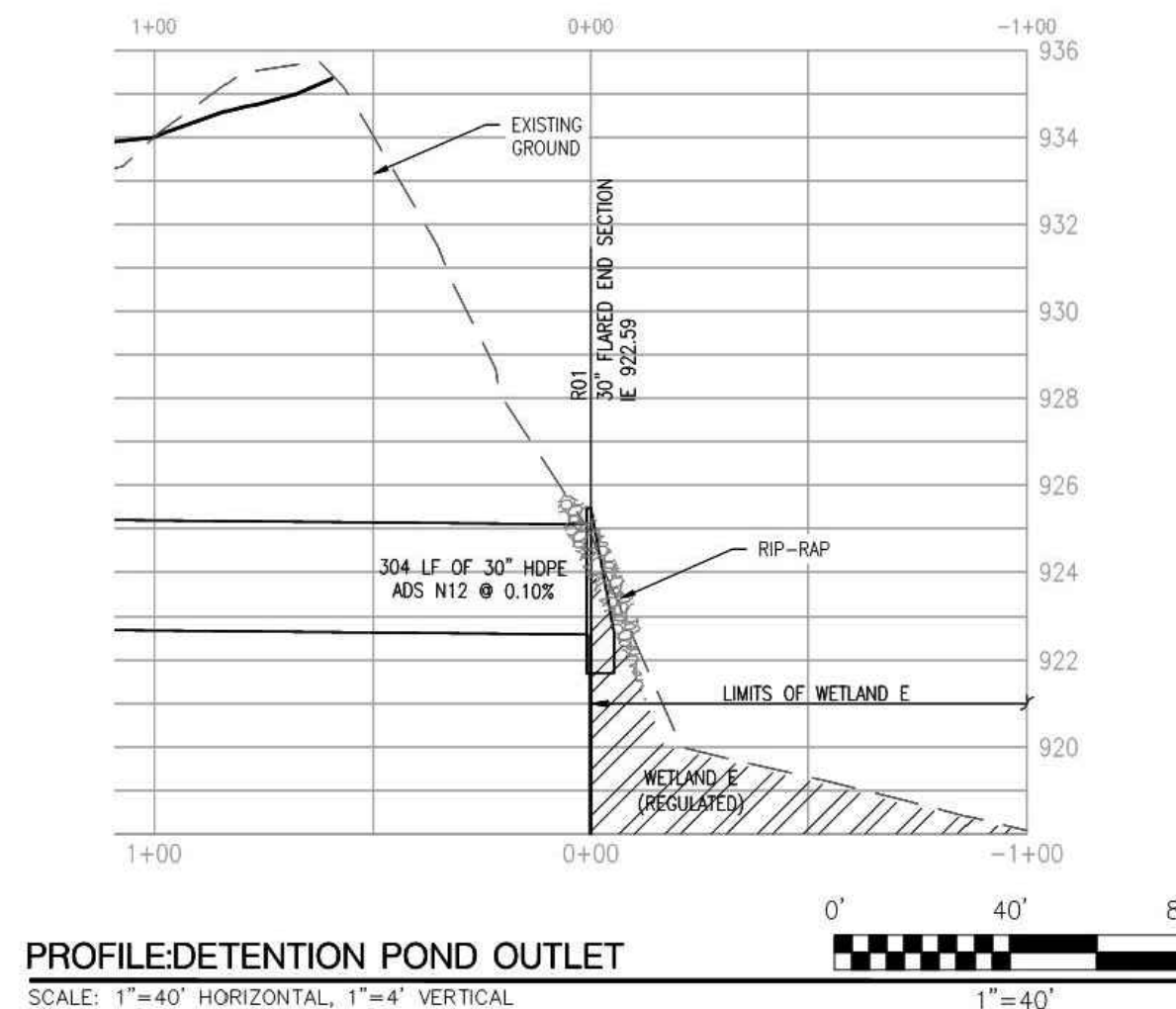
DETAIL A
SCALE: 1" = 30'



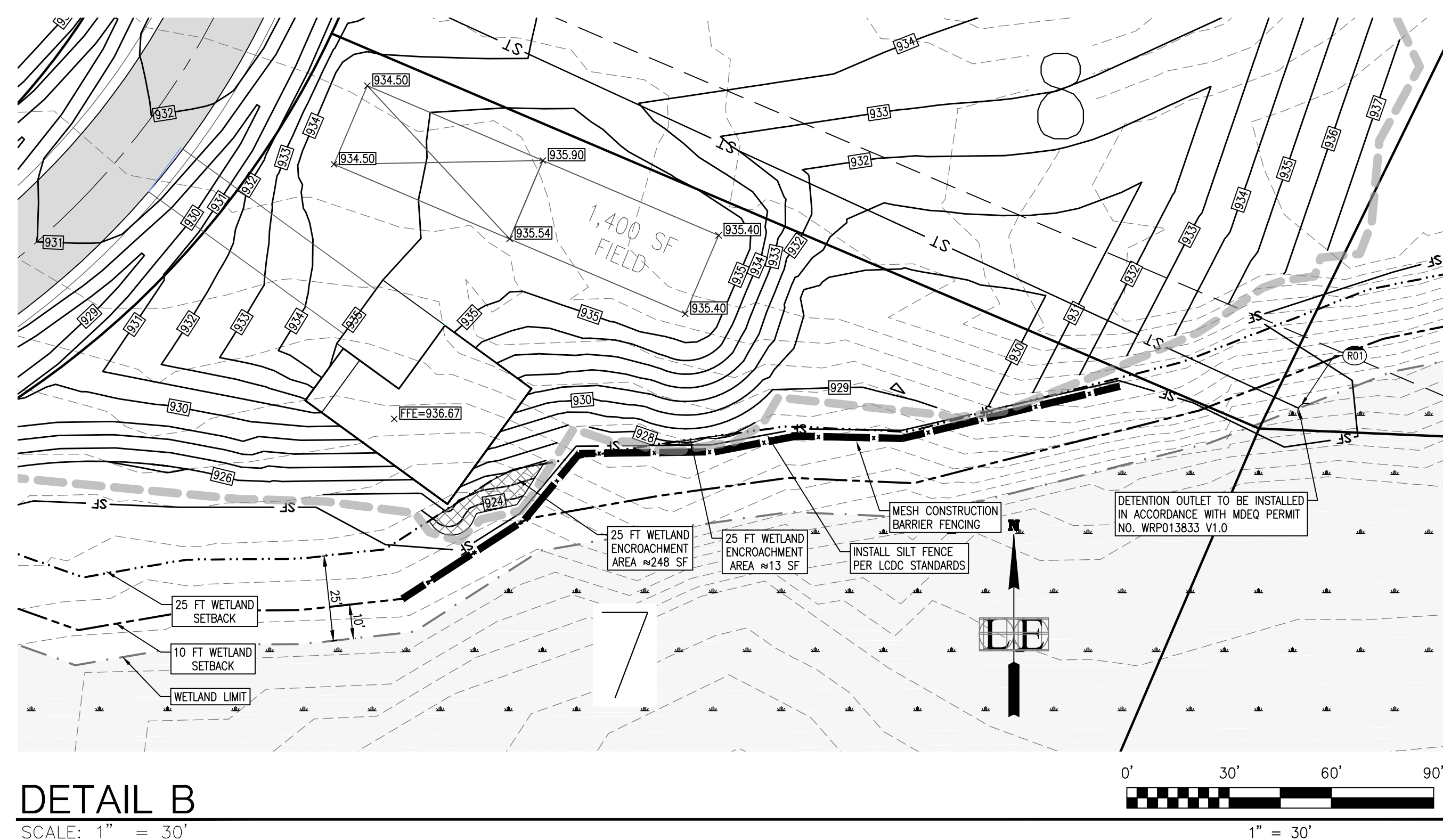
DETAIL LOCATION MAP
SCALE: 1" = 200'

- GENERAL NOTES:**
- MESH CONSTRUCTION FENCING TO BE INSTALLED IN AREAS AS INDICATED ON THE PLANS TO PREVENT GRADING WITHIN WETLAND SETBACK AREAS.
 - ANY GRADING THAT IS REQUIRED FOR HOME CONSTRUCTION WITHIN THE 25 FT WETLAND SETBACK THAT IS NOT A PART OF THIS PLAN WILL NEED AN ADDITIONAL SPECIAL LAND USE PERMIT.

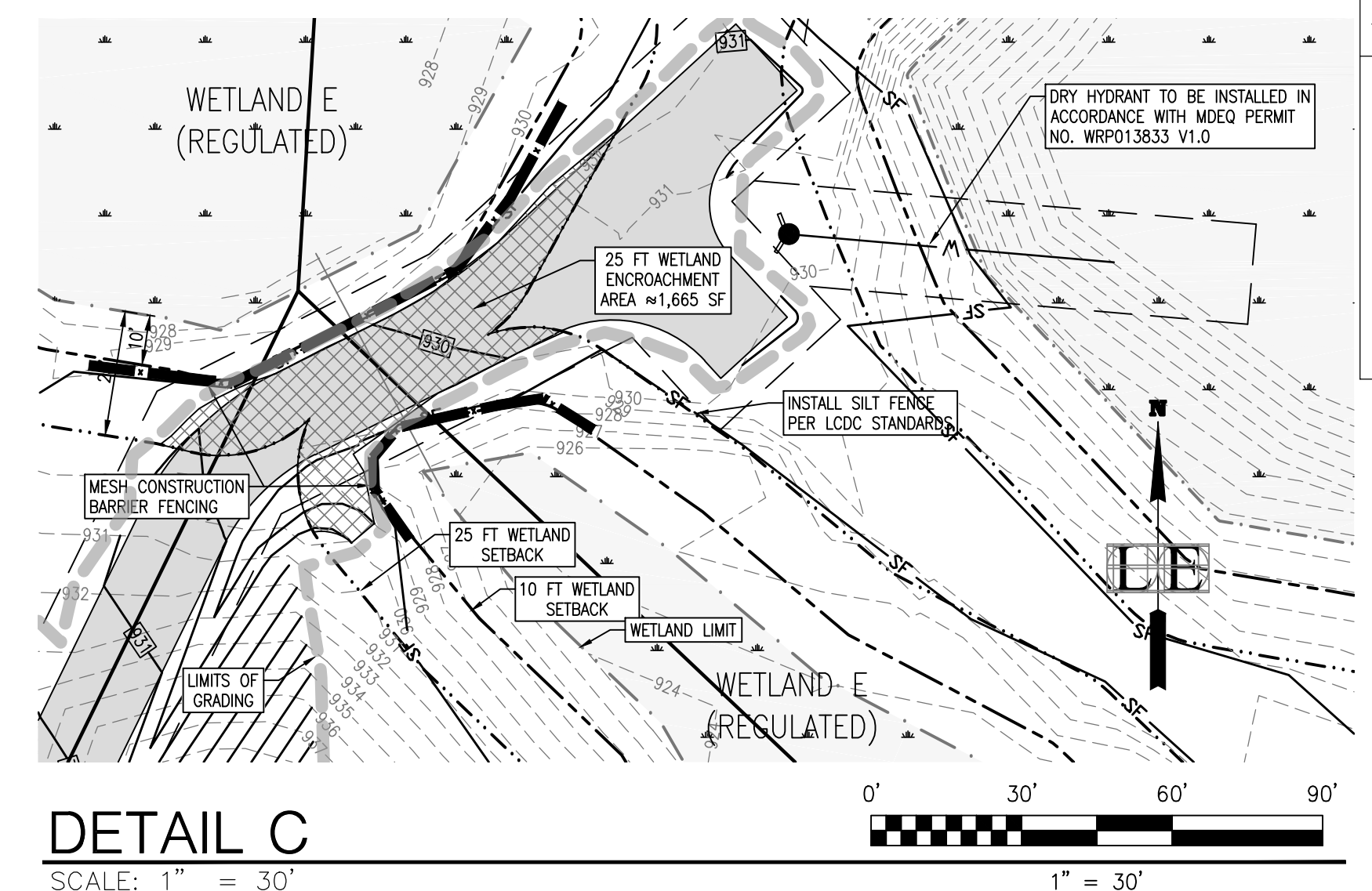
DETENTION POND OUTLET



PROFILE: DETENTION POND OUTLET
SCALE: 1" = 40' HORIZONTAL, 1" = 4' VERTICAL



DETAIL B
SCALE: 1" = 30'



DETAIL C
SCALE: 1" = 30'

	REVISIONS	DATE	PROJECT No.	CHESTNUT SPRINGS
			11216-2	GENOA TOWNSHIP
				LIVINGSTON COUNTY, MI
				MDEQ PERMIT EXHIBITS
			DRAWN: MJB	DRY HYDRANT DETAIL
			DATE: 7/18/2018	
			SHEET: 2 OF 5	

	REVISIONS	DATE	PROJECT No.	CHESTNUT SPRINGS
			11216-2	GENOA TOWNSHIP
				LIVINGSTON COUNTY, MI
				MDEQ PERMIT EXHIBITS
			DRAWN: MJB	DETENTION POND OUTLET
			DATE: 7/18/2018	
			SHEET: 3 OF 5	

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CIVIL ENGINEERING SURVEYING PLANNING
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CHESTNUT SPRINGS
CHILSON RD, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
FINAL SITE PLAN
SPECIAL LAND USE: GRADING WITHIN 25 FT WETLAND SETBACK

10/25/2018	DATE	10/25/2018
PER LCHD	REVISIONS	PER LCHD
9/17/2018	TOWNSHIP SUBMITTAL	9/17/2018
9/17/2018	PER MDEQ COMMENTS	9/17/2018
10/02/2018	PER LCHD COMMENTS	10/02/2018
10/22/2018	PER LCHD COMMENTS	10/22/2018

Drawn: MJB
Checked:
Approved:
Date: 8/29/2018

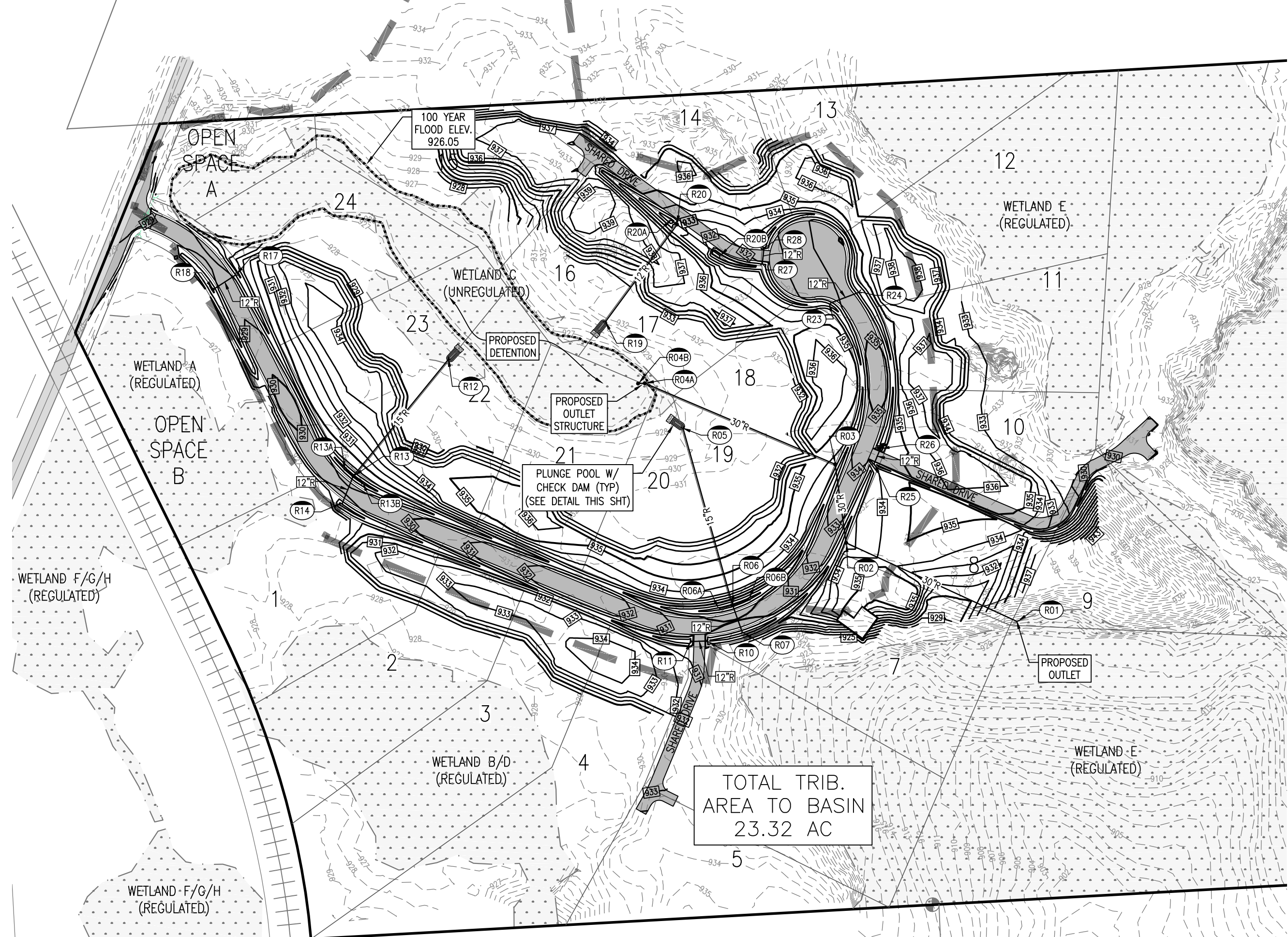
Job No.: 11216-2
Scale:
Vertical:
Horizontal: T = 30'

4.1

STORM WATER MANAGEMENT PLAN

LEGEND

OVERALL DETENTION TRIBUTARY AREA	---
STORM SEWER DRAINAGE DIVIDE LINE	---
STORM STRUCTURE	R11
STORM SEWER DRAINAGE AREA	0.24 AC.



STORM WATER MANAGEMENT NARRATIVE

STORM CONVEYANCE CONSISTS OF A COMBINATION OF OPEN ROAD-SIDE DITCHES AND STORM SEWER TO CONVEY WATER TO THE DETENTION AREA. THE DETENTION AREA MAKES USE OF AN ONSITE UNREGULATED WETLAND (WETLAND C) FOR DETENTION. PRIOR TO EMPTYING INTO THE WETLAND/DETENTION AREA, A COMBINATION OF PLUNGE POOLS WITH CHECK DAMS AND VEGETATIVE FILTERS WILL PROVIDE THE WATER QUALITY AND SEDIMENT DEPOSITION COMPONENTS OF THE SYSTEM.

AN MDEQ PERMIT IS CURRENTLY BEING PROCESSED FOR ALL WETLAND IMPACT ACTIVITIES INCLUDING THE DETENTION OUTLET REGULATED WETLAND "E".

DETENTION VOLUME WAS CALCULATED USING THE LIVINGSTON COUNTY DRAIN COMMISSIONERS METHOD FOR A 100-YEAR STORM. OUR CALCULATIONS SHOW THAT THE STATIC HIGH WATER ELEVATION IN THE POND WILL INCREASE APPROXIMATELY 6 INCHES WITH A 100-YEAR STORM VOLUME ADDED TO THE EXISTING WETLAND/DETENTION POND.

AN OUTLET STRUCTURE IS BEING PROVIDED TO OUTLET WATER ABOVE THE STATIC HIGH WATER ELEVATION AT A PRE-DEVELOPED RELEASE RATE OF 0.2 CFS PER ACRE INTO REGULATED WETLAND "E" ON THE EAST SIDE OF THE DEVELOPMENT. WETLAND "E" CONNECTS TO SMALL CREEKS AND FLOW CHANNELS DOWNSTREAM FROM OUR PARCEL AS PART OF THE HURON RIVER WATERSHED.

THE OUTLET STRUCTURE WILL ALSO PROVIDE AN EMERGENCY OVERFLOW AT THE 100-YEAR FLOOD VOLUME TO ALLOW WATER TO FLOW FREELY PAST THE RESTRICTED ORIFICES, AND PREVENT WATER FROM EXCEEDING THE DESIGN FLOOD ELEVATION.

PIPE SIZING HAS BEEN APPROXIMATED AND DETAILED DESIGN CALCULATIONS WILL BE PROVIDED FOR CONSTRUCTION PLANS FOR BOTH THE OUTLET STRUCTURE AND THE STORM SEWER SIZING.

Required Detention Volume
 Livingston County Drain Commissioner's Office Detention Methodology
 Project: Chestnut Springs
 LE Job No. = 11216-2

Area, A =	23.32 Ac.
C =	0.29 Avg. Runoff Coefficient
K =	6.76
Allowable Q =	4.66 cfs (0.2 cfs per acre)

DURATION MINUTES	DURATION SECONDS	INTENSITY (IN/HR)	INCHES IN RUNOFF	INFLUX VOLUME x A x C	OUTFLOW DURATION x Q ₁	STORAGE VOLUME INFLUX - OUTFLOW
5	300	9.17	2.751	18,604	1,399	17,205
10	600	7.86	4.716	31,893	2,798	29,095
15	900	6.88	6.192	41,875	4,198	37,678
20	1,200	6.11	7.332	49,585	5,597	43,988
30	1,800	5.00	9.000	60,865	8,395	52,470
60	3,600	3.24	11,664	78,881	16,790	62,091
90	5,400	2.39	12,906	87,281	25,186	62,095
120	7,200	1.90	13,680	92,515	33,581	58,934
180	10,800	1.34	14,472	97,871	50,371	47,500

Required Volume, V_d = 62,095 cf

STORM WATER DETENTION POND CALCULATIONS

Project: CHESTNUT SPRINGS
 Livingston Engineering Project No. 11216-2
 Livingston County Drain Commission Method

I. Common Items and Assumptions:

- A. First Flush = (0.5712) x 43,560 x area x developed C
- B. Bankfull Flood = 8,160 x area x developed C
- C. Detention Volume Equation
 $V = ((A_1 + A_2) / 2) \times H$
 where, A₁ = Area at top of storage elevation
 A₂ = Area at bottom of storage elevation
 H = Depth of analysis

II. Detention Pond Volumes:

A. First Flush, Bankfull Flood and 100-year Storm Event

1. Contributing Area =	23.32 Ac.		
2. Developed Runoff Coefficient:			
Rooftop / Asphalt Area	2.77	0.90	2.50
Gravel Area	0.28	0.70	0.20
Lawn/Landscaped Area	20.26	0.20	4.05
Totals:	23.32	6.75	6.75
Developed C =	6.75 / 23.32	=	0.29
3. First Flush Volume:	V = (0.5712) x 43,560 x 0.29 x 23.32	=	12,274 CF
4. Bankfull Flood Volume:	V = 8,160 x 0.29 x 23.32	=	55,184 CF
5. 100-Year Flood Volume:	Q _A = (0.20 x 23.32)	=	4.66 CFS
	V _T =	=	62,095 CF

B. Detention Volume Proposed

Elev.	Area (sf)	Vol (cf)	Acc. Vol (cf)
Elev ₀ = 925.42	92,981		
926.00	101,578	56,422	56,422
927.00	120,461	111,020	167,442
Total:		167,442	167,442

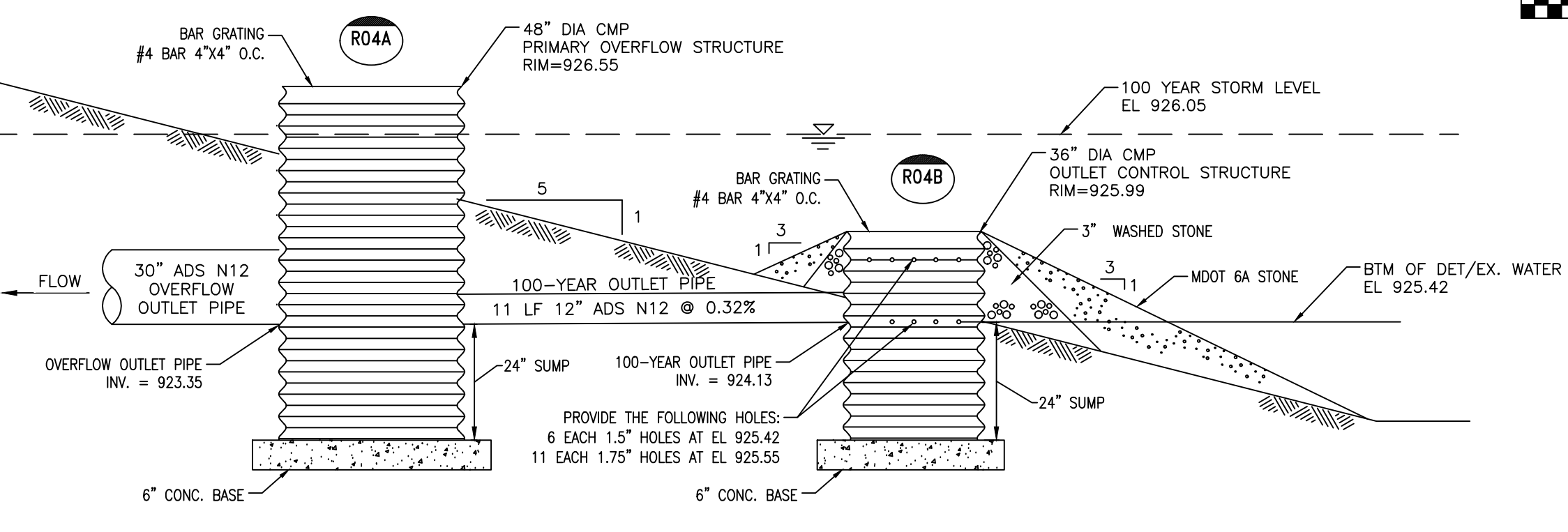
The following interpolations determine the pond water elevations for the three different storm events:

First Flush: $\frac{926.00 - 925.42}{56,422 - 0} = \frac{x - 925.42}{12,274 - 0}$
 $x = \text{Elev}_{FF} = 925.55$

Bankfull Flood: $\frac{927.00 - 926.00}{167,442 - 56,422} = \frac{x - 926.00}{55,184 - 56,422}$
 $x = \text{Elev}_{BF} = 925.99$

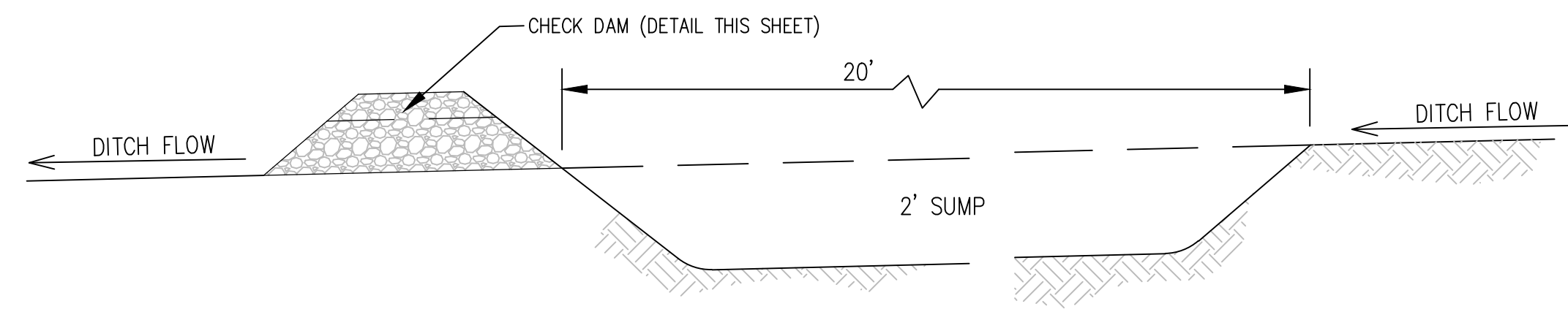
100 Yr. Flood: $\frac{927.00 - 926.00}{167,442 - 56,422} = \frac{x - 926.00}{62,095 - 56,422}$
 $x = 926.05$

These yield pond water elevations of 925.55 for the First Flush, 925.99 for the Bankfull Flood, and 926.05 for the 100 Yr. Storm Event



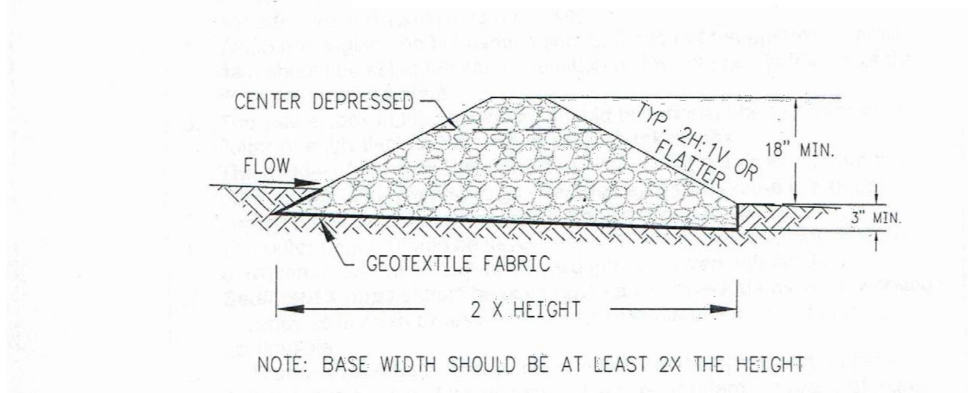
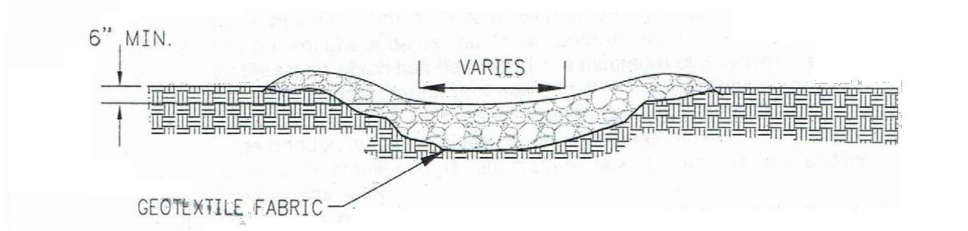
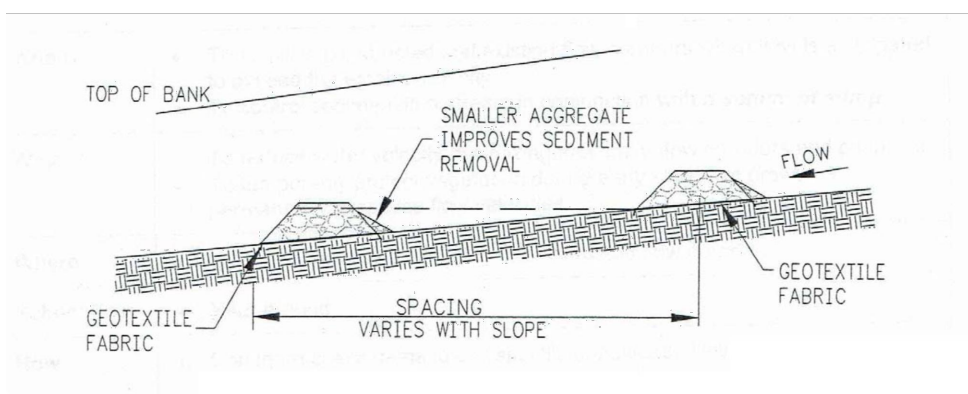
DETENTION BASIN OUTLET STRUCTURE DETAILS

NO SCALE



PLUNGE POOL WITH CHECK DAM DETAIL

NO SCALE



CHECK DAM DETAIL

NO SCALE



Know what's below.
Call before you dig.

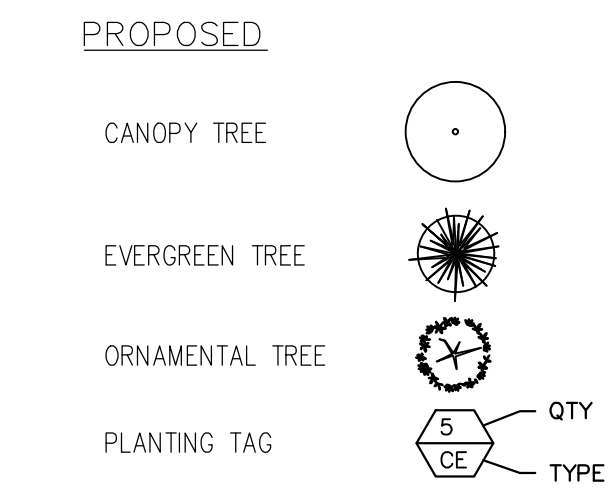
LANDSCAPE PLAN & DETAILS

LANDSCAPE REQUIREMENTS:

GENOA TOWNSHIP ZONING ORDINANCE, ARTICLE 12: SITE DEVELOPMENT REGULATIONS

SECTION 12.02: GREENBELTS, LANDSCAPE MATERIALS & SCREENING	REQUIRED	PROVIDED
12.02.02: RESIDENTIAL STREET TREES	2 CANOPY TREES SHALL BE PROVIDED ALONG A PUBLIC STREET OR PRIVATE ROAD FOR EACH RESIDENTIAL UNIT. (TOTAL UNITS ALONG PRIVATE ROAD = 19)	38 CANOPY TREES
12.02.05: DETENTION/RETENTION POND LANDSCAPING	DETENTION/RETENTION PONDS SHALL BE LANDSCAPED TO PROVIDE A NATURAL SETTING IN OPEN SPACE AREAS.	REQUESTING WAIVER FROM REQUIREMENTS BASED ON EXISTING WETLAND BOUNDARY & VEGETATION AROUND THE PROPOSED DETENTION POND.

LEGEND

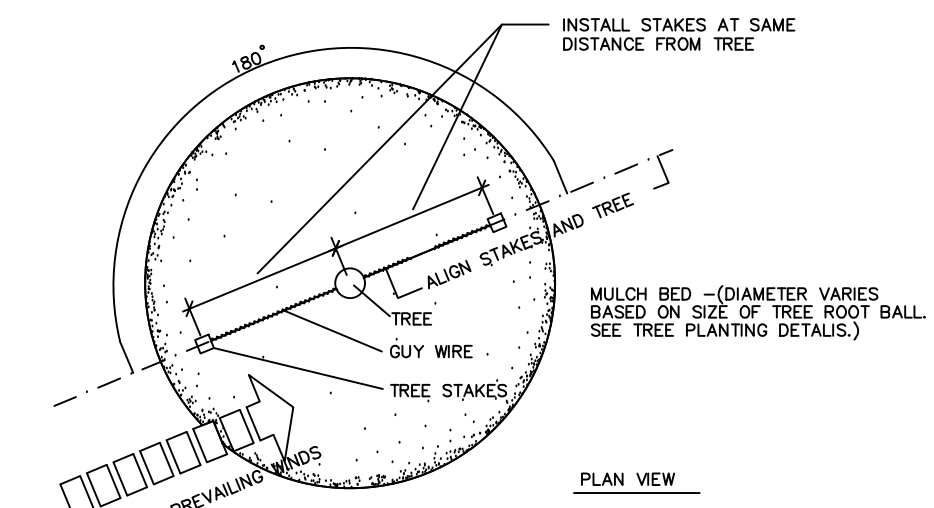


NOTES

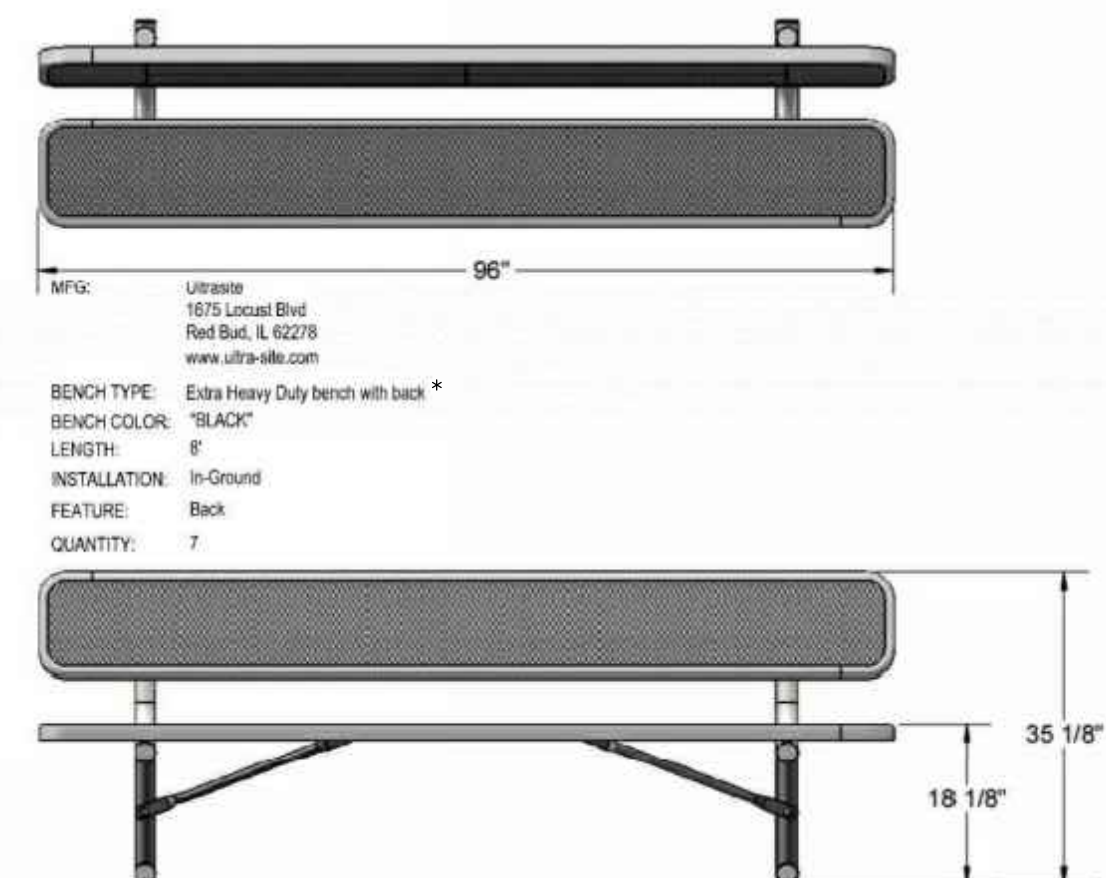
- The contractor(s) shall verify the location of all underground utilities prior to construction.
- Plants shall conform to the sizes as shown on the drawings and shall be of sound health. All measurements such as spread, ball size, height, caliper and quality designations shall be in conformance to the latest edition of the American Standards for Nursery Stock.
- All evergreen tree species are to be full, dense plants branched fully to the ground.
- Prune all dead and broken branches from all plants immediately after installation.
- Planting soil mixture shall be prepared on-site by mixing 3 parts topsoil to 1 part existing site soils to 1 part peat, adding 5 lbs. of superphosphate to each cubic yard of the mixture.
- Organic mulch requirements: shade trees, ornamental trees and evergreen trees - 6" of shredded bark; shrubs and shrub beds - 4" of shredded bark; ground cover beds and perennial flowers - mulch with 1" of peat.

Planting List

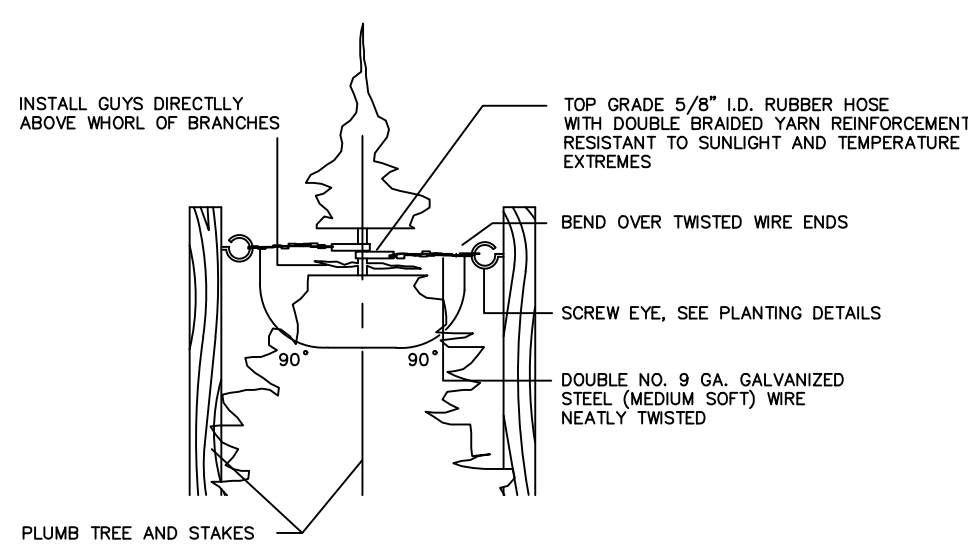
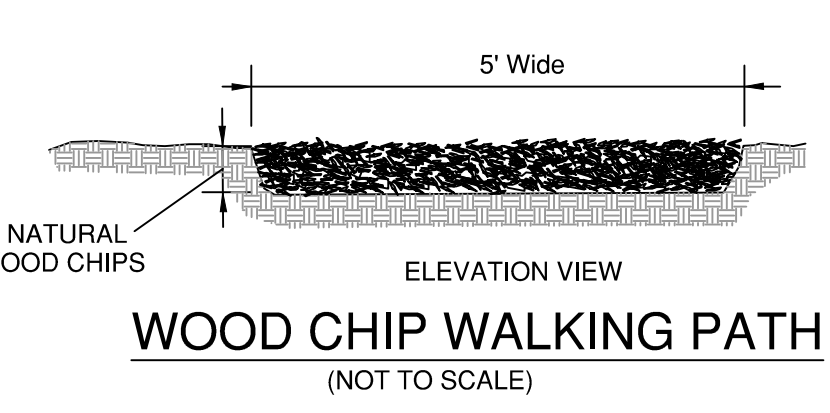
Canopy Trees				Min. Size		Root
Key	Qty	Genus	Common Name	Caliper	Height	
AC	12	Acer rubrum	Red Maple	2.5"		B & B
QU	13	Quercus Alba	White Oak	2.5"		B & B
TI	17	Tilia cordata	Little Leaf Linden	2.5"		B & B
Evergreen Trees				Min. Size		Root
Key	Qty	Genus	Common Name	Caliper	Height	
PA	4	Picea abies	Norway Spruce	6"		B & B
PG	4	Picea glauca	White Spruce	6"		B & B
Ornamental Trees				Min. Size		Root
Key	Qty	Genus	Common Name	Caliper	Height	
MP	7	Malus 'Prairifire'	Prairifire Flowering Crab	2"		B & B
MS	3	Malus 'Selkirk'	Selkirk Crab	2"		B & B



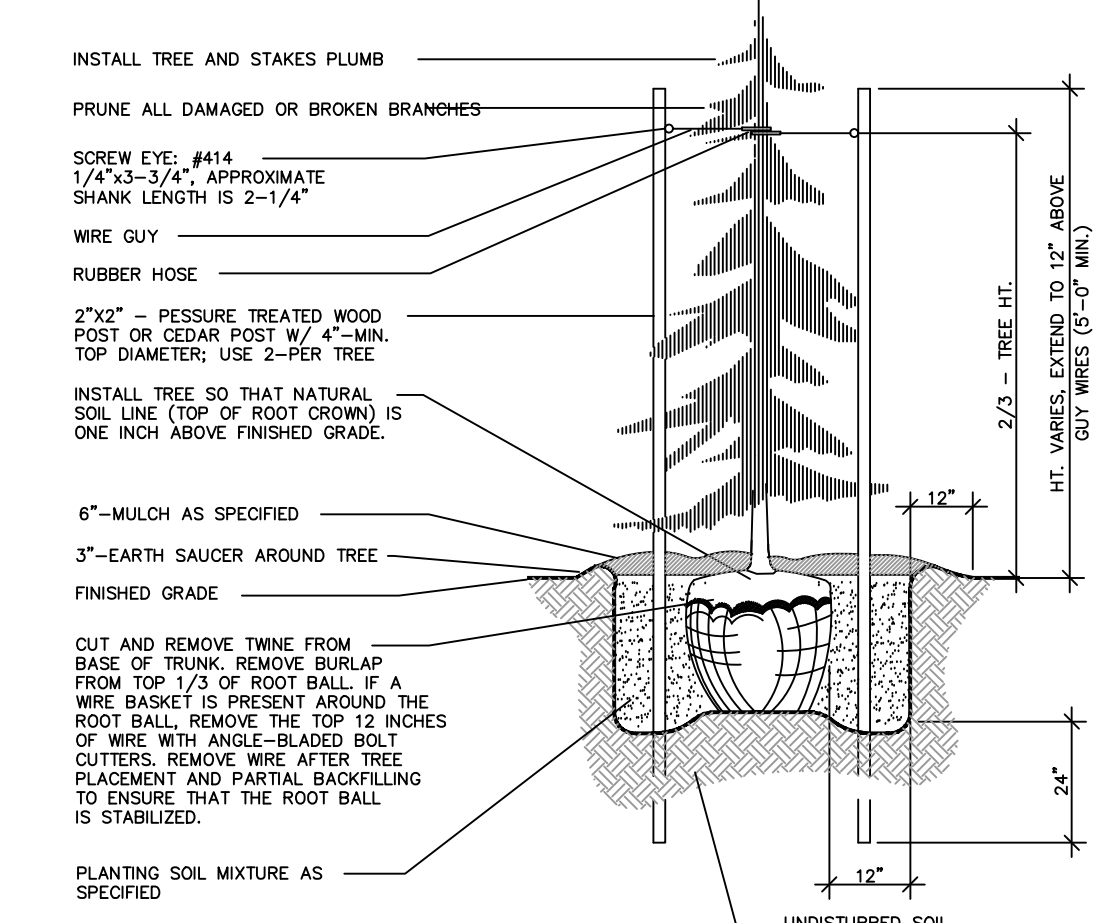
Stake Placement Detail
FOR EVERGREEN AND DECIDUOUS TREES



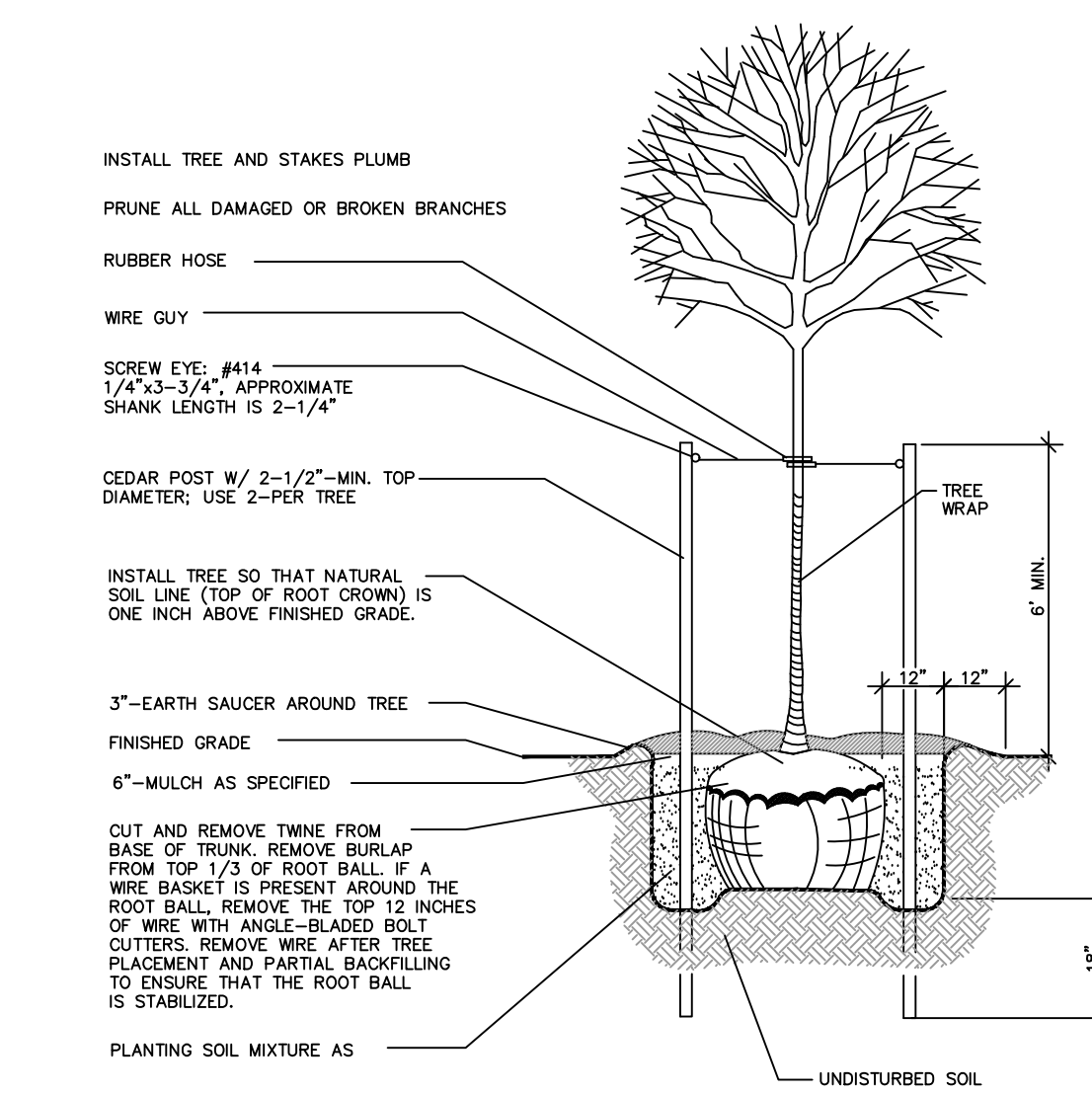
BENCH DETAIL
(NOT TO SCALE)



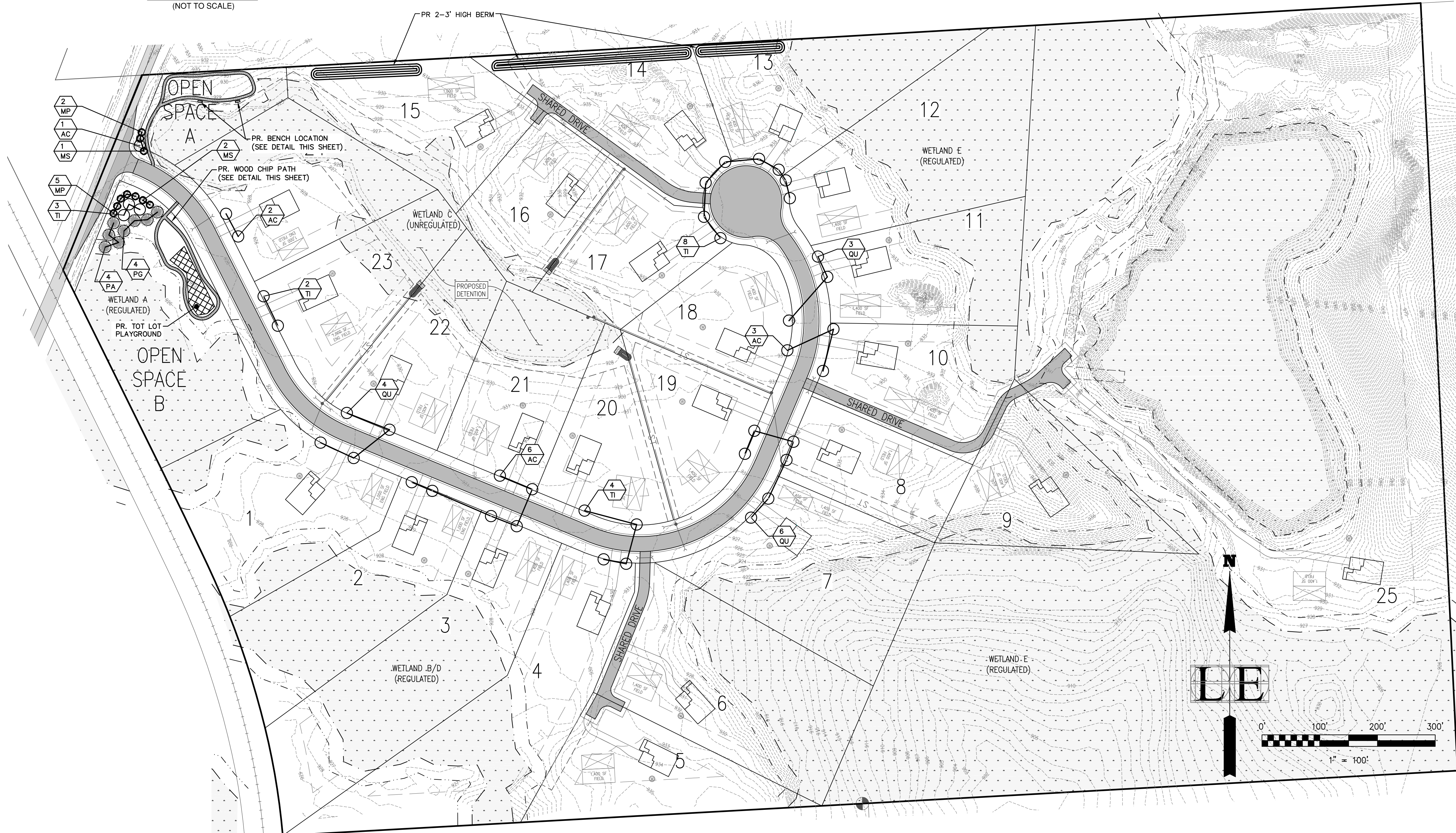
Guy Installation Detail
FOR EVERGREEN AND DECIDUOUS TREES



Evergreen Tree Planting/
Staking Detail



Deciduous Tree Planting/
Staking Detail



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CHESTNUT SPRINGS
CHILSON RD, GENOA TOWNSHIP, LIVINGSTON COUNTY, MICHIGAN
FINAL SITE PLAN
LANDSCAPE PLAN & DETAILS

DATE	REVISIONS	PER	DATE	REVISIONS	PER
10/25/2018			10/25/2018		
8/29/2018	PER LCHD	MJB	8/29/2018	TOWNSHIP SUBMITTAL	MJB
9/17/2018	PER MJC COMMENTS		9/17/2018	PER LCHD COMMENTS	
10/4/2018	PER LCHD COMMENTS		10/4/2018	PER LCHD COMMENTS	
10/22/2018	PER LCHD COMMENTS		10/22/2018	PER LCHD COMMENTS	

Drawn: MJB
Checked: MJB
Approved: MJB
Date: 8/29/2018

Job No. 11216-2
Scale: Vertical: 1" = 100'
Horizontal: 1" = 100'

L1

FILE:C:\Users\User\Dropbox (Living)\Projects\2011\1216-2 Chestnut Springs\Drawings\Final Site Plan\11216-2_L1_Landscape_Plan.dwg

The following pages include a portion of the Township's Hydrogeological Study on the Groundwater for the Chestnut Springs project. This is included in the packet to formally and publically document the results of the analysis for this project.



October 31, 2018

Mr. Greg Tatara
Genoa Charter Township
2911 Dorr Road
Brighton, Michigan 48116

**Re: Water Quality Assessment
Former Oak Pointe Wastewater Treatment Plant
Chestnut Development
Genoa Charter Township, Michigan**

Dear Mr. Tatara:

Tetra Tech Inc. (Tetra Tech) is pleased to submit this water quality assessment related to the proposed Chestnut Development site located on Chilson Road in Genoa Township (Site) south of the former Oak Pointe Wastewater Treatment Plant (WWTP) (**Figure 1**). The assessment included sampling of surface water in four locations, vertical profiling of chloride concentrations in groundwater at three locations, installation of six permanent groundwater monitoring wells, and an evaluation of groundwater flow direction across the proposed development.

BACKGROUND

The former Oak Pointe WWTP treated wastewater and discharged treated effluent to rapid infiltration basins that resulted in elevated concentrations of chloride in groundwater greater than the generic aesthetic drinking water criteria of 250 milligrams per liter (mg/L) as developed by the Michigan Department of Environmental Quality (MDEQ). The WWTP has been offline since 2015 and wastewater is no longer treated or discharged at the former WWTP site. Observed groundwater impacts have attenuated near the former WWTP and downgradient impacts to the south are expected to decrease over time.

To monitor the impacts of former WWTP discharges in groundwater, Genoa Township conducts annual sampling of residential water supply wells and biennial sampling of groundwater monitoring wells. Private water supply wells south of the former WWTP are sampled annually to determine if sodium and chloride are elevated such that point-of-use treatment is necessary. Monitoring data from June 2018 indicate groundwater from several private water supply wells and monitoring wells exceed the generic aesthetic drinking water criteria for chloride (**Figure 2**). On May 2, 2018, Chestnut Development, LLC submitted a Site Plan to Genoa Township for a residential development on a former gravel pit property south of the extent of known groundwater impacts associated with the former Oak Pointe WWTP (**Attachment 1**). The Site Plan specifies that private water supply wells will be installed at each residential lot.

Chestnut Development, LLC installed three test wells at the proposed development site and submitted a sample from each test well to Water Tech of Howell, Michigan for laboratory analysis of sodium and chloride, among other parameters. The location of each well and sodium and chloride results are depicted on **Figure 2**. Laboratory reports are included in **Attachment 2**. The results of the test wells are also presented in the table below and indicate that sodium and chloride are far less than applicable drinking water criteria, but were present above background levels, indicating that leading edge of the plume likely reached the site.

Table 1. Laboratory Results of Chestnut Development Test Wells

Location	Sample Date	Depth (ft bgs)	Sodium (mg/L)	Chloride (mg/L)
Test Well #1	6/18/18	96	68	200
Test Well #2	7/10/18	113	57	170
Test Well #3	6/13/18	112	14	43

Note: 1. ft bgs = feet below ground surface

As a result of the concentrations in the test wells, a water quality assessment was proposed for the Chestnut Springs Development. The objectives of the water quality assessment were to determine the concentrations of sodium and chloride in surface water, evaluate the vertical distribution of chloride in groundwater, install permanent monitoring points, and calculate groundwater flow direction.

- Surface Water Quality – Establish a baseline for surface water quality at the proposed development. At other development sites, Genoa Township and Tetra Tech have observed increasing concentrations of sodium and chloride in surface water following development.
- Groundwater Quality – Determine if test well results are representative of groundwater quality at the proposed development site through vertical profiling and installation of permanent monitoring wells.
- Groundwater Flow – Determine the horizontal hydraulic gradient and potential groundwater flow direction across the proposed development.

Prior to initiating field activities, Genoa Township and Chestnut Development entered into an access agreement on August 8, 2018 to complete the installation of up to six permanent wells and to complete routine monitoring of the wells. A copy of the access agreement is included as **Attachment 3**.

WATER QUALITY ASSESSMENT SUMMARY

The following sections describe the surface water quality assessment, the methods used for field screening for chloride, the vertical profiling of chloride concentrations, the installation of monitoring wells, the groundwater quality results, and an evaluation of groundwater flow direction across the proposed development.

Surface Water Quality Results

There are several surface water features on the proposed development site. The Site Plan includes the following surface water features as depicted on **Figure 3**:

- Wetland A: Located on the western boundary of the proposed development area;
- Wetland B/D: Located on the southwest portion of the proposed development area;
- Wetland C: Located on the northwest portion of the proposed development area;
- Wetland E: Located on the eastern portion of the proposed development area, stretching across the property from the north to the south; and
- Pond: Located on the eastern portion of the proposed development.

The Site Plan includes a storm water management plan that indicates that open roads, side ditches, and storm drains will convey storm water to a combination of plunge pools with check dams and vegetative filters prior to discharging to Wetland C for detention. An outlet will be constructed to convey water above the static high water elevation to Wetland E.

Tetra Tech collected surface water samples from Wetland C and from the Pond on the eastern portion of the proposed development on June 15, 2018. Grab samples were collected by removing debris from the water surface and carefully lowering an HDPE container into the water to a depth of approximately 0.5 feet, and transferring the contents into a laboratory-supplied container. Field staff completed chain-of-custody documentation and submitted the samples to Test America Laboratories in Brighton, Michigan for analysis of sodium and chloride. Results are summarized below and on Figure 3. The laboratory report is included as Attachment 4.

Table 2. Laboratory Results of Surface Water Samples

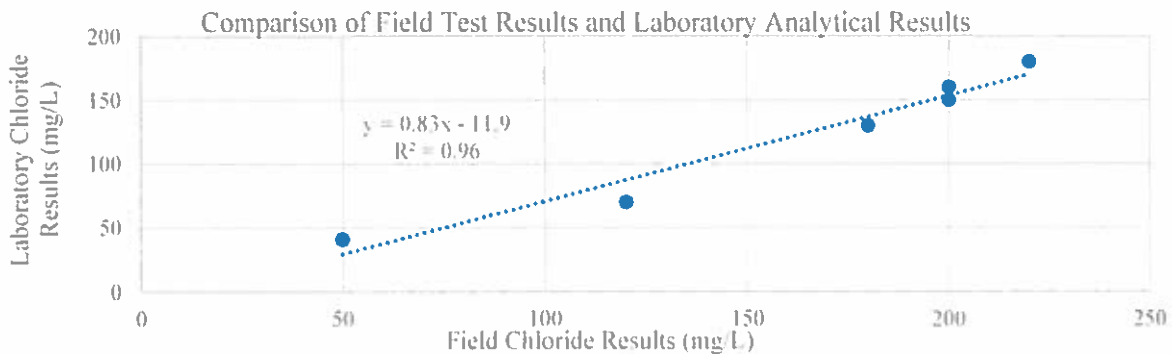
Location	Sample Date	Depth (ft bgs)	Sodium (mg/L)	Chloride (mg/L)
CS-01 (Wetland C)	6/15/18	Surface water	<5	<1
CS-02 (Wetland C)	6/15/18	Surface water	<5	<1
CS-03 (Pond)	6/15/18	Surface water	12	38
CS-04 (Pond)	6/15/18	Surface water	12	37

Sample results indicate sodium and chloride concentrations in four surface water samples are far less than Part 201 criteria values and are generally representative of background concentrations.

Field Testing for Chloride

Tetra Tech tested the chloride concentration of multiple samples using a HACH chloride field test kit, Model 8-P, capable of detecting chloride at low range (0-100 mg/L) or high range (0-400 mg/L). Using the field test kit, the concentration of chloride is determined by adding a packet of powered PermaChem reagent (containing bicarbonate, chromic acid, and dipotassium salt) and titrating using a silver nitrate titrant. The number of silver nitrate drops needed to turn the yellow solution to an orange color corresponds to the chloride concentration in the sample.

Tetra Tech collected six split samples for field testing and laboratory analysis to determine whether field test results required calibration. The graph below compares field test results against the laboratory results. A simple linear regression line indicates a correlation factor (R^2) of 0.96, suggesting a very well-correlated data set, and provides a linear equation ($y=m(x) + b$) that can be used to 'correct' field test results. Correcting the field test results using the calibration equation allows for chloride concentrations to be approximated in the field to near-laboratory accuracy.





Using the correction factor, Tetra Tech verified the accuracy of the field test kit using a laboratory-prepared standard solution containing 298 mg/L chloride. The field test kit indicated a raw value of 380 mg/L and a corrected value of 304 mg/L, which was determined to be an acceptable result, although not within the range of the field data. The standard was checked periodically throughout the drilling to ensure consistency and accuracy.

Vertical Groundwater Profiling

Tetra Tech’s contractor, Cascade Drilling, completed three soil borings using sonic drilling methods and at each location conducted vertical groundwater profiling of chloride concentrations within the groundwater beneath the proposed development to determine target screen intervals for permanent monitoring well installation. Soil boring locations correspond to the locations of monitoring well nested pairs MW-22/MW-22D, MW-23/MW-23D, and MW-24/MW-24D on **Figure 2**.

During drilling, a 4-inch diameter core barrel and a 6-inch diameter over-ride casing were advanced to recover geologic material continuously through the formation. Sonic drilling requires the injection of water while advancing tooling through saturated intervals to prevent heaving sands from entering the open core barrel. Up to 50 gallons of water was used for each 20-foot drilling interval within the groundwater. Two sources of water were used during drilling activities:

- City of Flint water from Cascade Drilling’s shop in Flint, Michigan; and
- The existing pond on the eastern portion of the development area.

The water used during drilling had the following chloride concentrations:

Table 3. Field Test Results of Drilling Water Samples

Source	Sample Date	Field Chloride Result (mg/L)	Corrected Chloride Result (mg/L)
City of Flint	8/13/2018	25-30	9-13
City of Flint	8/15/2018	25	9
City of Flint	8/16/2018	25	9
City of Flint	8/17/2018	25-30	9-13
On-site pond	8/20/2018	40-45	21-26
On-site pond	8/21/2018	40-45	21-26
On-site pond	8/22/2018	40-45	21-26
On-site pond	8/23/2018	40-45	21-26
On-site pond	8/24/2018	40-45	21-26

Top-down groundwater vertical profiling was completed in 20-foot intervals beginning at approximately 60 feet below the ground surface (ft bgs). At each interval, groundwater was allowed to enter the down-hole tooling and a submersible pump was used to purge between 35 and 100 gallons of water prior to collecting a sample for field screening. Field screening utilized both low-range and high-range methods at most intervals as a quality control measure. In many instances, field screening was completed more than once on a given sample to verify initial results. Also, at several intervals field staff continued to purge groundwater while collecting multiple samples to ensure the field test results were representative of the

groundwater and were not influenced by the water added during drilling. The results of the vertical profiling below present the maximum concentrations measured at each interval.

Table 4. Field Test Results of Vertical Profiling Samples: MW-22 and MW-22D

Well ID (Screen Depth ft bgs)	Profile Screen Depth (ft bgs)	Field Chloride Result (mg/L) Low-Range Test	Field Chloride Result (mg/L) High-Range Test	Corrected Chloride Result (mg/L)
MW-22 (104-109) MW-22D (128-133)	70-75	80	90	55-63
	90-95	55	70	34-46
	110-115	Not measured	150	113
	130-135	35-45	40	17-25
	150-155	15	Not measured	1
	170-175	55-60	Not measured	34-38
	190-195	85	Not measured	59

Table 5. Field Test Results of Vertical Profiling Samples: MW-23 and MW-23D

Well ID (Screen Depth ft bgs)	Profile Screen Depth (ft bgs)	Field Chloride Result (mg/L) Low-Range Test	Field Chloride Result (mg/L) High-Range Test	Corrected Chloride Result (mg/L)
MW-23 (105-110)	55-60	65	70	42-46
	75-80	100	120	71-88
	95-100	Over-range	180	138
	115-120	Not measured	160	120
MW-23D (150-155)	135 – 140	85	100	59-71
	155-160	45	60	26-38

Table 6. Field Test Results of Vertical Profiling Samples: MW-24 and MW-24D

Well ID (Screen Depth ft bgs)	Profile Screen Depth (ft bgs)	Field Chloride Result (mg/L) Low-Range Test	Field Chloride Result (mg/L) High-Range Test	Corrected Chloride Result (mg/L)
MW-24 (115-120)	55-60	35	0	17
	75-80	65	65	42
	95-100	Not measured	140-160	104-121
	115-120	Not measured	240	187
MW-24D (148-153)	135-140	Not measured	240	187
	155-160	Not measured	160	121

Tetra Tech and Genoa Township reviewed vertical profiling results and soil boring lithology when selecting screen intervals for permanent monitoring wells. Soil boring logs are included in **Attachment 5**. Vertical profiling results as presented on the soil boring logs represent corrected values. Details regarding well installation are provided in the following section.



Monitoring Well Installation

Tetra Tech field geologists recorded lithologic observations during the continuous recovery of subsurface material while completing three soil borings. Soil boring logs in **Attachment 5** indicate that the subsurface generally consists of a glacial till mix in the upper twenty feet of the vadose zone followed by a mix of saturated sand and gravel reaching a depth of approximately 120 ft bgs. The material composition becomes increasingly silty between 120 and 150 ft bgs and transitions to a hard, dry clay approximately ten feet thick. Alternating ten-foot-thick layers of silty sand and hard, dry clay were observed to a total depth of 195 ft bgs.

Tetra Tech installed six permanent monitoring wells in or adjacent to the three boring locations as nested pairs. The shallower of the pair (MW-22, MW-23, and MW-24) were installed at a depth corresponding to the approximate depth of the highest chloride concentration measured using field test methods. The deeper of the pair (MW-22D, MW-23D, and MW-24D) corresponded to a lower depth above the first clay layer and with a lower chloride concentration measured using field test methods. Selected screen intervals are presented in the preceding section and in the summary of laboratory results in the following section.

Well construction materials include two-inch PVC risers and two-inch PVC screens five feet in length with 10-slot screen spacing. The drilling crew installed a sand pack around the screened intervals and at least two feet above the screen. The remainder of the annulus space was filled with bentonite chips to a depth of approximately five ft bgs. Each well was finished as stick-up wells with protective steel pro-casings stabilized with a concrete pad at surface.

Well development occurred within 24 hours of installation using purge and surge methods. A submersible pump was deployed within the bottom one foot of the well and at least three well volumes of groundwater was purged. The pump was surged periodically across the well screen to suspend settled solids and create outward flow of water in the gravel pack. All purge water was discarded at the ground surface.

Groundwater Quality Results

Tetra Tech collected a sample from each monitoring well after well development. All samples were collected in appropriate laboratory-supplied and prepared containers, stored in an ice-packed and insulated cooler, and transported under standard chain-of-custody procedures to Test America Laboratories in Brighton, Michigan. Non-disposable field equipment was decontaminated with a mild detergent and distilled water between samples. Laboratory results are summarized in the table below and are posted on **Figure 4**. The laboratory report is provided in **Attachment 6**.

Table 7. Laboratory Results of Well Samples

Location	Depth (ft bgs)	Sodium (mg/L)	Chloride (mg/L)	Corresponding Vertical Profile Sample Chloride Result, Corrected (From Tables 4-6) (mg/L)
MW-22	104-109	40	70	~113
MW-22D	128-133	57	160	~20
MW-23	105-110	58	130	~130
MW-23D	150-155	42	41	~50
MW-24	115-120	37	180	~180
MW-24D	148-153	89	150	~120

Laboratory results at all monitoring well locations indicate sodium concentrations are significantly less than the MDEQ drinking water criteria of 230 mg/L, and chloride concentrations are less than the aesthetic drinking water criteria of 250 mg/L. These findings are consistent with data generated from Test Wells installed by Chestnut Development.

The results from the permanent monitoring wells correspond closely with corrected field test results from vertical profiling, with the exception of results for MW-22 and MW-22D. Additional monitoring well sampling results from these locations will be evaluated to determine if these initial results are representative of water quality in this location.

Groundwater Flow Direction

Tetra Tech surveyed top-of-casing elevations, ground elevations and horizontal coordinates of the six newly installed monitoring wells. Previously installed monitoring wells to the north (MW-5, MW-11, MW-14, and MW-21) were also surveyed to determine whether elevation data from new monitoring wells could be pooled with the data for the remainder of the site and used to calculate hydraulic gradients and groundwater flow direction.

Tetra Tech collected groundwater elevations from the 19 monitoring wells associated with the former Oak Pointe WWTP and the six newly installed wells. All wells were gauged with a water-level interface probe accurate to 0.01 foot. Depth-to-water measurements were subtracted from top-of-casing elevations for each well to obtain groundwater surface elevations. Depth-to-water measurements and groundwater surface elevations are provided in **Attachment 7**. Potentiometric surface contours were created using Surfer Software as presented in **Figure 5**. The potentiometric surface contours indicate a general direction of groundwater flow to the south-southwest. Findings are consistent with work that has been completed for the former Oak Pointe WWTP. At the proposed development property, groundwater flow is to the south-southwest.

The objectives of the groundwater quality assessment have been met by establishing a baseline for surface water quality in Wetland C and the Pond, verifying results of test well data as representative of the groundwater quality beneath the proposed development, and determining a south-southwest groundwater flow direction across the proposed development. Newly installed wells are considered sentinel wells and are positioned to monitor groundwater quality between the extent of groundwater impacts related to previous discharges from the former Oak Pointe WWTP and the proposed development. Based on data results, chloride impacts in groundwater to the north have not migrated beneath the proposed development site at concentrations that exceed the MDEQ drinking water criteria. Genoa Township will continue to collect samples from the newly installed monitoring wells on a routine basis to monitor groundwater quality. At a minimum, the wells will be incorporated into the annual groundwater monitoring program in 2019 and 2020 for the former Oak Pointe WWTP.



We appreciate this opportunity to provide environmental services to Genoa Charter Township. Please contact us at 734-213-4073 or daniel.sopoci@tetrattech.com if you have any questions or would like to discuss this report further.

Sincerely,

A handwritten signature in black ink that reads 'Daniel Sopoci'.

Daniel Sopoci, CHMM
Associate Scientist

A handwritten signature in black ink that reads 'Matt Mahony'.

Matt Mahony
Staff Geologist

- Figure 1 – Site Location
- Figure 2 – 2018 Sample Locations
- Figure 3 – Surface Water Features and Sample Results
- Figure 4 – 2018 Groundwater Surface Elevation Map

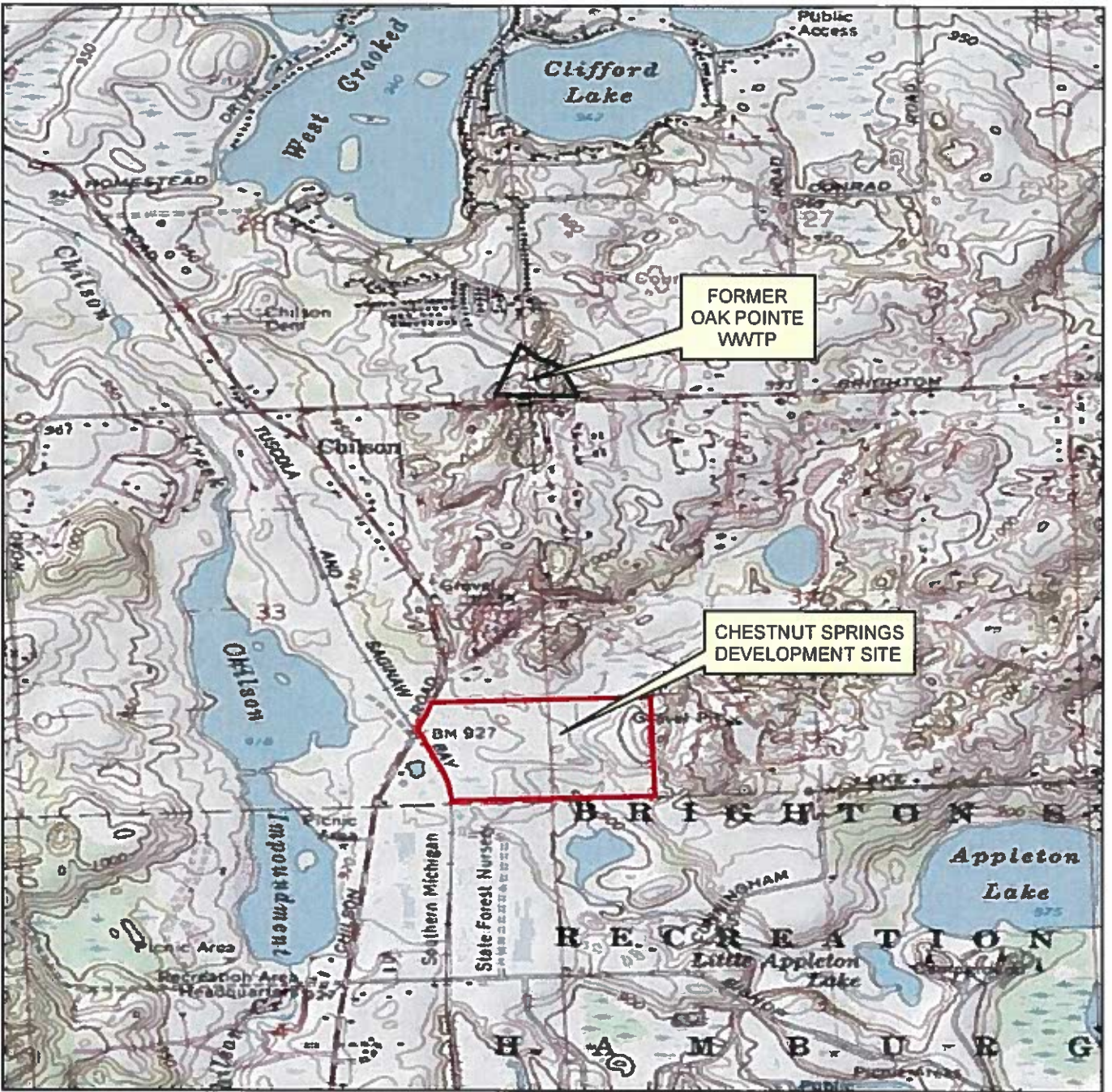
- Attachment 1 – May 2, 2018 Chestnut Development LLC Site Plan
- Attachment 2 – Laboratory Report, Chestnut Development Test Wells
- Attachment 3 – August 8, 2018 Access Agreement
- Attachment 4 – Laboratory Report, Surface Water Samples
- Attachment 5 – Soil Boring/Well Logs
- Attachment 6 – Laboratory Report, Monitoring Wells

Copy:

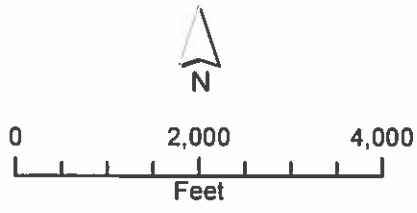
Matt Bolang, Livingston County Department of Public Health
Steve Gronow, Chestnut Development LLC

FIGURES

Document Path: \\TTS008FS1\Projects-ECA\Projects\Genoa Township\OakPointe\2018_1045_035\Chestnut_Development\GIS\MXD\Figure 1_Chestnut_Site Location Map 2018.mxd



SOURCE: Copyright:© 2013 National Geographic Society, I-cubed



WWTP = Waste Water Treatment Plant



Livingston County, Michigan

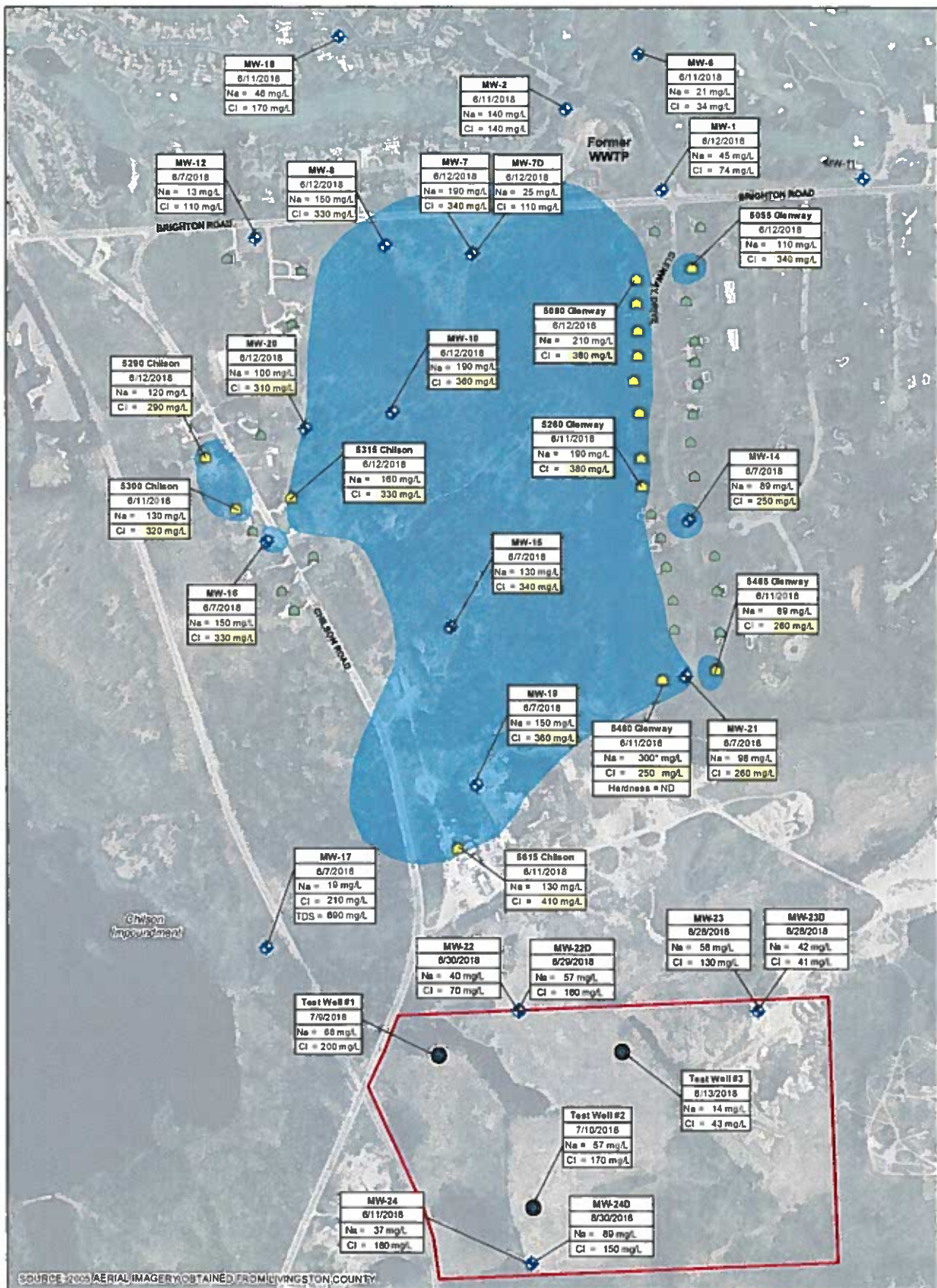


WATER QUALITY ASSESSMENT
 CHESTNUT SPRINGS DEVELOPMENT
 GENOA CHARTER TOWNSHIP, MICHIGAN
SITE LOCATION MAP

FIGURE
1

UPDATED BY: MC

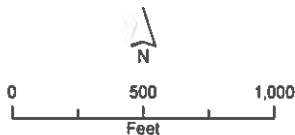
DATE: 10/17/2018



SOURCE: 2005 AERIAL IMAGERY OBTAINED FROM LIVINGSTON COUNTY

LEGEND

- Residential Well Sample Results Below Part 201 Criteria
- Residential Well Sample Results Above Part 201 Criteria
- ◆ Monitoring Well
- Test Well
- Extent of Chloride Plume (>250 mg/L)
- Chestnut Springs Development Site



- Notes:
- 1 Highlighted results exceed Part 201 Generic Cleanup Criteria R209.44
 - 2 * = Water softener contributes to elevated sodium result. At this residential location the sample was analyzed for hardness to confirm on site softening.
 - 3 Data for residential wells are presented for select locations that exceed Part 201 Criteria
 - 4 WWTP = Wastewater Treatment Plant

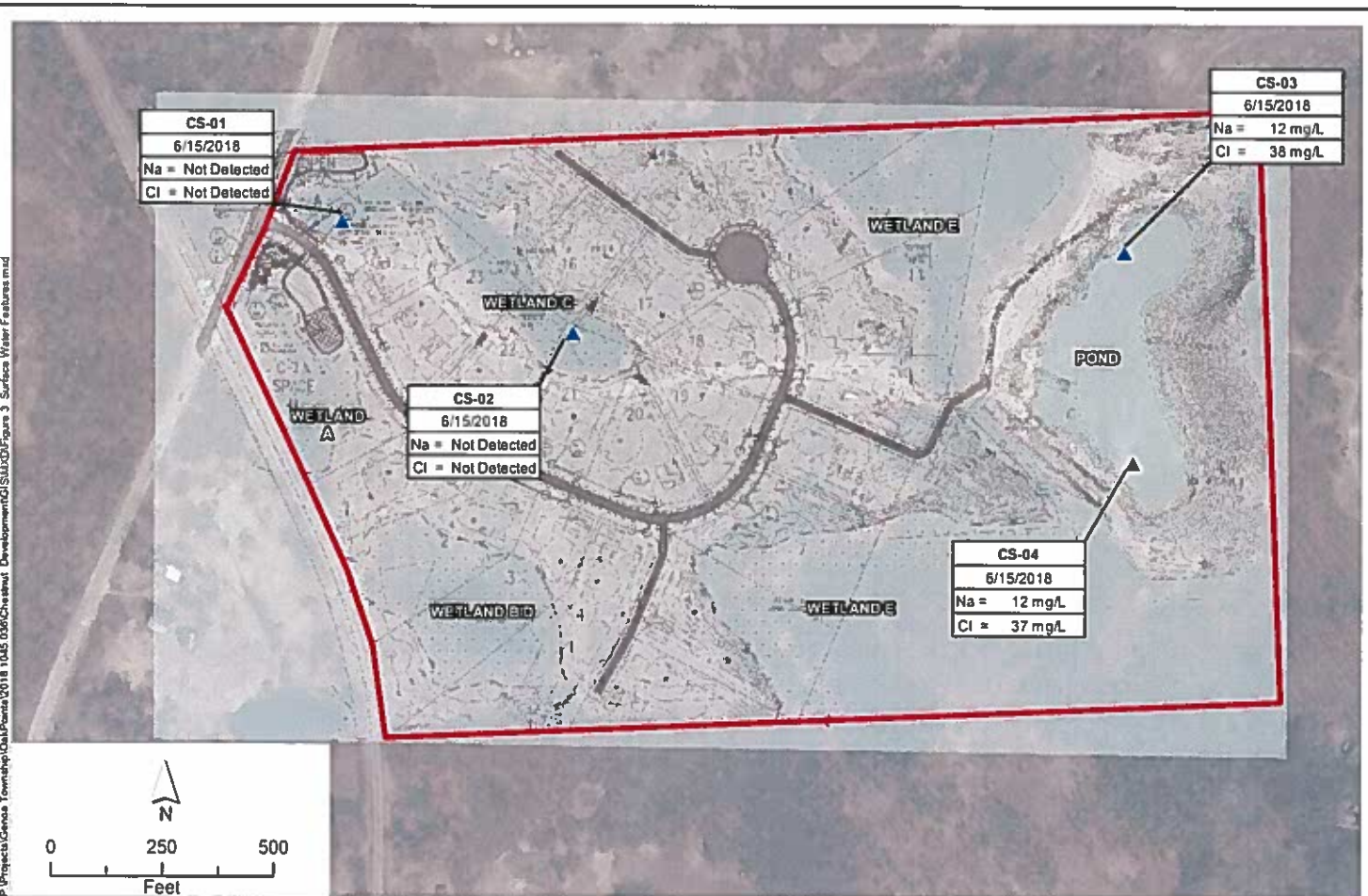


UPDATED BY: NLJ DATE: 10/29/2018

WATER QUALITY ASSESSMENT
CHESTNUT SPRINGS DEVELOPMENT
GENOA CHARTER TOWNSHIP, MICHIGAN
2018 SAMPLE RESULTS

FIGURE
2

P:\Projects\Genoa Township\OakPointe\2018\1045\036\Chestnut_Development\GIS\SUAD\Figure 3_Surface Water Features.mxd



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Geomatics, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

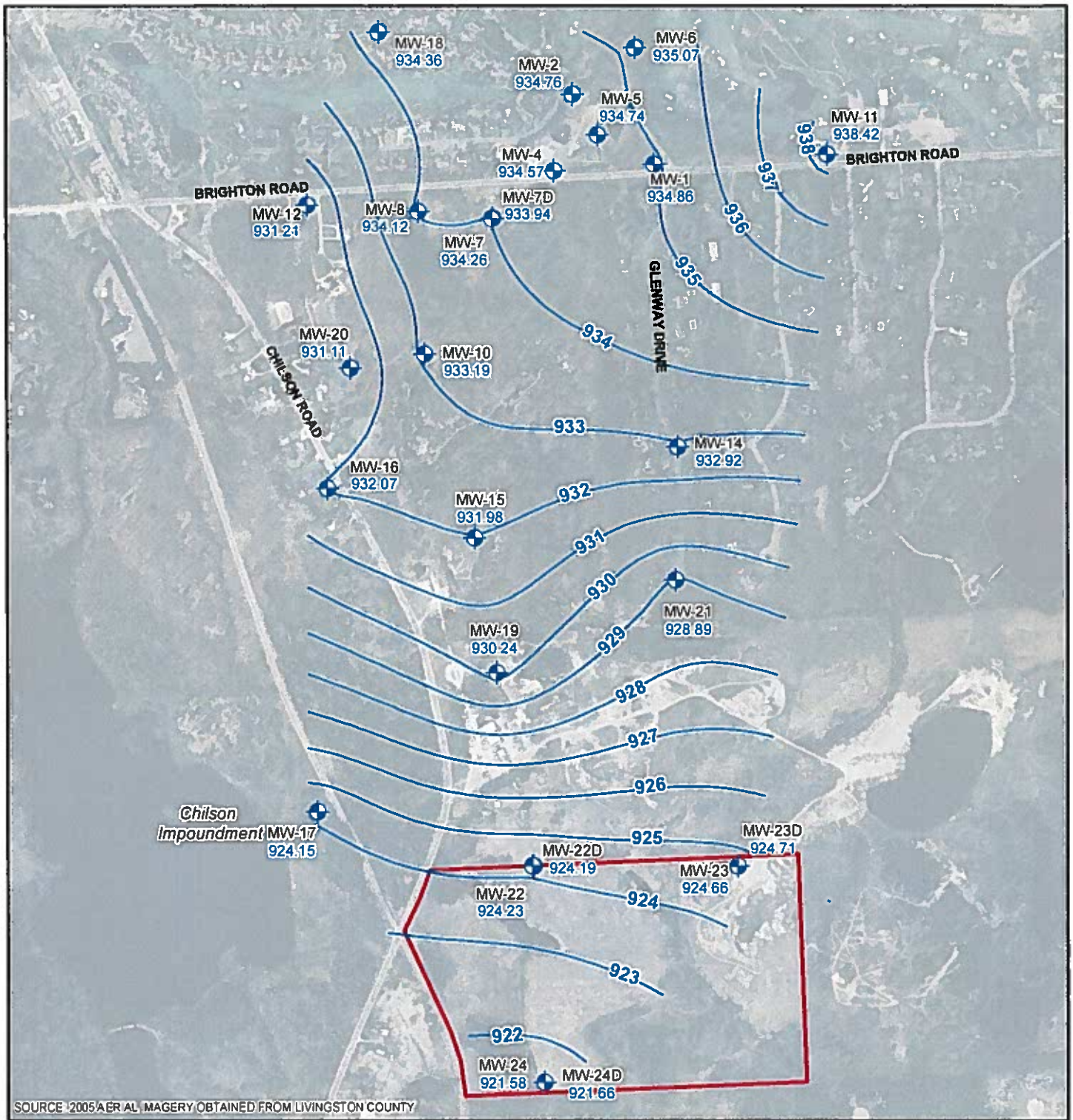


WATER QUALITY ASSESSMENT
CHESTNUT SPRINGS DEVELOPMENT
GENOA CHARTER TOWNSHIP, MICHIGAN

FIGURE
3

UPDATED BY: NLJ DATE: 10/29/2018

SURFACE WATER FEATURES AND SAMPLE RESULTS



SOURCE: 2005 AERIAL IMAGERY OBTAINED FROM LIVINGSTON COUNTY

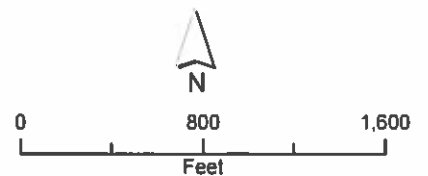
LEGEND

-  Monitoring Well
-  Groundwater Potentiometric Surface Elevation Contour
-  Chestnut Springs Development Site

921.66 Groundwater Elevation in feet above mean sea level

Notes:

1. Groundwater elevations were obtained from the monitoring wells on June 8, 2018.
2. Groundwater elevation contours were interpolated in Surfer 14 using Kriging default settings.



WATER QUALITY ASSESSMENT
CHESTNUT SPRINGS DEVELOPMENT
GENOA CHARTER TOWNSHIP, MICHIGAN

FIGURE

4

UPDATED BY: NLJ DATE: 10/26/2018

2018 GROUNDWATER SURFACE ELEVATION MAP



GENOA CHARTER TOWNSHIP
Application for Site Plan Review

GENOA TOWNSHIP

OCT - 3 2011

RECEIVED

TO THE GENOA TOWNSHIP PLANNING COMMISSION AND TOWNSHIP BOARD:

APPLICANT NAME & ADDRESS: COMMUNITY BIBLE CHURCH - JAMES WICKMAN
If applicant is not the owner, a letter of Authorization from Property Owner is needed.

OWNER'S NAME & ADDRESS: COMMUNITY BIBLE CHURCH

SITE ADDRESS: 7372 GRAND RIVER AVE **PARCEL #(s):** 11-13-300-008 & 11-13-300-055
11-13-300-007

APPLICANT PHONE: (810) 227-2255 **OWNER PHONE:** ()

OWNER EMAIL: WICKMAN3093@YAHOO.COM

LOCATION AND BRIEF DESCRIPTION OF SITE: LOCATED AT 7372 GRAND RIVER
ON THE SOUTH SIDE OF GRAND RIVER BETWEEN EULER RD AND
GENOA BUSINESS PARK

BRIEF STATEMENT OF PROPOSED USE: SITE WILL CONTINUE TO
FUNCTION AS A CHURCH BUT WILL RECEIVE A
BUILDING AND PARKING LOT EXPANSION.

THE FOLLOWING BUILDINGS ARE PROPOSED: A BUILDING EXPANSION
CONSTRUCTED OFF OF THE EXISTING CHURCH BUILDING OF
APPROXIMATELY 18,000 SQFT.

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: James Wickman, Deacon 


ADDRESS: 7372 Grand River Avenue, Brighton, MI 48116

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

1.) BRETT LAVANWAY of BOSS ENGINEERING at BRETT.L@BOSSENGL.CO
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: 10/2/2018
PRINT NAME: James Wickman, Deacon PHONE: (810) 333-3841
ADDRESS: 7372 Grand River Avenue, Brighton, MI 48116



November 6, 2018

Planning Commission
Genoa Township
2911 Dorr Road
Brighton, Michigan 48116

Attention:	Kelly Van Marter, AICP Planning Director and Assistant Township Manager
Subject:	Community Bible Church – Site Plan Review #2
Location:	7372 Grand River Avenue – south side of Grand River, between Euler Road and Genoa Business Park Drive
Zoning:	GCD General Commercial District

Dear Commissioners:

At the Township’s request, we have reviewed the revised site plan submittal from the Community Bible Church (plans most recently dated 10/24/18) for an expansion of the existing church and parking lot, and exterior site improvements (waste receptacle/enclosure, landscaping and lighting).

A. Summary

1. The amount of metal paneling proposed on the building exceeds the limit established by Ordinance.
2. The applicant must provide documentation from the project architect supporting the amount of metal paneling for the Commission’s consideration. Alternatively, the amount of metal paneling proposed must be reduced.
3. The applicant should be prepared to present building material and color samples for the Commission’s consideration.
4. The easement language for the sidewalk should be subject to review and approval by the Township.
5. The Commission should consider the Township Engineer’s comments related to the traffic impacts and proposed mitigation efforts.
6. The amount of parking proposed (132% of the minimum requirement) requires Planning Commission approval based on supporting evidence from the applicant.
7. The Commission may waive/modify the buffer zone requirements along the south and east lot lines due to existing conditions (presence of a wetland and presence of existing trees, respectively).
8. There is a minor inconsistency between the landscape plan and table that must be corrected.

B. Proposal/Process

The project entails an expansion of the existing church building, as well as associated site improvements. In accordance with Section 7.02 of the Township Zoning Ordinance, churches, temples and similar places of worship are permitted by right in the GCD.

Per Section 18.02 an expansion of more than 10% from the original site plan approval for non-residential uses requires full site plan review by the Planning Commission.

As such, the Planning Commission has review and approval authority over the site plan.



Aerial view of site and surroundings (looking north)

C. Site Plan Review

1. Dimensional Requirements. As shown in the table below, the project complies with the applicable dimensional standards. It is important to note that churches are subject to different setback and height standards than a conventional GCD project. As such, the requirements noted are a combination of those found in Sections 7.03 and 11.01.

	Min. Lot Req.		Minimum Yard Setbacks (feet)				Max. Lot Coverage (%)	Max. Height (feet)
	Area (acres)	Width (feet)	Front Yard	Side Yard	Rear Yard	Parking Lot		
Required	1	150	35	28 (E) 26 (W)	37	20 front 10 side/rear	35% building 75% impervious	60
Proposed	9.24	585	35	28.8 (E) 263 (W)	203.8	36 front 10 side/rear	7.8% building 32.7% impervious	41.25

2. Building Materials and Design. The proposed building elevations include a number of materials: brick, 2 types of stone, glass, metal panels, wood and green/live-wall panels.

There is a significant amount of metal paneling proposed. Material calculations provided on the revised plans note more metal paneling (50.2%) than allowed by Section 12.01 (25% maximum).

The Planning Commission has some discretion to allow deviation from Section 12.01; however, this should be based on information provided by the project architect demonstrating that the proposal meets the intent and purpose of the Township’s design standards and is in keeping with the character of the surrounding area.

In our opinion, this aspect of the proposal warrants additional discussion at the upcoming meeting.

The color renderings included with the initial submittal show shades of brown and gray. Color and material samples must be presented for the Commission’s consideration.

- 3. Pedestrian Circulation.** As required by Section 12.05, the plan proposes a 5-foot wide concrete sidewalk along Grand River. A portion of the sidewalk is located on private property, while the remainder is within the public right-of-way. A note indicates that a variable width easement will be provided for the portion on private property. Easement language should be reviewed and approved by the Township prior to recording.

The project also proposes an internal sidewalk system connecting the parking lots to the building, including a connection to the public sidewalk.

- 4. Vehicular Circulation.** Internal parking and drives meet or exceed the dimensional standards of the Zoning Ordinance and the proposal entails the removal of two existing driveways along Grand River. As proposed, the site would have one full turning movement driveway on the west side to/from Grand River, with secondary access provided via Harte Drive to the east.

The Impact Assessment references discussions with the Township Engineer and County Road Commission with respect to potential impacts along Grand River during peak usage. The proposal includes staggered start times for services so as to not conflict with the nearby church to the east, as well as a circulation plan (Sheet C3A). As noted in our initial review, we defer to the Township Engineer for a technical review of the traffic impacts.

- 5. Parking.** The proposed parking has been reviewed for compliance with the standards of Article 14, as follows:

	Required	Proposed	Comments
Parking Spaces Churches (1 space/3 seats or 6' of pews)	201	265	14.02.06 limits parking to 120% of the requirement; the proposal entails 132%, which requires PC approval based on evidence in support of that amount
Barrier Free Spaces	8	8	In compliance
Dimensions Spaces (75 to 90-degree) Drive aisle width (two-way)	9' x 18' 24'	9' x 18' 24'	In compliance
Loading Between 5,000 SF and 60,000 SF	2	0	Churches do not typically require dedicated loading zones for deliveries; the applicant states deliveries will be coordinated to avoid conflicts

- 6. Landscaping.** The landscape plan (Sheet C6) has been reviewed for compliance with the standards of Section 12.02, as noted in the following table:

Standard	Required	Proposed	Notes
Front yard greenbelt	20' width 15 canopy trees	35' width 15 canopy trees	Requirements met
Parking lot	18 canopy trees 1,767 SF landscaped area	19 canopy trees 3,040 SF landscaped area	Requirements met
Buffer zone "B" (south)	20' width 18 canopy trees 18 evergreen trees 70 shrubs 6' wall or 3' berm	Existing wetland and vegetation to remain undisturbed	PC may waive/modify this requirement based on existing conditions
Buffer zone "C" (west)	10' width 18 trees or 72 shrubs (or combination thereof)	10' width 16 trees 8 shrubs	Requirements met
Buffer zone "C" (east)	10' width 22 trees or 86 shrubs (or combination thereof)	10' width Existing trees along Harte Dr. 3 trees 20 shrubs	PC may waive/modify this requirement based on existing conditions
Detention pond	11 trees 110 shrubs	11 trees 110 shrubs	Requirements met

The landscape plan and table are inconsistent in terms of the number of Majestic Beauty (LT) and Arnold (LTA) Tulip trees. The number notation on the plan must be corrected for consistency.

7. **Waste Receptacle.** The proposed waste receptacle has been reviewed for compliance with the standards of Section 12.04, as follows:

	Requirement	Proposed	Comments
Location	Rear yard or non-required side yard	Rear yard	Requirement met
Access	Clear access w/ out damaging buildings/vehicles	Sufficient maneuvering area for refuse removal vehicles	Requirement met
Base design	9' x 15' concrete pad	18' x 20' concrete pad	Requirement met
Enclosure	Must have lid 3-sided enclosure w/ gate Constructed of brick or decorative concrete; 6' height	Lid provided 3 sides w/ gate across 4 th Screen wall – colored CMU 6'-10" height	Requirements met

8. **Exterior Lighting.** Sheet C7 includes the photometric plan and lighting details for this site. The plan includes 17 parking lot light poles, 18 illuminated bollards along the internal walkways, and 6 decorative wall mounted fixtures.

The photometric plan complies with maximum intensities allowed by Ordinance (both on-site and along property lines) and the proposed LED fixtures are downward directed, cut-off and shielded. Maximum pole height of 20 feet and mounting height of wall sconces (12 feet) are also compliant.

9. **Signs.** The site plan identifies a monument sign along Grand River and the building renderings include wall signage; however, details of the monument sign are not provided.

The applicant has stated that details will be provided during the separate sign permit process.

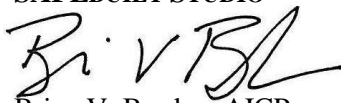
10. **Impact Assessment.** The submittal includes an Impact Assessment dated October 3, 2018.

In summary, the Assessment notes that the project is not anticipated to adversely impact natural features, public services/utilities or surrounding land uses. Supplemental information is provided with respect to traffic generation and operational procedures to help mitigate potential impacts.

Similar to previous comments, we defer to the Township Engineer for a detailed review of traffic impacts and the mitigation efforts proposed.

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

Respectfully,
SAFEBUILT STUDIO



Brian V. Borden, AICP
 Planning Manager



Stephen Hannon, AICP
 Planner



November 7, 2018

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

**Re: Community Bible Church
Site Plan Review #2**

Dear Ms. Van Marter:

As requested, we have performed a second review the site plan documents from Boss Engineering, last dated October 24, 2018, for the referenced project. The approximately 9-acre site is located at 7372 Grand River Avenue and is proposed for a 18,000-square-foot expansion to the existing 13,000-square-foot church. Tetra Tech has reviewed the site plan documents and offers the following comments:

WATER SERVICE

1. Rather than live tapping the existing water main on Harte Drive twice, the water main should be shut off at the existing valve and the main should be cut and fitted with a tee and cutting in sleeve at connection locations. To eliminate the proposed water main running parallel to the existing water main on Hart Drive, tees can be installed near WTV 02 and WTH3, and for the service connection. This can be done in a manner similar to what is shown in the attached drawing.
2. The water main improvements will be public infrastructure and will require construction plan review and MDEQ permitting through MHOG. The petitioner will be required to provide easement documentation for the proposed water main prior to MDEQ permitting. After site plan approval plans should be submitted electronically to planreview@mhog.org for construction plan review and permitting.

TRAFFIC

1. In our previous letter Tetra Tech reviewed and provided rationale for the approval of the traffic impact assessment. We currently have no further comments regarding the traffic impact assessment.

We recommend the petitioner address the above comments as part of the site plan review and approval process.

Please call if you have any questions.

Sincerely,

A blue ink signature of Gary J. Markstrom, written in a cursive style.

Gary J. Markstrom, P.E.
Vice President

A blue ink signature of Shelby Scherdt, written in a cursive style.

Shelby Scherdt
Project Engineer

Attachment

Tetra Tech

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



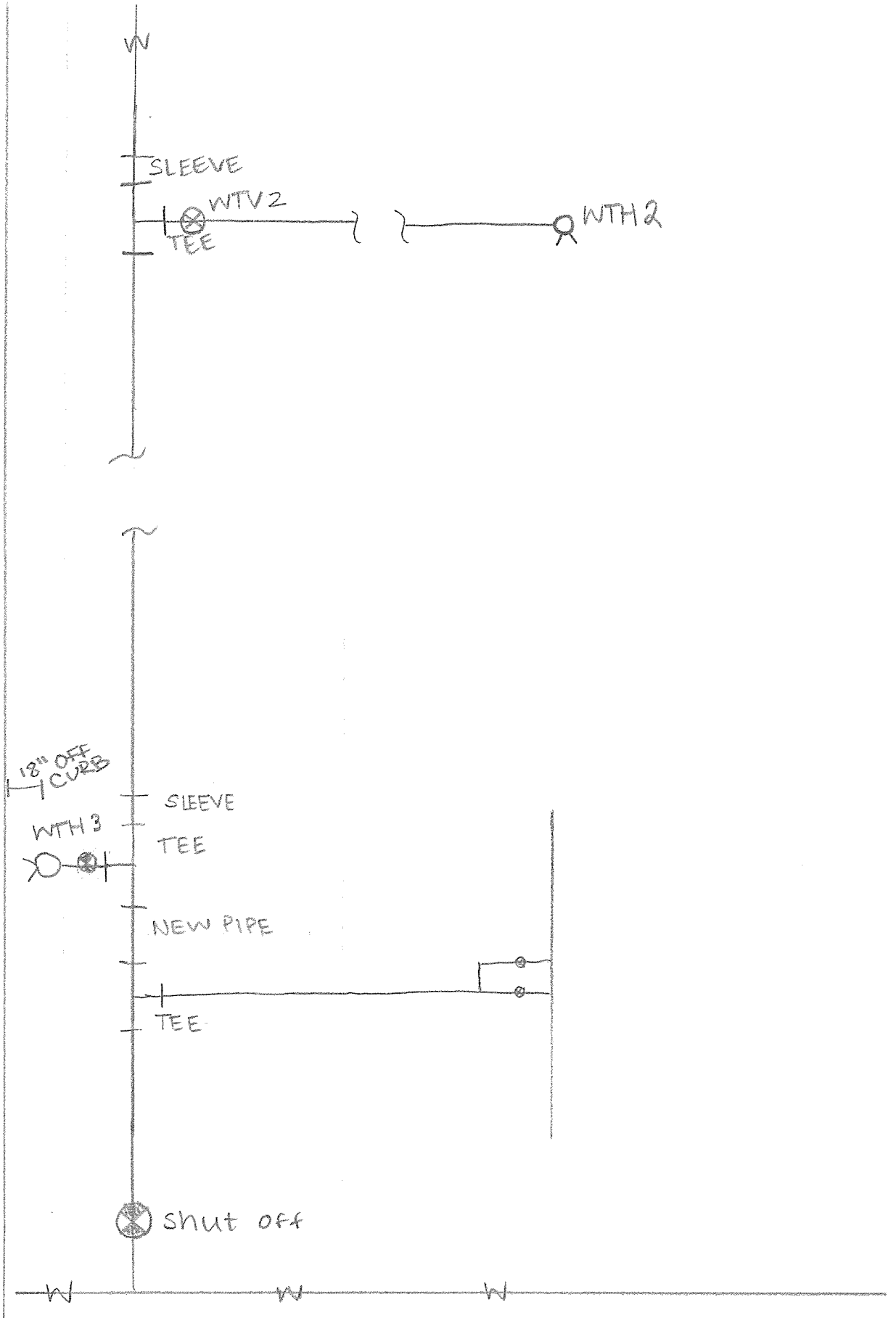
TETRA TECH MPS

JOB COMMUNITY BIBLE CHURCH SHEET NO. _____

SUBJECT _____ FILE NO. _____

COMPUTED BY _____ DATE 11/6/2018 CHK. BY _____ DATE _____

HARTE DRIVE





BRIGHTON AREA FIRE AUTHORITY

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

November 8, 2018

Kelly VanMarter
Genoa Township
2911 Dorr Road
Brighton, MI 48116

RE: Community Bible Church - Addition
7372 Grand River Ave.
Genoa Twp., MI

Dear Kelly:

The Brighton Area Fire Authority has reviewed the above mentioned site plan. The plans were received for review on October 29, 2018 and the drawings are dated October 24, 2018. The project is based on an existing Assembly Occupancy (A-3 Church) that will undergo significant site alteration and expansion to include a new 31,223 square foot addition.

The plan review is based on the requirements of the International Fire Code (IFC) 2018 edition.

1. The fire department connection (FDC) shall be relocated to the front (Grand River) side of the building and be located within 100' of a fire hydrant. **(A new fire hydrant has been added to Harte Dr. to accomplish the 100' spacing. After speaking with the engineer, we agreed to leave the FDC in the proposed location. This will overall improve hydrant spacing and coverage for the structure. The FDC is installed along a roadway therefore accessible for use.)**
IFC 912.2
2. The building addition is noted to be provided with an automatic sprinkler system in accordance with NFPA 13, *Standard for the Installation of Automatic Sprinkler Systems*. I recommend the 6" underground fire protection lead be increased to 8" to accommodate the future additions and potential suppression of the existing portion of the structure. **(The underground fire protection line has been increased to an 8" for future expansion potential.)**
IFC 903
3. To improve hydrant spacing to be within range and coverage for fire flow of the structure (including future additions) an additional hydrant shall be added to the landscape corner near CB04. The existing hydrant locations are acceptable if the new hydrant is added. If not locations will need to be re-worked and an additional hydrant likely added along Harte Dr. It is recommended that the 8" water main be looped through the site. **(Hydrant WTH02 was relocated to the west approximately 75' to a landscape island. A new hydrant WTH03 has been added along Harte Dr. This resolves spacing and fire flow concerns for the facility.)**
4. It is noted that the addition will be fire sprinklered, however, it is unclear if the existing building will be. If it is not, proper fire separation or fire suppression shall be provided. It is my recommendation to fire sprinkler the entire facility to increase flexibility of the space. **(Clarification was provided. The existing building will be separated from the new addition by an appropriate fire separation rather than providing sprinklers throughout.)**



November 8, 2018

Page 2

Community Bible Church - Addition

7372 Grand River Ave.

Site Plan Review

5. The building shall include the address on the street side and 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. The address is noted to be compliant by Note 5 on Sheet C3. Show the location of the address on the structure in its proposed location. **(The address is now shown on the architectural north elevation.)**

IFC 505.1

6. The building height measured from the lowest elevation of emergency vehicle access exceeds 30-feet. At 30-feet, at least one entire side of the addition shall be provided with an aerial apparatus access road located between 15 and 30-feet from the exterior wall. This access would ideally be placed at the rear between Lot "C" and the structure. **(The aerial apparatus access requirement has been thoroughly discussed with the engineer. Revisions are required to the alternative access. Just following submittal of this set contact was made with the engineer requiring width revision of this access. SHown is a 12' wide HD access with mountable curb. The width must be a minimum 20' with mountable curb. Further discussion is necessary to accomplish the for the access feature.)**

IFC D105

7. A minimum vertical clearance of 13½ feet shall be maintained throughout all apparatus access roads. Multiple trees on Landscape Sheet C6 indicate an intrusion to the clear width and clear height. These tree locations, species or access road widths shall be revised to ensure that the access clearances are maintained. **(This has been noted and landscaping species revised.)**

IFC 503.2.1

IFC 503.2.2

IFC 503.4

8. The location of a key box (Knox Box) shall be indicated on future submittals. The Knox box shall be located adjacent to the front door of the structure. (The Knox box is noted on the drawing Sheet C3. **(The location of the Knox Box is shown on the architectural north elevation adjacent to the main entrance.)**

IFC 506.1

Additional comments will be given during the building plan review process (specific to the building plans and occupancy). The applicant is reminded that the fire authority must review the fire protection systems submittals (sprinkler & alarm) prior to permit issuance by the Building Department and that the authority will also review the building plans for life safety requirements in conjunction with the Building Department.

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

Cordially,

Rick Boisvert, CFPS
Fire Marshal

Livingston County Road Commission

3535 Grand Oaks Drive • Howell, Michigan 48843-8575
Telephone: (517) 546-4250 • Facsimile: (517) 546-9628
Internet Address: www.livingstonroads.org

October 30, 2018

Scott Tousignant, P.E.
Boss Engineering
3121 E. Grand River Ave
Howell, MI 48843

Re: Community Bible Church - Addition, Genoa Township, Section 13
LCRC# C-18-15

Dear Mr. Tousignant:

I have completed the review of the plans, dated October 24, 2018, for the above-referenced project and offer the following comments.

1. The selected contractor must submit a certificate of insurance to the LCRC with the following language: "The Board of Livingston County Road Commissioners, the Livingston County Road Commission, and their officers, agents, and employees are listed additional insured parties with respects to General Liability." This item is not needed for plan approval but will be needed prior to the issuance of a permit.
2. The LCRC requires a 3 lane commercial approach to consist of 2 outbound lanes at widths of 12 feet each and 1 inbound lane at a width of 15 feet. Therefore, the width of the paved approach should be 39 feet not including the concrete curb.

Please submit two (2) copies of revised plans for review. If you have any questions, please do not hesitate to contact me.

Sincerely,



Kim Hiller, P.E.
Utilities and Permits Engineer

Cc: File
Kelly VanMarter, Genoa Township (via email)
Ken Recker, Livingston County Drain Commissioner's office (via email)

**IMPACT ASSESSMENT
FOR
SITE PLAN PETITION
"COMMUNITY BIBLE CHURCH"
GENOA TOWNSHIP, LIVINGSTON COUNTY
MICHIGAN**

Prepared for:

**COMMUNITY BIBLE CHURCH
7372 GRAND RIVER
BRIGHTON, MICHIGAN 48114
(810) 227-2255**

Prepared by:

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

October 3rd , 2018

14-047 EIA

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 :
Community Bible Church
Client
7372 Grand River
Brighton, MI 48114
(810) 227-2255

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 9.24 acre site is located on the south side of Grand River immediately west of Harte Dr and across from Euler Rd. The subject property is currently the Community Bible Church Facility. There is the existing Church building, gravel parking lot, detention basin and house which is currently used for storage and the occasional class or meeting. The south end of the property contains a natural area with shrub/scrub vegetation and a wetland. There is an established tree row along Harte Dr just off of the subject property.

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.

Resources utilized to study the natural features of the site included a on-site visit, aerial photos from Google Earth, a web soil survey prepared by the USDA, Wetlands Inventory Maps prepared by the MDEQ as well as resources prepared by the Huron River Watershed Council and other Livingston County Natural resources agencies.

The front (north) portion of the site is the existing Church facility, while the south contains the parking lot and natural area. The developed site slopes generally to the south toward the wetland. The soils on site consist of loam, loamy sand and muck. The soils shown on the USDA map are consistent with the field assessment of the upland and low land areas found on site. The land cover identified in the field is also consistent with the soils which consist of impervious surface, compacted lawn area, wetland and wooded shrub scrub areas. Existing vegetation specifically tree species found on-site that would be removed include Red Oak, Cottonwood, Basswood, Maple, Cherry, Cedar, and Pine. Given that the site has already been developed tree removal and natural features disturbance will be minimal.

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.

Topography on the site ranges from a low of 961.81 at the wetland edge to a high of 992.54 at the north central portion of the property near Grand River Road. The property is undulating, but largely drains from the north to the south toward a wetland system that extends off the property.

The land cover found in the field consisted of three different types; impervious surface (parking lot, building), wetland, wooded area including shrub scrub as well as compacted lawn areas.

The proposed stormwater design will utilize catch basins at low areas onsite and pipe stormwater to a detention basin located in the southeast corner of the site then be discharged into the existing wetland. In general existing drainage patterns on-site are being followed as closely as possible with the proposed stormwater system.

Soil erosion measures will be utilized throughout the construction process to reduce the risk of erosion and sedimentation. This will be accomplished through the use of silt sacks placed in catch basins, silt fence installed along the perimeter of the property, and weekly inspections from a certified stormwater operator.

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 Community Bible Church. The use of the site conforms with development patterns of the surrounding area and will feature an expansion of the existing facility.

In general the site will see an increase in use due to the expansion of the facility but, that is anticipated to occur over the next few years. Increased use would be during Sunday's service hours and perhaps occasional nights during the week after 5pm for various church related functions or activities. The increase in use will be minimal in that the site is already a functioning Church and this expansion is more of an overdue necessity to properly provide an adequate parking lot and worship area with associated classrooms, storage, and clerical space. Currently, Sunday school services are unable to be held at the church due to lack of space so a shuttle transfers children and young adults across the road to an offsite building not associated with the church to provide their education. With an expansion of their own facility shuttling elsewhere would no longer be required by keeping all Church related education and activities on-site instead of relying on local nearby facilities. Because the site is located in a commercial area increases in light or noise should not cause any issues with adjacent property owners.

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.

With the expansion of the existing facility impacts on public facilities and services are anticipated to be minimal. An increase in attendance and membership with the church is expected but again, the increase amount is anticipated to increase gradually over next few years.

Local school districts won't be affected by the addition, and the only impact to emergency services such as police protection and fire is the larger building footprint and perhaps some more patrons. Both of those impacts will be minimal and of little concern to each department.

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 existing Church is currently served by M.H.O.G public water and Genoa Township public sanitary sewer. With the building expansion comes the requirement to purchase additional REU's for the potential increased use of municipal utilities. Due to some special assessments on the property and coupled with REU's they had already purchased previously the church will need to purchase an additional 2 water REU's and 4 sanitary sewer REU's. The fees associated with the purchase cover the potential increase of usage or impact the expansion will have on public utilities.

Given the use of the building and peak usage times being Sunday mornings the impact on sanitary and water is anticipated to be minimal.

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.

Initial discussions with the Livingston County Road Commission and the Genoa Township Consulting Engineer produced a primary concern of traffic potentially backing up onto Grand River when patrons are entering the site. We have provided an on-site traffic circulation plan (Sheet 3A in plan set) specifically to help prevent this issue. Parking spaces located near the entrance off of Grand River will be designated for Church staff and volunteers only on Sunday's occupying spaces that otherwise could cause traffic backups. Signage on-site will be utilized as well as volunteer parking lot aides if needed to help direct traffic and prevent backups.

A breakdown of anticipated traffic based upon capacity of the new expansion is provided below:

Existing Seat Count- 375

Proposed Seat Count- 601

According to a parking study performed by Jeffery Parker Associates it was determined that for every 2.4 seats there is 1 associated car. Therefore, we apply that factor to both the existing and proposed seat counts:

Existing Seats: $375 / 2.4 = 156$ vehicles

Proposed Seats: $601 / 2.4 = 250$ vehicles

From information provided from the Church on member addresses we also know that forty two percent (42%) of members travel from the east and fifty eight percent (58%) travel from the west. Turning movements entering and exiting the site can then be broken down as follows:

Existing Turning Movements:

-Entering the site:

-156 vehicles x 42% = 65 vehicles turning left into the site

-156 vehicles x 58%=91 vehicles turning right into the site

-Exiting the site:

-156 vehicles x 42% = 65 vehicles turning right out of the site

-156 vehicles x 58%= 91 vehicles turning left out of the site

Proposed Turning Movements:

-Entering the site:

-250 vehicles x 42% = 105 vehicles turning left into the site

-250 vehicles x 58% = 145 vehicles turning right into the site

-Exiting the site:

-250 vehicles x 42%= 105 vehicles turning right out of the site

-250 vehicles x 58% = 145 vehicles turning left out of the site

As one can see the turning movements entering and exiting the site do increase but only by approximately 50 vehicles at peak capacity. During the typical Sunday it will be considerably less.

Community Bible Church currently has two (2) services on Sunday's, one at 9:30am and one at 11am. 2|42 Church located east of the proposed site has three (3) services on Sundays starting at 9am, 10:30am, and 12pm. The staggering of service times between the two churches also helps to alleviate some of the traffic on Grand River during those time periods.

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.

A traffic study is not required for this site.

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

An easement for access to Harte Dr will need to be obtained from owner of property to the east and a permit will be required to discharge into a MDEQ regulated wetland.

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

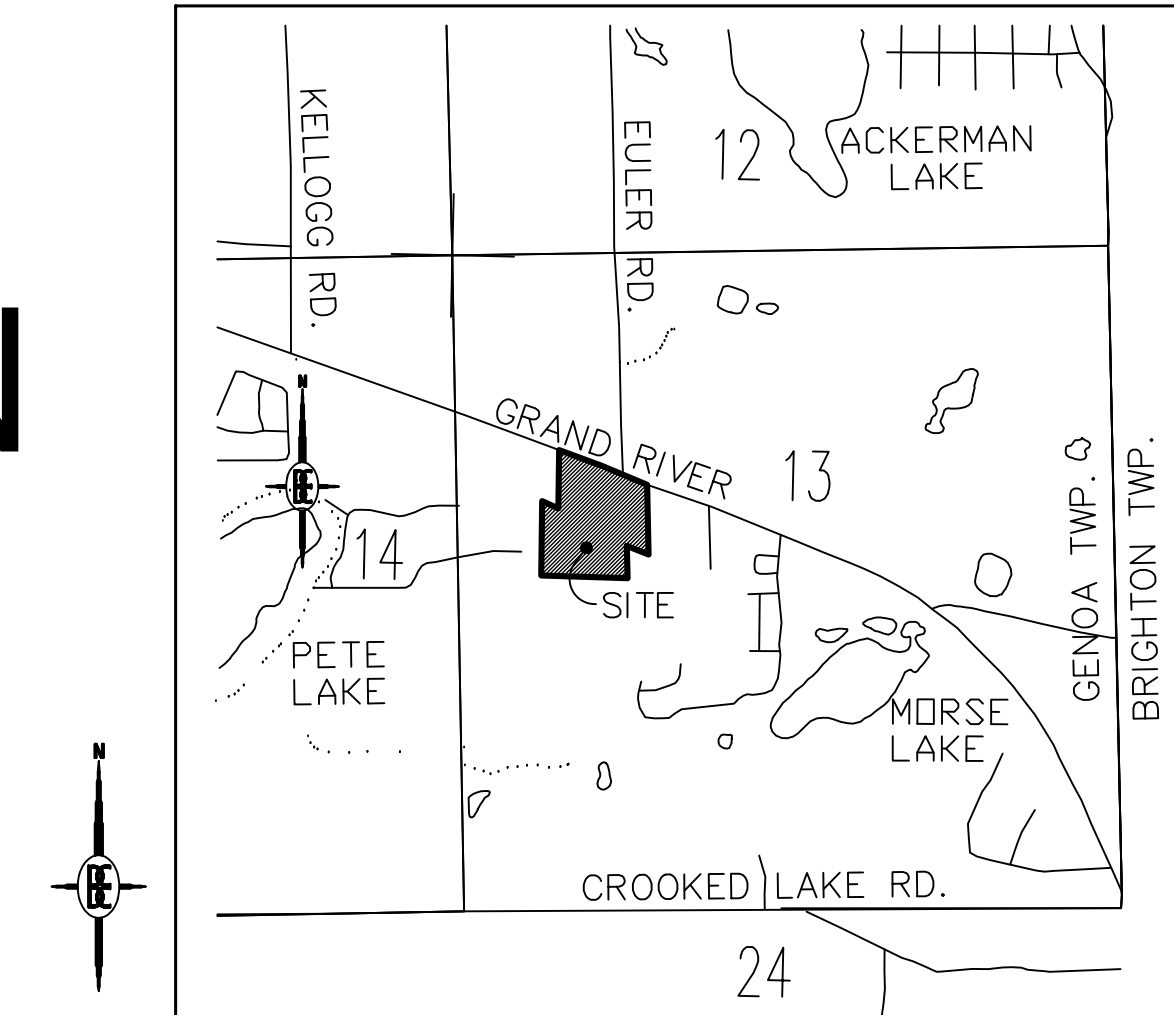
SITE PLAN FOR COMMUNITY BIBLE CHURCH EXPANSION

PART OF NORTH 1/4 CORNER, SECTION 13, T2N-R5E GENOA TOWNSHIP, LIVINGSTON COUNTY, MI

PROPERTY DESCRIPTION:

PARCEL DESCRIPTION (AS SURVEYED) (4711-13-300-055): Part of the Northwest 1/4 of Section 13, T2N-R5E, Genoa Township, Livingston County, Michigan, more particularly described as follows: Commencing at the West 1/4 Corner of Section 13, thence along the East-West 1/4 line of Section 13, as previously surveyed and monumented, S 88°51'46" E, 1341.91 feet, to the POINT OF BEGINNING of the Parcel to be described, said point also being the Southwest Corner of the Southeast 1/4 of the Northwest 1/4 of Section 13, as monumented; thence N 00°39'48" E, 460.60 feet (recorded as N 00°41'35" E, 461.41 feet); thence S 65°23'01" E, 110.15 feet (recorded as 110.00 feet); thence N 00°50'02" E, 363.14 feet (recorded as N 00°34'55" W, 362.88 feet); thence along the Southerly Right of Way line of Grand River Avenue (50 foot wide 1/2 Right of Way), on the following two (2) courses: 1) S 69°36'24" E, 275.61 feet (recorded as S 71°02'45" E, 272.00 feet and S 71°06'30" E, 3.42 feet); 2) S 67°16'23" E, 312.61 feet (recorded as S 68°46'30" E, 312.69 feet), (said point bearing the following two (2) courses, from the Center of Section 13: 1) along the North-South 1/4 line of Section 13, as previously surveyed and monumented, N 00°04'53" E, 315.11 feet (recorded as N 01°03'38" W, 314.82 feet); 2) along the Southerly Right of Way line of Grand River Avenue (50 foot wide 1/2 Right of Way), N 67°16'23" W, 748.03 feet (recorded as N 68°46'30" W, 749.36 feet); thence S 00°04'47" W, 430.35 feet (recorded as S 01°23'01" E, 430.25 feet); thence N 66°58'10" W (recorded as N 68°25'58" W), 145.05 feet; thence S 00°07'44" W (recorded as S 01°20'04" E), 206.68 feet; thence N 87°55'48" W (recorded as N 88°46'13" W), 523.39 feet, to the POINT OF BEGINNING, containing 9.17 acres, more or less, and subject to the rights of the public over the existing Grand River Avenue. Also subject to any other easements or restrictions of record.

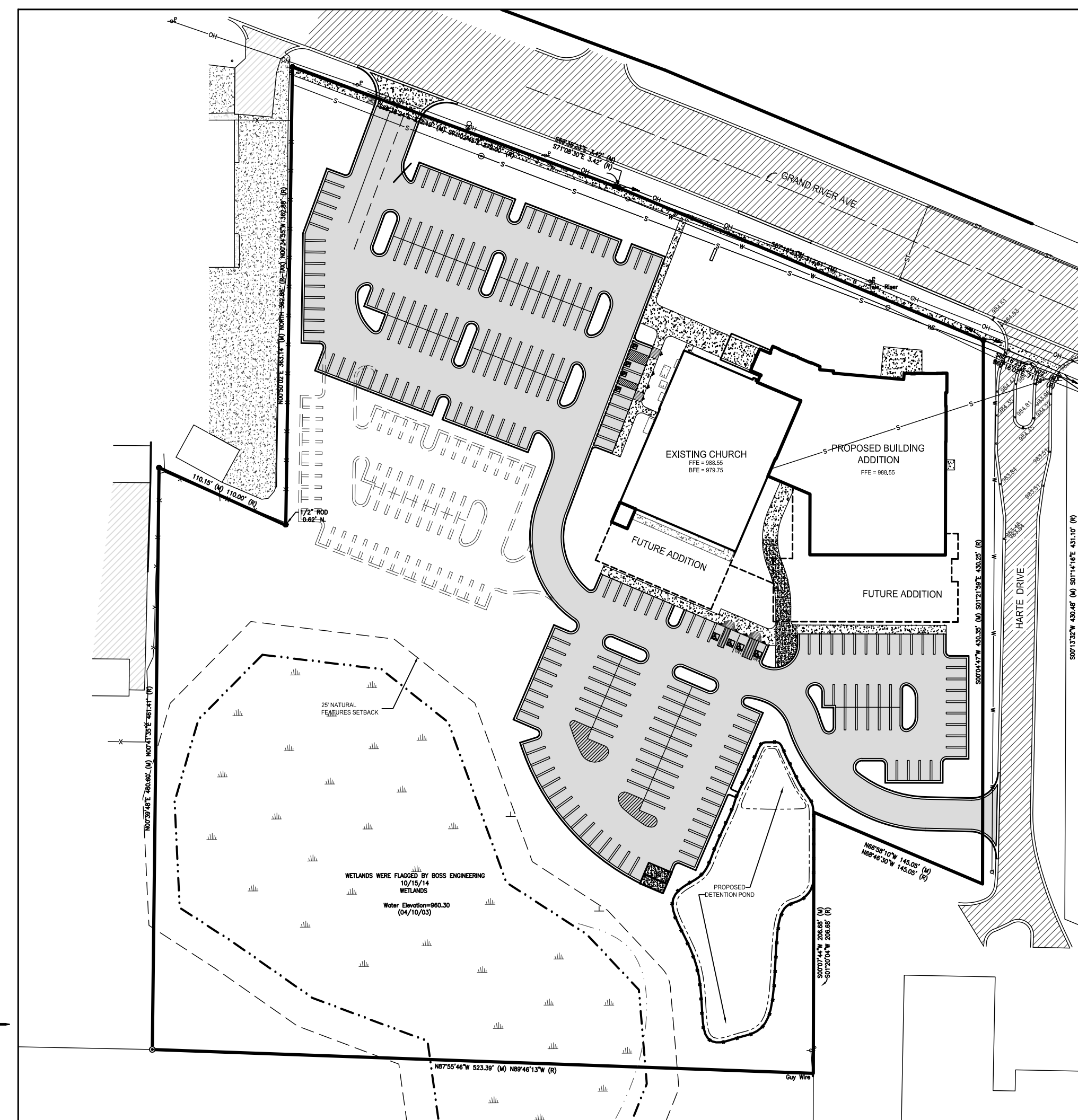
Description containing parcels: 4711-13-300-007, 4711-13-300-007, & 4711-13-300-035



LOCATION MAP
NO SCALE

CONSTRUCTION NOTES

- THE CONTRACTOR SHALL COMPLY WITH THE FOLLOWING NOTES AND ANY WORK INVOLVED SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
1. THE CONTRACTOR SHALL HOLD HARMLESS THE DESIGN PROFESSIONAL, MUNICIPALITY, COUNTY, STATE AND ALL OF ITS SUB CONSULTANTS, PUBLIC AND PRIVATE UTILITY COMPANIES, AND LANDOWNERS FOR DAMAGES TO INDIVIDUALS AND PROPERTY, REAL OR OTHERWISE, DUE TO THE OPERATIONS OF THE CONTRACTOR AND/OR THEIR SUBCONTRACTORS.
 2. DO NOT SCALE THESE DRAWINGS AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
 3. A GRADING PERMIT FOR SOIL EROSION-SEDIMENTATION CONTROL SHALL BE OBTAINED FROM THE GOVERNING AGENCY PRIOR TO THE START OF CONSTRUCTION.
 4. IF DUST PROBLEM OCCURS DURING CONSTRUCTION, CONTROL WILL BE PROVIDED BY AN APPLICATION OF WATER, EITHER BY SPRINKLER OR TANK TRUCK.
 5. ALL CONSTRUCTION AND MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL MUNICIPAL STANDARDS AND SPECIFICATIONS.
 6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL REQUIRED TOWNSHIP, COUNTY, AND STATE OF MICHIGAN PERMITS.
 7. PAVED SURFACES, WALKWAYS, SIGNS, LIGHTING AND OTHER STRUCTURES SHALL BE MAINTAINED IN A SAFE, ATTRACTIVE CONDITION AS ORIGINALLY DESIGNED AND CONSTRUCTED.
 8. ALL BARRIER-FREE FEATURES SHALL BE CONSTRUCTED TO MEET ALL LOCAL, STATE AND A.D.A. REQUIREMENTS.
 9. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE DESIGN ENGINEER PRIOR TO THE START OF CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS, EASEMENTS AND DIMENSIONS SHOWN HEREON BEFORE BEGINNING CONSTRUCTION.
 10. THE CONTRACTOR SHALL CONTACT ALL OWNERS OF EASEMENTS, UTILITIES AND RIGHTS-OF-WAY, PUBLIC OR PRIVATE, PRIOR TO THE START OF CONSTRUCTION.
 11. THE CONTRACTOR SHALL COORDINATE WITH ALL OWNERS TO DETERMINE THE LOCATION OF EXISTING LANDSCAPING, IRRIGATION LINES & PRIVATE UTILITY LINES. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING LANDSCAPING, IRRIGATION LINES, AND PRIVATE UTILITY LINES.
 12. THE CONTRACTOR SHALL REMOVE ALL TRASH AND DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT.
 13. THE CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
 14. THE CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.
 15. THE CONTRACTOR SHALL CALL MISS DIG A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
 16. ALL EXCAVATION UNDER OR WITHIN 3 FEET OF PUBLIC PAVEMENT, EXISTING OR PROPOSED SHALL BE BACKFILLED AND COMPACTED WITH SAND (MDOT CLASS II).
 17. ALL PAVEMENT REPLACEMENT AND OTHER WORKS COVERED BY THESE PLANS SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE TOWNSHIP, INCLUDING THE LATEST MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
 18. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES.
 19. NO ADDITIONAL COMPENSATION WILL BE PAID TO THE CONTRACTOR FOR ANY DELAY OR INCONVENIENCE DUE TO THE MATERIAL SHORTAGES OR RESPONSIBLE DELAYS DUE TO THE OPERATIONS OF SUCH OTHER PARTIES DOING WORK INDICATED OR SHOWN ON THE PLANS OR IN THE SPECIFICATION OR FOR ANY REASONABLE DELAYS IN CONSTRUCTION DUE TO THE ENCOUNTERING OR EXISTING UTILITIES THAT MAY OR MAY NOT BE SHOWN ON THE PLANS.
 20. DURING THE CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL NOT PERFORM WORK BY PRIVATE AGREEMENT WITH PROPERTY OWNERS ADJACENT TO THE PROJECT.
 21. IF WORK EXTENDS BEYOND NOVEMBER 15, NO COMPENSATION WILL BE DUE TO THE CONTRACTOR FOR ANY WINTER PROTECTION MEASURES THAT MAY BE REQUIRED BY THE ENGINEER.
 22. NO TREES ARE TO BE REMOVED UNTIL MARKED IN THE FIELD BY THE ENGINEER.
 23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO THE PROPERTY BEYOND THE CONSTRUCTION LIMITS INCLUDING BUT NOT LIMITED TO EXISTING FENCE, LAWN, TREES AND SHRUBBERY.
 24. ALL AREAS DISTURBED BY THE CONTRACTOR BEYOND THE NORMAL CONSTRUCTION LIMITS OF THE PROJECT SHALL BE SODDED OR SEEDS AS SPECIFIED OR DIRECTED BY THE ENGINEER.
 25. ALL ROOTS, STUMPS AND OTHER OBJECTIONABLE MATERIALS SHALL BE REMOVED AND THE HOLE BACKFILLED WITH SUITABLE MATERIAL. WHERE GRADE CORRECTION IS REQUIRED, THE SUBGRADE SHALL BE CUT TO CONFORM TO THE CROSS-SECTION AS SHOWN IN THE PLANS.
 26. TRAFFIC SHALL BE MAINTAINED DURING CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL SIGNS AND TRAFFIC CONTROL DEVICES. FLAG PERSONS SHALL BE PROVIDED BY THE CONTRACTOR IF DETERMINED NECESSARY BY THE ENGINEER. ALL SIGNS SHALL CONFORM TO THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES AT NO COST TO THE TOWNSHIP. NO WORK SHALL BE DONE UNLESS THE APPROPRIATE TRAFFIC CONTROL DEVICES ARE IN PLACE.
 27. ALL DEMOLISHED MATERIALS AND SOIL SPOILS SHALL BE REMOVED FROM THE SITE AT NO ADDITIONAL COST, AND DISPOSED OF IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS.
 28. AFTER REMOVAL OF TOPSOIL, THE SUBGRADE SHALL BE COMPACTED TO 95% OF ITS UNIT WEIGHT.
 29. ALL GRADING IN THE PLANS SHALL BE DONE AS PART OF THIS CONTRACT. ALL DELETERIOUS MATERIAL SHALL BE REMOVED FROM THE SUBGRADE PRIOR TO COMPACTING.
 30. NO SEEDING SHALL BE DONE AFTER OCTOBER 15 WITHOUT APPROVAL OF THE ENGINEER.
 31. ANY EXISTING APPURTENANCES SUCH AS MANHOLES, GATE VALVES, ETC. SHALL BE ADJUSTED TO THE PROPOSED GRADE AND SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT.
 32. SOIL EROSION MEASURES SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL VEGETATION HAS BEEN RE-ESTABLISHED.
 33. ALL PERMANENT SIGNS AND PAVEMENT MARKINGS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST REVISION OF THE MICHIGAN MUTCD MANUAL AND SHALL BE INCIDENTAL TO THE CONTRACT.



OVERALL SITE MAP
NO SCALE

CONTRACTOR:

CONTRACTING RESOURCES
8273 GRAND RIVER, #150
BRIGHTON, MI 48114
CONTACT: JOHN JICKLING
PHONE: 810-229-4320

ARCHITECT:

JEFFREY PARKER ARCHITECTS
855 28TH STREET SE
GRADN RAPIDS, MI 49508
CONTACT: JEFFREY PARKER
PHONE: 616-241-0090



COMMUNITY BIBLE CHURCH EXPANSION

PREPARED FOR:

COMMUNITY BIBLE CHURCH
7372 GRAND RIVER AVENUE
BRIGHTON, MI 48114
CONTACT: JAMES WICKMAN
PHONE: 810-227-2255

PREPARED BY:

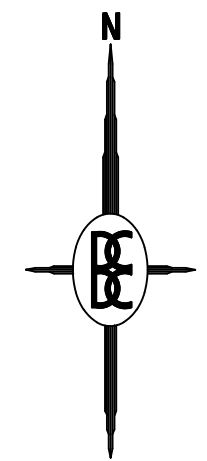
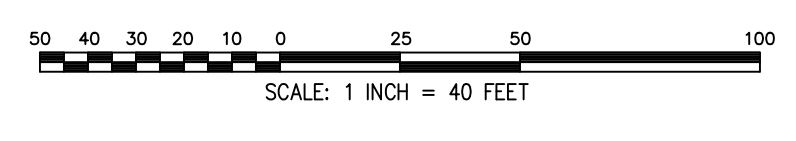
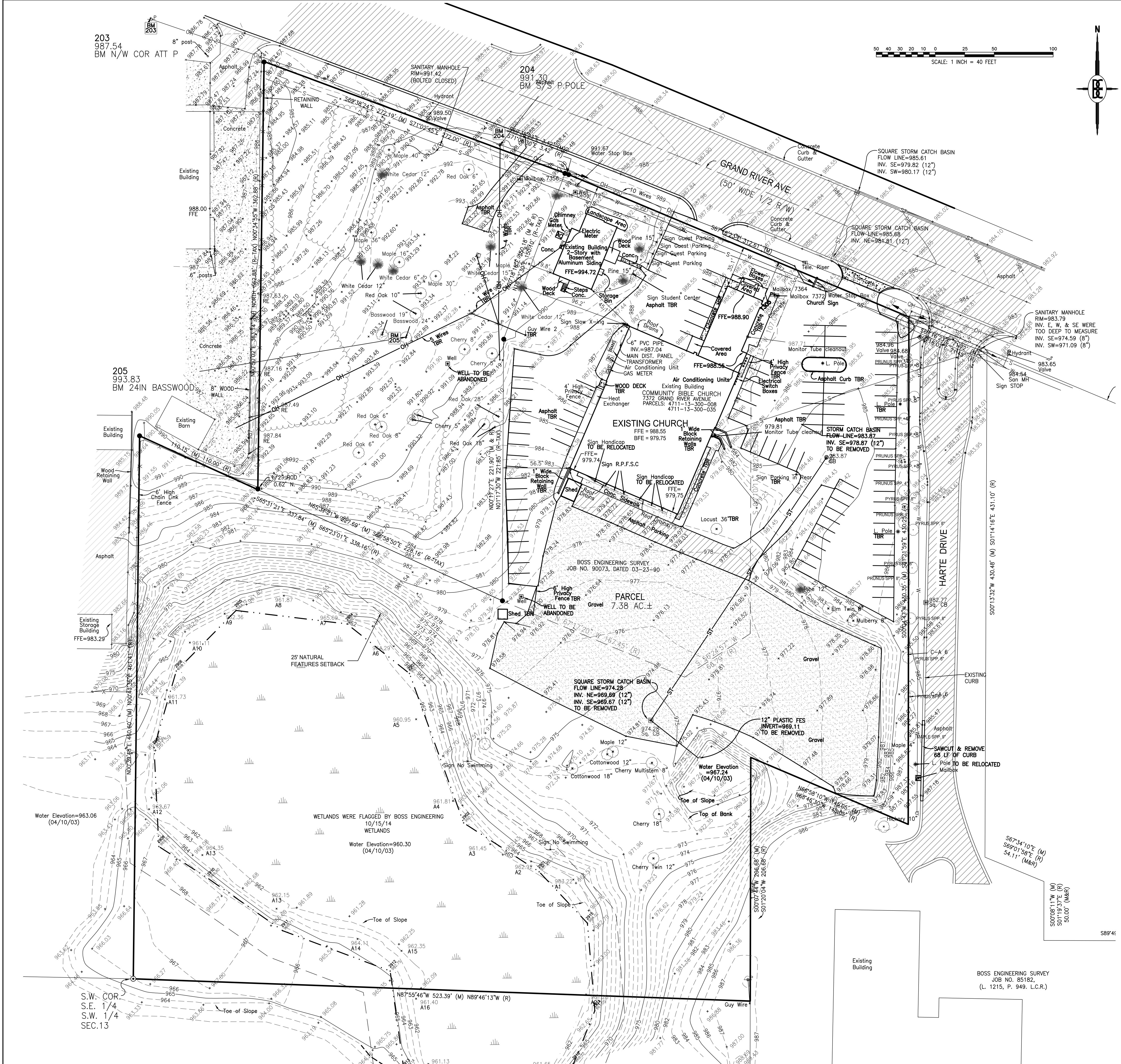
BEBOSS
Engineering
Engineers Surveyors Planners Landscape Architects
3121 E. GRAND RIVER AVE.
HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

INDEMNIFICATION STATEMENT

THE CONTRACTOR SHALL HOLD HARMLESS THE DESIGN PROFESSIONAL, MUNICIPALITY, COUNTY, STATE AND ALL OF ITS SUB CONSULTANTS, PUBLIC AND PRIVATE UTILITY COMPANIES, AND LANDOWNERS FOR DAMAGES TO INDIVIDUALS AND PROPERTY, REAL OR OTHERWISE, DUE TO THE OPERATIONS OF THE CONTRACTOR AND/OR THEIR SUBCONTRACTORS.

SHEET INDEX	
SHEET NO.	DESCRIPTION
C1	COVER SHEET
C2	EXISTING CONDITIONS & DEMOLITION PLAN
C3	SITE PLAN
C3A	ON-SITE TRAFFIC CIRCULATION PLAN
C4	GRADING PLAN
C4A	SOIL EROSION CONTROL PLAN
C5	UTILITY PLAN
C6	LANDSCAPE PLAN
C7	PHOTOMETRIC PLAN
C8	CONSTRUCTION DETAILS
C9	DETENTION BASIN DETAILS
C10	DRAINAGE STUDY
C11	WATER MAIN STANDARD DETAILS
DRAWINGS PREPARED BY ARCHITECT	
A1-0	FLOOR PLAN
A1-1	LOWER FLOOR PLAN
A3-0	EXTERIOR ELEVATIONS

		C1
1	ST	PER TOWNSHIP REVIEW
	NO	BY CK REVISION
10-24-18	DATE	ISSUE DATE: 10/2/18
		JOB NO. 14-047-1



SITE AERIAL

LEGEND

- 900 CONTOUR
- 922.08 SPOT ELEVATION
- WETLAND SYMBOL
- POWER POLE
- HYDRANT
- GATE VALVE
- SANITARY SEWER
- WATERMAIN
- STORM SEWER
- GAS MAIN
- ELECTRIC
- TELEPHONE
- OVERHEAD WIRES
- FENCE
- SIGN
- SQUARE STORM CATCH BASIN
- BEEHIVE STORM CATCH BASIN
- SANITARY MANHOLE
- POST
- BENCHMARK
- FINISHED FLOOR ELEVATION
- DECIDUOUS TREE
- CONIFEROUS TREE
- MAILBOX
- GAS METER
- TELEPHONE RISER
- ELECTRIC METER
- AIR CONDITIONING UNIT

SOILS INFORMATION:
 MIAMI LOAM (MoB), 2% TO 6% SLOPES
 -EASTERN EDGE OF SITE ALONG HARTE DRIVE
 MIAMI LOAM (MoC), 6% TO 12% SLOPES
 -NORTHERN AND WESTERN EDGES OF SITE
 MIAMI LOAM (MoD), 12% TO 18% SLOPES
 -ACCOUNTS FOR ENTIRE CENTRAL PORTION OF SITE
 CARLISLE MUCK (Cc)
 -WETLAND AREA IN SOUTHWEST CORNER OF SITE

BENCHMARKS:
 BENCHMARKS ARE BASED OFF CENOA TOWNSHIP BENCH MARKS BY MCNAMEE, PORTER & SEELEY (#197 & #198) (NGVD29 DATUM)
 BENCHMARK #203
 NW COR. TELEPHONE PAD, S/S GRAND RIVER AVE. BETWEEN HANDI-RENTAL AND SMEDE & SON. ELEVATION = 987.54
 BENCHMARK #204
 BOSS TAG/NAIL SET S/S P. POLE IN FRONT OF HOUSE #7356. ELEVATION = 991.30
 BENCHMARK #205
 BOSS TAG/NAIL SET NW/S 24" BASSWOOD IN BETWEEN HOUSE #7356 & EXISTING GARAGE. ELEVATION = 993.83
 BENCHMARK #207
 BOSS TAG/NAIL SET NW/S P. POLE IN GRAVEL PARKING LOT, 170'± SOUTH OF CHURCH BUILDING. ELEVATION = 977.33

BEFORE YOU DIG
 CALL MISS DIG
 1-800-487-3874

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

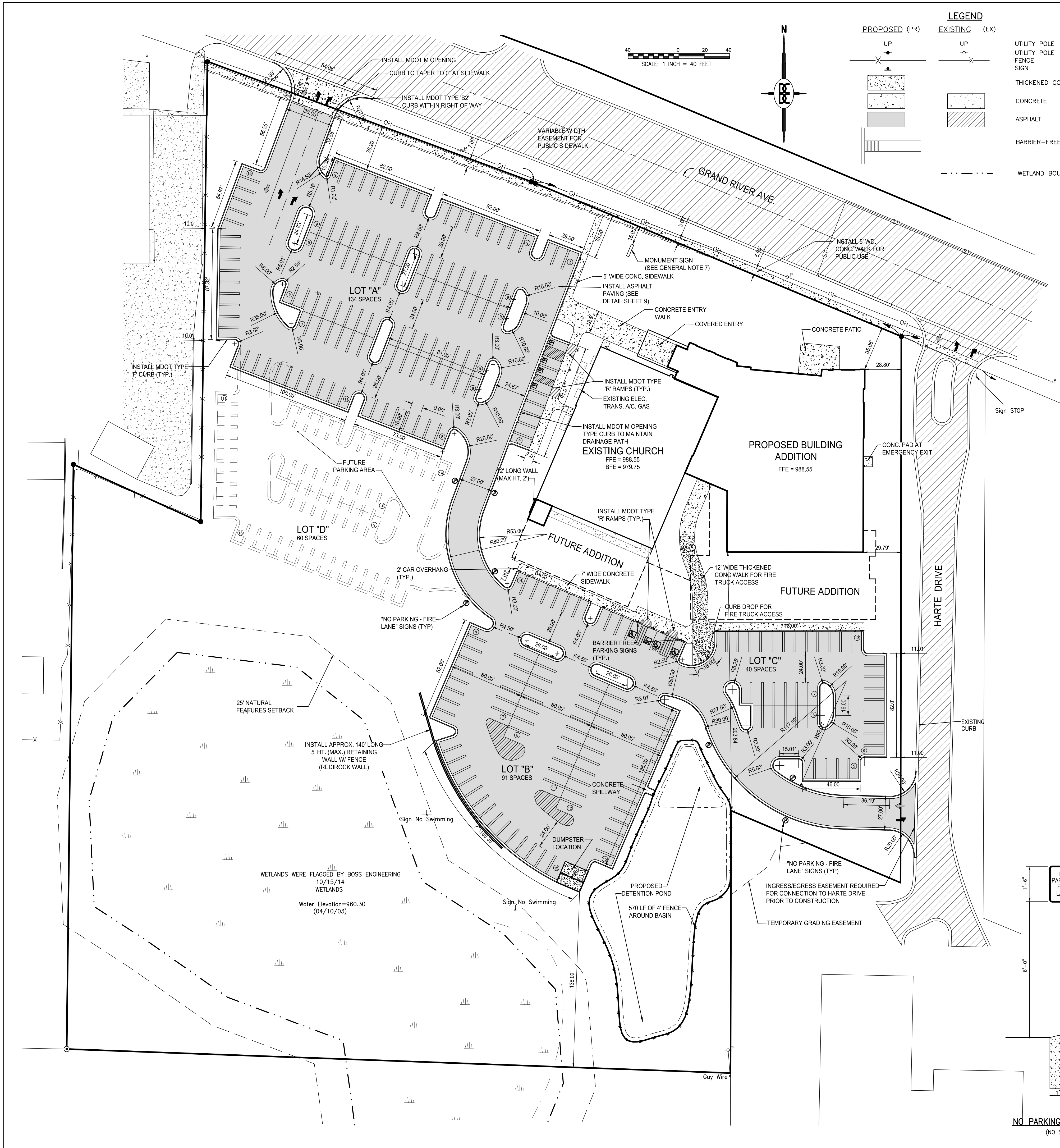
PROJECT
 COMMUNITY BIBLE CHURCH EXPANSION

PREPARED FOR
 COMMUNITY BIBLE CHURCH
 7372 GRAND RIVER AVENUE
 BRIGHTON, MI. 48114
 810-227-2255

TITLE
 EXISTING CONDITIONS & DEMO PLAN

NO	BY	PER TWP REVIEW	DATE
1	ST		10-24-18

DESIGNED BY: ST
 DRAWN BY: ST
 CHECKED BY:
 SCALE 1" = 40'
 JOB NO. 14-047
 DATE 10/2/18
 SHEET NO. **C2**



LEGEND

PROPOSED (PR)	EXISTING (EX)
UP	UP
UTILITY POLE	UTILITY POLE
FENCE	FENCE
SIGN	SIGN
THICKENED CONC.	
CONCRETE	
ASPHALT	
BARRIER-FREE RAMPS	
WETLAND BOUNDARY	

SITE/BUILDING DATA

PARCEL SIZE:	9.24 AC.
EXISTING ZONING:	GENERAL COMMERCIAL DISTRICT
PROPOSED USE:	CHURCH
REQUIRED FRONT SETBACK:	70 FT. (35 FT IF NO PARKING IN FRONT YARD)
PROPOSED FRONT SETBACK:	35.00 FT.
REQUIRED SIDE SETBACK:	15 FT.
PROPOSED SIDE SETBACK:	28.80 FT.
REQUIRED REAR SETBACK:	50 FT.
PROPOSED REAR SETBACK:	203.84 FT.
PARKING LOT SETBACK:	20.00 FT., 10.00 FT(SIDE/REAR)
PROPOSED PARKING SETBACK:	11.00 FT. (SIDE)
MAX. BUILDING HEIGHT:	**50 FT MAX. PROVIDED THE FRONT, SIDE, AND REAR YARDS SHALL NOT BE LESS THAN THE HEIGHT OF THE BUILDING WALL ABUTTING ON SUCH YARD (ORDINANCE 11.01.05 (a))
PROPOSED BUILDING HEIGHT:	CHURCH 1 STORY
MAX. LOT COVERAGE:	35% BUILDING 75% IMPERVIOUS
BUILDING FOOTPRINT:	
EXISTING CHURCH:	13,036 S.F.
PROPOSED CHURCH:	18,176 S.F.
TOTAL:	31,212 S.F. (7.75%)
IMPERVIOUS COVERAGE:	
PROPOSED BUILDING:	31,212 S.F.
PROPOSED PAVING:	100,301 S.F.
FUTURE PAVING/BLDG:	37,014 S.F.
TOTAL:	131,513 S.F. (32.67%)
TOTAL (W/ FUTURE PAVING):	168,527 S.F. (41.87%) (TOTAL SITE BUILD-OUT)

PARKING DATA

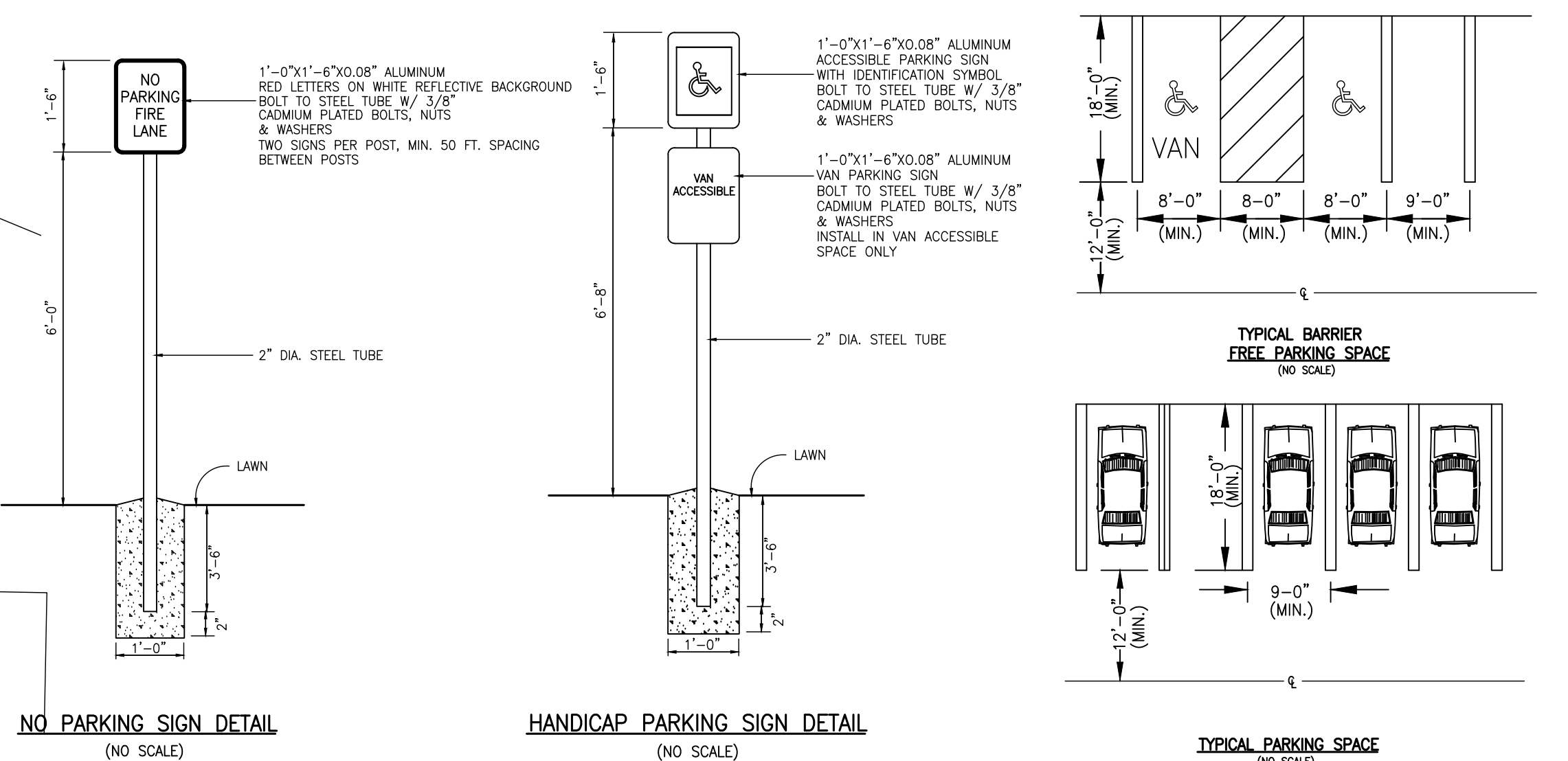
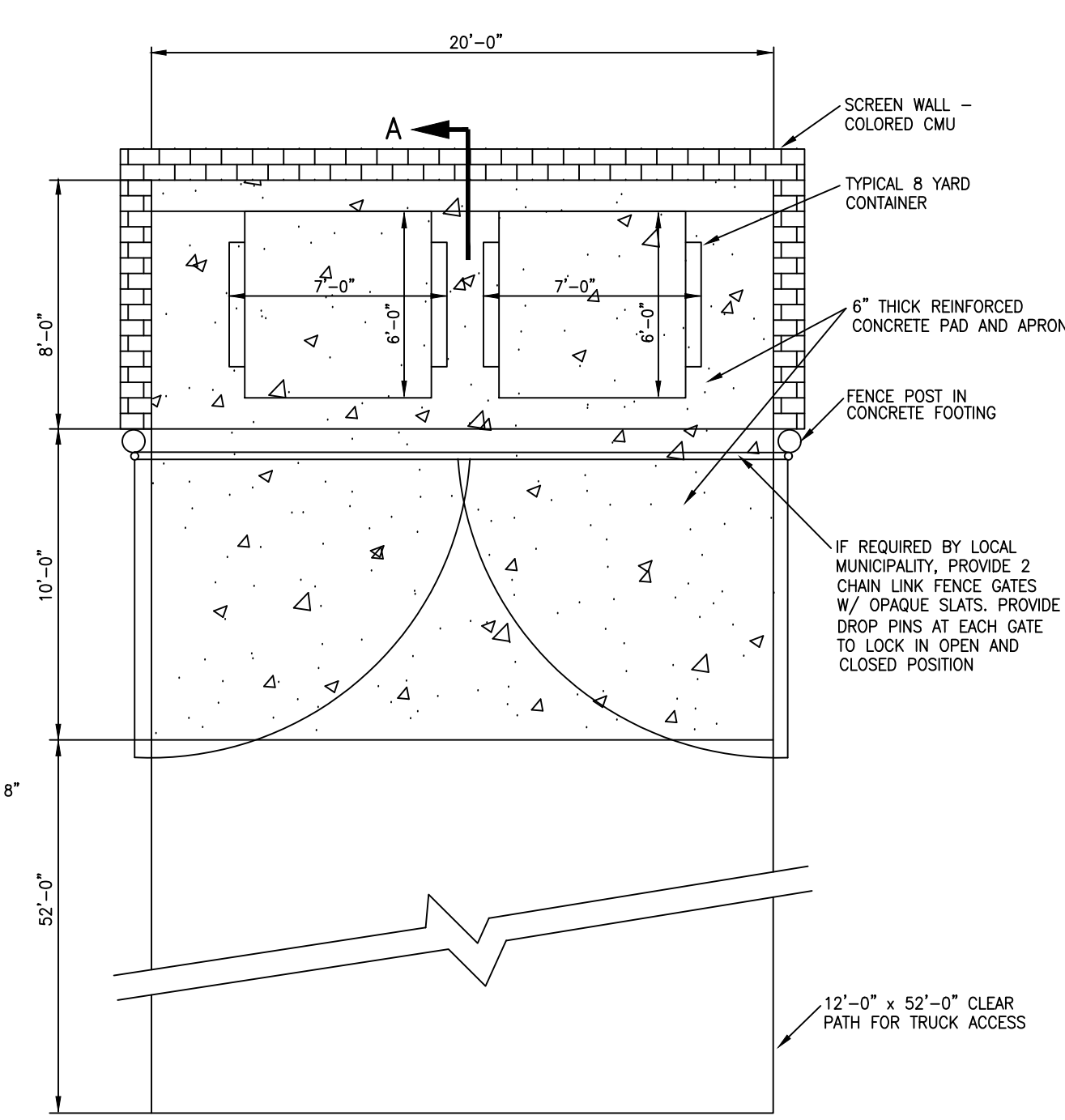
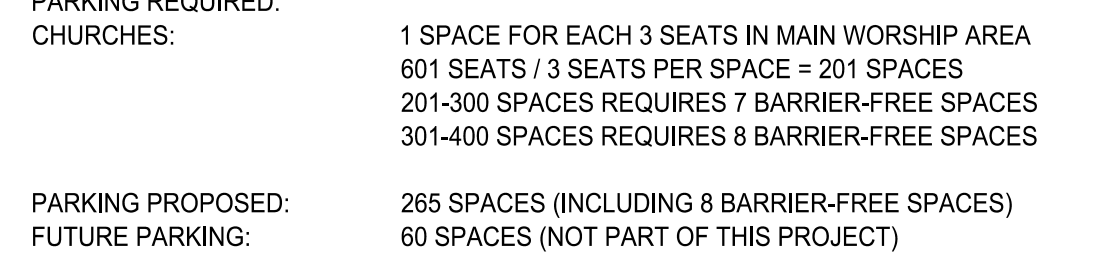
PARKING REQUIRED:
CHURCHES:

1 SPACE FOR EACH 3 SEATS IN MAIN WORSHIP AREA
601 SEATS / 3 SEATS PER SPACE = 201 SPACES
201-300 SPACES REQUIRES 7 BARRIER-FREE SPACES
301-400 SPACES REQUIRES 8 BARRIER-FREE SPACES

PARKING PROPOSED:
FUTURE PARKING:

265 SPACES (INCLUDING 8 BARRIER-FREE SPACES)
60 SPACES (NOT PART OF THIS PROJECT)

- 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.
 - 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 OF 75,000 POUNDS.
 - THE PROPOSED BUILDING ADDITION IS TO HAVE AN AUTOMATIC SPRINKLER SYSTEM IN ACCORDANCE WITH NFPA 13.
 - 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 ARE TO BE VERIFIED PRIOR TO INSTALLATION.
 - A KNOX BOX FOR FIRE DEPARTMENT USE SHALL BE LOCATED ADJACENT TO THE MAIN ENTRY.
 - PROPOSED MONUMENT SIGN TO MEET TOWNSHIP ORDINANCE REQUIREMENTS AND PROVIDED DURING THE SIGN PERMIT PROCESS.
 - DELIVERIES SHALL NOT OCCUR ON SUNDAYS DURING SERVICE TIMES TO AVOID TRAFFIC CONFLICTS.



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HOWELL, MI. 48843
800.246.6735 FAX 517.548.1670

PROJECT: COMMUNITY BIBLE CHURCH EXPANSION
PREPARED FOR: COMMUNITY BIBLE CHURCH
7372 GRAND RIVER AVENUE
BRIGHTON, MI 48114
810-227-2255
TITLE: SITE PLAN

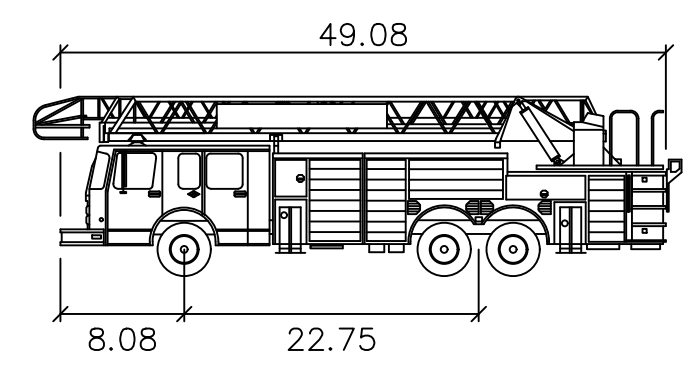
DESIGNED BY:	ST
DRAWN BY:	ST
CHECKED BY:	
SCALE:	1" = 40'
JOB NO.:	14-047
DATE:	10/2/18
SHEET NO.:	C3



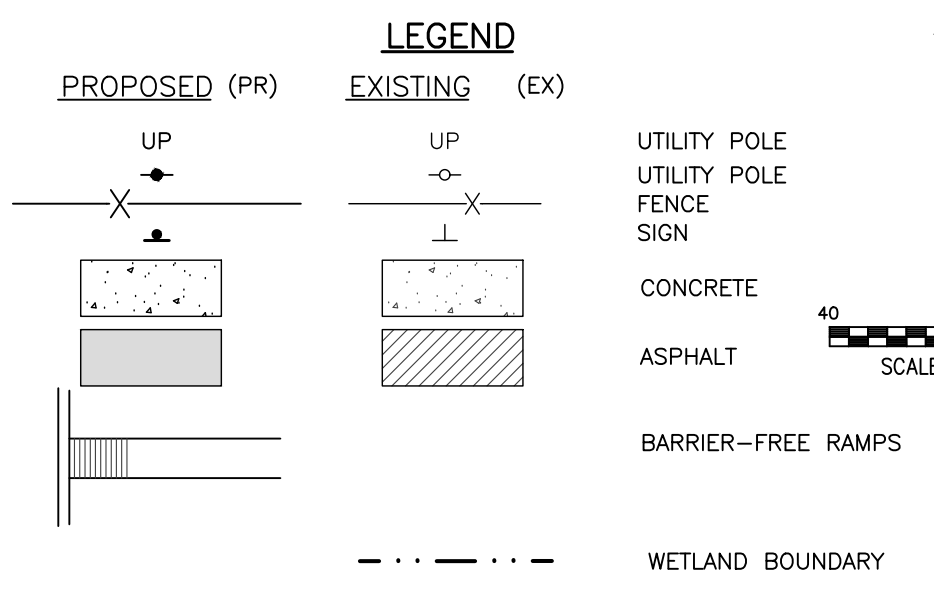
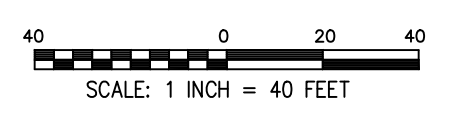
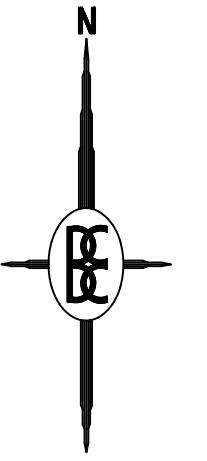
FIRST 15 SPACES AS INDICATED WILL BE FOR USE BY CHURCH VOLUNTEERS AND STAFF ONLY. SPACES WILL BE FILLED PRIOR TO GENERAL CONGREGATION ARRIVING AT SITE.

"NO LEFT TURN" SIGN
 "DO NOT ENTER" SIGN

EMERGENCY VEHICLE ACCESS ROUTE



Genoa Fire Truck feet
 Width : 8.25
 Track : 8.25
 Lock to Lock Time : 6.00
 Steering Angle : 32.00



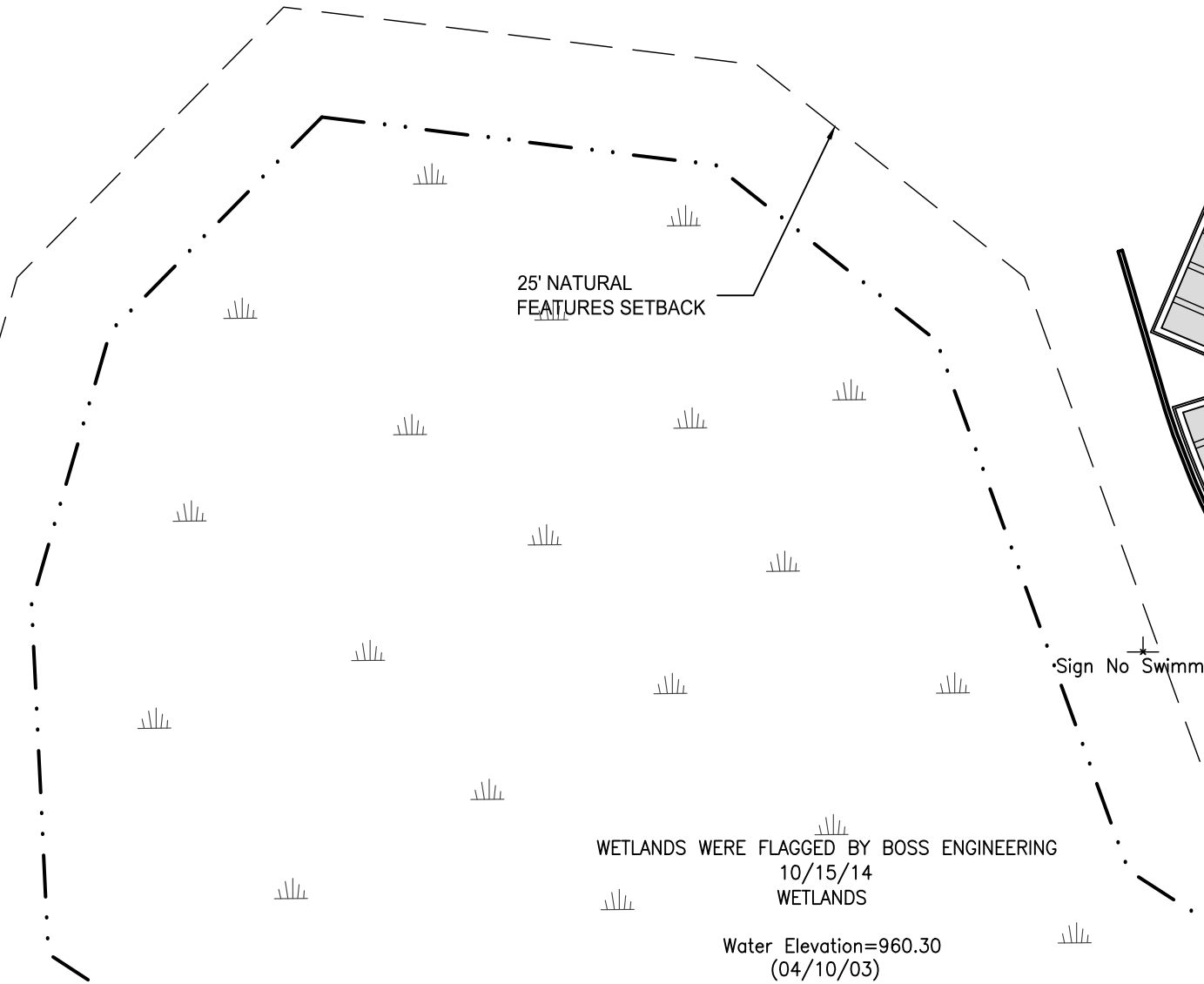
NOTES:

- SIGNAGE WILL BE INSTALLED AT SPECIFIC LOCATIONS ON THE SITE TO HELP THE FLOW OF TRAFFIC.
- COMMUNITY BIBLE CHURCH SERVICE TIMES ARE AT 9:30AM AND 11AM ON SUNDAYS.
- 2442 CHURCH LOCATED TO THE EAST OF COMMUNITY BIBLE CHURCH HAS SERVICE TIMES OF 9AM, 10:30AM, AND 12PM ON SUNDAYS AND 4PM AND 5:30PM ON SATURDAYS.
- VOLUNTEER PARKING LOT ATTENDANTS WILL BE AVAILABLE TO HELP COORDINATE TRAFFIC PROCEDURES.
- INSTRUCTIONAL PAMPHLETS SHALL BE DISTRIBUTED TO CONGREGATION MEMBERS EXPLAINING SITE CIRCULATION AND PROCEDURES BEFORE CONSTRUCTION IS COMPLETED. SERVICES LEADING UP TO COMPLETION DATE OF CONSTRUCTION AND SERVICES IMMEDIATELY FOLLOWING FIRST USE OF PROPOSED PARKING LOTS WILL ADDRESS PARKING RELATED ITEMS. THE FOLLOWING ITEMS WILL BE DISCUSSED:

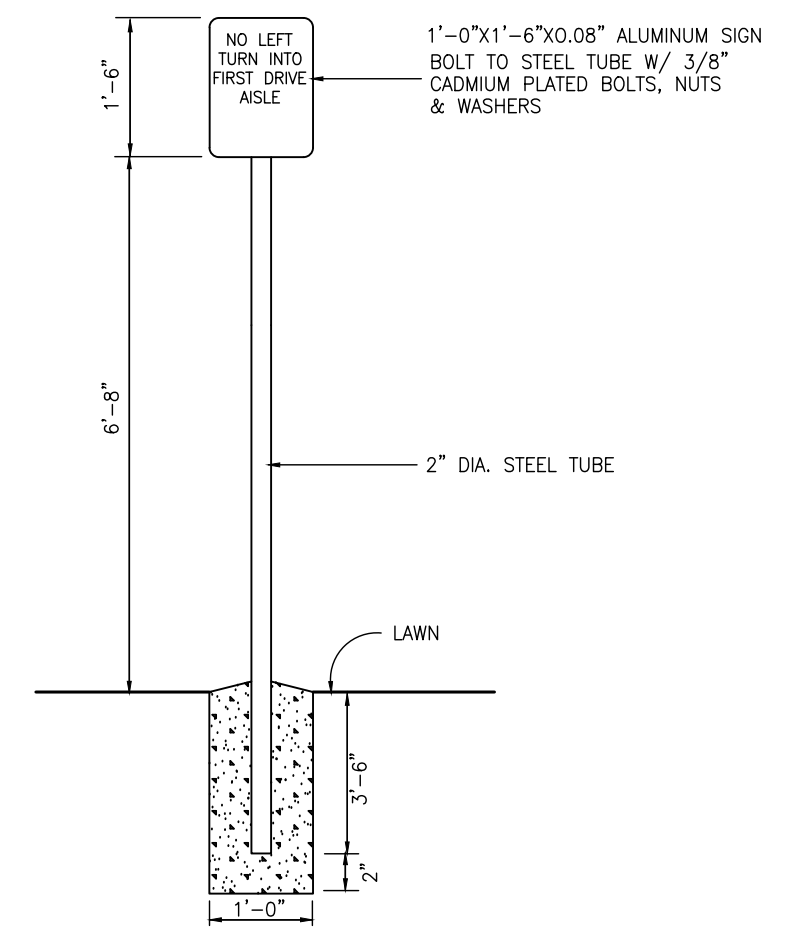
- AVOIDANCE OF CAR STACKING ONTO GRAND RIVER.
- NO LEFT TURNS INTO FIRST DRIVE AISLE AFTER ENTERING THE SITE FROM GRAND RIVER.
- ETIQUETTE FOR ALLOWING FRONT PARKING LOT DRIVE LANES EXIT AFTER SERVICE.
- BEST EXIT / ENTRANCE TO USE BASED UPON DIRECTION OF TRAVEL.
- DESIGNATION OF SPACES TO BE DEDICATED TO CHURCH VOLUNTEER AND STAFF.

CHURCH MEMBER TRAVELING DIRECTION NOTE:

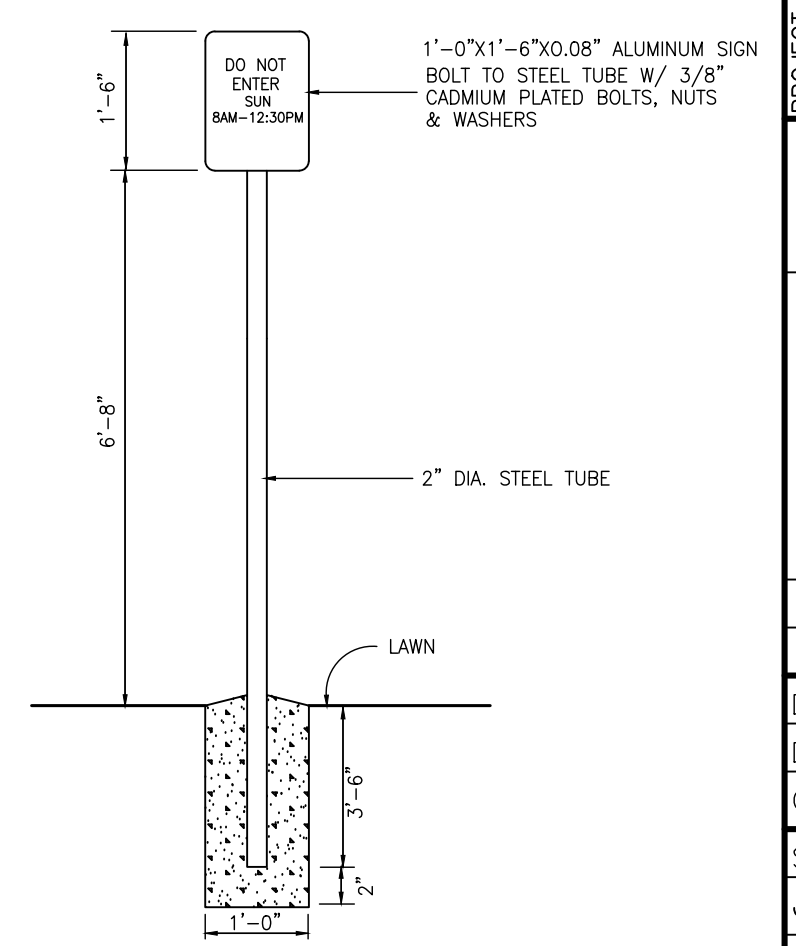
BASED UPON CURRENT CHURCH CONGREGATION ADDRESSES FORTY TWO PERCENT (42%) OF MEMBERS WILL TRAVEL FROM THE EAST TO ARRIVE AT THE SITE AND TURN LEFT INTO THE SITE. FIFTY EIGHT PERCENT (58%) WILL BE TRAVELING FROM THE WEST AND TURN RIGHT INTO THE SITE.



PROPOSED-DETENTION POND



"NO LEFT TURN" SIGN DETAIL
 (NO SCALE)



"DO NOT ENTER" SIGN DETAIL

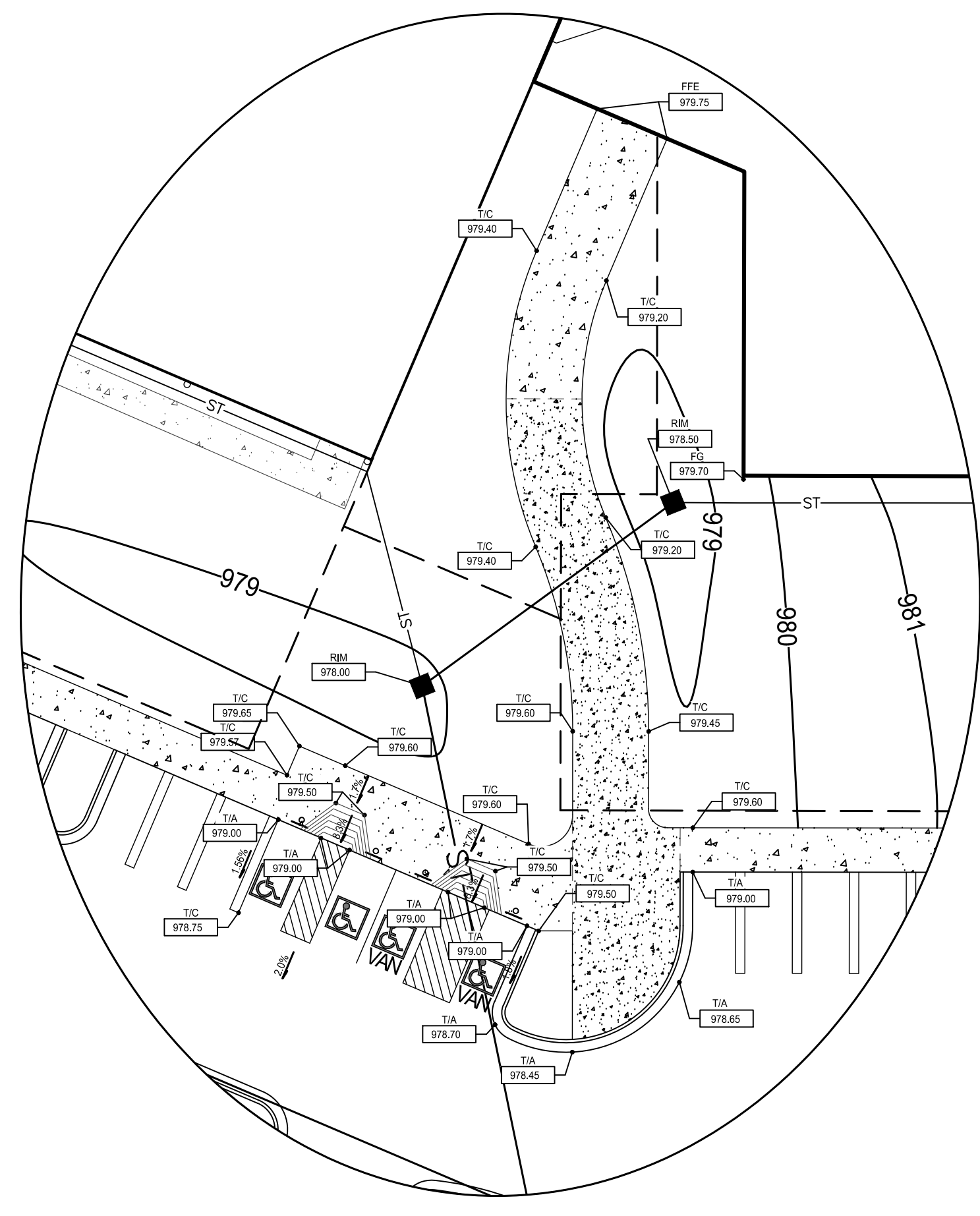
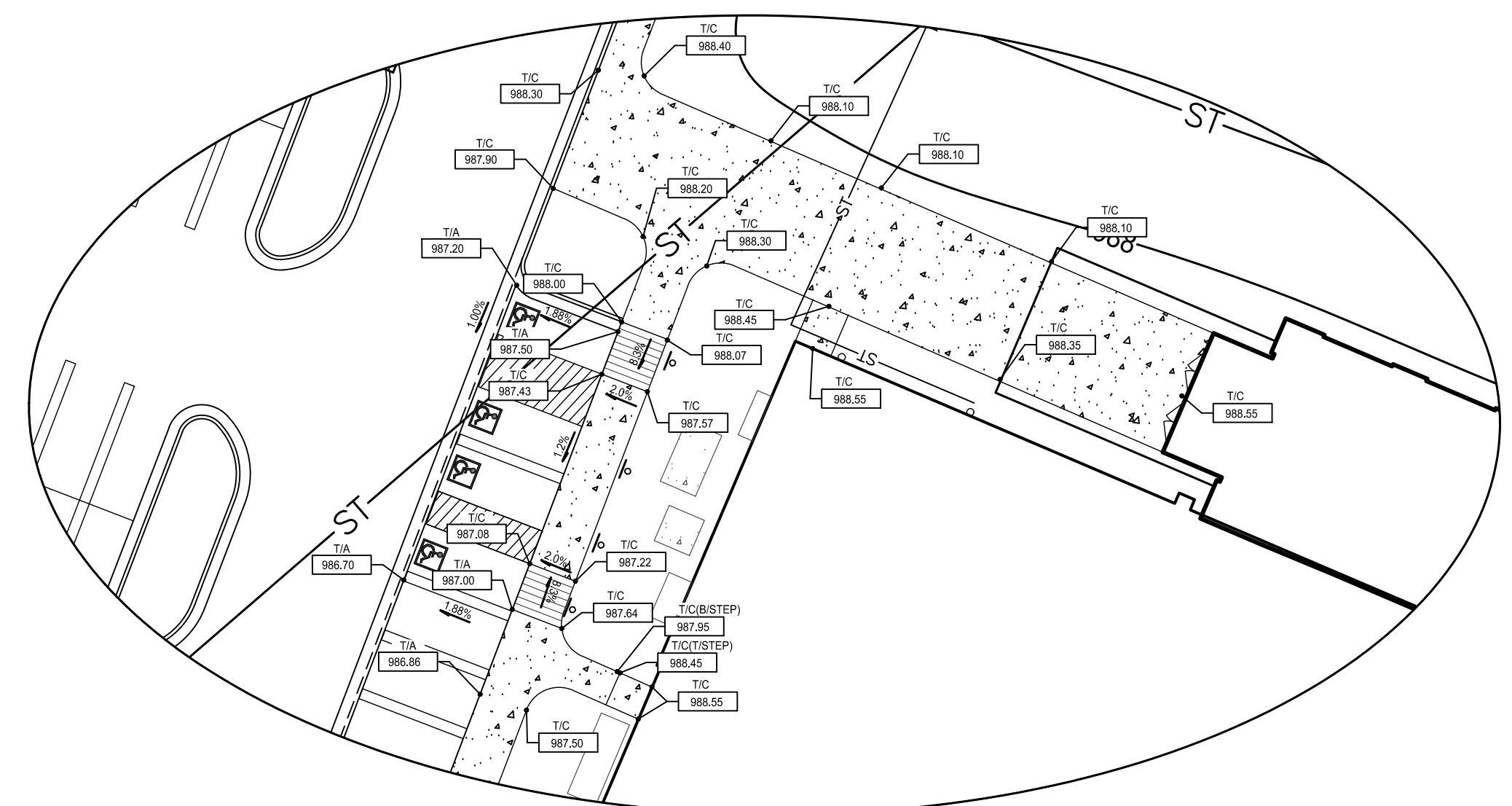
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 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

PROJECT: COMMUNITY BIBLE CHURCH EXPANSION
 PREPARED FOR: COMMUNITY BIBLE CHURCH
 7372 GRAND RIVER AVENUE
 BRIGHTON, MI. 48114
 810-227-2255
 TITLE: ON-SITE TRAFFIC CIRCULATION PLAN

DESIGNED BY:	ST
DRAWN BY:	ST
CHECKED BY:	
SCALE:	1" = 40'
JOB NO.:	14-047
DATE:	10/2/18
SHEET NO.:	C3A





PROPOSED (PR)	EXISTING (EX)	LEGEND
1/2" - 0.00	1/2" - 0.00	CONTOUR
1/2" - 0.00	1/2" - 0.00	STORM DRAINAGE FLOW
1/2" - 0.00	1/2" - 0.00	SPOT ELEVATION
1/2" - 0.00	1/2" - 0.00	FINISHED FLOOR ELEVATION
1/2" - 0.00	1/2" - 0.00	TOP OF ASPHALT
1/2" - 0.00	1/2" - 0.00	TOP OF CURB / CONCRETE
1/2" - 0.00	1/2" - 0.00	TOP OF WALK
1/2" - 0.00	1/2" - 0.00	FLOW LINE
1/2" - 0.00	1/2" - 0.00	TOP OF PIPE
1/2" - 0.00	1/2" - 0.00	INVERT ELEVATION
1/2" - 0.00	1/2" - 0.00	RM ELEVATION
1/2" - 0.00	1/2" - 0.00	BOTTOM OF PIPE
1/2" - 0.00	1/2" - 0.00	CR
1/2" - 0.00	1/2" - 0.00	MANHOLE STRUCTURE
1/2" - 0.00	1/2" - 0.00	INLET STRUCTURE
1/2" - 0.00	1/2" - 0.00	CATCHBASIN STRUCTURE
1/2" - 0.00	1/2" - 0.00	REARWARD STRUCTURE
1/2" - 0.00	1/2" - 0.00	END-SECTION
1/2" - 0.00	1/2" - 0.00	GATEVALVE STRUCTURE
1/2" - 0.00	1/2" - 0.00	HYDRANT
1/2" - 0.00	1/2" - 0.00	UTILITY POLE
1/2" - 0.00	1/2" - 0.00	SANITARY SEWER
1/2" - 0.00	1/2" - 0.00	SANITARY LEAD
1/2" - 0.00	1/2" - 0.00	STORM SEWER
1/2" - 0.00	1/2" - 0.00	WATER MAIN
1/2" - 0.00	1/2" - 0.00	WATER LEAD
1/2" - 0.00	1/2" - 0.00	OVERHEAD WIRE
1/2" - 0.00	1/2" - 0.00	MANHOLE
1/2" - 0.00	1/2" - 0.00	INLET / CATCHBASIN
1/2" - 0.00	1/2" - 0.00	FLARED END-SECTION
1/2" - 0.00	1/2" - 0.00	GATE VALVE
1/2" - 0.00	1/2" - 0.00	HYDRANT
1/2" - 0.00	1/2" - 0.00	UTILITY POLE
1/2" - 0.00	1/2" - 0.00	FENCE
1/2" - 0.00	1/2" - 0.00	STORM SEWER LABEL
1/2" - 0.00	1/2" - 0.00	LIMITS OF GRADING/CLEARING
1/2" - 0.00	1/2" - 0.00	WETLAND BOUNDARY

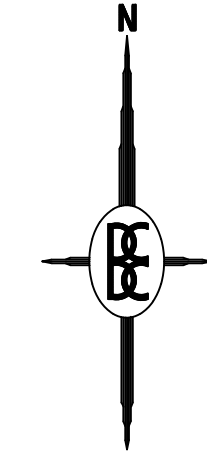
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PROJECT	COMMUNITY BIBLE CHURCH EXPANSION					
PREPARED FOR	COMMUNITY BIBLE CHURCH 7372 GRAND RIVER AVENUE BRIGHTON, MI 48114 810-227-2255					
TITLE	GRADING PLAN					
DESIGNED BY:	ST					
DRAWN BY:	ST					
CHECKED BY:						
SCALE	1" = 40'					
JOB NO.	14-047					
DATE	10/2/18					
SHEET NO.	C4					
NO	BY	PER	IMP	REVIEW	PER	DATE
1	ST					10-24-18



PROPOSED (PR)	EXISTING (EX)	
900	900	CONTOUR
T/C	XXXXXX	STORM DRAINAGE FLOW
FF	FF	SPOT ELEVATION
T/A	T/A	FINISHED FLOOR ELEVATION
T/W	T/W	FINISHED GRADE ELEVATION
F/L	F/L	TOP OF ASPHALT
T/P	T/P	TOP OF CURB / CONCRETE
B/P	B/P	TOP OF WALK
RIM	RIM	FLOW LINE
INV	INV	TOP OF PIPE
MH	MH	BOTTOM OF PIPE
IN	IN	RIM ELEVATION
CB	CB	INVERT ELEVATION
RY	RY	MANHOLE STRUCTURE
ES	ES	INLET STRUCTURE
GV	GV	CATCHBASIN STRUCTURE
HY	HY	REAR-YARD STRUCTURE
UP	UP	END-SECTION
SN	SN	GATEVALVE STRUCTURE
SL	SL	HYDRANT
FM	FM	UTILITY POLE
PS	PS	SANITARY SEWER
ST	ST	FORCE MAIN
WM	WM	STORM SEWER
WL	WL	WATER MAIN
FO	FO	WATER LEAD
OH	OH	FIBER OPTIC
C	C	OVERHEAD WIRE
T	T	CABLE
		ELECTRIC
		GAS
		TELEPHONE
		MANHOLE
		INLET / CATCHBASIN
		FLARED END-SECTION
		GATE VALVE
		HYDRANT
		UTILITY POLE
		FENCE
		SIGN
		SANITARY SEWER LABEL
		STORM SEWER LABEL
		WATER MAIN LABEL
		SOIL EROSION CONTROL MEASURE
		(P=PERMANENT, T=TEMPORARY)
		SILT FENCE
		LIMITS OF GRADING/CLEARING
		WETLAND BOUNDARY

LEGEND

CONTOUR
STORM DRAINAGE FLOW
SPOT ELEVATION
FINISHED FLOOR ELEVATION
FINISHED GRADE ELEVATION
TOP OF ASPHALT
TOP OF CURB / CONCRETE
TOP OF WALK
FLOW LINE
TOP OF PIPE
BOTTOM OF PIPE
RIM ELEVATION
INVERT ELEVATION
MANHOLE STRUCTURE
INLET STRUCTURE
CATCHBASIN STRUCTURE
REAR-YARD STRUCTURE
END-SECTION
GATEVALVE STRUCTURE
HYDRANT
UTILITY POLE
SANITARY SEWER
FORCE MAIN
STORM SEWER
WATER MAIN
WATER LEAD
FIBER OPTIC
OVERHEAD WIRE
CABLE
ELECTRIC
GAS
TELEPHONE
MANHOLE
INLET / CATCHBASIN
FLARED END-SECTION
GATE VALVE
HYDRANT
UTILITY POLE
FENCE
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SANITARY SEWER LABEL
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WATER MAIN LABEL
SOIL EROSION CONTROL MEASURE
(P=PERMANENT, T=TEMPORARY)
SILT FENCE
LIMITS OF GRADING/CLEARING
WETLAND BOUNDARY

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PROJECT: COMMUNITY BIBLE CHURCH EXPANSION

PREPARED FOR: COMMUNITY BIBLE CHURCH
7372 GRAND RIVER AVENUE
BRIGHTON, MI. 48114
810-227-2255

TITLE: UTILITY PLAN

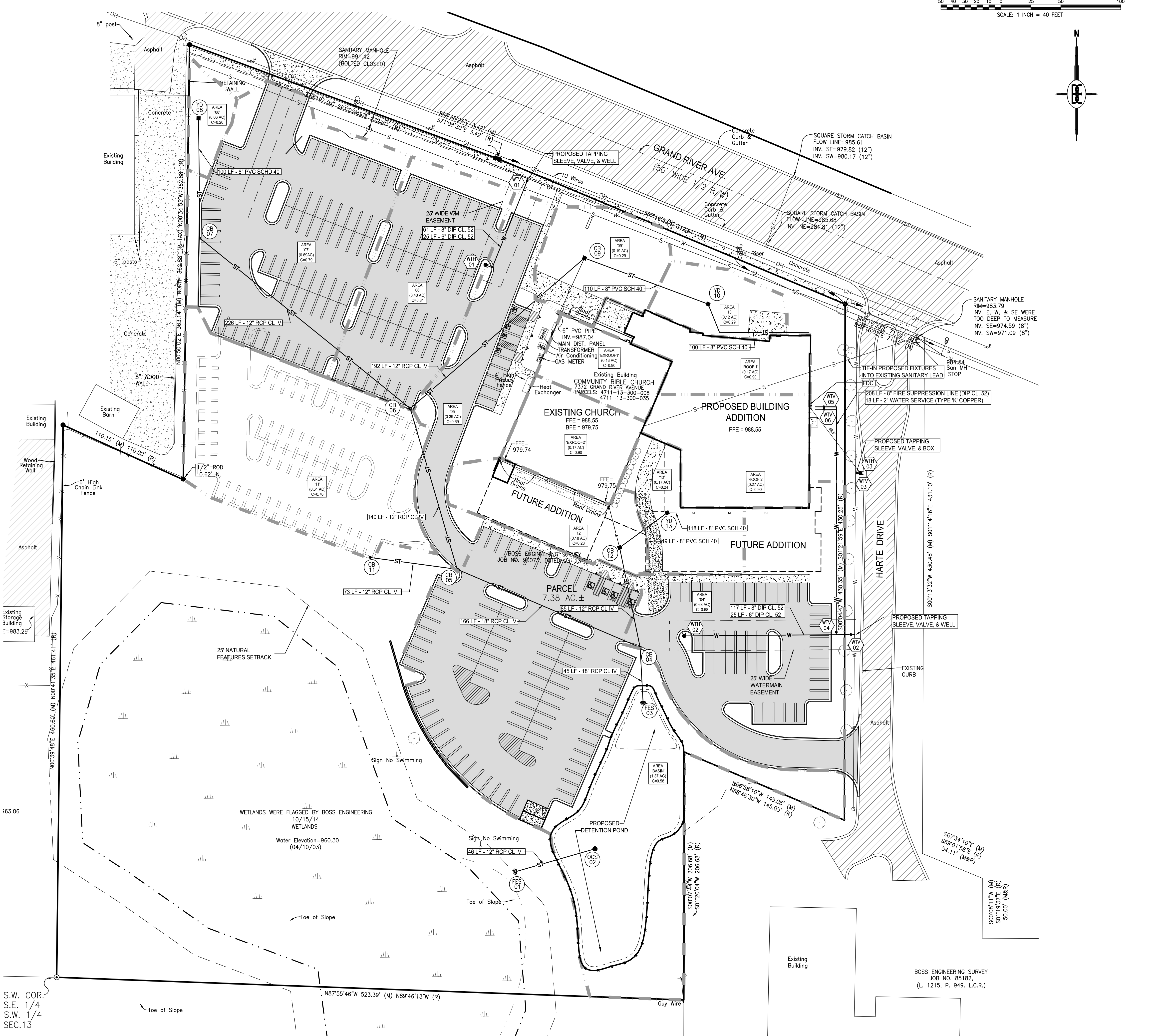
NO	BY	PER TWP REVIEW	REVISION PER	DATE
1	ST			10-24-18

DESIGNED BY: ST
DRAWN BY: ST
CHECKED BY:

SCALE: 1" = 40'
JOB NO. 14-047
DATE: 10/2/18
SHEET NO. C5

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STORM SEWER STRUCTURE SCHEDULE			
FES 01	FLARED END SECTION	INV. NE.	12" 965.66
OCS 02	COVER GRATE	RIM	974.75
		INV. SW.	12" 966.00
FES 03	FLARED END SECTION	INV. S.	18" 972.00
CB 04	4' DIA. CATCH BASIN, COVER "K"	RIM	977.80
		INV. S.	18" 972.79
		INV. NW.	18" 972.79
		INV. N.	12" 973.19
		2' SUMP	
CB 05	4' DIA. CATCH BASIN, COVER "K"	RIM	979.35
		INV. SE.	18" 974.45
		INV. NW.	12" 974.85
		INV. W.	12" 974.85
		2' SUMP	
CB 06	4' DIA. CATCH BASIN, COVER "K"	RIM	985.50
		INV. SE.	12" 979.75
		INV. NW.	12" 979.75
		INV. NE.	12" 979.75
		2' SUMP	
CB 07	4' DIA. CATCH BASIN, COVER "K"	RIM	985.50
		INV. SE.	12" 980.88
		INV. N.	8" 981.14
		2' SUMP	
YD 08	8" DIA. NYOPLAST YARD DRAIN, DOME GRATE	RIM	985.00
		INV. S.	8" 982.14
CB 09	4' DIA. CATCH BASIN, COVER "E"	RIM	987.00
		INV. SW.	12" 982.15
		INV. SE.	8" 982.41
		INV. S.	8" 982.41
		2' SUMP	
YD 10	12" DIA. NYOPLAST YARD DRAIN, DOME GRATE	RIM	986.50
		INV. NW.	8" 983.51
		INV. SE.	8" 983.51
		2' SUMP	
CB 11	2' DIA. CATCH BASIN, COVER "K"	RIM	981.50
		INV. E.	12" 976.31
CB 12	4' DIA. CATCH BASIN, COVER "E"	RIM	978.00
		INV. S.	12" 974.25
		INV. NE.	8" 974.52
		INV. NW.	8" 974.52
		2' SUMP	
YD 13	12" DIA. NYOPLAST YARD DRAIN, DOME GRATE	RIM	978.50
		INV. SW.	8" 975.50
		INV. E.	8" 975.50
		2' SUMP	



S.W. COR.
S.E. 1/4
S.W. 1/4
SEC. 13

BOSS ENGINEERING SURVEY
JOB NO. 85182,
(L. 1215, P. 949. L.C.R.)

GENERAL LANDSCAPE NOTES:

- ALL PLANT MATERIAL SHALL CONFORM TO THE REQUIREMENTS AND SPECIFICATIONS OF THE GOVERNING MUNICIPALITY AND SHALL BE NURSERY GROWN. ALL SIZES AND MEASUREMENTS SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN STANDARDS. ALL PLANT MATERIAL SHALL BE OF SELECTED SPECIMEN QUALITY AND HAVE A NORMAL HABIT OF GROWTH. ALL PLANT MATERIAL IS SUBJECT TO APPROVAL OF THE LANDSCAPE ARCHITECT.
- ALL PLANT MATERIALS SHALL BE BALLED AND BURLAPPED STOCK OR CONTAINER STOCK. NO BARE ROOT STOCK IS PERMITTED. ALL PLAN BALLS SHALL BE FIRM, INTACT AND SECURELY WRAPPED AND BOUND.
- ALL PLANT BEDS SHALL BE EXCAVATED OF ALL BUILDING MATERIALS AND OTHER EXTRANEUS OBJECTS AND POOR SOILS TO A MINIMUM DEPTH OF 12 INCHES AND BACKFILLED TO GRADE WITH PLANTING MIX (SEE BELOW).
- PLANTING MIXTURE SHALL CONSIST OF 4 PARTS TOPSOIL FROM ON SITE, 1 PART PEAT, AND 5 POUNDS OF SUPERPHOSPHATE PER CUBIC YARD OF MIX. INGREDIENTS SHALL BE THOROUGHLY BLENDED TO A UNIFORM CONSISTENCY.
- ALL PLANT BEDS AND INDIVIDUAL PLANTS SHALL BE MULCHED WITH A 4 INCH LAYER OF SHREDDED BARK MULCH.
- ALL PLANTS AND PLANT BEDS SHALL BE THOROUGHLY WATERED UPON COMPLETION OF PLANTING AND STAKING OPERATIONS.
- THE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR A PERIOD OF 1 YEAR FROM THE DATE THE WORK IS ACCEPTED, IN WRITING, BY THE LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL REPLACE, WITHOUT COST TO THE OWNER, WITHIN A SPECIFIED PERIOD OF TIME ALL DEAD PLANTS AND ALL PLANTS NOT IN A VIGOROUS, THRIVING CONDITION AS DETERMINED BY THE LANDSCAPE ARCHITECT DURING AND AT THE END OF THE GUARANTEE PERIOD. REPLACEMENT STOCK SHALL CONFORM TO THE ORIGINAL REQUIREMENTS.
- EDGING, WHERE NOTED ON THE PLANS, SHALL BE BLACK ALUMINUM EDGING, 3/16 INCHES BY 4 INCHES. INSTALL PER MANUFACTURER'S INSTRUCTIONS. ALL EDGING SHALL BE INSTALLED IN STRAIGHT LINES OR SMOOTH CURVES WITHOUT IRREGULARITIES.
- SOD SHALL BE DENSE, WELL ROOTED TURF, FREE OF WEEDS. IT SHALL BE COMPRISED OF A BLEND OF AT LEAST TWO KENTUCKY BLUEGRASSES AND ONE FESCUE. IT SHALL HAVE A UNIFORM THICKNESS OF 3/4 INCH, AND CUT IN UNIFORM STRIPS NOT LESS THAN 10 INCHES BY 18 INCHES. SOD SHALL BE KEPT MOIST AND LAID WITHIN 36 HOURS AFTER CUTTING.
- ALL AREAS OF THE SITE THAT BECOME DISTURBED DURING CONSTRUCTION AND ARE NOT TO BE PAVE, STONED, LANDSCAPED, OR SODDED SHALL BE SEEDED AND MULCHED.

SEED MIXTURE SHALL BE AS FOLLOWS:
 KENTUCKY BLUEGRASS
 (CHOOSE 3 VARIETIES: ADELPHI, RUGBY, GLADE OR PARADE) 30%
 RUBY RED OR DAWSON RED FINE FESCUE 30%
 ATLANTA RED FESCUE 20%
 PENNFINE PERENNIAL RYE 20%

THE ABOVE SEED MIXTURE SHALL BE SOWN AT A RATE OF 250 POUNDS PER ACRE. PRIOR TO SEEDING, THE TOPSOIL LAYER SHALL BE FERTILIZED WITH A COMMERCIAL FERTILIZER WITH A 10-20-10 ANALYSIS:

10% NITROGEN: A MINIMUM OF 25% FROM A UREA-FORMALDEHYDE SOURCE
 20% PHOSPHATE
 10% POTASH: SOURCE TO BE POTASSIUM SULFATE OR POTASSIUM NITRATE.

THE FIRST FERTILIZER APPLICATION SHALL BE AT A RATE OF 10 POUNDS OF BULK FERTILIZER PER 1000 SQUARE FEET.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH A DENSE LAWN OF PERMANENT GRASSES, FREE OF LUMPS AND DEPRESSIONS. ANY PART OF THE AREA THAT FAILS TO SHOW A UNIFORM GERMINATION SHALL BE RESEEDED AND SUCH RESEEDING SHALL CONTINUE UNTIL A DENSE LAWN IS ESTABLISHED. DAMAGE TO SEEDED AREAS RESULTING FROM EROSION SHALL BE REPAIRED BY THE CONTRACTOR.

- ALL AREAS OF THE SITE SCHEDULED FOR SEEDING OR SODDING SHALL FIRST RECEIVE A 4 INCH LAYER OF CLEAN, FRIABLE TOPSOIL. THIS SOIL SHALL BE DISCED AND SHALL BE GRADED IN CONFORMANCE WITH THE GRADING PLAN.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE LOCATION OF ALL UTILITIES AND TO INFORM THE LANDSCAPE ARCHITECT OF ANY CONFLICTS PRIOR TO COMMENCING LANDSCAPING.
- ALL PLANT MATERIALS SHALL BE FREE OF WEEDS, INSECTS AND DISEASE.
- ALL LANDSCAPE BEDS TO BE IRRIGATED BY UNDERWATER IRRIGATION SYSTEM.
- A ONE FOOT WIDE MAINTENANCE DRIP EDGE IS SPECIFIED TO SURROUND THE BUILDING WITH 6"-8" HANDSTONE OVER FILTER FABRIC INSTALLED WITH EDGING WHERE BORDERED BY LAWN.
- UPRIGHT ARNOLD TULIPTREE SPECIFIED ALONG FIRE APPARATUS ACCESS ROAD. THESE TREES ARE TYPICALLY 8-10 FEET WIDE. ALL TREES WITHIN PARKING LOTS TO BE MAINTAINED AT PROPER HEIGHT TO NOT IMPEDE VIEWS OR ACCESS.

LANDSCAPE REQUIREMENTS

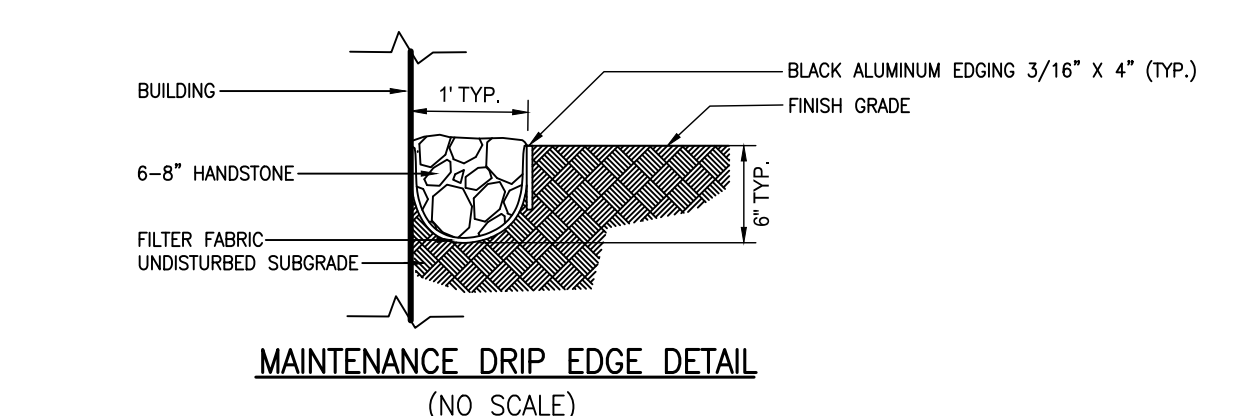
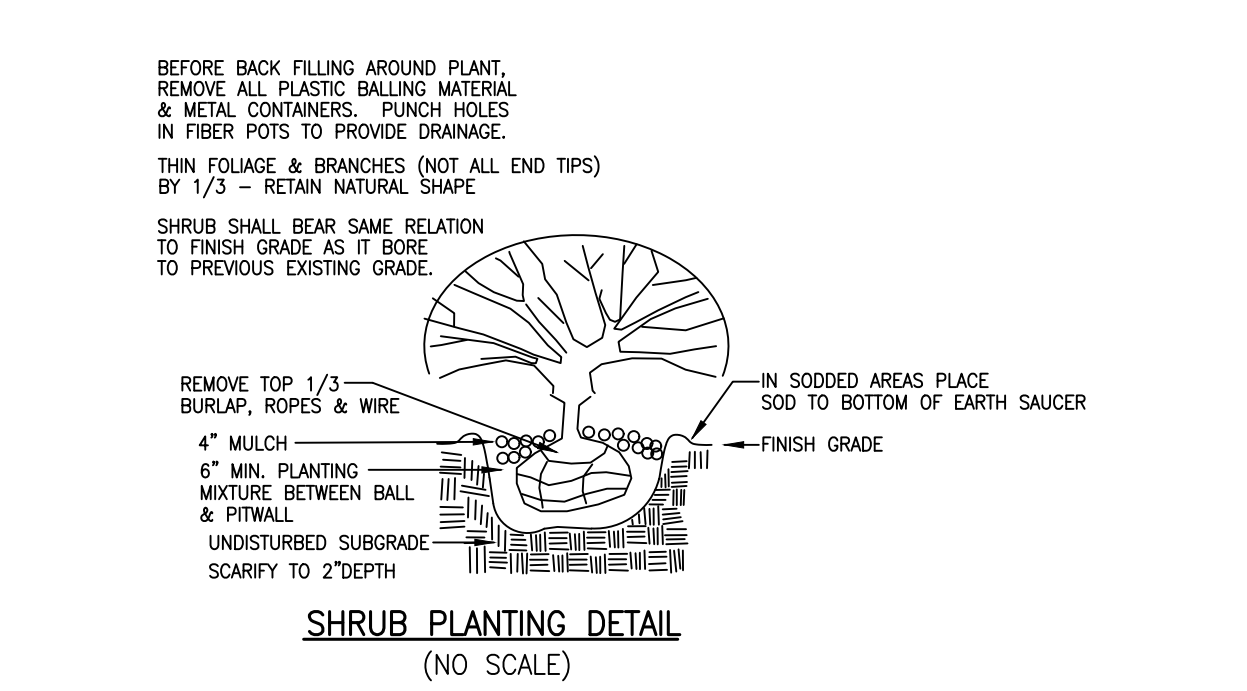
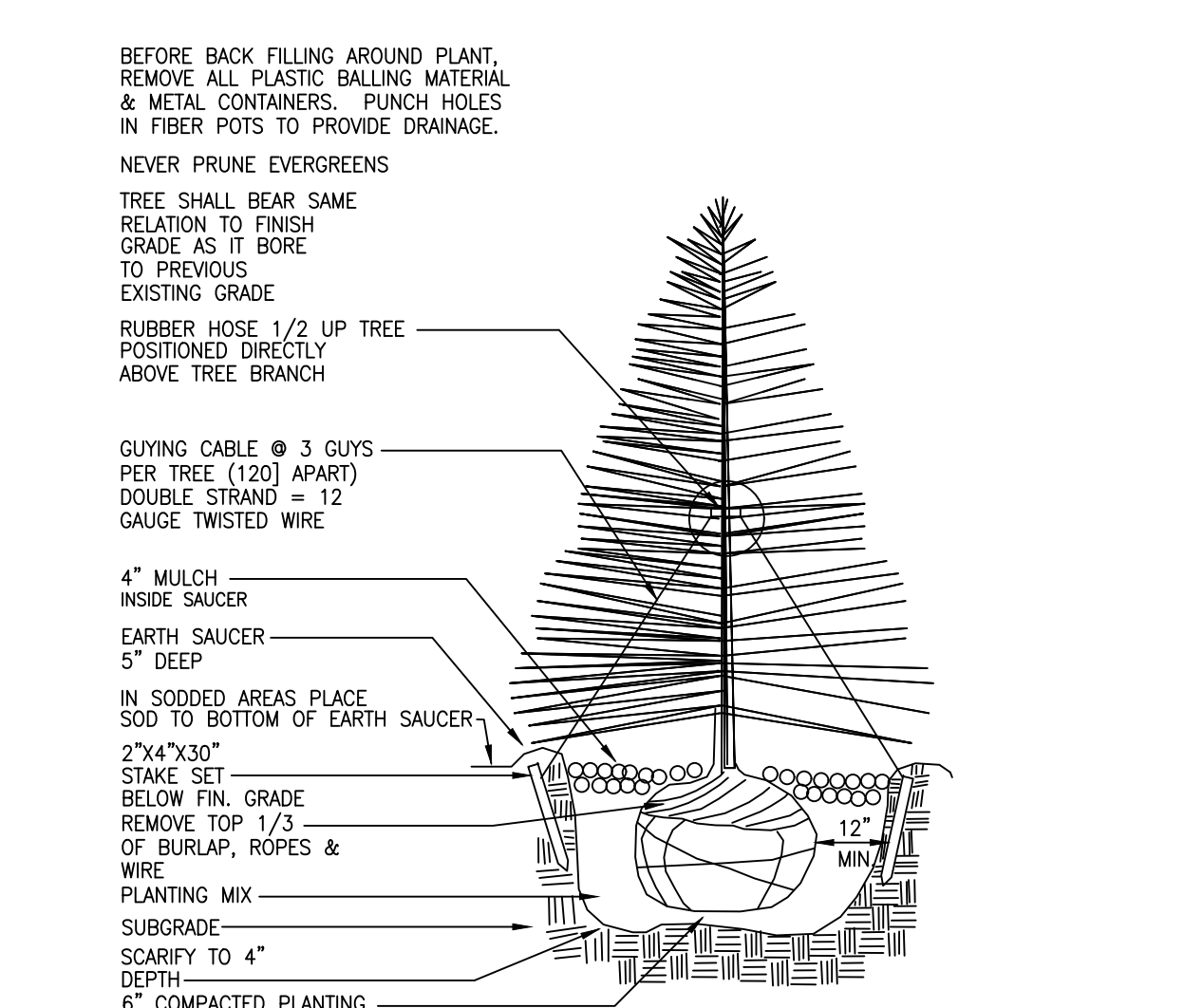
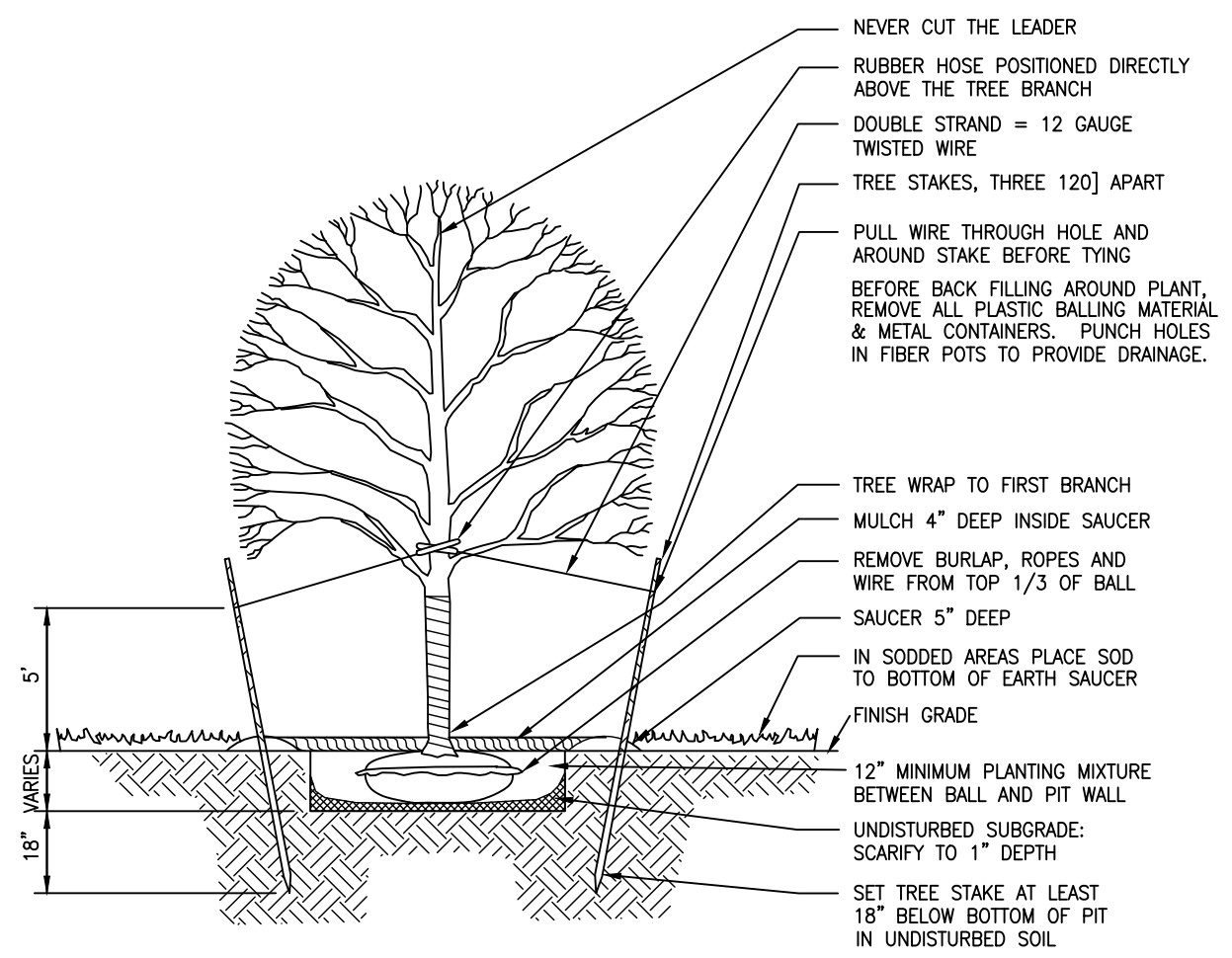
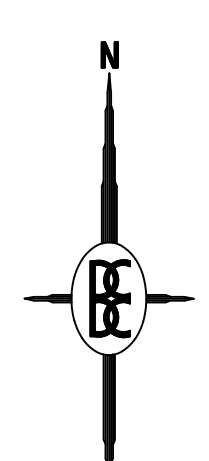
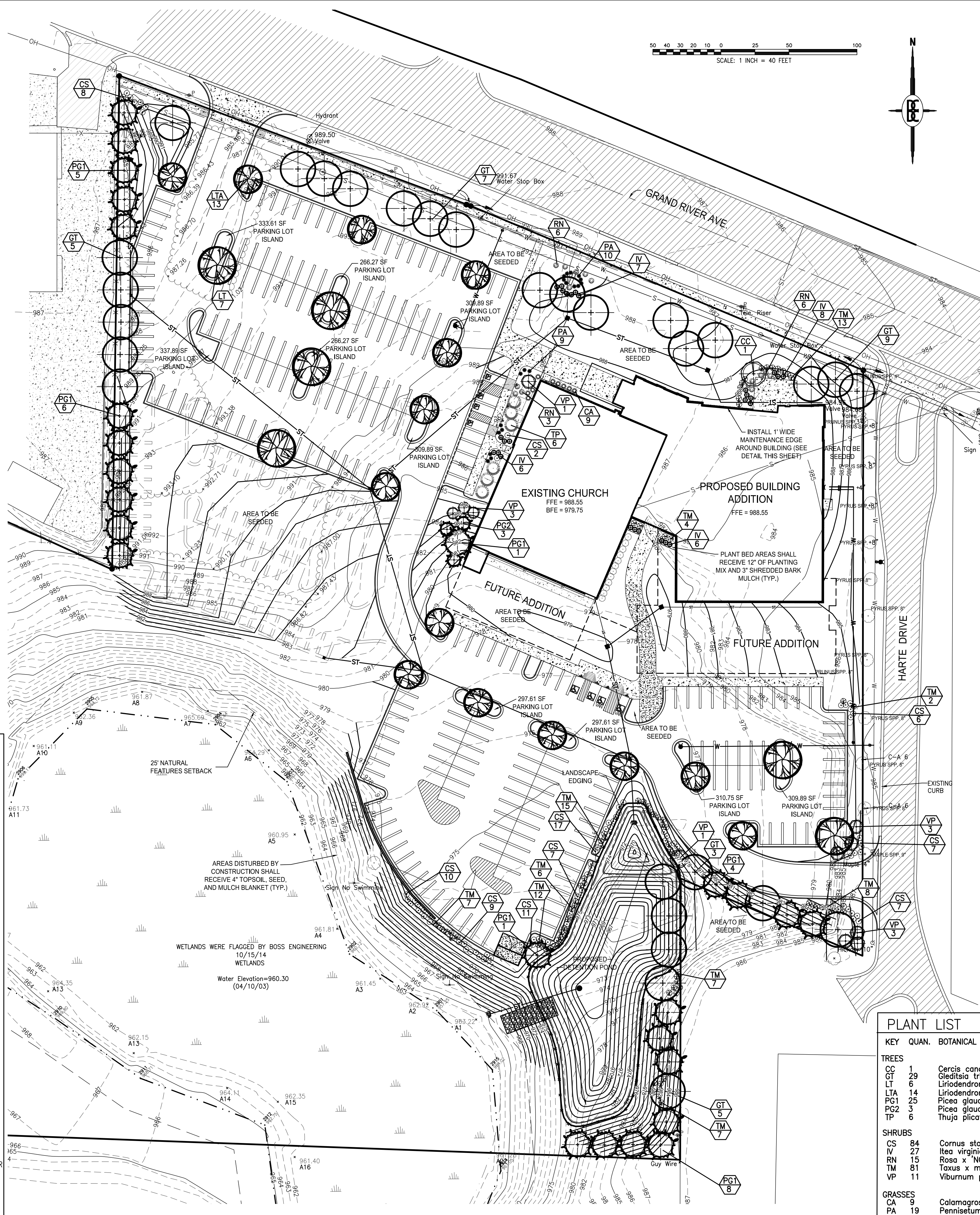
FRONTYARD GREENBELT
 REQUIRED:
 20' WIDE AND 1 TREE PER 40 LF OF FRONTAGE (583 LF FRONTAGE = 15 TREES)
 PROVIDED:
 16 TREES

LANDSCAPE BUFFERS
 REQUIRED:
 10' WIDE BUFFER TYPE 'C' FOR COMMERCIAL PROPERTIES ADJACENT TO OFFICE/COMMERCIAL REQUIRES 1 TREE OR 4 SHRUBS FOR EACH 20 LF ALONG PROPERTY LINE
 PROVIDED:
WEST PROPERTY LINE TYPE 'C' (363 LF/20 LF = 18) : 16 TREES AND 8 SHRUBS
EAST PROPERTY LINE: DUE TO EXISTING TREES IN THIS LOCATION - (7) 3-4" PRUNUS CERASIFERA, (11) 8" PYRUS SPP. AND (1) 9" ACER SPP. - A BUFFER WAS NOT INCLUDED.
SOUTH PROPERTY LINE: DUE TO EXISTING WETLAND AND SCREENING VEGETATION IN THIS LOCATION (INCLUDING TREE SPECIES SUCH AS ACER, QUERCUS, POPULUS AND PICEA IN VARIOUS SIZES STARTING AT 6" DBH), A BUFFER WAS NOT INCLUDED.

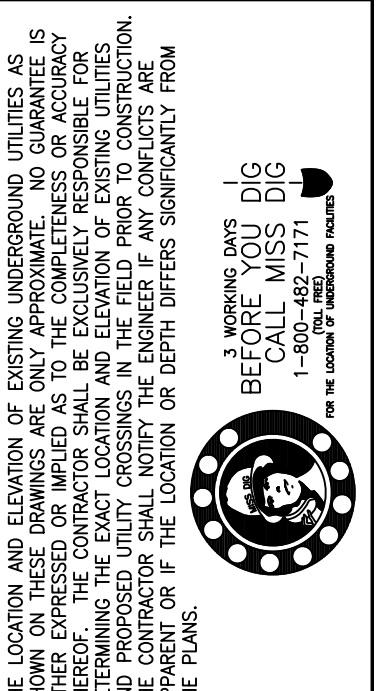
PARKING LOT
 REQUIRED:
 1 CANOPY TREE AND 100 SF LANDSCAPE AREA PER 15 PARKING SPACES
 250 SPACES PROPOSED/15 = 16.67 TREES REQUIRED
 250 / 15 = 16.667 (* 100 SF) = 1,667 SF OF LANDSCAPE AREA REQUIRED
 PROVIDED:
 19 TREES AND 3,040 SF OF LANDSCAPE AREA WITHIN PARKING LOT

PARKING IN A FRONT YARD
 REQUIRED:
 ACCORDING TO FOOTNOTE (g) TO TABLE 7.03.01 OF GENOA TWP ORDINANCE, REDUCED FRONT YARD SETBACK IS ALLOWED FOR SITES THAT DO NOT HAVE PARKING IN THE FRONT YARD AND PARKING LOT MUST BE LOCATED IN SIDE YARD NO CLOSER TO THE FRONT LOT THAN THE FRONT WALL OF THE BUILDING
 PROVIDED:
 REDUCED FRONT YARD SETBACK

DETENTION POND
 REQUIRED:
 1 DECIDUOUS TREE OR EVERGREEN AND 10 SHRUBS FOR EVERY 50 LF OF POND PERIMETER
 550 LF/50 LF = 11 (* 1 TREE) = 11 TREES REQUIRED
 550 LF/50 LF = 11 (* 10 SHRUBS) = 110 SHRUBS REQUIRED
 PROVIDED:
 11 TREES AND 110 SHRUBS BASED ON 550 LF POND PERIMETER



KEY	QUAN.	BOTANICAL NAME	COMMON NAME	SIZE	REMARK
TREES					
CC	1	Cercis canadensis 'Forest Pansy'	Forest Pansy Redbud	2" Cal.	B&B
GT	29	Gleditsia triacanthos 'Inermis Suncoke'	Sunburst Honeylocust	2 1/2" Cal	B&B
LT	6	Liriodendron tulipifera 'Aureomarginatum'	Majestic Beauty Tulip Tree	2 1/2" Cal	B&B
LTA	14	Liriodendron tulipifera 'fastigiata Arnold'	Arnold Tulip Tree	2 1/2" Cal	B&B
PG1	25	Picea glauca 'Densata'	Black Hills Spruce	7'-8" Hgt	B&B
PG2	3	Picea glauca 'Densata'	Black Hills Spruce	4' Hgt	B&B
TP	6	Taxus plicata 'Green Giant'	Green Giant Arborvitae	7'-8" Hgt	B&B
SHRUBS					
CS	84	Cornus stolonifera 'Farrow'	'Arctic Fire' Dogwood	36-48" Hgt	B&B
IV	27	Itea virginica 'Sprich'	'Little Henry' Sweetgum	No. 3	Cont
RN	15	Rosa x 'NOA250092'	Flower Carpet Rose - Pink Supreme	No. 3	Cont
TM	81	Taxus x media 'Densiformis'	Dense Spreading Yew	24" Hgt	B&B
VP	11	Viburnum plicatum tomentosum	Summer Snowflake Viburnum	36-48" Hgt	B&B
GRASSES					
CA	9	Calamagrostis acutiflora 'Karl Foerster'	Feather Reed Grass	No. 3	Cont
PA	19	Pennisetum alopecuroides 'Hameln'	Hameln fountain grass	No. 3	Cont

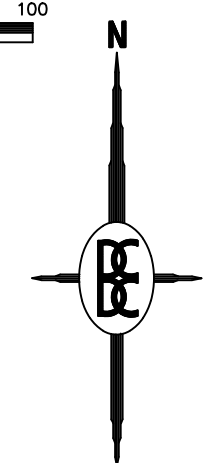
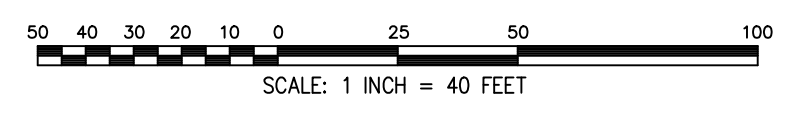
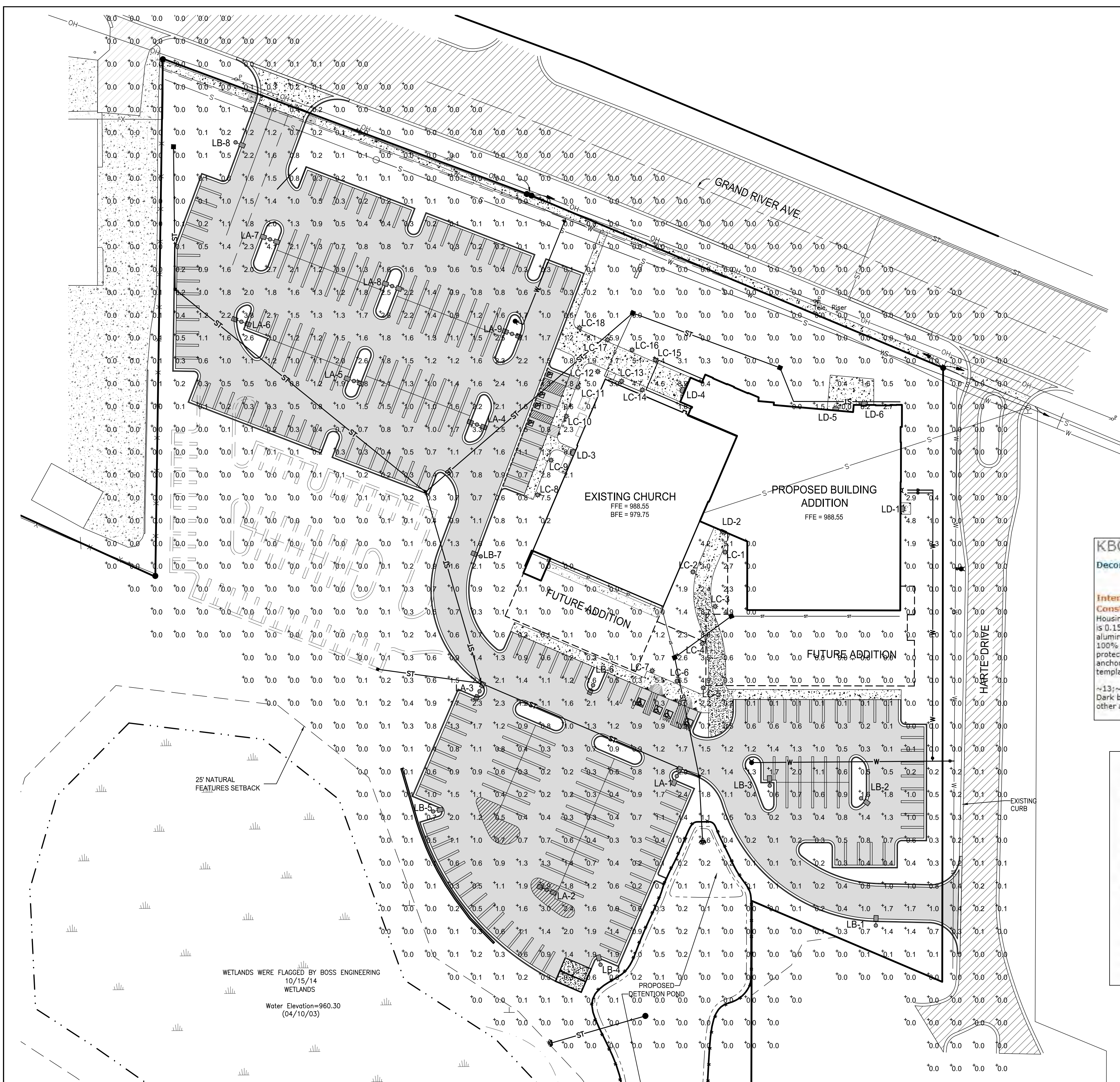


COMMUNITY BIBLE CHURCH EXPANSION
 COMMUNITY BIBLE CHURCH
 7372 GRAND RIVER AVENUE
 BRIGHTON, MI. 48114
 810-227-2255

PROJECT	PREPARED FOR	TITLE	DATE
COMMUNITY BIBLE CHURCH EXPANSION	COMMUNITY BIBLE CHURCH	LANDSCAPE PLAN	10-24-18

PER TWP REVIEW	REVISION PER	DATE
1	JA	NO

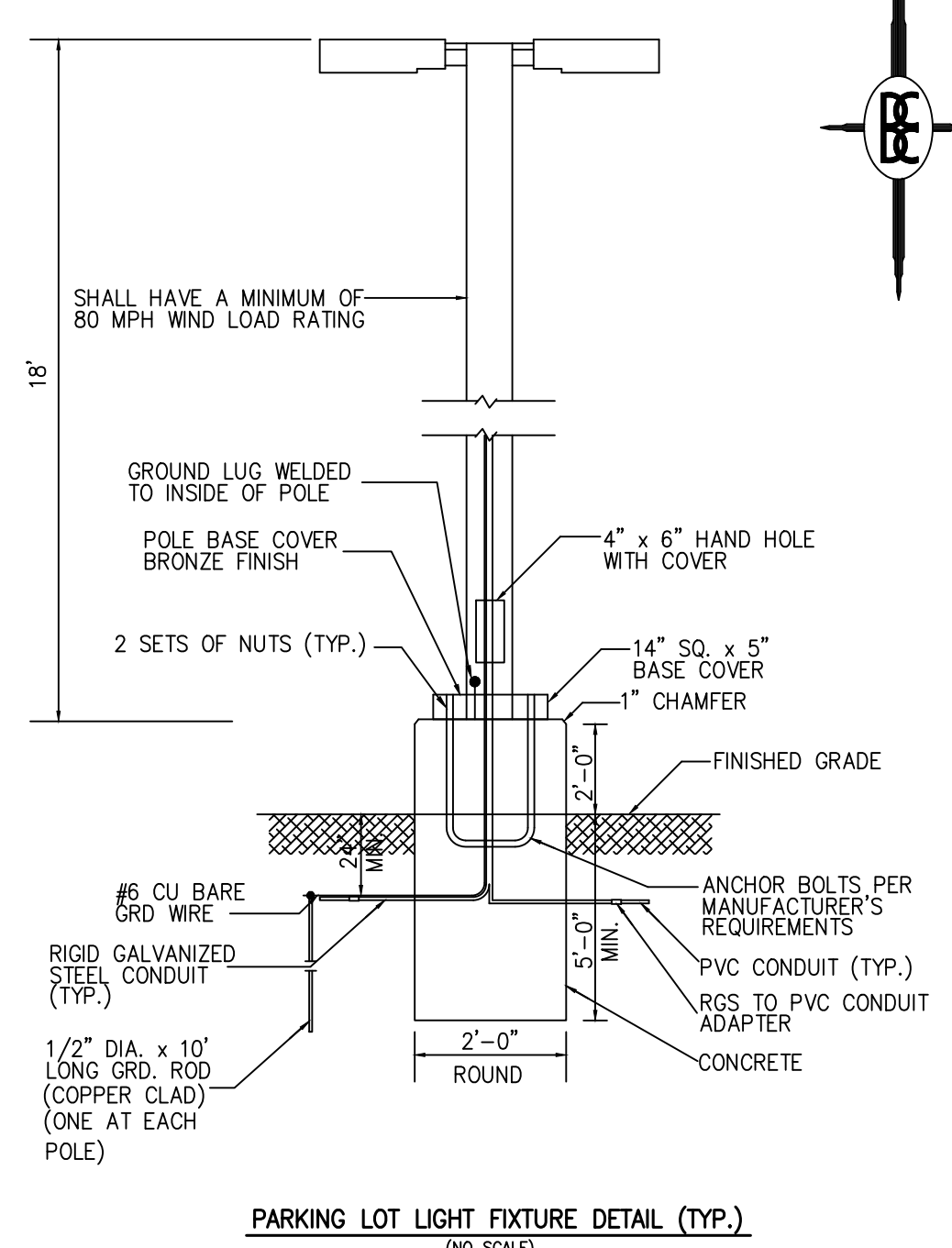
DESIGNED BY: JA
 DRAWN BY: JA
 CHECKED BY:
 SCALE: 1" = 40'
 JOB NO. 14-047
 DATE: 10/2/18
 SHEET NO. C6



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
☐	☐	DOUBLE FIXTURE LIGHT POLE
○	○	SINGLE FIXTURE LIGHT FIXTURE
◻	◻	WALL MOUNTED LIGHT FIXTURE
⊙	⊙	BOLLARD LIGHT FIXTURE
⊛	⊛	FOOT CANDLES ON SITE

SITE LIGHTING SUMMARY
 LIGHTING LEVELS ARE SHOWN IN FOOTCANDLES AT GRADE
 MAXIMUM PAVED LIGHT LEVEL: 10.0 FC.
 MINIMUM PAVED LIGHT LEVEL: 0.4 FC.
 MAX. LIGHT LEVEL AT THE PROPERTY LINE: 0.1 FC.
 MIN. LIGHT LEVEL AT THE PROPERTY LINE: 0.0 FC.

- GENERAL LIGHTING NOTES**
- THE LIGHTING PATTERN REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS.
 - ALL POLES ARE TO BE MOUNTED ON CONCRETE PEDESTALS 2' ABOVE GRADE IN PARKING LOTS AS SHOWN IN DETAIL.
 - ALL POLES LOCATED OUTSIDE OF THE PARKING AREA SHALL BE LOCATED 3' FROM BACK OF CURB OR EDGE OF SIDEWALKS.
 - SHOP DRAWINGS FOR THE ELECTRICAL WIRING OF THE POLES NEED TO BE SUBMITTED TO THE ENGINEER FOR COORDINATION OF UNDERGROUND CONDUIT AND APPROVAL OF LAYOUT.



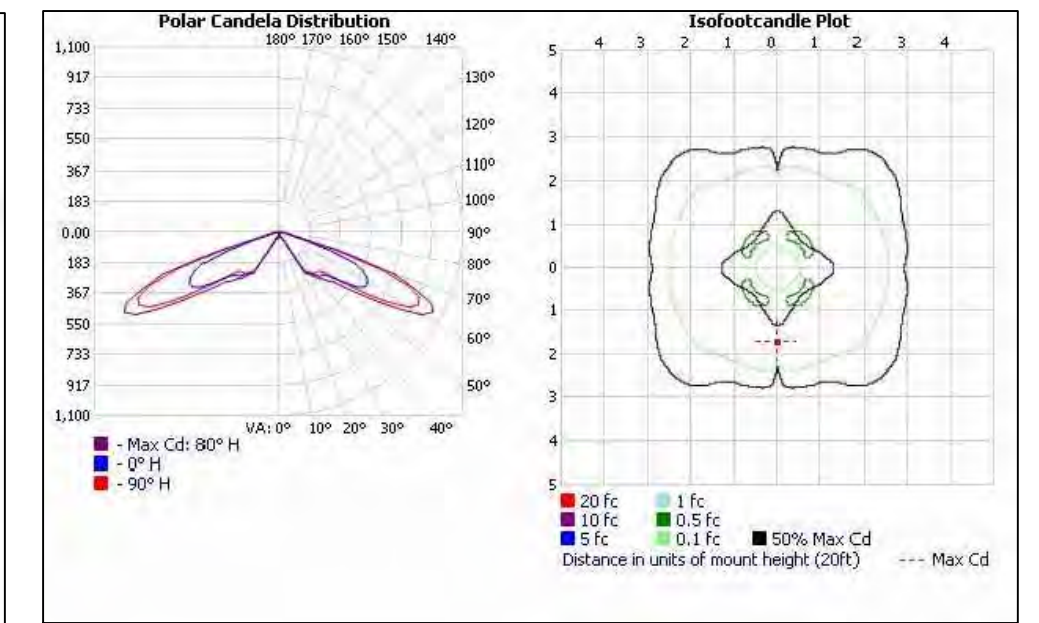
BOLLARD FIXTURE

KBC Decorative Round Bollard

Intended Use: For walkways, plazas or pedestrian areas.

Construction: Housing: KB_8: Bottom housing is 0.125" extruded aluminum. Top cover is 0.156" cast aluminum, KB_8: Bottom housing is 0.156" extruded aluminum 42" overall height standard. Flush-fitting lens is 1/2", clear, 100% virgin acrylic. All exposed hardware is tamper-resistant steel protected by a 1,000 hour corrosion-resistant coating. Four 1/2" x 11" anchor bolts with double nuts/washers and 4-1/2" diameter bolt circle template provided for mounting (shipped separately).

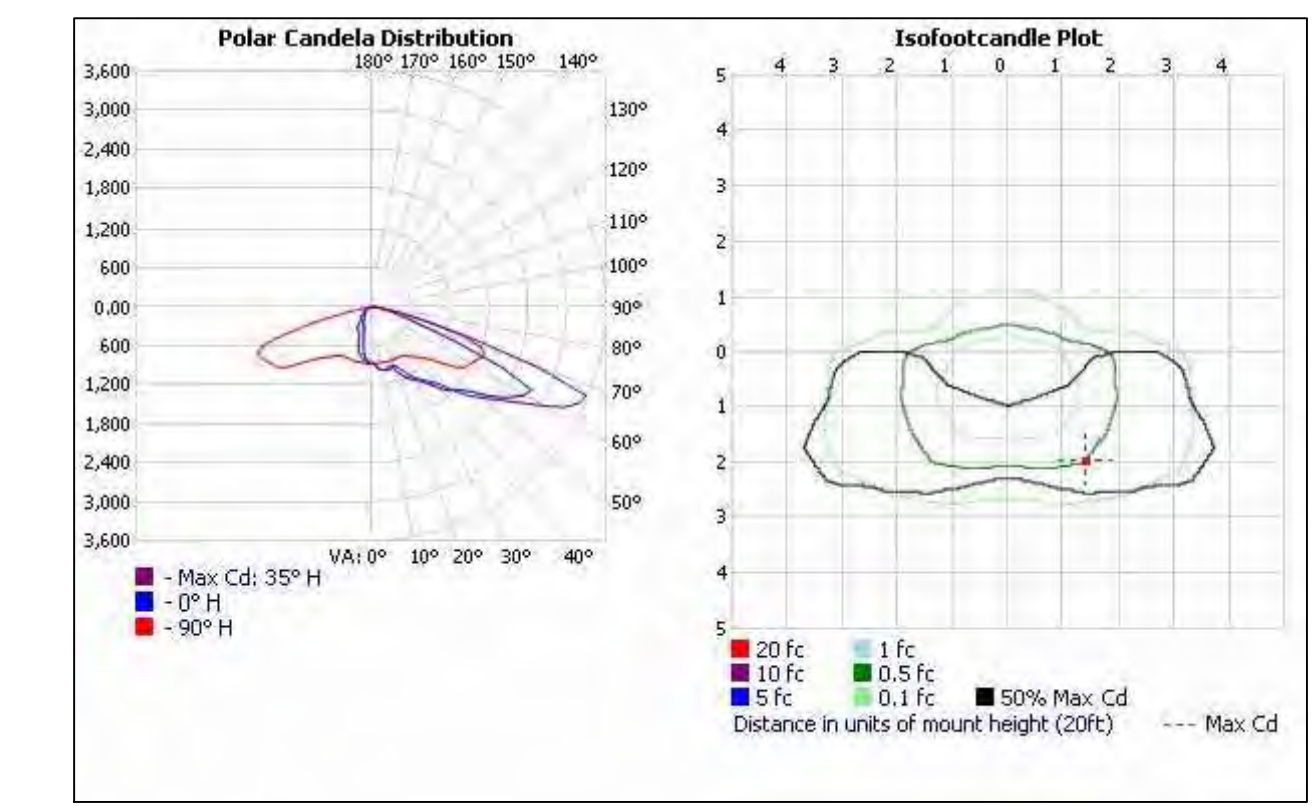
~13~10;
 Dark bronze (DDB) corrosion-resistant polyester powder finish standard; other architectural colors available.



PARKING LOT LIGHT FIXTURE

D-Series Size 1 LED Area Luminaire

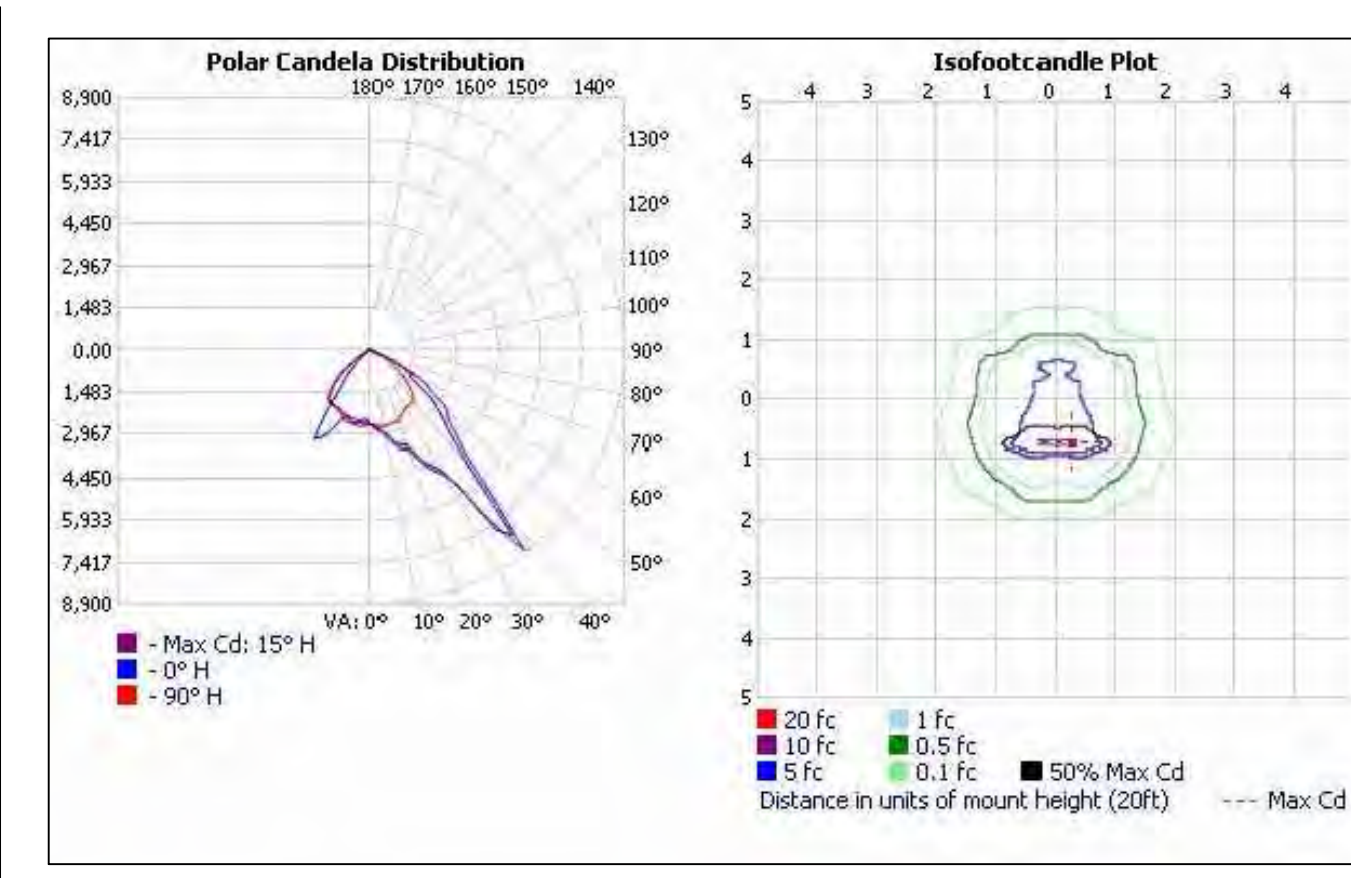
Specifications:
 EPA: 1.01 ft (30.8 cm)
 Length: 33" (841 mm)
 Width: 13" (330 mm)
 Height: 7-1/2" (190 mm)
 Weight (max): 27 lbs (12.2 kg)



WALL MOUNTED FIXTURES

WST LED Architectural Wall Sconce

Specifications:
 Luminaire
 Height: 8-1/2" (216 mm)
 Width: 17" (430 mm)
 Depth: 10-3/16" (267 mm)
 Weight: 20 lbs (9.1 kg)



LUMINAIRE SCHEDULE

SYMBOL	LABEL	QTY.	DESCRIPTION	CATALOG NUMBER	LAMP	LUMENS	LLF	POLE DESCRIPTION	POLE HEIGHT	BASE HEIGHT	TOTAL HEIGHT
☐	LA	9	(2) DSX1 LED P1 40K T4M MVOLT W/ HOUSE SHIELD	LITHONIA #DSX1 LED P1 40K T4M MVOLT HS	LED	ABSOLUTE	.93	SSA 25 6C T25 DM28 FBC BA	18'	2'	20'
○	LB	8	DSX1 LED P1 40K T4M MVOLT W/ HOUSE SHIELD	LITHONIA #DSX1 LED P1 40K T4M MVOLT HS	LED	ABSOLUTE	.93	SSA 25 6C T25 DM28 FBC BA	18'	2'	20'
⊙	LC	18	KBCB WITH 4 LIGHT BOLLARDS (16 LED'S), 530mA DRIVER, 4000K COLOR TEMP, AND SYMMETRIC OPTIC	LITHONIA #KBCB LED 16C 530 40K SYM MVOLT	LED	ABSOLUTE	.93		42"	0"	42"
◻	LD	6	ARCHITECTURAL SCONCE WITH MEDIUM THROW DISTRIBUTION WITH CLEAR FLAT GLASS LENS. COATED LAMP MEETS 'NIGHT TIME FRIENDLY' CRITERIA	LITHONIA WST 100M MD	LED	ABSOLUTE	.93		12' WALL MOUNTED	0"	12'

ALL IES FILES PROVIDED BY MANUFACTURER FOR CALCULATION OF LIGHTING LEVEL.

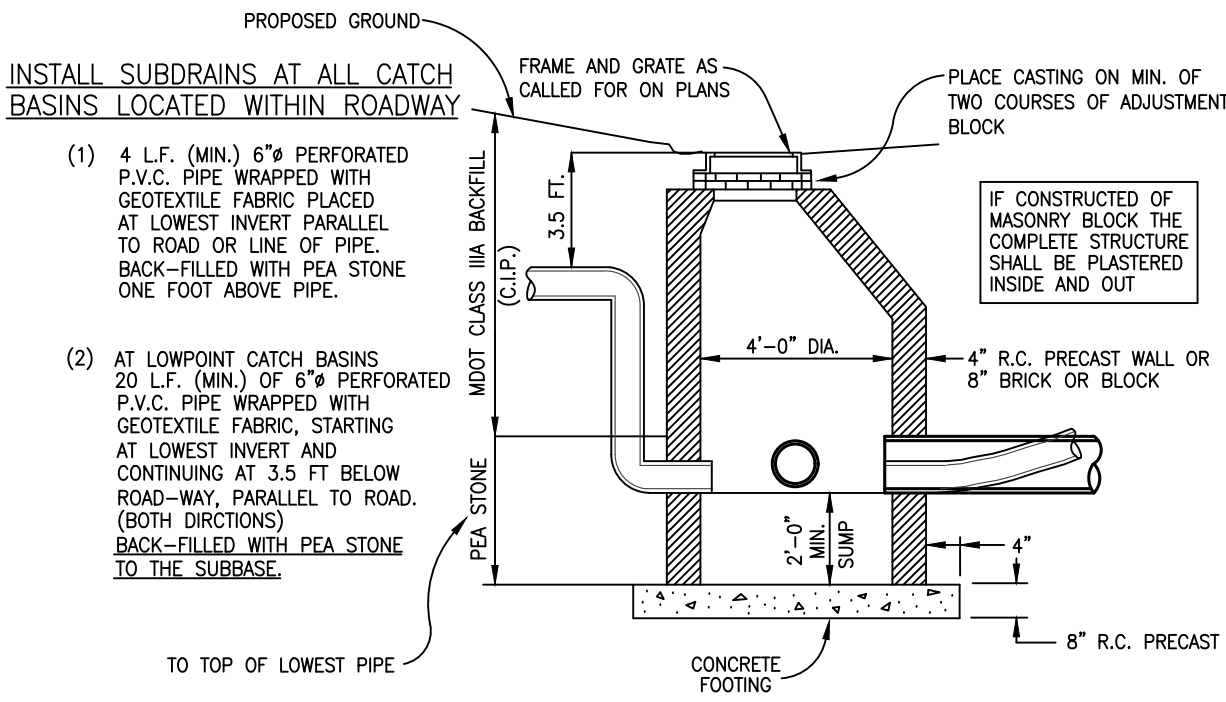
BEBOSS Engineering
 Engineers Surveyors Planners Landscape Architects
 3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

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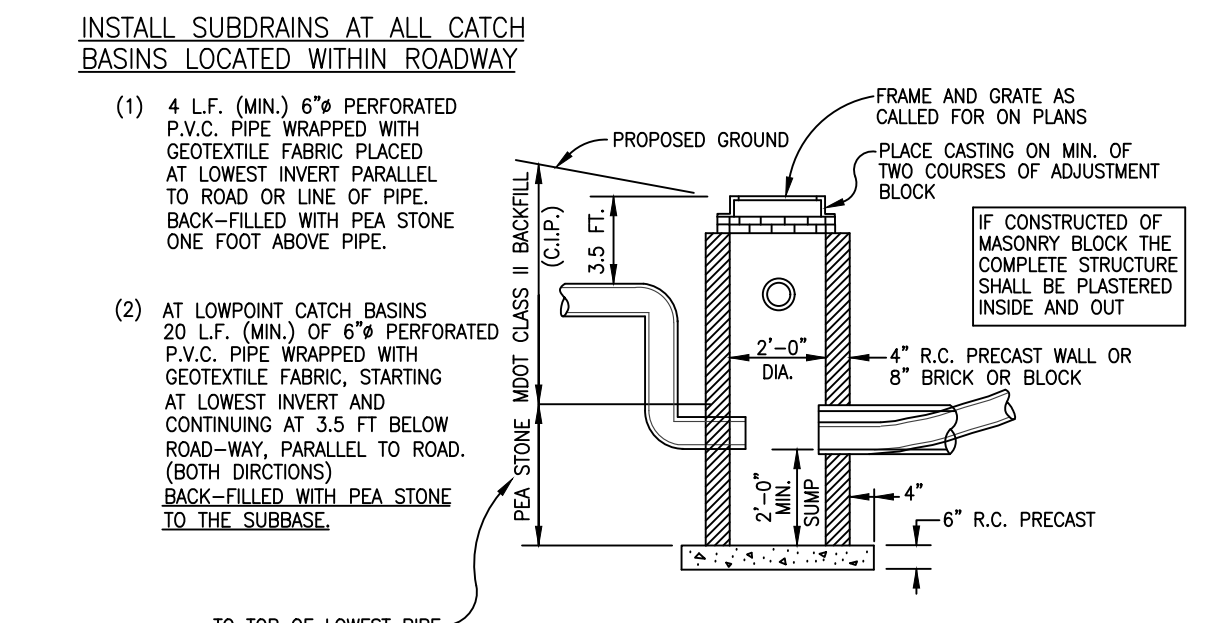
SITE PHOTOMETRIC PLAN

DESIGNED BY: ST
 DRAWN BY: ST
 CHECKED BY:
 SCALE: 1" = 40'
 JOB NO. 14-047
 DATE: 10/2/18
 SHEET NO. C7

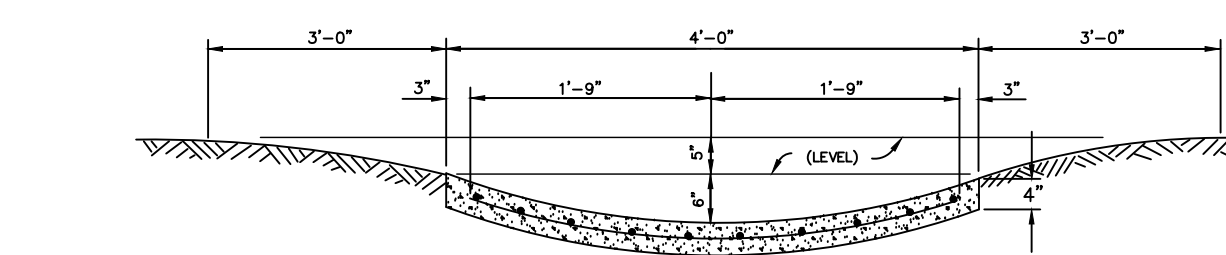
STRUCTURE FRAMES & COVERS					
COVER	TYPE	USE	MANUFACTURER OR EQUAL	TYPE OF COVER OR GRATE	
A	MH	ALL	EAST JORDAN 1040	RE-NH R-1916 F1	SANITARY-SELF SEALING STORM-VENTED
D	CB & INLET	TYPE B2 CURB	7065	R-3030-A	
K	CB & INLET	TYPE C & F CURB	7000-T1-M1	R-3070	FLAT GRATE WITH VERT. 4" OPEN THROAT
C	CB & INLET	VALLEY CURB	7065	R-3034-D	
D	CB & INLET	PARKING LOTS	1020-MI	R-2560-D	FLAT GRATE
E	CB & INLET	LAWN AREA OR DITCH	1020-01		BEEHIVE GRATE 4" HIGH



4 FT. DIA. CATCH BASIN W/SUMP
NO SCALE

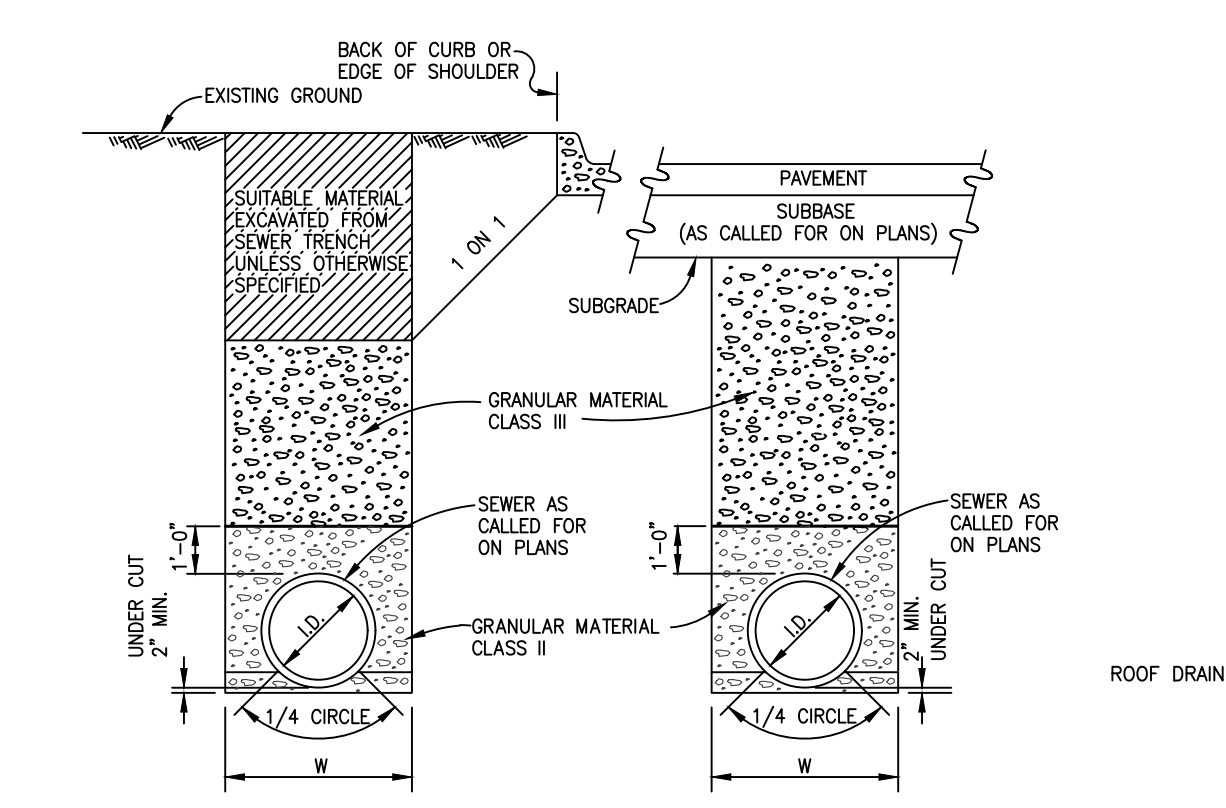


2 FT. DIA. CATCH BASIN W/SUMP
NO SCALE

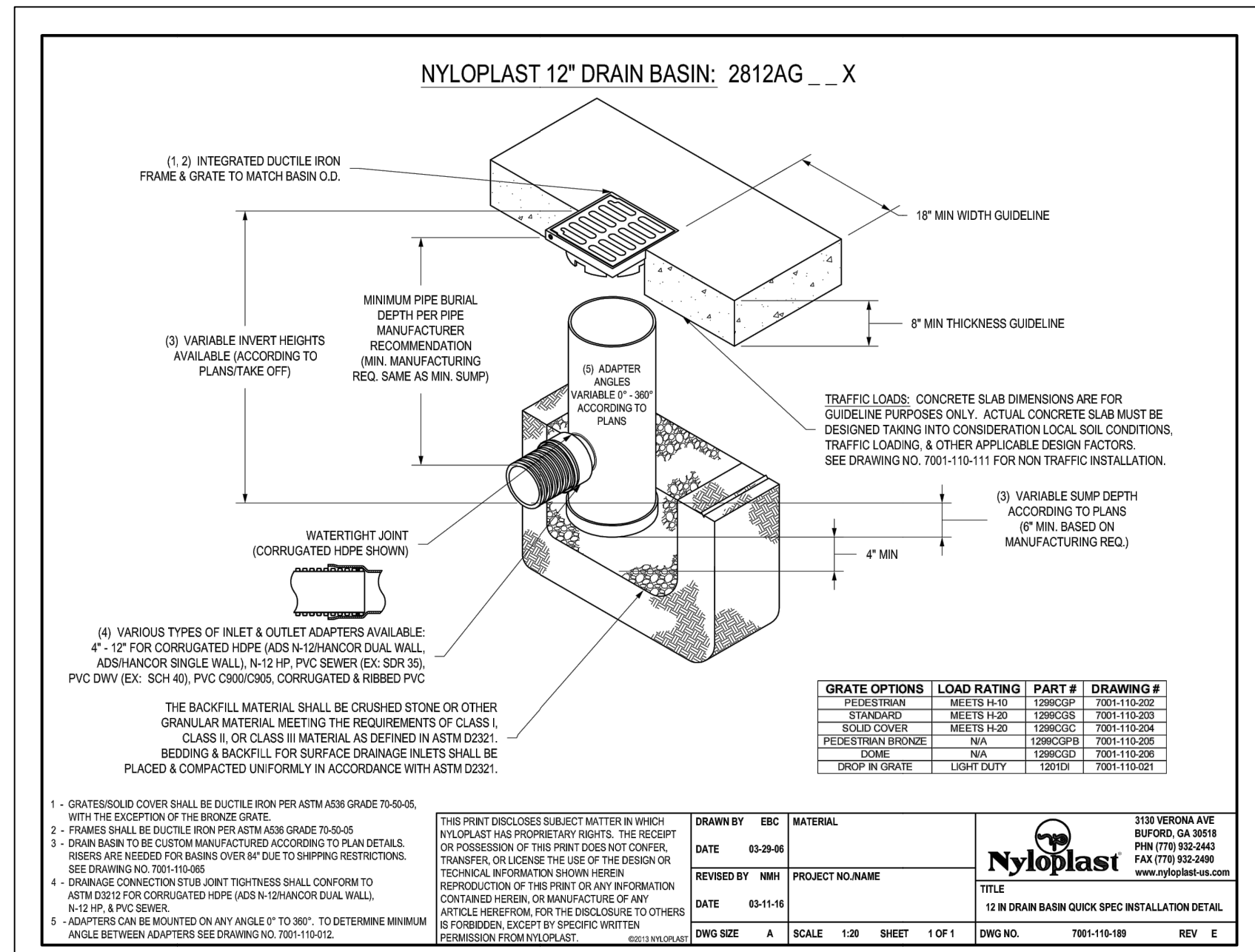


CONCRETE SPILLWAY
SCALE: NONE

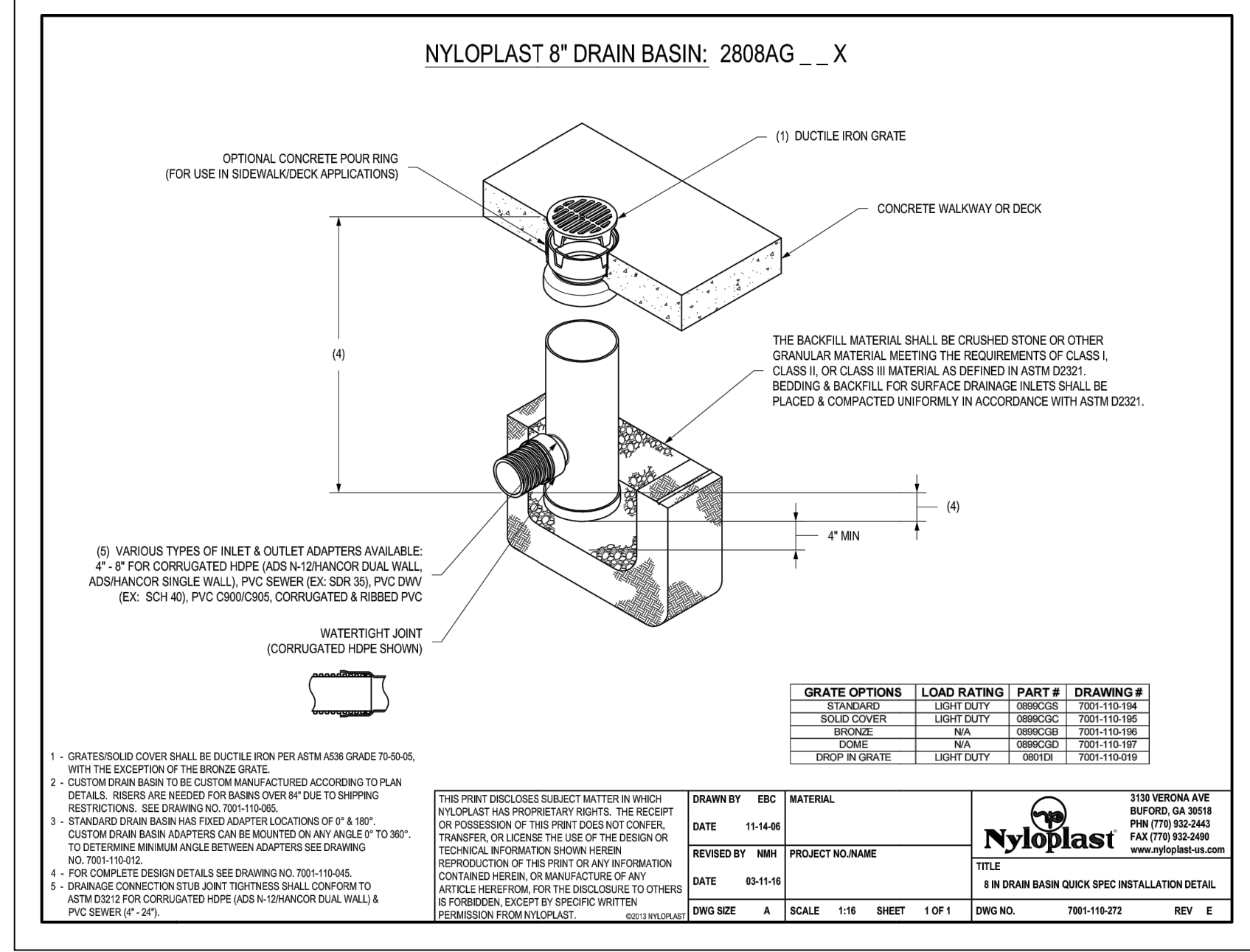
NOTES
MAKE GRADUAL TRANSITION FROM STANDARD CONCRETE CURB AND GUTTER TO CONCRETE SPILLWAY.
FLANGE OF WEARNESS JOINTS, NOT LESS THAN 1/8\"/>



SEWER UNDER ROADBED OR WITHIN INFLUENCE OF ROADBED
(REF. MDO DETAIL H-830)
NO SCALE



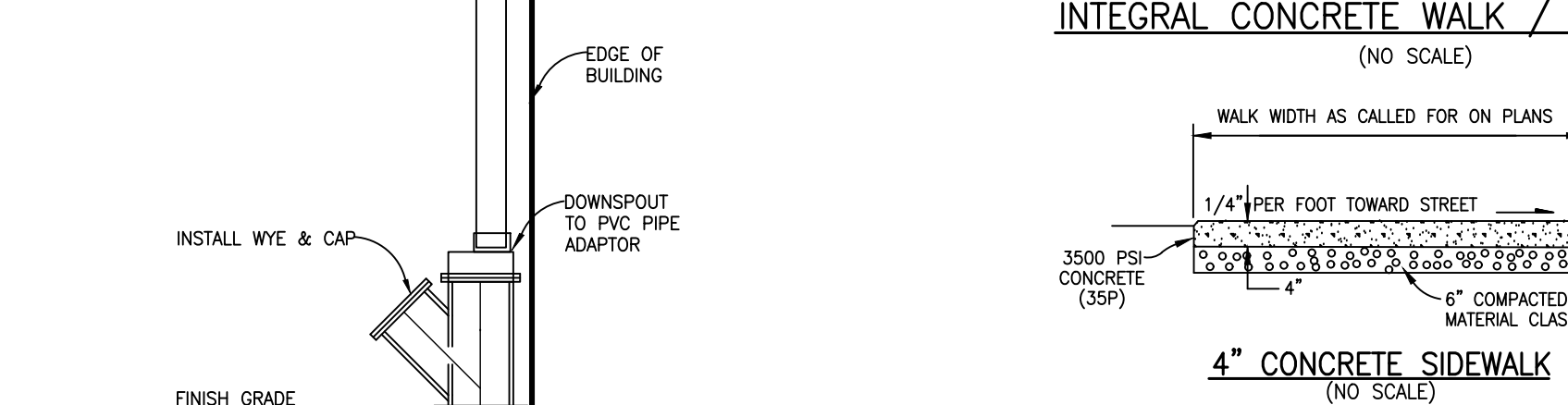
GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
STANDARD	MEETS 120	1280C08	7001-110-201
ROAD COVER	MEETS 120	1280C09	7001-110-204
PEDESTRIAN BRIDGE	N/A	1280C09P	7001-110-205
STONE	N/A	1280C07	7001-110-202
DROP IN GRATE	LIGHT DUTY	1281D	7001-110-203



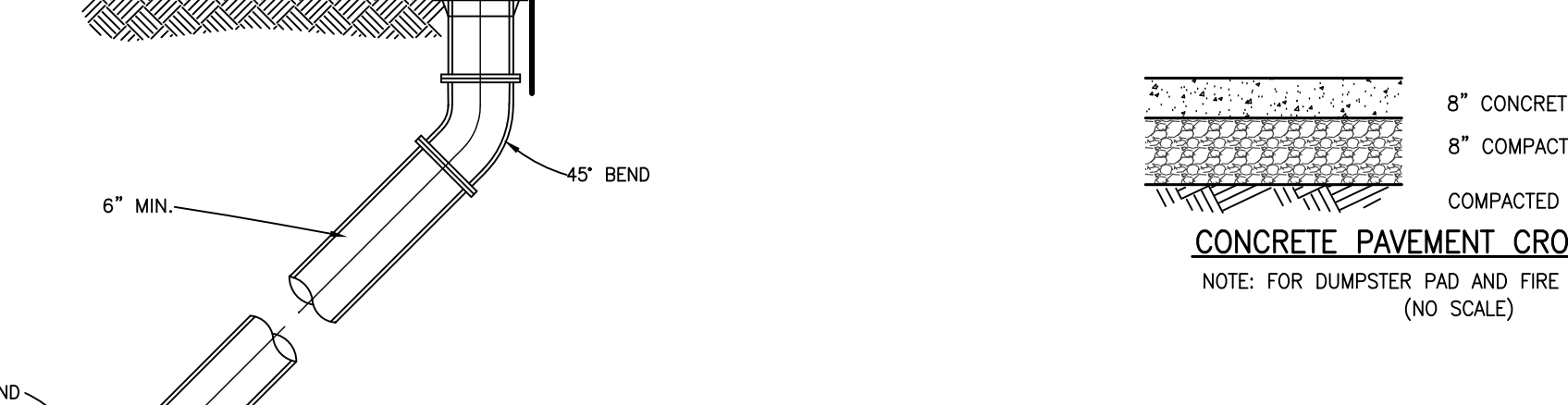
GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
STANDARD	LIGHT DUTY	0880C08	7001-110-186
ROAD COVER	LIGHT DUTY	0880C09	7001-110-188
PEDESTRIAN BRIDGE	N/A	0880C09P	7001-110-187
STONE	N/A	0880C07	7001-110-189
DROP IN GRATE	LIGHT DUTY	0881D	7001-110-190



INTEGRAL CONCRETE WALK / CURB DETAIL
(NO SCALE)



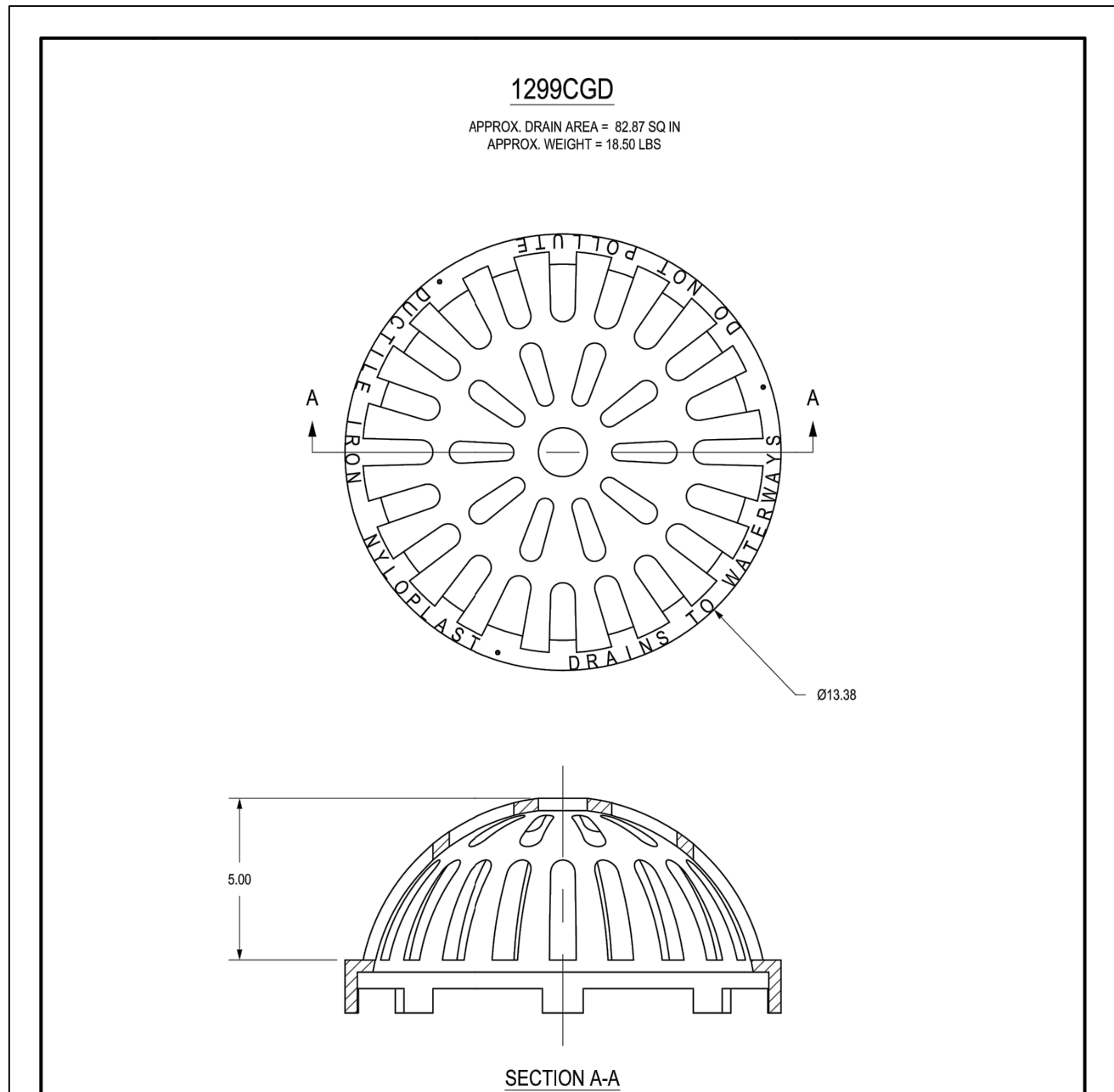
4\"/>



CONCRETE CURB & GUTTER TYPE F
(NO SCALE)

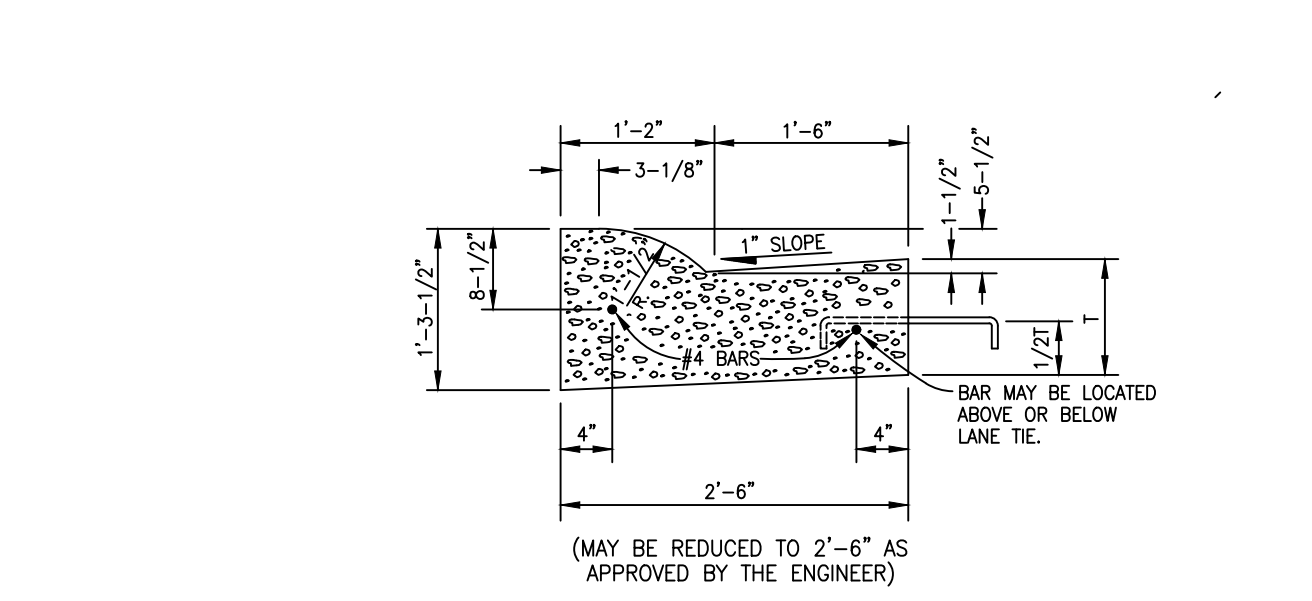


ASPHALT SECTION
(NO SCALE)

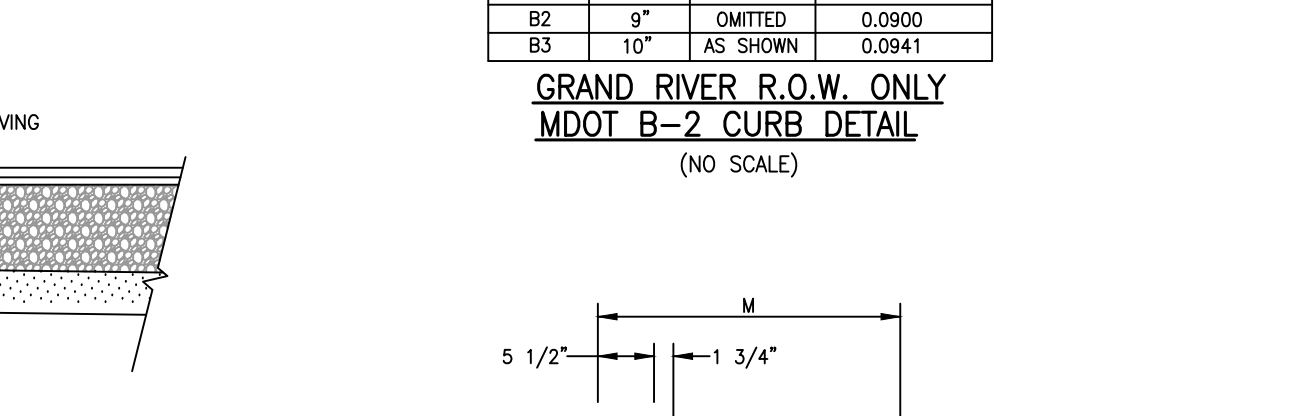


DIMENSIONS ARE FOR REFERENCE ONLY. ACTUAL DIMENSIONS MAY VARY. QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-505. PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT. LOCKING DEVICE AVAILABLE UPON REQUEST.

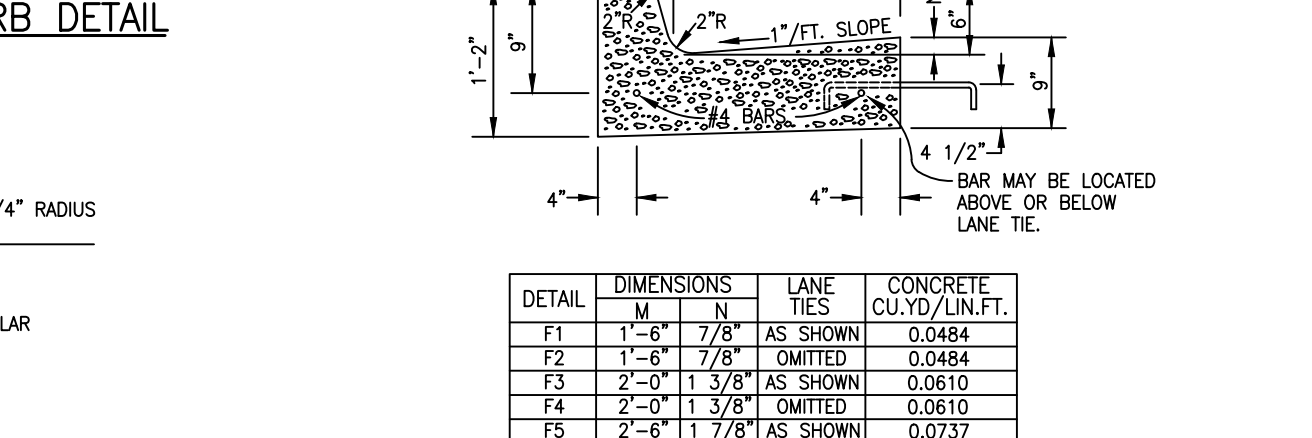
DATE	BY	DESCRIPTION
03-20-09	ESC	DESIGN
03-11-10	ESC	REVISION



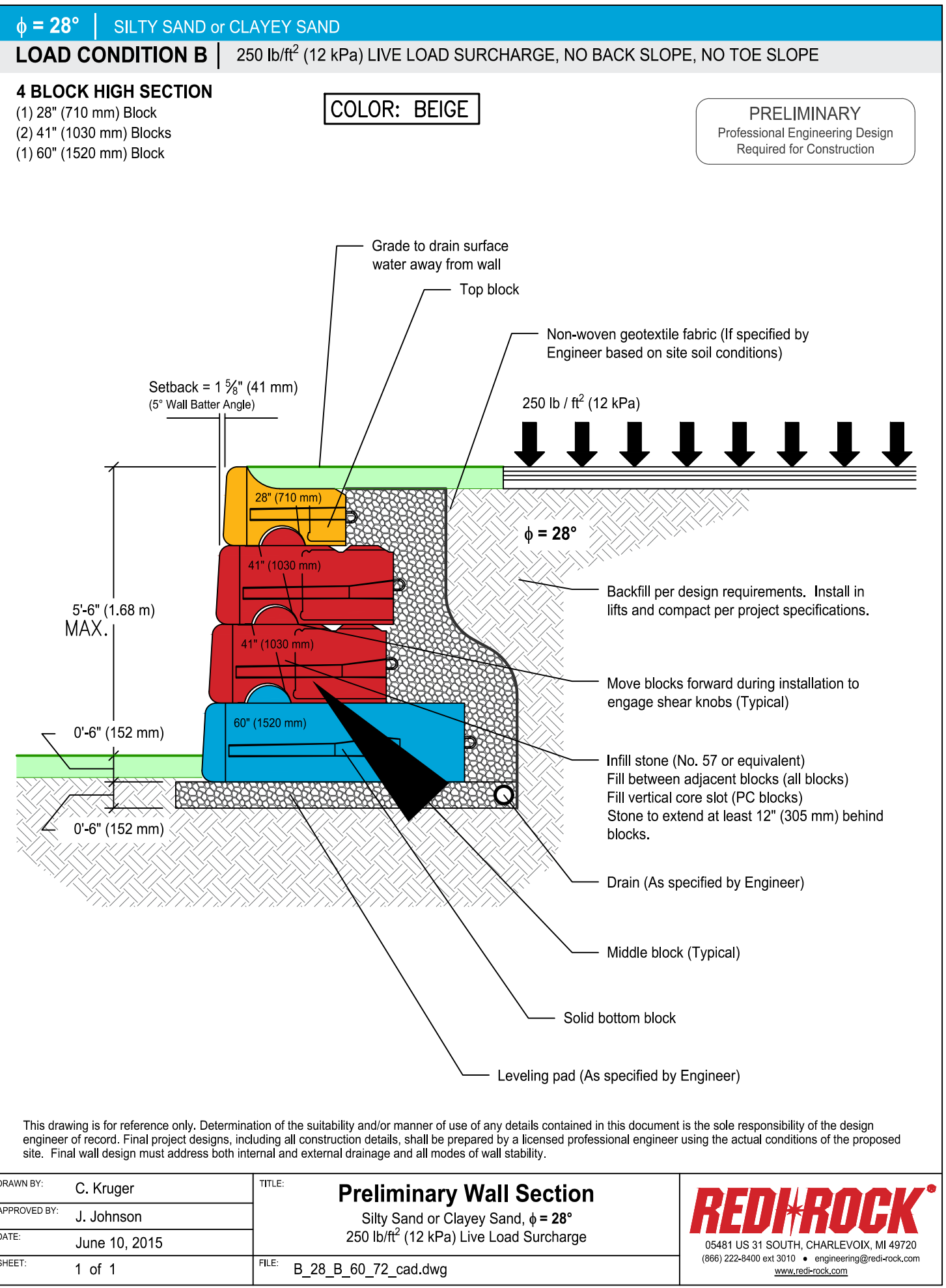
GRAND RIVER R.O.W. ONLY MDO B-2 CURB DETAIL
(NO SCALE)



CONCRETE CURB & GUTTER TYPE F
(NO SCALE)

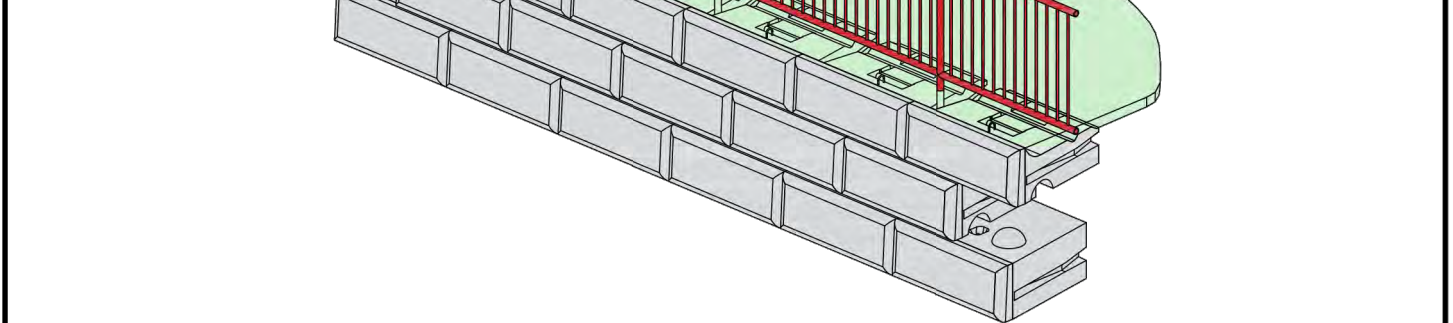


MODIFIED BARRIER (M.D.O.T. TYPE F4)
(NO SCALE)



Preliminary Wall Section
Silty Sand or Clayey Sand, φ = 28°
250 lb/ft² (12 kPa) Live Load Surcharge

DATE	BY	DESCRIPTION
06-22-2015	JRJ	DESIGN



Fence or Pedestrian Guard Connection Options

These generic pedestrian guard and fence details show a few potential options for their installation on the top of a Redi-Rock retaining wall. It is the design engineer's responsibility to fully design and detail the connection of the guard posts to the retaining wall blocks and assure acceptable resistance to the applied forces. Redi-Rock blocks are plain concrete, without steel reinforcement.

DETAIL	M	N	LANE TIES	CONCRETE CU.YD./LIN.FT.
F1	1'-0"	7/8"	AS SHOWN	0.0484
F2	1'-0"	1 1/8"	OMITTED	0.0484
F3	2'-0"	1 3/8"	AS SHOWN	0.0610
F4	2'-0"	1 3/8"	OMITTED	0.0610
F5	2'-0"	1 7/8"	AS SHOWN	0.0737
F6	2'-0"	1 7/8"	OMITTED	0.0737

Fence or Pedestrian Guard Connection Options

DATE	BY	DESCRIPTION
06-22-2015	JRJ	DESIGN

BEFORE YOU DIG CALL MISS DIG 811

REDD-ROCK
Professional Engineering Design
Required for Construction

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

COMMUNITY BIBLE CHURCH EXPANSION

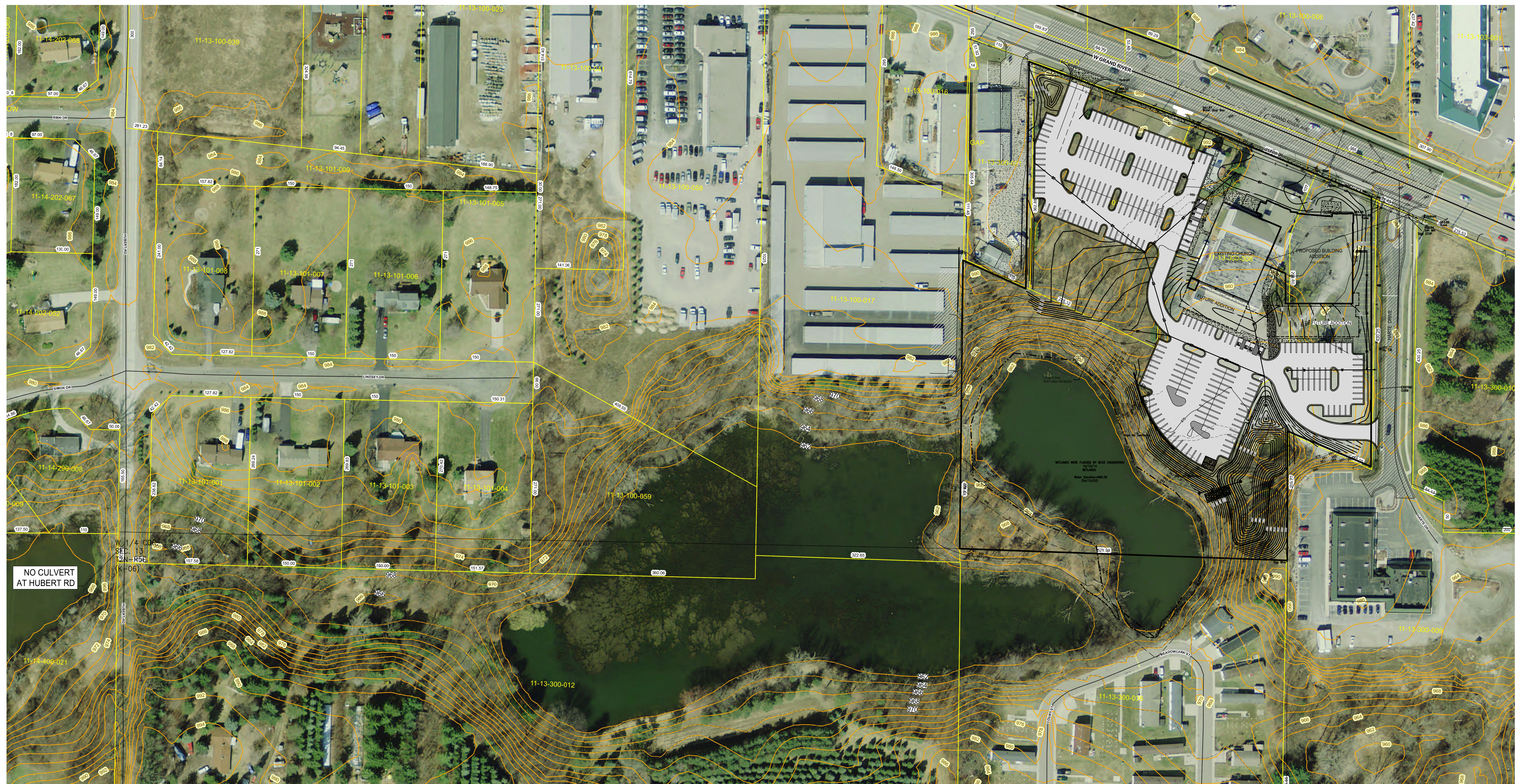
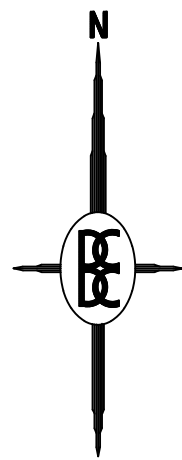
COMMUNITY BIBLE CHURCH
7372 GRAND RIVER AVENUE
BRIGHTON, MI. 48114
810-227-2255

CONSTRUCTION NOTES & DETAILS

NO.	BY	DATE	REVISION
1	ST	10-24-18	

DESIGNED BY: ST
DRAWN BY: ST
CHECKED BY: NTS
JOB NO. 14-047
DATE: 10/2/18
SHEET NO. C8

REDD-ROCK
05481 US 31 SOUTH CHARLEVOIX, MI 49720
(866) 222-8400 ext 3010 • engineering@red-rock.com



STORM WATER NARRATIVE
 PRE-DEVELOPMENT CONDITIONS:
 THERE ARE MINIMAL STORM STRUCTURES ON SITE. WATER ON THE EAST SIDE OF THE CHURCH DRAINS INTO A CATCH BASIN THAT FLOWS SOUTH TO A SMALL DETENTION POND AT THE SOUTHEAST PORTION OF THE SITE. WATER ON THE WEST SIDE OF THE EXISTING CHURCH BUILDING PRIMARILY SHEET FLOWS TO THE WETLANDS AT THE SOUTH PORTION OF THE SITE. THERE IS AN EXISTING CATCH BASIN STRUCTURE AT THE SOUTHEAST CORNER OF THE EXISTING GRAVEL PARKING LOT AT THE REAR OF THE BUILDING. THIS BASIN COLLECTS A SMALL PORTION OF STORM WATER FROM THE GRAVEL LOT. A MAJORITY OF THE SITE SHEET FLOWS FOR DIRECT RUNOFF TO THE WETLAND. THE WEST HALF OF THE SITE IS PARTIALLY WOODED AND WAS ORIGINALLY A RESIDENTIAL LOT. THE EAST HALF OF THE SITE IS CURRENTLY THE COMMUNITY BIBLE CHURCH FACILITY WITH PAVED PARKING AND GRAVEL PARKING.

PROPOSED CONDITIONS:
 A DETENTION BASIN AND FOREBAY ARE PROPOSED AT THE SOUTHEAST PORTION OF THE SITE AND ARE SIZED FOR THE ENTIRE SITE TO BE DEVELOPED, INCLUDING THE TWO FUTURE BUILDING EXPANSION AREAS AS WELL AS THE FUTURE PARKING LOT. THE PROPOSED PARKING LOT SOUTH OF THE BUILDING WILL SHEET FLOW TO THE EAST AND ENTER THE FOREBAY VIA A SPILLWAY. THERE ARE ADDITIONAL STORM STRUCTURES THAT GO TO THE WEST PORTION OF THE SITE AND TO THE GREENSPACE NORTH OF THE BUILDING. THE PROPOSED DETENTION BASIN IS PROPOSED TO OUTLET INTO THE WETLAND AT A RATE OF 0.20 CFS PER ACRE. WITH THE CURBED PARKING AREAS CONTAINING THE SITE RUNOFF, THE ONLY AREA THAT WILL DIRECT DISCHARGE TO THE WETLAND IS THE GRASSED/WOODED AREAS SOUTH OF THE PROPOSED PARKING LOTS. THIS COLLECTION OF STORMWATER COMPARED TO THE PRE-DEVELOPMENT CONDITIONS WILL REDUCE THE DISCHARGE RATE TO THE WETLAND SIGNIFICANTLY.

INCREMENTAL RISE ANALYSIS NARRATIVE
 THE ADDITIONAL DEVELOPMENT OF THE COMMUNITY BIBLE CHURCH SITE, CURRENT AND FUTURE ADDITIONS, WILL CAUSE INCREASE IN STORM WATER VOLUME GENERATED DUE TO THE INCREASE IN IMPERVIOUS SURFACES. THIS SITE DISCHARGES INTO A LARGE WETLAND SYSTEM AT THE SOUTH END OF THE SITE THAT EXTENDS WESTERLY ALL THE WAY TO HUBERT ROAD. THERE IS NO CULVERT CROSSING UNDER HUBERT ROAD TO CONNECT TO THE WETLAND SYSTEM ON THE WEST SIDE OF HUBERT ROAD. IT IS IMPORTANT TO ANALYZE BOTH THE FLOW AND VOLUME OF STORMWATER BEING DISCHARGED INTO THE WETLAND SYSTEM TO DETERMINE THE IMPACTS OF DEVELOPMENT. TR-55 WAS USED TO CALCULATE BOTH A PRE-DEVELOPMENT STORMWATER VOLUME AND FLOW AS WELL AS POST-DEVELOPMENT VOLUME.

DISCHARGE VOLUME
 THE PRE-DEVELOPMENT PEAK DISCHARGE TO THE WETLAND FROM A 100-YEAR STORM IS 23.27 CFS. THIS DOES NOT CONSIDER THE DETENTION BASIN THAT DOES COLLECT STORM WATER FROM 2 STORM STRUCTURES ON SITE. THIS WAS DISREGARDED AS THE EXISTING DETENTION BASIN IS SEVERELY UNDERSIZED AND HAS VIRTUALLY NO VOLUME. THE POST DEVELOPMENT VOLUME AS CALCULATED BY TR-55 IS 30.78 CFS. THIS FLOW RATE HOWEVER DOES NOT CONSIDER THE IMPLEMENTATION OF A PROPERLY SIZED 100-YR STORM DETENTION BASIN. THE POST-DEVELOPMENT FLOW DISCHARGE TO THE WETLAND PER THE LIVINGSTON COUNTY DRAIN COMMISSIONER STANDARDS IS 0.20 CFS/ACRE. THE ACTUAL DISCHARGE RATE FROM THE OVERFLOW CONTROL STRUCTURE IN THE PROPOSED BASIN IS 1.12 CFS. THIS CONTROLLED DISCHARGE RATE IS SIGNIFICANTLY LESS THAN THE PRE-DEVELOPMENT DISCHARGE RATE DUE TO THE FACT THAT THE PRE-DEVELOPMENT CONDITION IS PRIMARILY DIRECT DISCHARGE.

IT SHALL BE NOTED THAT THE AREA SOUTH OF THE PROPOSED CONSTRUCTION LIMITS WAS NOT INCLUDED IN THIS ANALYSIS FOR BOTH VOLUME AND FLOW RATE AS THE CONDITIONS FOR SAID AREA WILL NOT CHANGE BETWEEN PRE-DEVELOPMENT AND POST-DEVELOPMENT CONDITIONS.

VOLUME
 TR-55 WAS UTILIZED TO CALCULATE PRE-DEVELOPMENT STORM WATER VOLUMES GENERATED BY A 100-YEAR STORM. THE PRE-DEVELOPMENT CONDITION HAS AN AREA OF 4.79 ACRES AND A CURVE NUMBER (CN) OF 85. THE LAND COVER FOR THE PRE-DEVELOPMENT CONDITION IS NEARLY HALF IMPERVIOUS SURFACE (ROOFS AND EXISTING PARKING LOTS AND HOUSE) AND THE OTHER HALF WOODED/GRASSED COVER. WITH A PRECIPITATION AMOUNT OF 5.36 INCHES FOR A 100-YEAR STORM, A PRE-DEVELOPMENT STORM WATER VOLUME OF 64,373 CFT IS GENERATED. FOR THE POST-DEVELOPMENT CONDITION, AN AREA OF 5.61 ACRES AND CURVE NUMBER OF 91 WAS USED. THE INCREASED AREA IN THE POST-DEVELOPMENT CONDITION IS DUE TO ADDITION AREA ALONG GRAND RIVER THAT IS NOW BEING COLLECTED INTO THE PROPOSED STORM WATER SYSTEM. THE HIGHER CURVE NUMBER IN THAT POST-DEVELOPMENT CALCULATION CONSIDERS THE ULTIMATE DEVELOPMENT OF THIS SITE WHICH IS THE CURRENT PROPOSED PAVING AND EXPANSION AS WELL AS THE TWO FUTURE BUILDING EXPANSIONS AND THE FUTURE PARKING LOT. WITH THE SAME PRECIPITATION OF 5.36 INCHES IN A 100-YEAR STORM EVENT, A POST-DEVELOPMENT STORM WATER VOLUME GENERATED IS 88,222 CFT.

INCREMENTAL RISE
 THE INCREMENTAL RISE IN THE WETLAND SYSTEM IS DUE TO THE ADDITIONAL STORM WATER VOLUME GENERATED IN THE POST-DEVELOPMENT CONDITION VERSUS THE PRE-DEVELOPMENT CONDITION. THE ADDITIONAL STORM WATER GENERATED IS:

$$88,222 \text{ CFT} - 64,373 \text{ CFT} = 23,849 \text{ CFT}$$

EXISTING DATA POINTS AT THE PERIMETER OF THE WETLAND RANGE FROM 961.07 TO 964.35. BASED ON THE CONTOUR DATA, THE WETLAND ELEVATION IS MOST ACCURATELY JUST UNDER 962. ADDITIONAL CONTOUR DATA FURTHER WEST OF THE SITE WAS OBTAINED FROM THE LIVINGSTON COUNTY GIS OFFICE AND CAN BE SEEN IN THE IMAGE ABOVE. CONTOUR AREAS AND CONSEQUENTLY WETLAND STORAGE VOLUMES UP TO AN ELEVATION OF 968 WERE GENERATED. CERTAINLY THE WETLAND WATER ELEVATION FLUCTUATES PENDING THE SEASON, BUT FOR THE PURPOSE OF THIS ANALYSIS THE LARGEST INCREMENTAL RISE GENERATED BY THE DEVELOPMENT OF THIS SITE IS WHEN THE WETLAND ELEVATION IS LOW AND THE WETLAND AREAS ARE SMALLER. FOR THE INCREMENTAL RISE ANALYSIS A STARTING ELEVATION OF 962 WAS USED AS A BASELINE, WITH THE VOLUME DATA PROVIDED IN THE CHART ON THIS SHEET. THE ADDITIONAL 23,489 CFT WILL INCREASE THE WETLAND ELEVATION TO 962.06 WHICH IS AN INCREASE IN 0.06 FEET (0.76 INCHES). [EVEN AT SMALLER WETLAND AREAS, THE IMPACT OF ADDITIONAL STORM WATER ON THE WETLAND SYSTEM IS NEGLIGIBLE AS IT IS LESS THAN 1-INCH. IF THE WETLAND ELEVATION WERE ASSUMED TO BE EVEN HIGHER AS A BASELINE, THE INCREMENTAL RISE WOULD BE EVEN LESS YET AS THE WETLAND AREAS INCREASE AS ELEVATION INCREASES.]

SUMMARY
 IN SUMMARY, THE PROPOSED DEVELOPMENT OF THIS EXISTING SITE IMPROVES THE DISCHARGE OF STORM WATER TO THE WETLAND AS STORM WATER IS ROUTED THROUGH A 100-YEAR VOLUME DETENTION BASIN WITH A CONTROLLED OUTLET RATE. THE INCREASED VOLUME GENERATED BY THE DEVELOPMENT OF THIS SITE IS MINIMAL AND HAS A NEGLIGIBLE INCREMENTAL RISE IN WATER ELEVATION IN THE WETLAND. FINALLY, THE PROPOSED DEVELOPMENT INCLUDES THE CONSTRUCTION OF A SEDIMENT FOREBAY FOR IMPROVED WATER QUALITY.

WETLAND STORAGE VOLUME & INCREMENTAL RISE CALC

ELEV.	AREA (AC)	DEPTH (FT)	VOLUME (CFT)	TOTAL VOLUME (CFT)
968	537057	2	995,943	2,613,468
966	458886	2	855,743	1,817,525
964	408857	2	751,782	751,782
962	344925	0	0	0
VOLUME DIFFERENTIAL FROM DEVELOPMENT =			23849	CFT
ELEVATION OF WETLAND W/ ADDITIONAL VOLUME =			962.06	
INCREMENTAL RISE (FROM BASE OF 962) =			0.06 FT	
			0.76 INCHES	

TR-55 AREA SUMMARY

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
pre-dev	4.79	0.250	85	Outlet	
post-dev	5.61	0.250	91	Outlet	

TR-55 RAINFALL DATA

Livingston M263 County, Michigan						
Storm Data						
Rainfall Depth by Rainfall Return Period						
2-Yr (in)	5-Yr (in)	10-Yr (in)	20-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
2.37	2.86	3.33	4.05	4.68	5.36	2.11

Storm Data Source: Livingston M263 County, MI (NRCS)
 Rainfall Distribution Type: Type II
 Dimensionless Unit Hydrograph: <standard>

TR-55 PEAK FLOW (100-YR STORM)

Livingston M263 County, Michigan	
Watershed Peak Table	
Sub-Area Identifier	Peak Flow by Rainfall Return Period (cfs)
pre-dev	23.27
post-dev	30.78 (DOES NOT CONSIDER CONTROLLED DISCHARGE FROM O.C.S. STRUCTURE)

THE LOCATION AND ELEVATION OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS PLAN ARE EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY OF THE INFORMATION PROVIDED HEREON. THE ENGINEER HAS CONDUCTED VISUAL SURVEYS AND PREPARED UTILITY CROSSINGS IN THE FIELD PRIOR TO CONSTRUCTION AND HAS OBSERVED THE EXISTING UTILITIES AND HAS FOUND THEM TO BE AS SHOWN ON THE PLANS. THE LOCATION OR DEPTH DIFFERS SIGNIFICANTLY FROM THE PLANS.

BEFORE YOU DIG
 CALL MISS DIG
 1-800-487-7171

BEBOSS
 Engineering
 Engineers Surveyors Planners Landscape Architects

3121 E. GRAND RIVER AVE.
 HOWELL, MI. 48843
 800.246.6735 FAX 517.548.1670

PROJECT: COMMUNITY BIBLE CHURCH EXPANSION
 PREPARED FOR: COMMUNITY BIBLE CHURCH
 7372 GRAND RIVER AVENUE
 BRIGHTON, MI 48114
 810-227-2255

TITLE: DRAINAGE STUDY

DESIGNED BY: ST
 DRAWN BY: ST
 CHECKED BY:

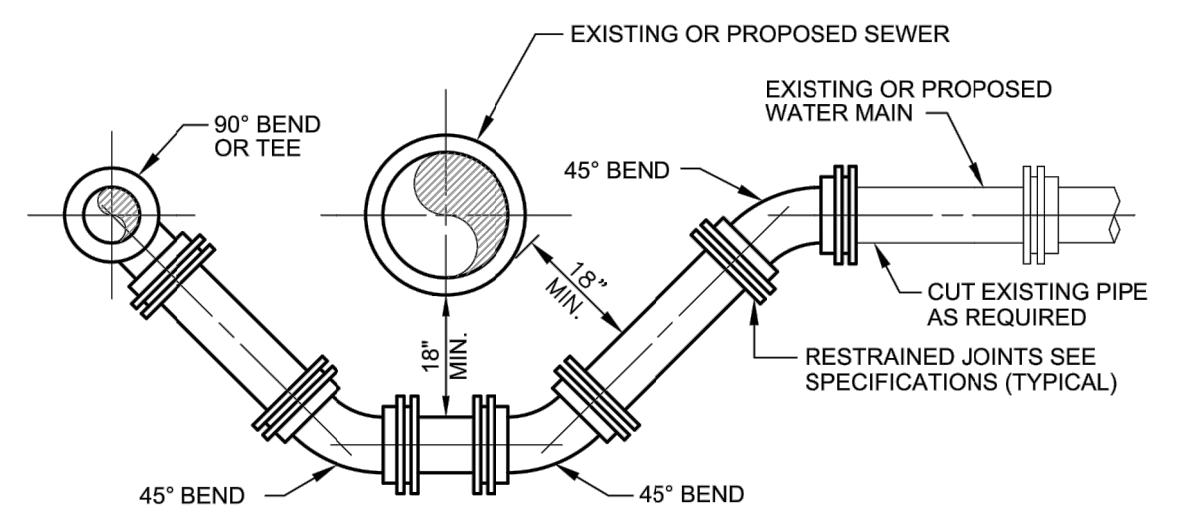
SCALE: 1" = 80'
 JOB NO. 14-047
 DATE: 10/2/18
 SHEET NO. C10

PIPE RESTRAINT SCHEDULE

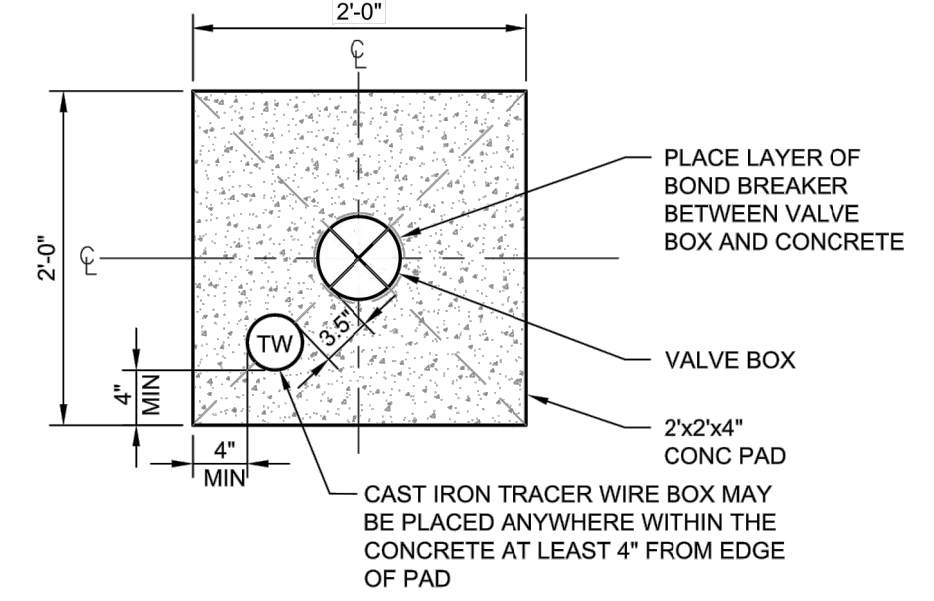
GROUND BURIED PRESSURE PIPE - POLYETHYLENE ENCASED DUCTILE IRON PIPE

PIPE DIAMETER	TEES, 90° BENDS	45° BENDS	22-1/2° BENDS	11-1/4° BENDS	DEAD ENDS	REDUCERS (ONE SIZE REDUCTION)*	REDUCERS (TWO SIZE REDUCTION)*
4	13	5	3	1	40	--	--
6	19	8	4	2	58	31	--
8	24	10	5	2	75	30	70
12	34	14	7	3	107	57	116
16	43	18	9	4	139	59	137
20	52	22	10	5	169	59	134
24	61	25	12	6	199	60	132
30	73	30	15	7	242	85	168
36	84	35	17	8	281	84	168

- LENGTHS OF PIPE RESTRAINT ARE GIVEN IN FEET.
 - IF REQUIRED PIPE DIAMETER IS NOT LISTED IN THIS TABLE, THE NEXT LARGEST PIPE DIAMETER SHALL BE USED.
 - THIS TABLE IS BASED ON A TEST PRESSURE OF 180 PSI (OPERATING PRESSURE PLUS WATER HAMMER. FOR OTHER TEST PRESSURES, ALL VALUES TO BE INCREASED OR DECREASED PROPORTIONALLY.
 - THE VALUES PROVIDED OF RESTRAINT LENGTH ARE IN EACH DIRECTION FROM THE POINT OF DEFLECTION OR TERMINATION EXCEPT FOR TEES, AT WHICH ONLY THE BRANCH IN THE DIRECTION OF THE STEM.
 - IF THE RODS ARE USED, USE FOUR RODS MINIMUM AND ADD 1/8-INCH TO BAR DIAMETER AS CORROSION ALLOWANCE.
- * SIZE REDUCTION IS BASED UPON THE PIPE DIAMETER SHOWN IN THIS TABLE.
- BASED UPON:
- | | |
|--------------------|-----------|
| INTERNAL PRESSURE: | 180 |
| PIPE DEPTH: | 5 |
| BEDDING CLASS: | TYPE 4 |
| SOIL TYPE: | GOOD SAND |
| SAFETY FACTOR: | 2 |

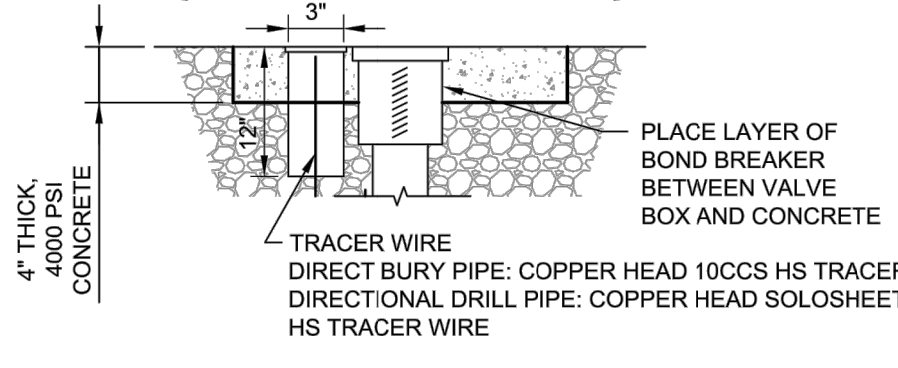


WATER MAIN UTILITY OFFSET

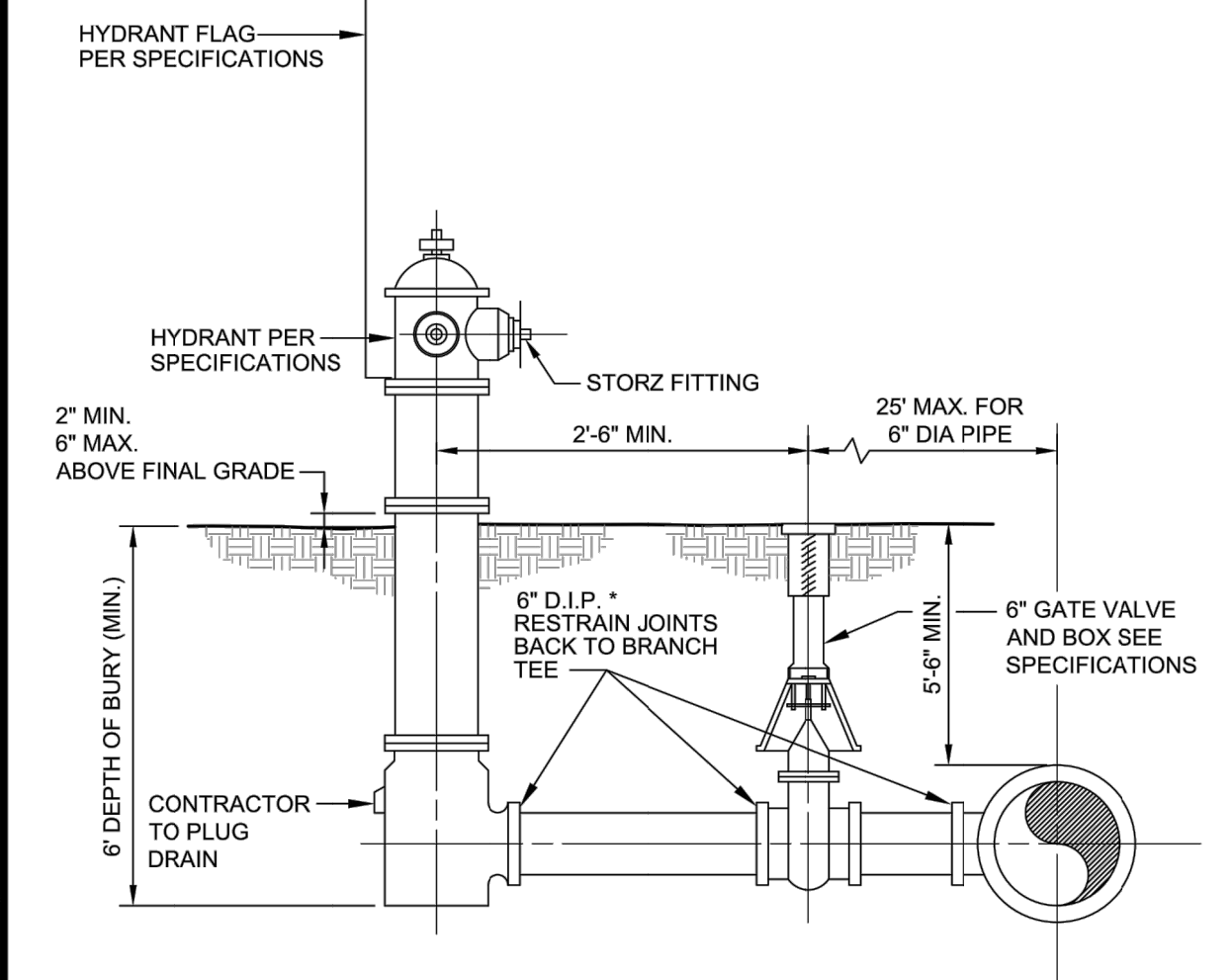


NOTE: ALL BOXES & ADJOINING TW BOXES SHALL BE ENCASED IN A CONC. PAD UNLESS OTHERWISE DETERMINED BY MHOG.

**PLAN
VALVE/TRACER WIRE BOX IN CONCRETE DETAIL**
NO SCALE

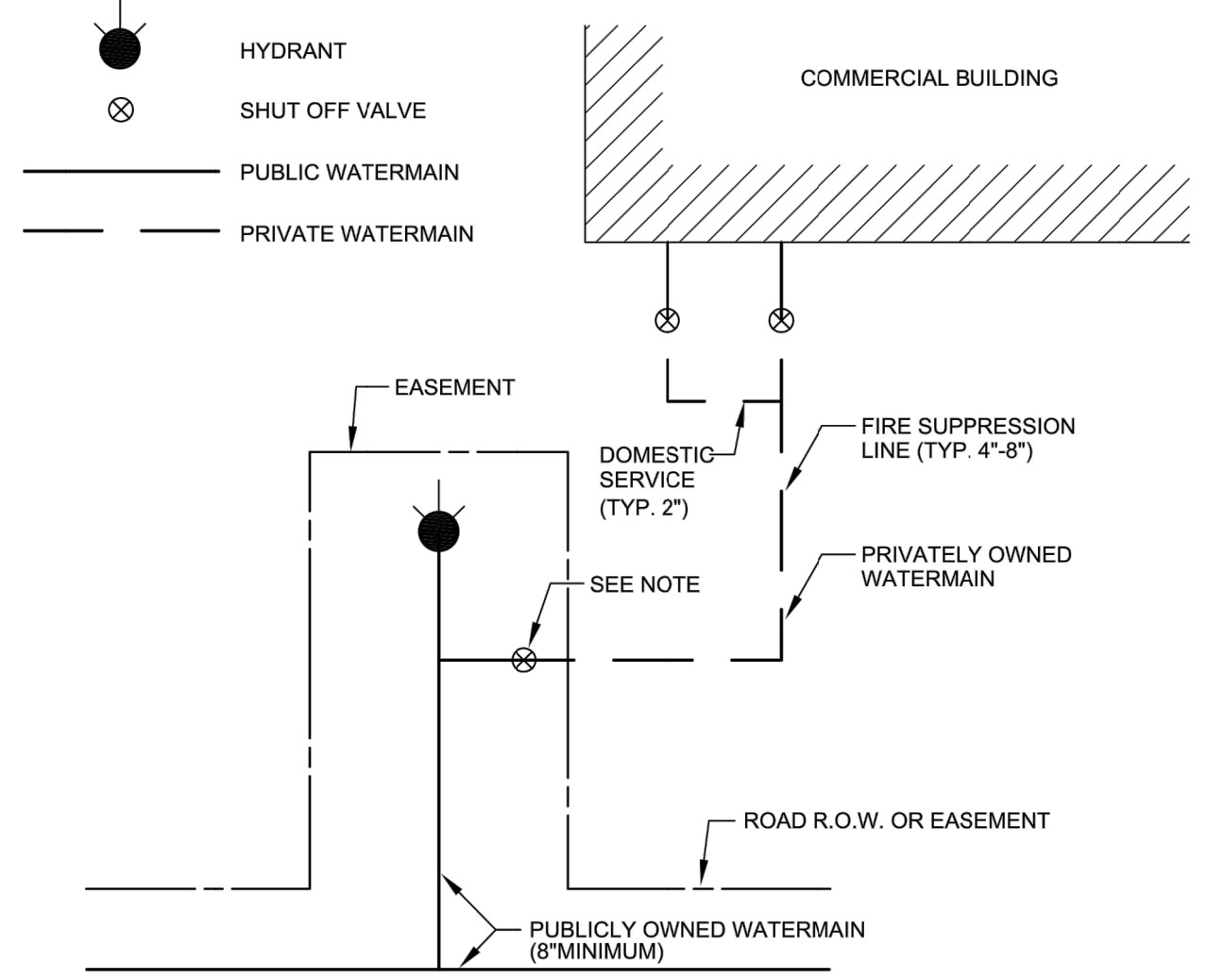


- NOTE:
- TRACER WIRE BOXES LOCATED WITHOUT A VALVE BOX ONLY REQUIRE AN 18" X 18" CONCRETE PAD.
 - TRACER WIRE BOX SHALL HAVE A LOCKING LID W/STANDARD AWWA PENTAGON KEY.
 - TRACER WIRE BOX SHALL BE COPPERHEAD RB14"TP IN ASPHALT INSTALLATIONS AND CD14"TP FOR ALL OTHER INSTALLATIONS.

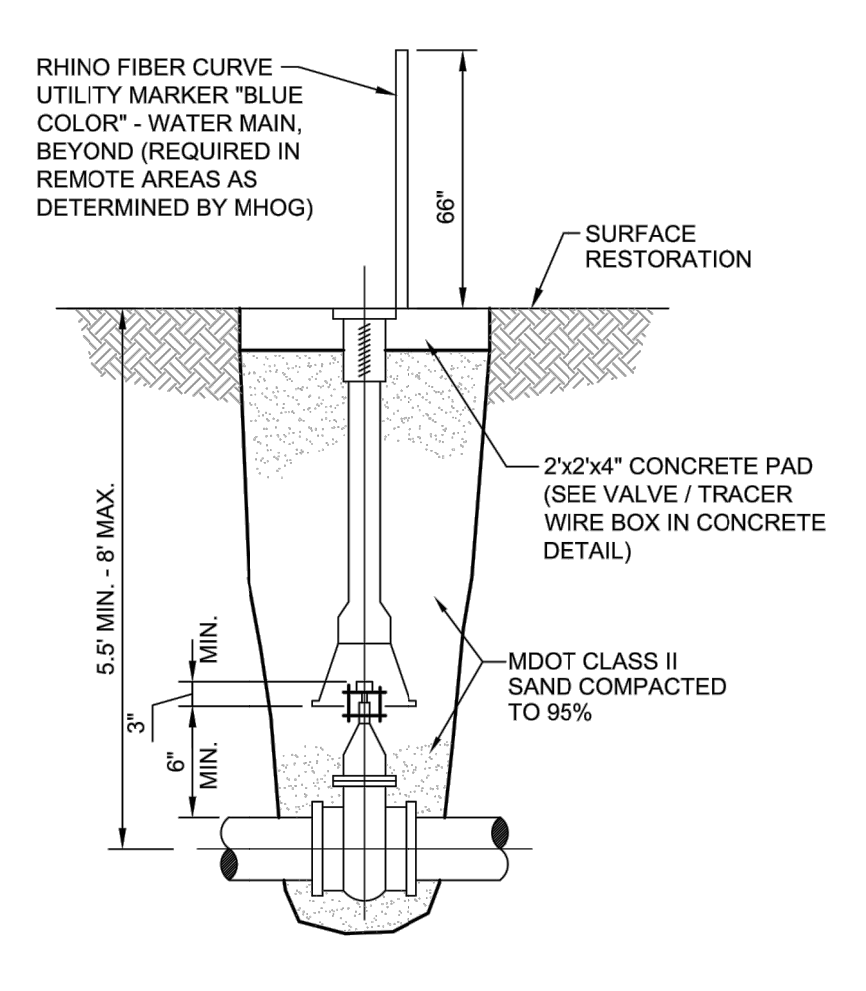


* THE LENGTH OF 6" PIPE FROM THE MAIN TO THE HYDRANT ASSEMBLY CANNOT EXCEED 25'. ANY PIPE OVER 25 FEET SHALL BE 8" DIAMETER MINIMUM AND DESIGNED PER MHOG SPECIFICATIONS.

FIRE HYDRANT ASSEMBLY

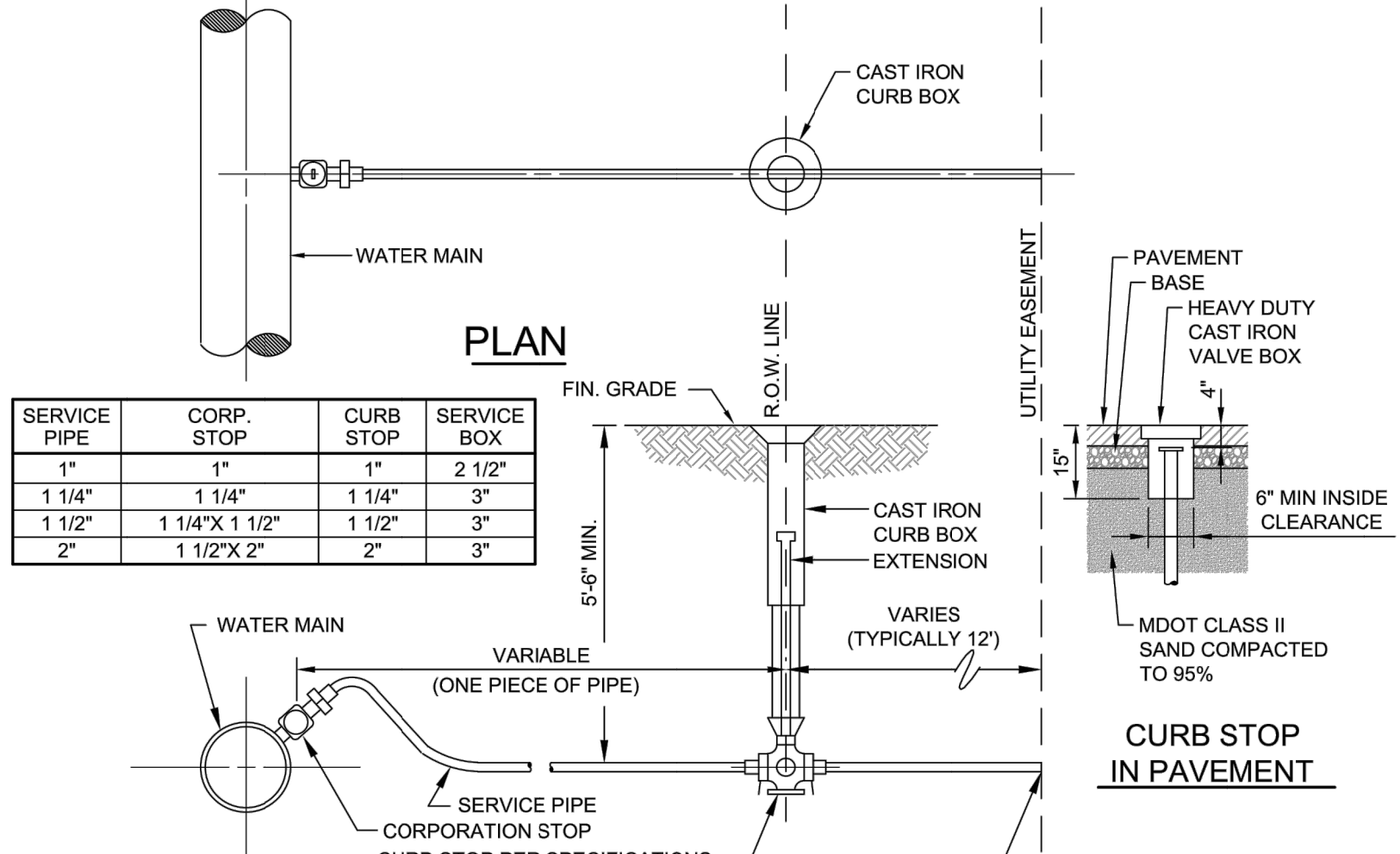


COMMERCIAL BUILDING WATER SERVICE LAYOUT

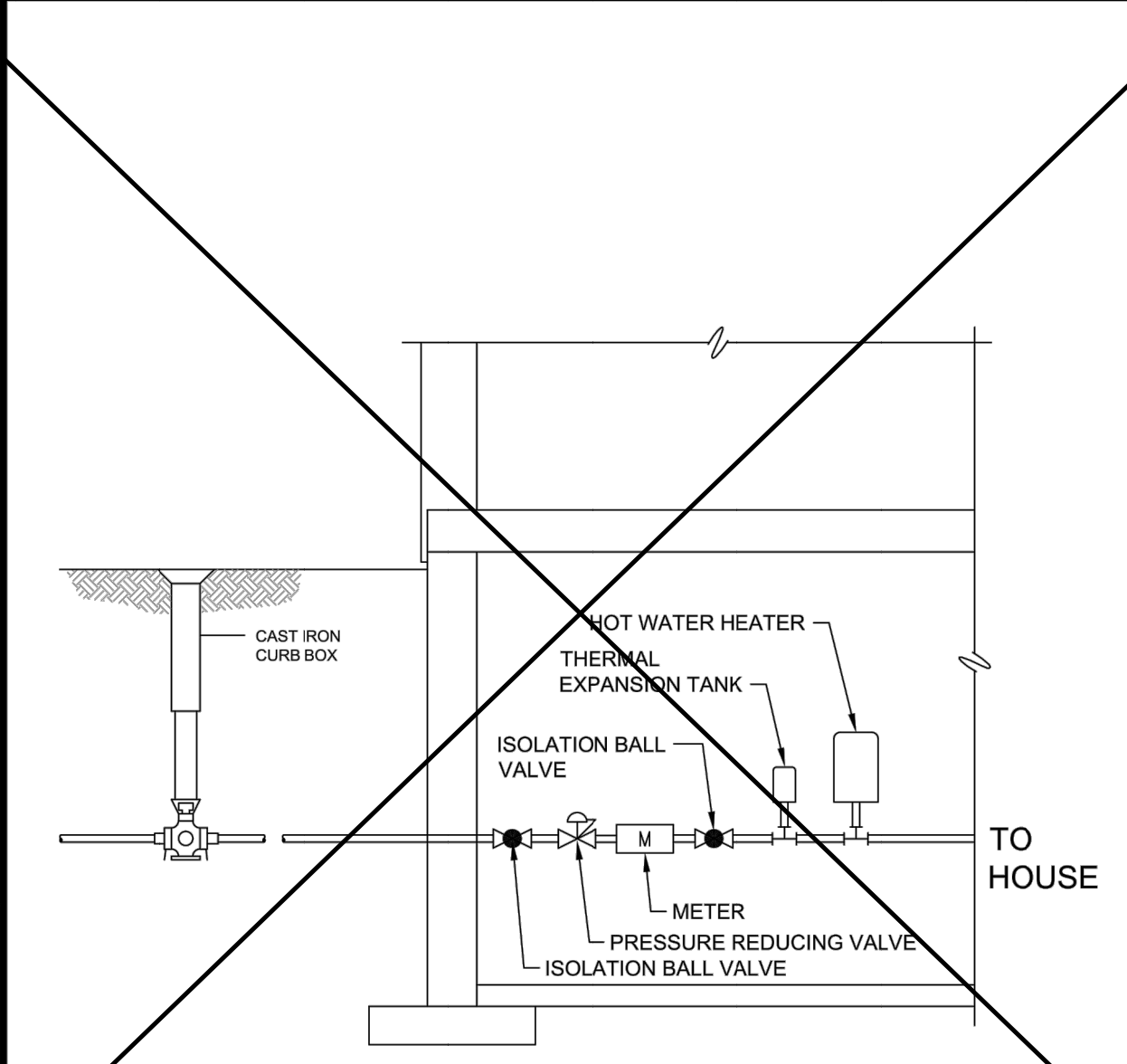


- NOTES:
- VALVE BOX SHALL NOT REST ON VALVE OR MAIN LINE PIPE.
 - A VALVE STEM EXTENSION WITH CENTERING RING IS REQUIRED FOR VALVES BURIED DEEPER THAN 6'.

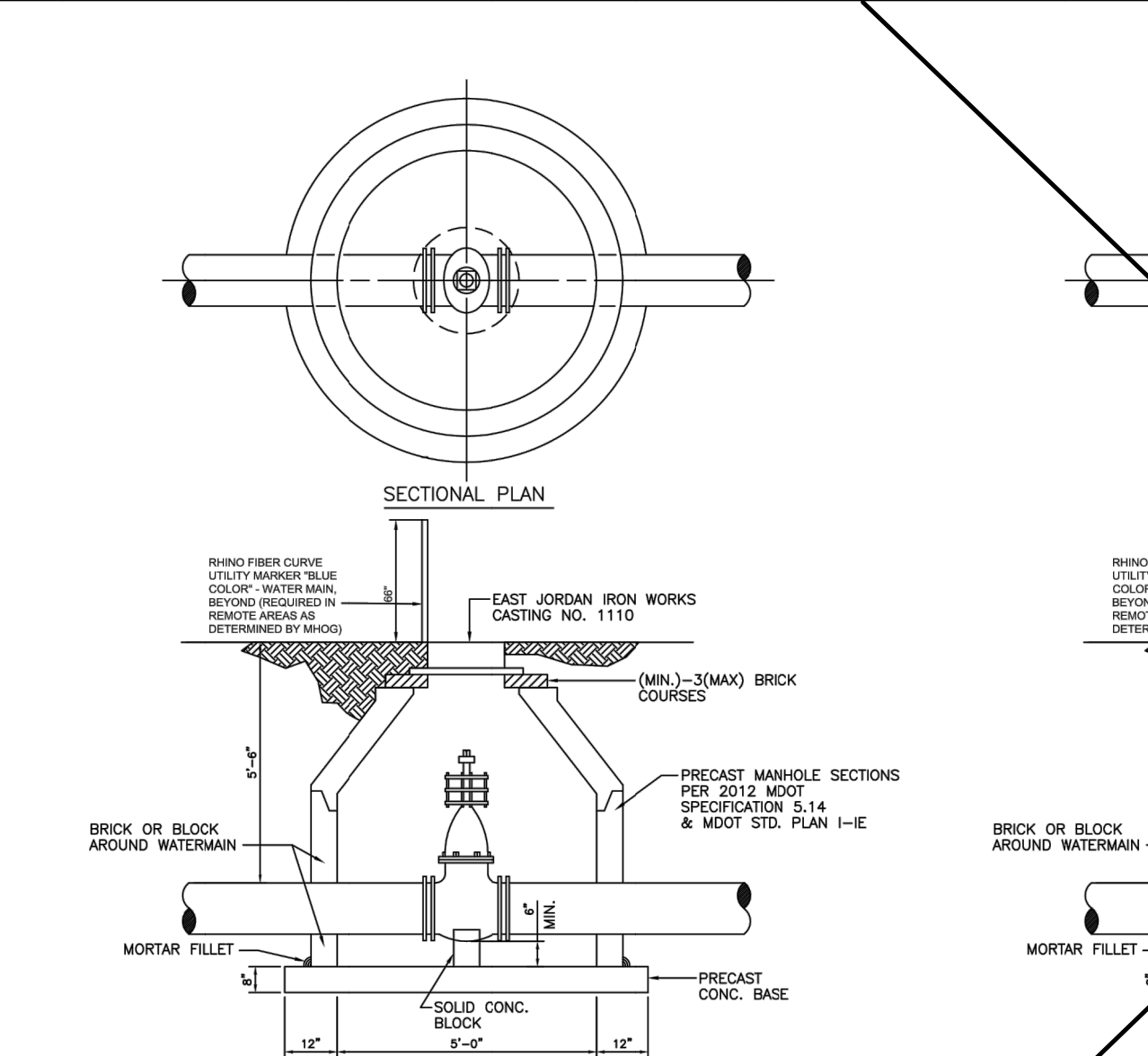
GATE VALVE AND BOX



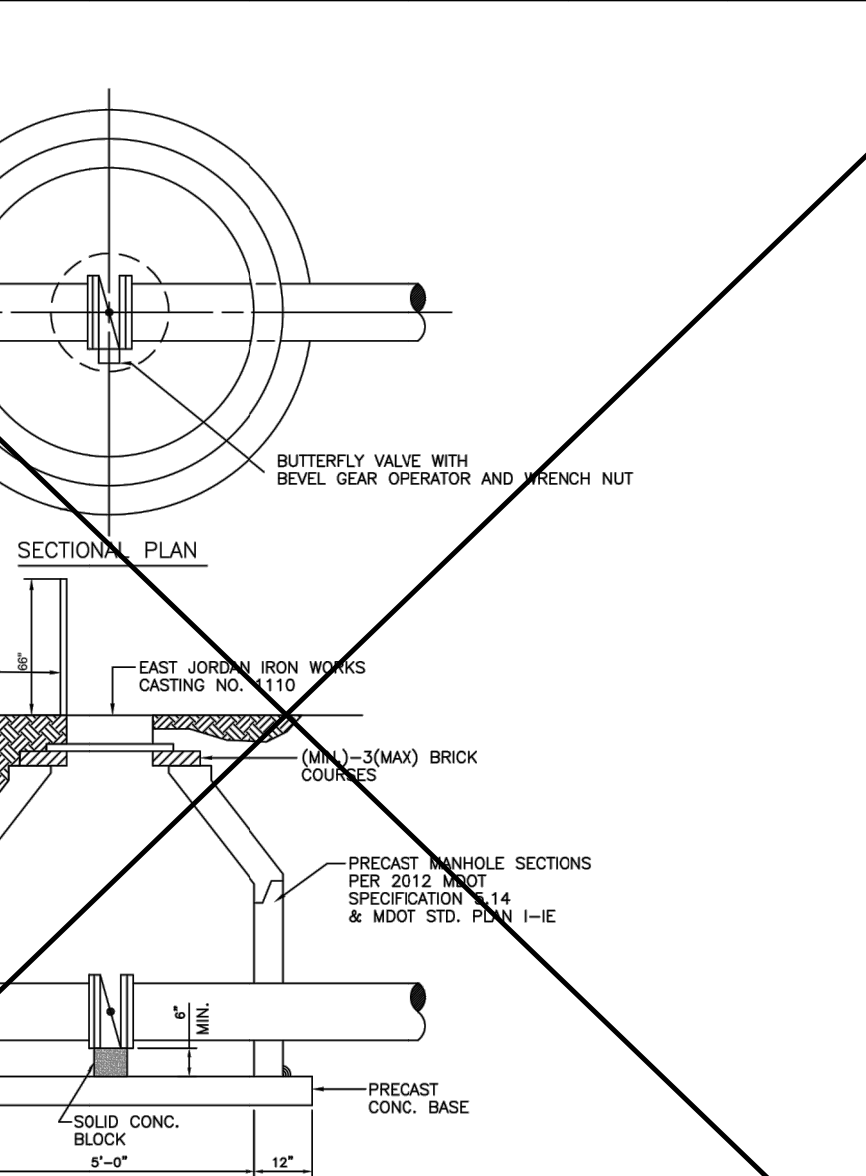
**SECTION
WATER SERVICE LATERAL**



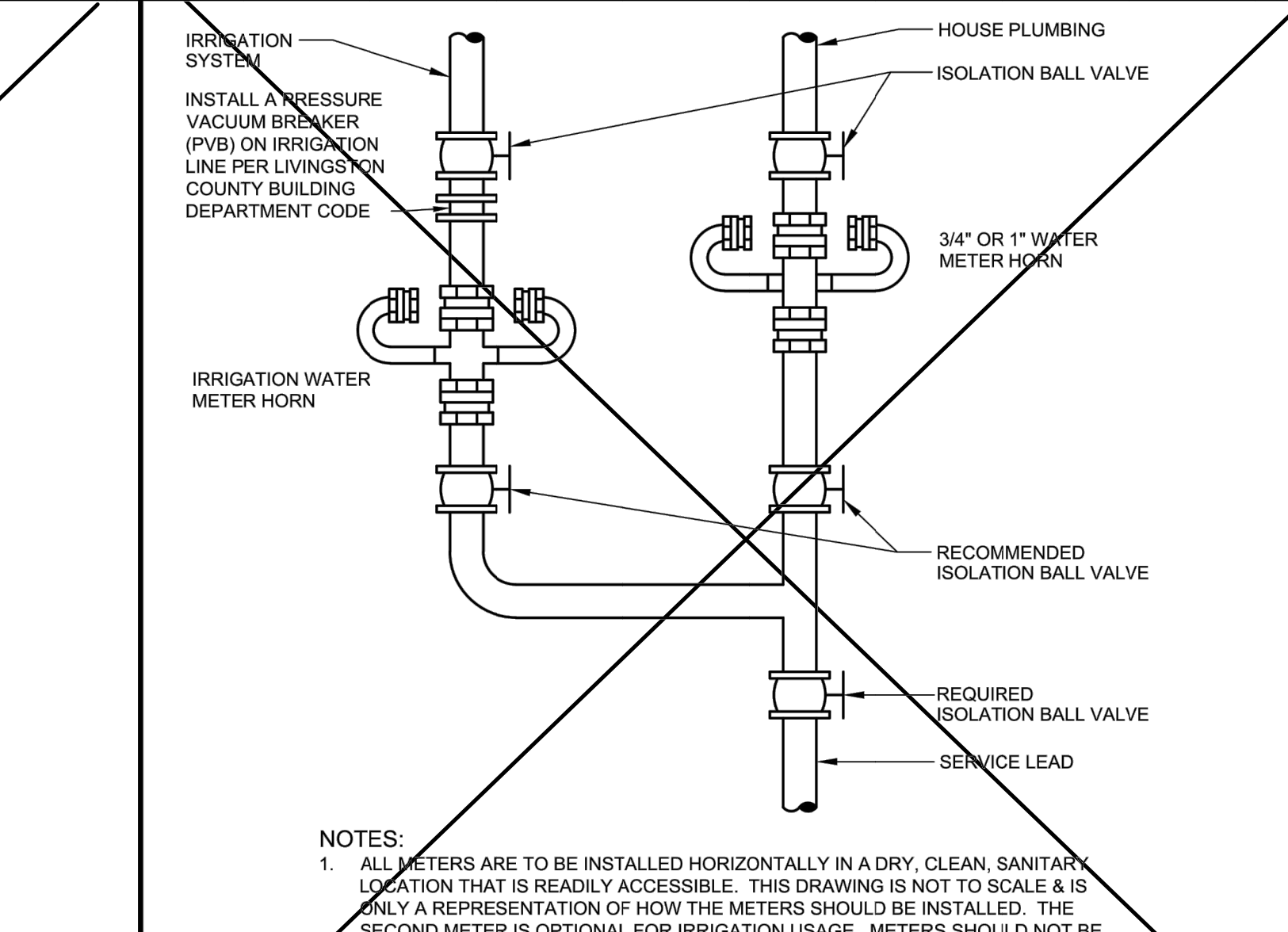
**PRIVATE RESIDENCE
PRESSURE REDUCING VALVE (PRV)**



GATE VALVE AND WELL



BUTTERFLY VALVE AND WELL



TYPICAL METER HORN INSTALLATION



MARION HOWELL OCEOLA GENOA
Sewer and Water Authority

Scale: NONE
Issued Date: JANUARY - 2014
UPDATED: MAY 2015
UPDATED: FEBRUARY 2016
UPDATED: APRIL 2016

DESIGNED BY: ST
DRAWN BY: ST
CHECKED BY:

SCALE: NTS
JOB NO. 14-047
DATE: 10/2/18
SHEET NO.

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COMMUNITY BIBLE CHURCH EXPANSION

COMMUNITY BIBLE CHURCH
7372 GRAND RIVER AVENUE
BRIGHTON, MI. 48114
810-227-2255

WATER MAIN STANDARD DETAILS

NO	BY	REVISION PER	DATE
1	ST	PER TWP REVIEW	10-24-18

C11

GENERAL NOTES

1. ALL DIMENSIONS ARE TO FACE OF FINISHED SURFACE OR COLUMN CENTER LINE UNLESS NOTED OTHERWISE.
2. COORDINATE W/ MECH. & ELEC. DRAWINGS FOR ALL FLOOR/WALL/ROOF PENETRATIONS NOT SHOWN ON ARCHITECTURAL PLANS. COORDINATE WITH C.M.
3. FIELD PAINT ALL MECHANICAL GRILLES & CABINETS TO MATCH ADJACENT SURFACES.
4. SITE DATUM: MAIN LEVEL FINISH FLOOR ASSUMED = 100'-0" ACTUAL = 100'-2"

KEY NOTES

- 1 3" GRAB BAR
- 2 4" GRAB BAR
- 3 1" VERTICAL GRAB BAR
- 4 TOILET PAPER DISPENSER
- 5 PAPER TOWEL DISPENSER
- 6 RECESSED PAPER TOWEL DISPENSER & DISPOSAL UNIT
- 7 FEMININE NAPKIN DISPOSAL
- 8 2x3 FRAMED MIRROR
- 9 FRAMELESS MIRROR - SEE ELEVATION FOR SIZE
- 10 URINAL SCREEN W/ CONT BRACKET
- 11 BABY CHANGER
- 12 COAT ROD & SHELF - MOUNT ROD @ 2'-4" AFF
- 13 BULKHEAD ABOVE - SEE REFLECTED CEILING PLAN
- 14 CANOPY ABOVE
- 15 FIRE EXTINGUISHER, w/ CABINET

INTERIOR WALL TYPES

- (A) 5/8" GYPSUM WALLBOARD
3 5/8" METAL STUDS @ 16" O.C.
3" ACOUSTICAL BLANKETS
5/8" GYPSUM WALLBOARD
6" STUDS @ B1
- (B) 5/8" GYPSUM WALLBOARD
3 5/8" METAL STUDS @ 16" O.C.
(ALL SHAFT WALLS & BULKHEADS)

- NOTES:**
1. REFER TO STRUCTURAL DRAWINGS FOR CROSS BRACING LOCATIONS
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 4. ALL WALLS TO BE EXTENDED TIGHT TO STRUCTURE ABOVE U.N.O.
 5. ALL WOOD FRAMING & SHEATHING IN A IIB CONSTRUCTION IS REQUIRED TO BE NON-COMBUSTIBLE
 6. PROVIDE DAMPERS AS REQUIRED IN ALL RATED ASSEMBLIES. COORDINATE WITH MECHANICAL CONTRACTOR.

Mark	Description	Date
	FOR BUDGET UPDATE	09/07/10
	FOR SITE PLAN APPROVAL	10/01/10

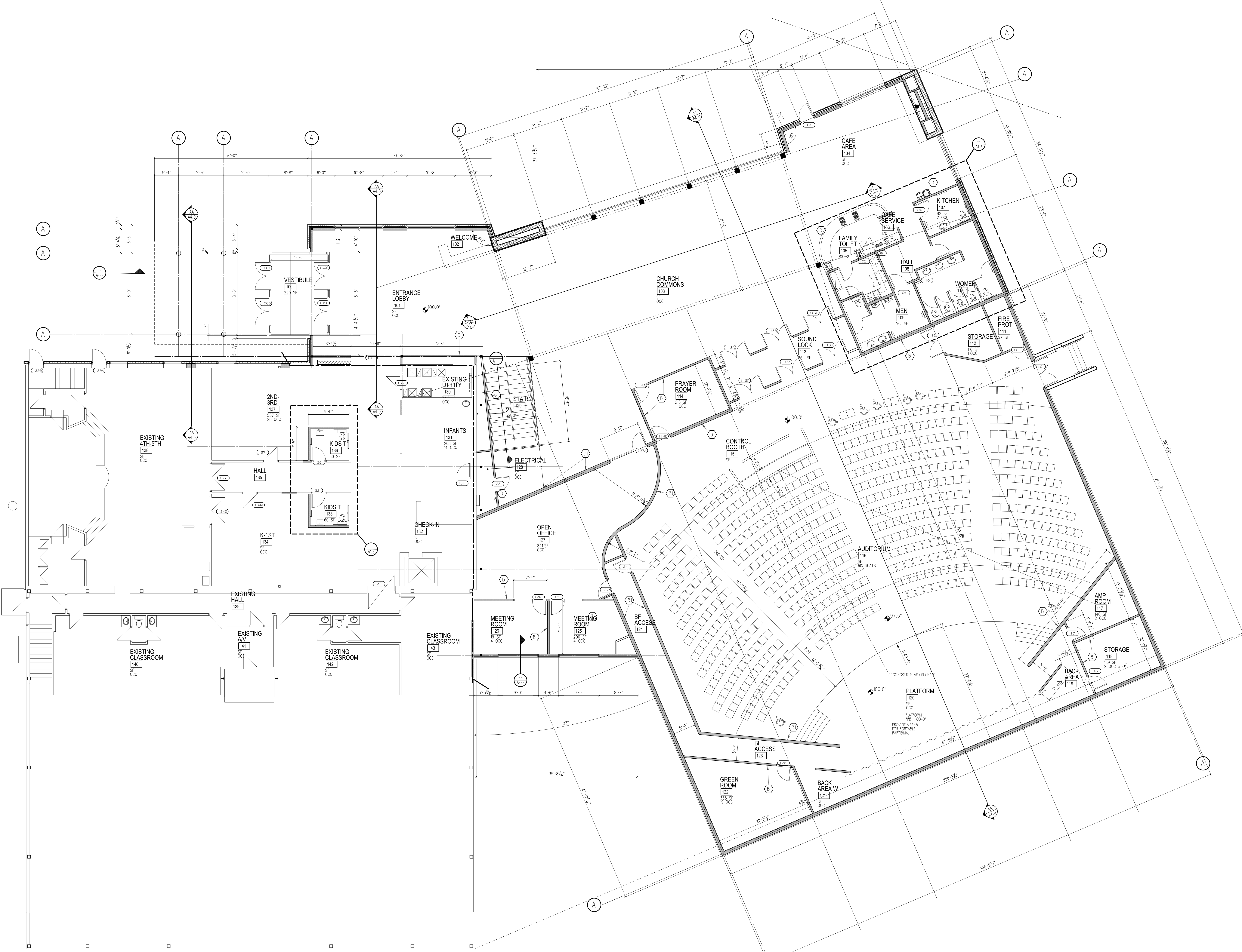
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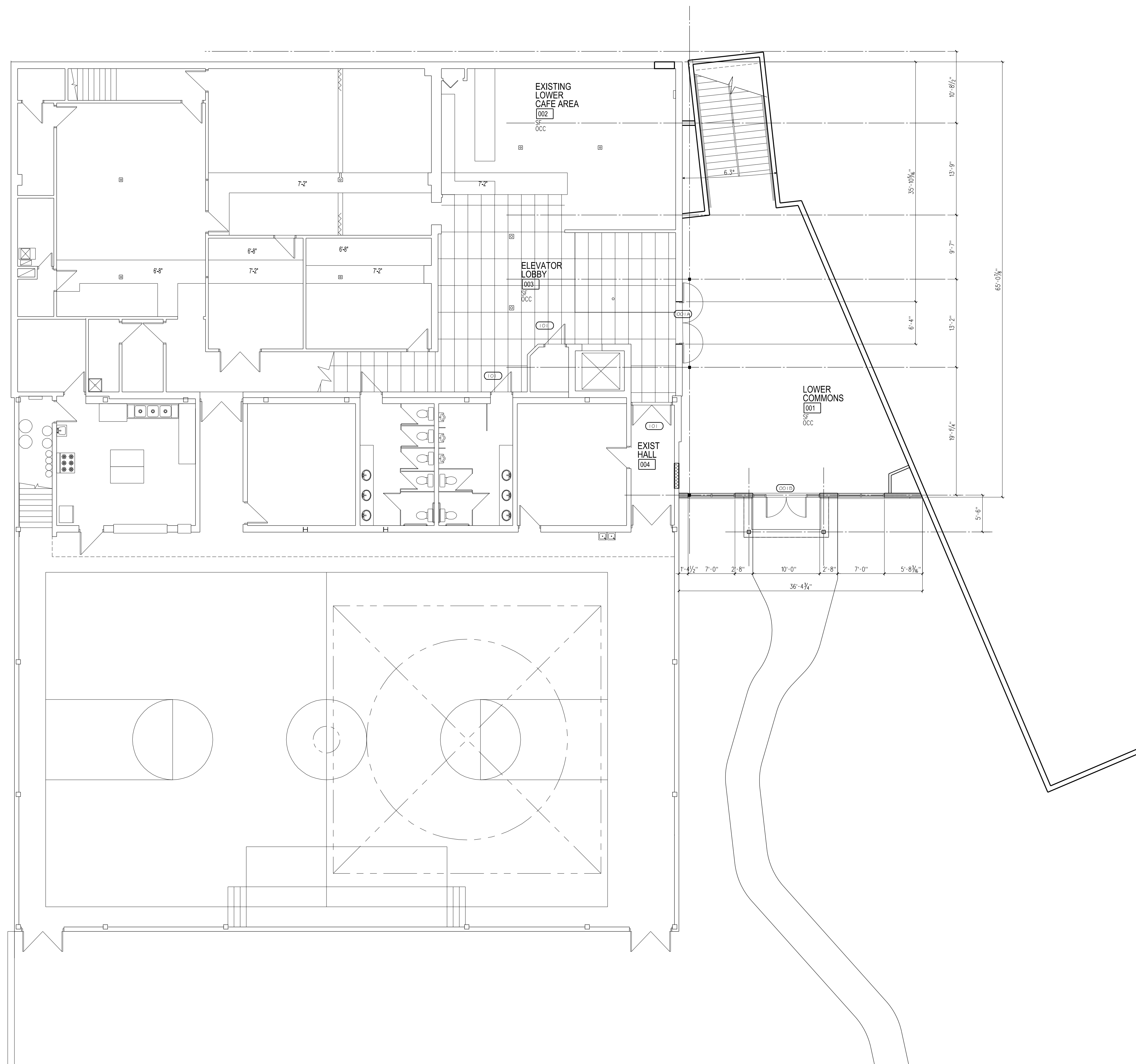
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Grand Rapids MI 49508 Fax: 616-241-0098

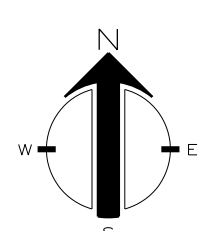
Addition & Renovations For:
Community Bible Church
Brighton, Michigan

Floor Plan	
Issued	Drawing No.
Project No. 17078	A1.0



Main Floor Plan
Scale: 1/8" = 1'-0"





Lower Floor Plan
 Scale: 1/8" = 1'-0"

GENERAL NOTES

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Mark	Description	Date
	FOR BUDGET UPDATE	08/07/10
	FOR SITE PLAN APPROVAL	10/01/10

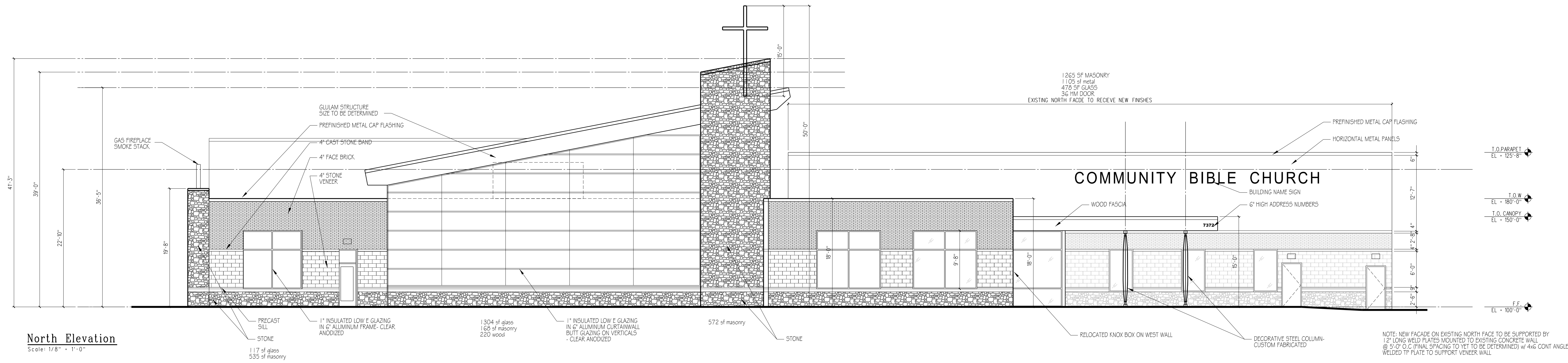
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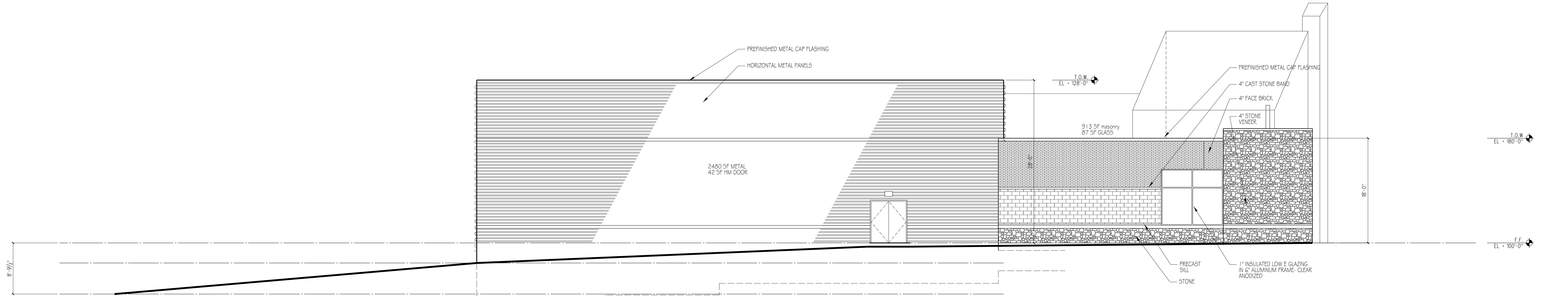
Addition & Renovations For:
Community Bible Church
 Brighton, Michigan

Lower Floor Plan	
Issued	Drawing No.
-	A1.1
Project No. 17078	

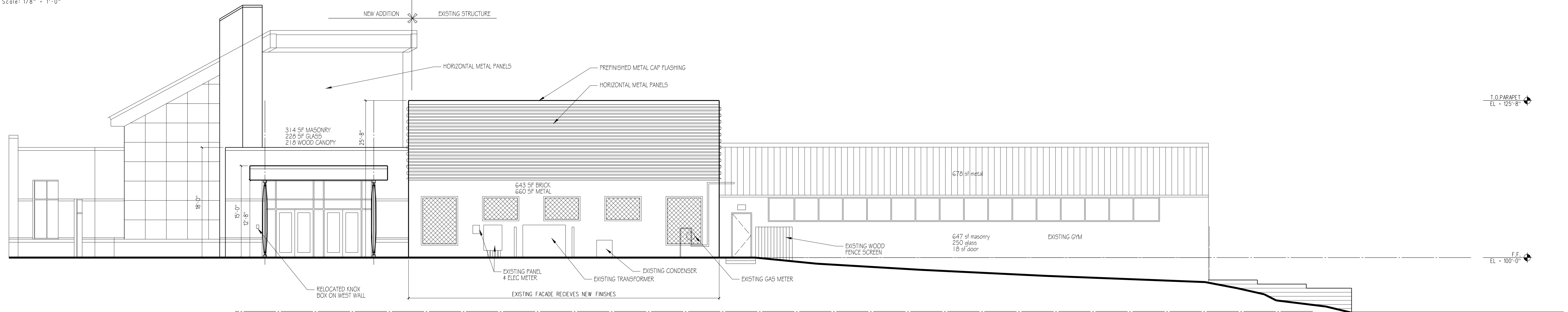


North Elevation
Scale: 1/8" = 1'-0"

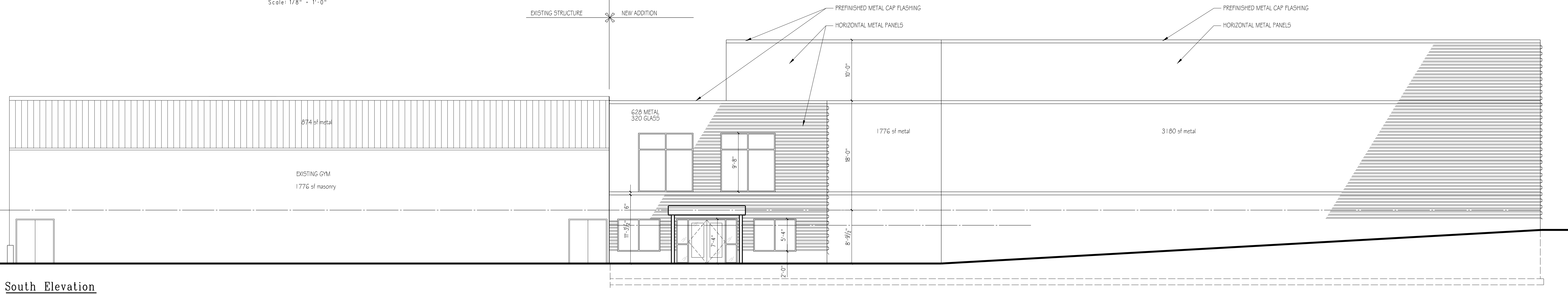
MATERIAL BREAKDOWN:
 MASONRY (BRICK, STONE, BLOCK)= 7,849 SF
 WOOD= 943 SF
 POURED IN PLACE CONCRETE= 445 SF
 METAL SIDING= 9,891 SF
 (5,584 SF IS FUTURE EXPANSION WALL)
 GLASS= 2,984 SF
 FM DOORS= 96 SF
 19,668 SF TOTAL W/O DOORS & WINDOWS
 METAL= 50.2%
 W/O SOUTH WALL 13,544 (31.8%)



East Elevation
Scale: 1/8" = 1'-0"



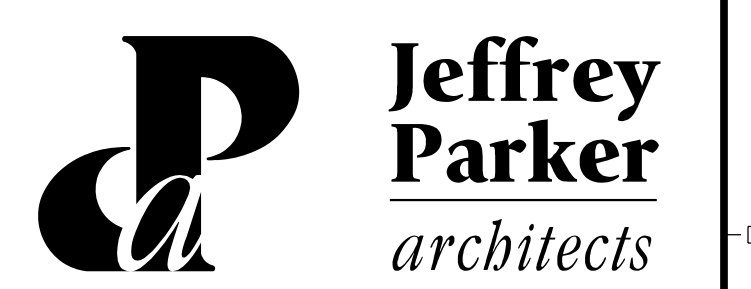
West Elevation
Scale: 1/8" = 1'-0"



South Elevation
Scale: 1/8" = 1'-0"

Work	Description	Date
	FOR SUGGESTED UPDATE	09/07/18
	FOR SITE PLAN APPROVAL, revised	10/22/18

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 856 28th Street SE
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 Phone: 616-241-0090
 Fax: 616-241-0098

Addition and Renovations For:
Community Bible Church
 Brighton, Michigan

Exterior Elevations

Issued	Drawing No.
Project No. 17078	A3.0



Exterior Elevation
October 14, 2018





Exterior Elevation
October 14, 2018





View 1

NOT TO SCALE

NOTE: VERTICAL DIMENSIONS ARE FROM FINISHED FLOOR LEVEL (100'-0") NOT FROM GRADE - GRADE VARIES



NEW 4" DEEP RIB HORIZONTAL STEEL SIDING OVER EXISTING BRICK

13'-0" +/-

EXISTING BUILDING ELEVATION TO REMAIN AS IS

12'-8"

NEW 4" MASONRY VENEER OUTSIDE OF EXISTING BRICK, SUPPORTED WITH A 4"x8" CONTINUOUS STEEL ANGLE BOLTED TO EXISTING CONCRETE FOUNDATION WALL

METAL TRELLIS WALL PANELS ATTACHED TO EXISTING BRICK WALL - EXACT SIZES AND LAYOUT TO BE DETERMINED

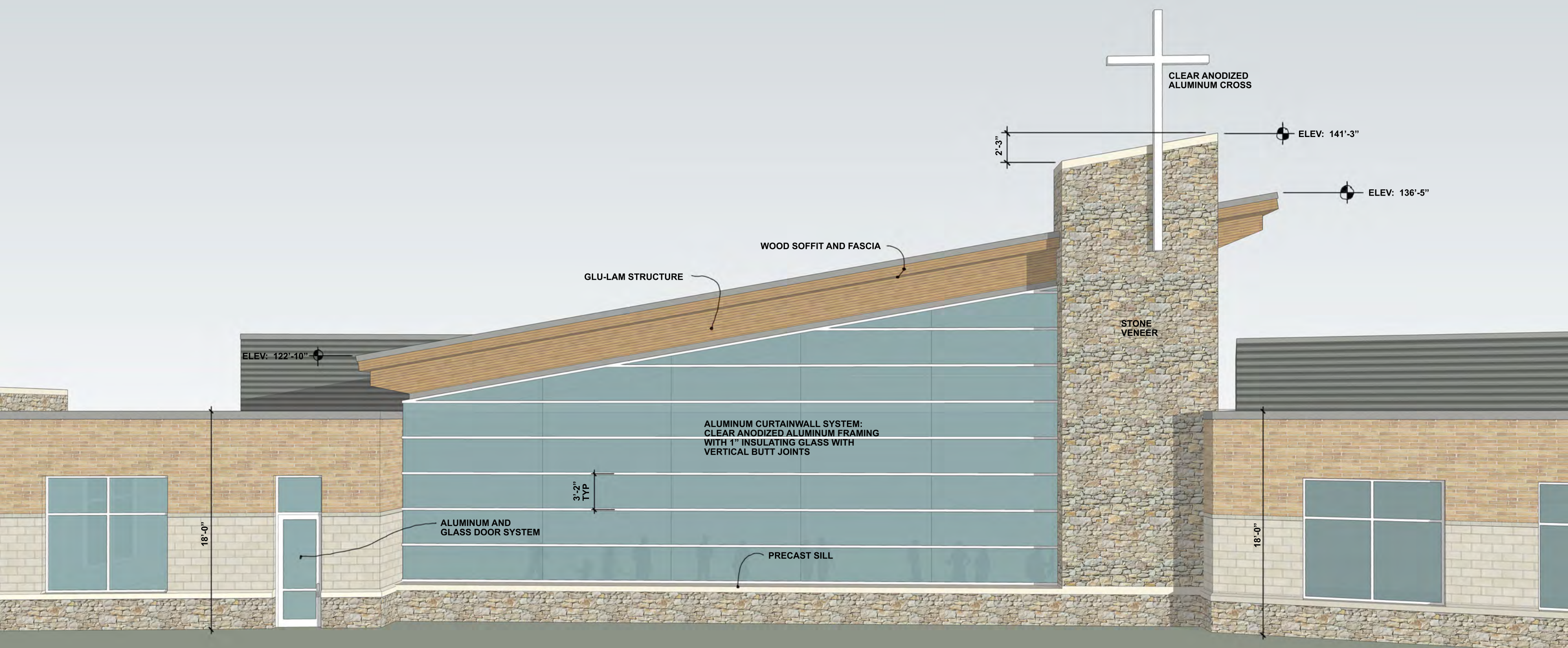
EXISTING BRICK WALL - PAINTED

NOTE: REFER TO VIEW 1 FOR TYPICAL DIMENSIONS AND NOTES

NOTE: VERTICAL DIMENSIONS ARE FROM FINISHED FLOOR LEVEL (100'-0") NOT FROM GRADE - GRADE VARIES

View 2

NOT TO SCALE



View 3

NOT TO SCALE

NOTE: REFER TO VIEW 1 FOR TYPICAL DIMENSIONS AND NOTES

NOTE: VERTICAL DIMENSIONS ARE FROM FINISHED FLOOR LEVEL (100'-0") NOT FROM GRADE - GRADE VARIES



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View 4

NOT TO SCALE

**GENOA CHARTER TOWNSHIP
PLANNING COMMISSION
PUBLIC HEARING
October 9, 2018
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, Jim Mortensen, Chris Grajek, Marianne McCreary, Eric Rauch and Jeff Dhaenens. Absent was Jill Rickard. Also present was Kelly VanMarter, Community Development Director/Assistant Township Manager, Gary Markstrom of Tetra Teach, Brian Borden of Safebuilt Studio, and an audience of 20.

PLEDGE OF ALLEGIANCE: The pledge of allegiance was recited.

APPROVAL OF AGENDA:

Moved by Commissioner Grajek, seconded by Commissioner Rauch, 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... Request to POSTPONE TO NOVEMBER 13, 2018 review of special use, site plan, and environmental impact assessment for the re-use of an existing commercial building for a proposed pet day care for Dog Town - Kitty City. The property in question is located at 3557 E. Grand River Avenue, Howell. The request is petitioned by Paula Vanderkarr.

Chairman Brown noted that the applicant has requested to have this item tabled; however, the Planning Commission will hold a public hearing.

The call to the public was made at 6:32 pm.

Ms. Eileen Berger of 3497 Dewdrop Lane is opposed to this proposal because of the noise and the smell. Her condo backs up to this property. She suggested they go to a more rural area. She believes this could decrease the value of their homes.

Mr. Steve Siep of 3536 Snowden Lane appreciates that the Township wants to fill the empty buildings. His home is a tree line away from this property. The tree line is not a buffer for noise. When this building was used as a music venue, the noise sounded like it was in his yard. If this item is approved, he would like the fence to be made of a masonry material. He questioned how many dogs would be allowed outside at one time. He is concerned with the noise and the odor of 63 dogs. He is planning on putting an addition on his home; however, he may not do it if this approved.

Ms. Jackie Rafferty does not believe that this type of use should be on Grand River.

The call to the public was closed at 6:43 pm.

Moved by Commissioner Dhaenens, seconded by Commissioner Grajek, to table the review of special use, site plan, and environmental impact assessment for the re-use of an existing

commercial building for a proposed pet day care for Dog Town - Kitty City until the November 13, 2018 Planning Commission meeting per the petitioner's request. **The motion carried unanimously.**

OPEN PUBLIC HEARING #2... Review of sketch plan for the re-use of an existing commercial building for a proposed retail thrift store located at 2700 E. Grand River Avenue, Howell. The request is petitioned by Volunteers of America.

A. Disposition of Sketch Plan

Brent LaVanway of Boss Engineering, Brian Wilbur of Volunteers of America, and Jeff Peltier, the architect, were present.

Mr. LaVanway stated they have provided revised plans in response to the concerns raised at last month's Planning Commission meeting. He believes they have met the concerns of the consultants and the Planning Commission.

Mr. Borden stated that the applicant has met most of his concerns. He reviewed his letter of October 1, 2018.

- The Planning Commission may reduce the rear parking setback given the presence of shared access drives.
- He suggested pavement markings be provided noting the circulation pattern through the parking lot. The applicant agreed to provide the suggested pavement markings.
- The landscape plan is deficient in terms of total plantings; however, there are existing site limitations precluding full compliance. The Planning Commission has discretion to waive or modify landscaping requirements; however, the larger parking islands could accommodate some of the required trees. Mr. LaVanway noted that the overhead electrical lines are right above the islands.
- There is a minor inconsistency on the landscape plan for the number of Little Business Daylilies. The applicant will make the correction.

Mr. Markstrom reviewed his letter of September 26, 2018. They have met most of his concerns.

- The petitioner should show the existing sanitary sewer lead connection and existing service connection from the well on the plans.
- The practice of the Township has been to require developments that come before the Planning Commission to have curbed parking lots. He added that having it curbed delineates where cars will park, and keeps them off of the grass, as well as controls the storm water. Mr. LaVanway would prefer to have the Township defer to the Livingston County Drain Commissioner on this issue. The discussion continued which included the natural water flow of this site and the neighboring site to the east. Ms. VanMarter noted that the LCDC is currently addressing the storm water issue in this area. She suggested having them best determine how it should be handled.

Chairman Brown reviewed the Brighton Area Fire Authority's letter dated October 3, 2018. The applicant has met all of their concerns except for the building exceeding the allowable square footage as it relates to fire suppression. Mr. Peltier has made a proposal that is being reviewed by the Township Building Department.

The call to the public was made at 7:18 pm with no response.

Moved by Commissioner Mortensen, seconded by Commissioner Grajek, to approve the sketch plan for Volunteers of America dated September 21, 2018 conditioned upon the following:

- The petitioner shall reconcile the landscape plan with regard to the quantity of Little Business Daylilies.

- Arrows will be added to the pavement indicating the one-way patterns and shall be reviewed and approved by Township staff.
- The requirements of the Township Engineer as stated in his letter dated September 26, 2018 shall be complied with, with particular reference to concrete curbing on all sides of the parking lot subject to further review, possible modification, and approval of the Livingston County Drain Commission.
- The requirements of the Brighton Area Fire Authority's letter dated October 3, 2018 shall be met.

The motion carried unanimously.

OPEN PUBLIC HEARING #3... Review of an amendment to a previously approved St. Joseph Mercy Health Planned Unit Development agreement in regards to signage located at 7575 W. Grand River. The request is petitioned by St. Joseph Mercy Brighton.

Mr. Dave Raymond, Director of Planning for St. Joseph Mercy Hospital, and Will Johnson of Johnson Sign Company were present.

Mr. Raymond stated that when the PUD was originally proposed, they had wanted two entrance drives and they were approved for a total of 144 square foot of signage, 77 feet per entrance. They have now developed more of a central access point to the site. The current sign is only four feet high. Since Grand River is a five-lane highway, it is not able to be seen from the far lane.

They showed the existing sign and how it is difficult to see. They showed colored renderings of the proposed sign. They will not be increasing the footprint of the existing sign.

Mr. Borden reviewed his letter dated October 2, 2018.

- The applicant proposes to amend the text of the PUD Agreement to allow a ground sign of up to 120 square feet. The sign detail submitted proposes a 12.25-foot tall sign with 82.3 square feet of area. He asked the applicant to explain the inconsistencies between the difference in what is being proposed and what is being requested. Mr. Raymond stated they are asking for 120 feet instead of the current size of the text that is being proposed at this time in case they experience growth and the rest of the campus is developed.

Commissioner Rauch agrees with allowing this because 144 square feet was originally approved. He stated the ordinance only allows for a six-foot high sign and this is much taller than that. He does not want to set a precedent; however, he knows this type of use needs to be highly visible. He agrees that because of the width of the ROW in this area, the sign must be placed further back, which also makes it difficult to see. The speed limit in this area is 55 miles per hour.

Commissioner Rauch noted that the existing trees along Grand River block the view of the sign. Mr. Raymond would like to remove those trees and replace them on the site.

- If the height is granted, it should also be added to the Agreement language.
- The applicant needs to identify the material used for the base of the sign and whether new landscaping is proposed around the sign.

Commissioner Dhaenens agrees that the use of this site needs to be visible.

The call to the public was made at 7:43 pm with no response.

Moved by Commissioner Mortensen, seconded by Commissioner Rauch, to recommend to the Township Board an amendment to the PUD Agreement with St. Joseph Mercy Health System as follows:

- The signage limit will be increased to 120 square feet maximum with a 12 ½-foot maximum height.
- The agreement as shown this evening will be reworded to indicate that Genoa Township is a “Charter” Township and not a “General Law” Township.
- The petitioner will trim and/or remove trees in the area and will plant trees in other areas as required by the original PUD, subject to review by Township Staff.
- The review of this amendment will be subject to approval by the Township Attorney.
- The reasons for this recommendation are:
 - It is on a wide, high-speed road, which diminishes the ability for passengers to see the sign.
 - The sign contains notification of emergency service available.
 - The ROW is exceptionally wide in this area, further diminishing the visibility.

The motion carried unanimously.

OPEN PUBLIC HEARING #4... Review and discussion of Zoning Ordinance Text amendments to Article 8-9.

Mr. Borden reviewed the proposed changes to the Industrial District Zoning Ordinance. Commissioners and staff discussed the proposed changes.

ADMINISTRATIVE BUSINESS

- Staff Report

Ms. VanMarter had nothing to report.

Approval of the September 10, 2018 Planning Commission meeting minutes

Moved by Commissioner McCreary, seconded by Commissioner Mortensen, to approve the minutes of the September 10, 2018 Planning Commission Meeting as presented. **The motion carried unanimously.**

- Member Discussion: Commissioners provided their feedback of the Michigan Association of Planners Conference that they attended in Grand Rapids.
- Adjournment: **Moved** by Commissioner Mortensen, seconded by Commissioner Grajek, to adjourn the meeting at 8:20 pm. **The motion carried unanimously.**

Respectfully Submitted,

Patty Thomas, Recording Secretary

Approving minutes if you were absent

jurassicparliament.com/approving-minutes-if-you-were-absent/

View all posts by Ann Macfarlane →

September 28, 2016

Is it all right for you to vote to approve minutes of a meeting if you were absent? Robert's Rules of Order gives a resounding "yes" as the answer to this question.

When you vote to approve the minutes, you are expressing your confidence in the veracity of the secretary, the actions of your colleagues, and the correctness of the minutes preparation process. You are not making a personal eyewitness statement that "you were there."



The body needs an official record of its actions, and all members may approve that record. This means that you should not abstain from voting to approve minutes of a meeting if you were absent from that meeting.

Robert's Rules of Order Newly Revised, 11th edition says this:

It should be noted that a member's absence from the meeting for which minutes are being approved does not prevent the member from participating in their correction or approval. p. 355, ll. 8-11.

Local Call

Local Government Center UW Extension

Postpone or Table? Parliamentary Procedure Advice

Published on **December 28, 2011** by [philip.freeburg](#)

It frequently happens at meetings. Now does not seem the time to discuss or act on an issue. But there the issue is ready for you on your meeting agenda. Do you move to **table**, **postpone** or something else? What is the difference? We asked **Professor Larry Larmer**, Local Government Center Outreach Specialist and authority on **Roberts Rules of Order** for advice. Here is his answer:



There are two types of “postponement.” One is to postpone indefinitely, that is, to set a pending motion aside with no particular intention of ever taking it up again. If a body postpones something indefinitely, it cannot be taken up again in the same meeting except through reconsideration. It can be renewed (i.e., put on the agenda) at a future meeting, although there may be some time limitations specific to the body. For example, if a village is following the **League of Municipalities model procedures**, a matter that is voted down may not be brought up again within 30 days. It’s not entirely clear, but this limitation would probably also apply to a matter that has been postponed indefinitely since postponing indefinitely has the same effect as voting something down.

Postponing to a definite time is quite different. The body does want to resume deliberation on the matter but for a variety of reasons wishes to so do at a later time – either later in the same meeting or in a future meeting. When a body agrees to postpone a matter to a specific time, it has ordered that the agenda include the item. The body may postpone something to a specific meeting or until after an event takes places, e.g., “until after the vacancy is filled.” This latter approach, while often used, does not really assure the body that they will actually get back to the matter, only that it will not take up the matter until the event has occurred

When a matter is **tabled**, it is set aside and the body doesn’t specify when or whether it will take up the matter again. Once an item is set aside by tabling, the body must agree to take it from the table in order to get back to it. Here is an example I observed while watching the county board on cable TV. While deliberating a matter, it was discovered that a relevant piece of information was not available in the chamber, but it was in the clerk’s office. The body tabled the matter so that the information could be retrieved and went to other matters on the agenda. When the information was brought back to the chamber, the body could decide when to get back to it. They may, also, prefer to take care of other business first, thus the motion to take the matter from the table enable them to take up the issue at the time they chose.

The confusion between “postpone to a definite time” and “table” comes from the frequent habit of members moving to “table until next meeting (or some other future time)” when they probably want to get back to the matter at a specific time and technically should say ‘postpone.’ Usually, it doesn’t matter if we know what is meant although I know of one example when a city council got itself unnecessarily confused when they started to take up a matter that has been “tabled” to the current meeting and a member said, to this effect, “wait, this matter has been tabled, so we need a motion to take from the table before we can take it up.” Using the correct terminology is of some importance. If a matter is not taken from the table by the end of the next regular meeting, it must be renewed within any time limits specific to that body. Thus, both table and postpone indefinitely are sometime used to defeat measures without the body having expressed itself one way or the other.