

Village of Mukwonago
Notice of Meeting and Agenda

PLAN COMMISSION MEETING
Tuesday, February 11, 2020

Time: **5:30 pm**

Place: **Mukwonago Municipal Building, Board Room, 440 River Crest Ct**

1. Call to Order

2. Roll Call

3. Approval of Minutes

- 3.1 Approval of minutes from January 14, 2020 regular meeting
[20200114 Minutes draft](#)

4. New Business

Discussion and Possible Action on the Following Items

- 4.1 Recommendation to the Village Board on Ordinance Amendment to to Provide 5G Small Cell Wireless provisions to accommodate future applications of equipment within right of way and on public and private properties.
[5G Small Cell ORD AMDT and Staff Summary](#)
- 4.2 Recommendation to the Village Board of a Planned Unit Development (PUD) Request and associated Site Plan and Architectural Review as a Conditional Use for a proposed 20 unit Residential Care Assisted Living Facility at 210 McDivitt Ln (Birchrock Properties LLC, Owner/Applicant); Parcel MUKV 2012-215-002.
[Staff Report - 210 McDivitt Ln PUD](#)
[210 McDivitt Ln Aerial](#)
[Site Plan](#)
[Elevation grey siding brick 20200206](#)
[Existing Conditions](#)
[Landscaping 1 of 2](#)
[Landscaping 2 of 2](#)
[Stormwater Report \(2019-12-12\)](#)
[Lighting Plan](#)
- 4.3 Recommendation to the Village Board on Site Plan Amendment for Pro Health Care Hospital and new Propane Tank Located on East side of facility at 240 Maple Ave. (WAUKESHA MEMORIAL HOSPITAL INC, Owner/Applicant); Parcel MUKV2016993002.
[Staff Report](#)
[Site Plan](#)
[Aerial Map](#)

4.4 Recommendation to the Village Board on an Ordinance amending Section 100-14 regarding accepting of electronic applications in lieu of paper applications.

[100-14 ORD AMDT Accept Elec Apps](#)

5. Adjournment

It is possible that a quorum of, members of other governmental bodies of the municipality may be in attendance at the above stated meeting to gather information. No action will be taken by any governmental body at the above stated meeting other than the governmental body specifically referred to above in this notice. Please note, upon reasonable notice, efforts will be made to accommodate the needs of individuals with disabilities through appropriate aids and services. For additional information or to request this service, contact the Municipal Clerk's Office, (262) 363-6420.

MINUTES OF THE PLAN COMMISSION MEETING

Tuesday, January 14, 2020

Call to Order

Chairman Winchowky called the meeting to order at 6:30 p.m. located in the Board Room of the Mukwonago Municipal Building, 440 River Crest Ct.

Roll Call

Commissioners present: Fred Winchowky, Chairman
Jim Decker
Joe Abruzzo
John Meiners
Jason Wamser

Commissioners excused: Robert Harley
Ken Werner

Also present: Ben Kohout, Planner/Zoning Administrator
Linda Gourdoux, Deputy Clerk/Treasurer

Minutes

Motion made by Meiners/Decker to approve the minutes of the December 10, 2019 regular meeting, carried.

New Business

Recommendation to Village Board for Approval of RESOLUTION 2020-02 for a 1-wall sign for Touchpad Electronics, 101 W Boxhorn Dr; Parcel No #A486800001; applicant, Icon

Kohout gave overview of project

Motion by Decker/Wamser for Approval of RESOLUTION 2020-02 for a 1-wall sign for Touchpad Electronics, 101 W Boxhorn Dr; Parcel No #A486800001; applicant, Icon, with no conditions, carried.

Discussion regarding start time for the February 11, 2020 Plan Commission meeting. Village Attorney would like to be present to discuss and answer questions regarding the 5G Small Cell Wireless Ordinance

Motion by Decker/Wamser to change the start time of the February 11, 2020 Plan Commission meeting to 5:30 pm, carried

Adjournment

Meeting adjourned at 6:37 p.m.

Respectfully Submitted,
Linda Gourdoux
Deputy Clerk/Treasurer



Village of Mukwonago

AGENDA ITEM REQUEST FORM

Committee/Board:	
Topic:	Wireless Telecommunication Mobile Service Facilities – 5G Network
From:	Village Attorney Mark G. Blum
Copy To:	John Weidl Ben Kohout
Date of Committee Action (if required):	February 11, 2020
Date of Village Board Action (if required):	

Information

Subject: Wireless Telecommunication Mobile Service Facilities

Rationale:

The Federal Communications Commission, as well as the State Legislature of the State of Wisconsin have enacted a series of laws limiting the ability of local governments to regulate wireless telecommunication mobile service facilities. Basically, these regulations are for purposes of facilitating 5G service by mobile telecommunication services. The FCC preempted the ability of local governments to regulate, in a number of ways, in this area to facilitate the roll out of this service by the cellular service companies. One of the rules the Village, as all municipalities do, will need to allow for 5G service to be installed within the public rights-of-way and specifically, on public streetlight posts or structures of a similar nature. Cable will be run underground within the right-of-way to connect to these towers and there will be a transmission unit and antenna on the top of the tower. These would be significantly different than the normal cell tower, specifically, 50 feet or less in height; but because of the limited range of these kinds of facilities, there will be a need for many more of them to provide adequate 5G coverage in the future. The Wisconsin Legislature placed limits on the amounts of fees that local governments may charge for the permitting process to evaluate these applications. They have also established limited timelines for the Village to consider them. Unfortunately, this is another example of a situation where federal and state authorities have placed substantial limitations on local control.

In any event, the League of Wisconsin Municipalities, upon becoming aware of the action taken by the FCC, developed a Model Ordinance in this regard. We have used this Ordinance for purposes of creating the document which you now have before you. As you review it, please keep in mind that the regulations we are including represent the limits of what the FCC and the State will allow us to regulate and therefore, it may not go so far as you would like it to. However, we believe it is permissible within the constraints that we have been given. One significant area that I am sure will be of concern relates to the location of these facilities. While the Village can request that the cell companies utilize towers in industrial or non-commercial or non-residential areas, the reality is that there will be a need for these kinds of transmitters within residential and commercial areas, such as our downtown and the law will require that we do accommodate that.



Village of Mukwonago

AGENDA ITEM REQUEST FORM

We are bringing these regulations before you for consideration and action. Please keep in mind that the Village will have no ability to regulate an application in this regard unless it were to establish an Ordinance such as the one which we are presenting. Since this does involve some regulation involving the Village's Zoning Code, this matter will necessitate a Public Hearing, as well as recommendation from the Plan Commission and ultimate adoption by the Village Board.

Fiscal Impact (If any):

None.

Requested Action by Committee/Board:

Consideration and possible action on proposed ordinances to establish regulations for wireless telecommunication mobile service facilities in the Village of Mukwonago, as well as modifications to the Villages Right-of-Way Permit process.

**VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES**

ORDINANCE NO. ____

**ORDINANCE TO CREATE SECTIONS 79-68, 79-69, 79-70, AND 79-71 AND TO AMEND
CHAPTER 74 AND SECTION 100-452 OF THE VILLAGE OF MUKWONAGO MUNICIPAL
CODE REGARDING THE REGULATION OF WIRELESS TELECOMMUNICATION MOBILE
SERVICE AND RIGHT-OF-WAY PERMITS**

SECTION I

Section 79-68 of the Municipal Code of the Village of Mukwonago is hereby created to read as follows:

ARTICLE III. - WIRELESS TELECOMMUNICATION MOBILE SERVICE FACILITIES

Sec. 79-68. - Wireless telecommunication mobile service facilities - generally.

(a) Purpose. This section is intended to regulate wireless mobile service facilities to the full extent allowed by Wis. Stats. § 66.0404 and other applicable laws. Nothing herein is intended to regulate or authorize the regulation of mobile service facilities in a manner that is preempted or prohibited by Wis. Stats. § 66.0404 or other applicable laws.

(b) Definitions. All terms used herein shall have the meaning described in Wis. Stats. § 66.0404(1) - see below:

Antenna means communications equipment that transmits and receives electromagnetic radio signals and is used in the provision of mobile services.

Application means an application for a permit under this section to engage in either:

- a. The siting and construction of a new mobile service support structure and facilities.
- b. With regard to a class 1 collocation, the substantial modification of an existing support structure and mobile service facilities or a class 2 collocation.

Building permit means a permit issued by Village of Mukwonago that authorizes an applicant to conduct construction activity that is consistent with Village of Mukwonago building code.

Class 1 collocation means the placement of a new mobile service facility on an existing support structure such that the owner of the facility does not need to construct a free standing support structure for the facility but does need to engage in substantial modification.

Class 2 collocation means the placement of a new mobile service facility on an existing support structure such that the owner of the facility does not need to construct a free standing support structure for the facility or engage in substantial modification.

Collocation means class 1 or class 2 collocation or both.

Distributed antenna system means a network of spatially separated antenna nodes that is connected to a common source via a transport medium and that provides mobile service within a geographic area or structure.

Equipment compound means an area surrounding or adjacent to the base of an existing support structure within which is located mobile service facilities.

Existing structure means a support structure that exists at the time a request for permission to place mobile service facilities on a support structure is filed with Village of Mukwonago.

Fall zone means the area over which a mobile support structure is designed to collapse.

Mobile service has the meaning given in 47 USC 153 (33)—see below:

a. Mobile service. The term "mobile service" means a radio communication service carried on between mobile stations or receivers and land stations, and by mobile stations communicating among themselves, and includes:

- i. Both one-way and two-way radio communication services,
- ii. A mobile service which provides a regularly interacting group of base, mobile, portable, and associated control and relay stations (whether licensed on an individual, cooperative, or multiple basis) for private one-way or two-way land mobile radio communications by eligible users over designated areas of operation, and
- iii. Any service for which a license is required in a personal communications service established pursuant to the proceeding entitled "Amendment to the Commission's Rules to Establish New Personal Communications Services" (GEN Docket No. 90-314; ET Docket No. 92-100), or any successor proceeding.

Mobile service facility means the set of equipment and network components, including antennas, transmitters, receivers, base stations, power supplies, cabling, and associated equipment, that is necessary to provide mobile service to a discrete geographic area, but does not include the underlying support structure.

Mobile service provider means a person who provides mobile service.

Mobile service support structure means a freestanding structure that is designed to support a mobile service facility.

Permit means a permit, other than a building permit, or approval issued by a political subdivision which authorizes any of the following activities by an applicant:

- a. A class 1 collocation.
- b. A class 2 collocation.
- c. The construction of a mobile service support structure.

Political subdivision means a city, village, town, or county.

Public utility has the meaning given in Wisconsin Statutes.

Search ring means a shape drawn on a map to indicate the general area within which a mobile service support structure should be located to meet radio frequency engineering requirements, taking into account other factors including topography and the demographics of the service area.

Small Wireless Facility, consistent with 47 C.F.R. § 1.6002(l), means a facility that meets each of the following conditions:

The structure on which antenna facilities are mounted:

- is 50 feet or less in height, or
- is no more than 10 percent taller than other adjacent structures, or
- is not extended to a height of more than 50 feet, or by more than 10 percent above its preexisting height, whichever is greater, as a result of the collocation of new antenna facilities;
- Each antenna (excluding associated antenna equipment) is no more than three cubic feet in volume;
- All other wireless equipment associated with the structure, including the wireless equipment associated with the antenna and any pre-existing associated equipment on the structure, is cumulatively no more than 28 cubic feet in volume;
- The facility does not require antenna structure registration;
- The facility is not located on Tribal lands; and
- The facility does not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified by federal law.

Substantial modification means the modification of a mobile service support structure, including the

mounting of an antenna on such a structure, that does any of the following:

- a. For structures with an overall height of 200 feet or less, increases the overall height of the structure by more than 20 feet.
- b. For structures with an overall height of more than 200 feet, increases the overall height of the structure by ten percent or more.
- c. Measured at the level of the appurtenance added to the structure as a result of the modification, increases the width of the support structure by 20 feet or more, unless a larger area is necessary for collocation.
- d. Increases the square footage of an existing equipment compound to a total area of more than 2,500 square feet.

Support structure means an existing or new structure that supports or can support a mobile service facility, including a mobile service support structure, utility pole, water tower, building, or other structure.

Utility pole means a structure owned or operated by an alternative telecommunications utility, as defined in Wisconsin Statutes; public utility, as defined in Wisconsin Statutes; telecommunications utility, as defined in Wisconsin Statutes; political subdivision; or cooperative association organized under Wisconsin Statutes; and that is designed specifically for and used to carry lines, cables, or wires for telecommunications service, as defined in Wisconsin Statutes; for video service, as defined in Wisconsin Statutes; for electricity; or to provide light.

(c) New towers and facilities. The siting and construction of a new mobile service support structure and facilities shall be subject to the following requirements:

(1) Application process. The applicant shall submit an application on forms or by electronic means as provided by the Village, which shall include all of the following information minimally as well as any other information as may be specifically requested within the application form itself.

- a. The name and business address of, and the contact individual for, the applicant.
- b. The location of the proposed tower.
- c. The location of the mobile service facility.
- d. A construction plan which describes the tower, equipment, network components, antennas, transmitters, receivers, base stations, power supplies, cabling, and related equipment to be placed on or around the new tower.
- e. An explanation as to why the applicant chose the proposed location, and why the applicant did not choose collocation, including a sworn statement from the responsible party attesting that collocation within the applicant's service area would not result in the same mobile service functionality, coverage, and capacity; is technically infeasible; or is economically burdensome.

(2) Determination of completeness - application. The Village Zoning Administrator will determine, within the prescribed “**application(s) completeness review deadlines**” (ref Section Sec. 79-71 – **Shot Clocks.**) whether the application is complete. If the application includes all of the required information, the application shall be found to be complete. The Village Zoning Administrator must notify the applicant in writing within the prescribed “**application(s) completeness review deadlines**” if an application is found not to be complete, specifying in detail the required information that was incomplete. The applicant may resubmit as often as necessary until it is complete.

(3) Conditional use review procedure. The wireless telecommunications mobile service facility shall be a conditional use, however it is not subject to Chapter 100 of this Code, but instead shall be reviewed pursuant to the following procedures:

- a. Public hearing. Within a reasonable time after an application and all required information has been filed, a public hearing shall be held by the plan commission pursuant to this chapter.

Within 40 days after the public hearing and all investigation, the plan commission shall make a recommendation to the village board unless the time is extended by the petitioner.

b. Fee. Any petition shall be accompanied by a fee as set from time-to-time by the village board to defray the cost of notification and holding of public hearing. Costs incurred by the village in obtaining legal, planning, engineering and other technical and professional advice in connection with the review and implementation of the conditional use shall be charged to the petitioner. Such fee shall not exceed the limits established by Wis. Stats. § 66.0404(4)(d).

c. Requirements.

1. Any new or substantially modified mobile service support structure (not including structures proposed to be placed in the right-of-way) that is proposed to be constructed on or adjacent to a parcel of land that permits single-family residential use shall be subject to an offset and setback requirement equal to the height of the support structure. The Village Zoning Administrator may permit a reduction in this offset/setback requirement but only to the extent it is determined that such reduction will not compromise the public safety and only when the applicant demonstrates a unique or extenuating circumstance specific to the proposed structure location which prevents full compliance with this offset/setback requirement. 2. All facilities shall comply fully with all applicable state and federal codes.

(d) Determination. The Village Board shall make a decision on the application within a reasonable time after receipt of the Plan Commission recommendation, provided further that the final action shall be taken within the required period of time (ref Section **Sec. 79-71. – Shot Clocks.**) unless the time for final action by the Village is extended by mutual agreement of the Petitioner and the Village. Said decision shall be stated in writing and a copy made a permanent part of the Village records. If conditional use status is not granted, the reasons therefor will be included in such record. A grant of conditional use status, subsequent changes or additions thereto and terminations thereof shall be recorded as follows:

(1) An official record of such conditional grant shall be prepared by the Village Zoning Administrator on a form prescribed therefore which shall include the description of the use for which the grant is given and all conditions attached thereto as well as a copy of the resolution of the village board approving the grant. A copy of the completed form shall be recorded at the Waukesha County Register of Deeds as a covenant on the title for the premises for which the conditional use was granted.

(2) Changes or additions. Subsequent changes or additions to the approved plans or use shall first be submitted for approval to the plan commission and, if, in the opinion of the Village Zoning Administrator in his review of the revisions requested, such change or addition constitutes a substantial alteration, a public hearing before the plan commission shall be required and notice thereof be given pursuant to this chapter.

(3) Conditions. Conditions such as landscaping, architectural design, type of construction, floodproofing, anchoring of structures, construction commencement and completion dates, sureties, lighting, fencing, planting screens, operational control, hours of operation, improved traffic circulation, deed restrictions, highway access restrictions, increased yard, or parking requirements, among other issues as deemed appropriate may be required by the Plan Commission upon its finding that these are necessary to fulfill the purpose and intent of this Chapter; subject to the limitations of subsection (4), Limitations upon authority, below.

(4) Limitations upon authority. The village review and action in the matter shall be subject to the limitations imposed by Wis. Stats. § 66.0404(4). In the event the applicant believes the village has erred in

it's determination, the applicant may, within 30 days of the Village Board decision on the matter, submit a written statement to that effect, including a detailed description of the specific points on which the applicant believes the Village has erred. The village board reserves the right to reconsider the matter, to ensure that all applicable laws are followed.

(e) Modifications. The construction of modifications to an existing mobile service support structure or mobile service facility shall be subject to the following requirements:

(1) Substantial modification.

a. Application and review process. The application and review process for a substantial modification is identical to the application and review process for a new tower, as described in subsection (c), New towers and facilities, above, except that the required plans should describe the proposed modifications, rather than describe the new structure.

(2) Not substantial modifications.

a. Application information and review process. The applicant shall submit an application that describes the applicant's basis for concluding that the modification is not substantial, and all of the following information:

- i. The name and business address of, and the contact individual for, the applicant.
- ii. The location of the affected support structure.
- iii. The location of the proposed facility.

b. Completeness determination. The Village Zoning Administrator will determine, within the prescribed **"application(s) completeness review deadlines"** (ref Section **Sec. 79-71. – Shot Clocks**) whether the application is complete. If the application includes all of the required information, the application shall be found to be complete. The Village Zoning Administrator must notify the applicant in writing within the prescribed **"application(s) completeness review deadlines"** if an application is found not to be complete, specifying in detail the required information that was incomplete. The applicant may resubmit as often as necessary until it is complete.

c. Fee. Any petition shall be accompanied by a fee as set from time-to-time by the Village Board to defray the cost of review. Costs incurred by the Village in obtaining legal, planning, engineering and other technical and professional advice in connection with the review and implementation of the modifications shall be charged to the Petitioner. Such fee shall not exceed the limits established by Wis. Stats. § 66.0404(4)(d).

d. Determination. The Village Zoning Administrator shall make a decision on the nonsubstantial modification application within the prescribed **period of time** (ref Section **Sec. 79-71. – Shot Clocks**) unless the time is extended by mutual agreement between the Village and the Petitioner. Said decision shall be stated in writing and a copy made a permanent part of the Village records. If modifications as requested are not approved by the Village Zoning Administrator, the reasons therefor will be provided to the applicant in writing.

e. Limitations upon authority. The village review and action in the matter shall be subject to the limitations imposed by Wis. Stats. § 66.0404(4), and such other laws as may apply which may include 47 USCA Section 1455. In the event the applicant believes the village has exceeded its authority in this regard, the applicant shall notify the village board in writing within 30 days of the action/decision, and the village board reserves the right to reconsider the matter.

SECTION II

Section 79-69 of the Municipal Code of the Village of Mukwonago is hereby repealed and recreated to read as follows:

Sec. 79-69 - Wireless telecommunication facilities in the Right-of-way – specifically.

(a) Definitions

For the purposes of this Section, the terms below shall have the following meanings:

“Administrator” means the Village Zoning Administrator or his/her designee.

“Application” means a formal request, including all required and requested documentation and information, submitted by an Applicant to the Village for a wireless permit.

“Applicant” means a person filing an application for placement or modification of a wireless telecommunications facility in the right-of-way.

“Base Station” means the same as in 47 C.F.R. § 1.6100(b)(1), which defines the term to mean a structure or wireless telecommunications equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network. This definition does not include towers.

“Eligible Facilities Request” means the same as in 47 C.F.R. § 1.6100(b)(3), which defines the term to mean any request for modification of an existing tower or base station that does not substantially change the physical dimensions of such tower or base station, involving: (i) collocation of new transmission equipment; (ii) removal of transmission equipment; or (iii) replacement of transmission equipment.

“FCC” means the Federal Communications Commission.

“Right-of-way” means the surface of, and the space above and below the entire width of an improved or unimproved public roadway, highway, street, bicycle lane, landscape terrace, shoulder, side slope, and public sidewalk over which the Village exercises any rights of management and control or in which the Village has an interest.

“Small Wireless Facility,” consistent with 47 C.F.R. § 1.6002(l), means a facility that meets each of the following conditions:

(1) The structure on which antenna facilities are mounted:

i. is 50 feet or less in height, or

ii. is no more than 10 percent taller than other adjacent structures, or

iii. is not extended to a height of more than 50 feet or by more than 10 percent above its preexisting height, whichever is greater, as a result of the collocation of new antenna facilities;

(2) Each antenna (excluding associated antenna equipment) is no more than three cubic feet in volume;

(3) All other wireless equipment associated with the structure, including the wireless equipment associated with the antenna and any pre-existing associated equipment on the structure, is cumulatively no more than 28 cubic feet in volume;

(4) The facility does not require antenna structure registration;

(5) The facility does not result in human exposure to radiofrequency radiation in excess of the applicable safety standards specified by federal law.

“Support Structure” means any structure capable of supporting wireless telecommunications equipment.

“Tower” means the same as in 47 C.F.R. § 1.6100(b)(9), which defines the term as any structure built for the sole or primary purpose of supporting any Federal Communication Commission (FCC) licensed or authorized antennas and their associated facilities, including structures that are constructed for wireless communications services including, but not limited to, private, broadcast, and public safety services, as well as unlicensed wireless services and fixed wireless services such as microwave backhaul, and the associated site.

This definition does not include utility poles.

“Underground areas” means those areas where there are no electrical facilities or facilities of the incumbent local exchange carrier in the right of way; or where the wires associated with the same are or are required to be located underground; or where the same are scheduled to be converted from overhead to underground. Electrical facilities are distribution facilities owned by an electric utility and do not include transmission facilities used or intended to be used to transmit electricity at nominal voltages more than 35,000 volts.

“Utility Pole” means a structure in the right-of-way designed to support electric, telephone, and similar utility distribution lines and associated equipment. A tower is not a utility pole.

“Wireless Infrastructure Provider” means a person that owns, controls, operates, or manages a wireless telecommunications facility or portion thereof within the right-of-way.

“Wireless Permit” or “Permit” means a permit issued pursuant to this Section and authorizing the placement or modification of a wireless telecommunications facility of a design specified in the permit at a particular location within the right-of-way, and the modification of any existing support structure to which the wireless telecommunications facility is proposed to be attached.

“Wireless Regulations” means those regulations adopted pursuant to Section (e)(2) a. to implement the provisions of this Section .

“Wireless Service Provider” means an entity that provides wireless services to end users.

“Wireless Telecommunications Equipment” means equipment at a fixed location that enables FCC-licensed or authorized wireless communications between user equipment and a communications network.

“Wireless Telecommunications Facility” or “Facility” means a facility at a fixed location in the right-of-way consisting of a base station, antennas and other accessory equipment, and a tower

and underground wiring, if any, associated with the base station.

Definitions in this Section may contain quotations or citations to 47 C.F.R. §§ 1.6100 and 1.6002. In the event that any referenced section is amended, creating a conflict between the definition as set forth in this Section and the amended language of the referenced section, the definition in the referenced section, as amended, shall control.

(b) Purpose

In the exercise of its police powers, the Village has priority over all other uses of the right-of-way. The purpose of this Section is to provide the Village with a process for managing, and uniform standards for acting upon, requests for the placement of wireless telecommunications facilities within the right-of-way consistent with the Village's obligation to promote the public health, safety, and welfare; to manage the right-of-way; and to ensure that the public's use is not obstructed or incommoded by the use of the right-of-way for the placement of wireless telecommunications facilities. The Village recognizes the importance of wireless telecommunications facilities to provide high-quality communications and internet access services to residents and businesses within the Village. The Village also recognizes its obligation to comply with applicable Federal and State laws regarding the placement of wireless telecommunications facilities in the right-of-way including, without limitation, the Telecommunications Act of 1996 (47 U.S.C. § 151 et seq), Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, Wis. Stat. § 182.017, and Wis. Stat. § 196.58, and this Section shall be interpreted consistent with those provisions.

(c) Scope

(1) Applicability. Unless exempted by Section (c)(2), below, every person who wishes to place a wireless telecommunications facility in the right-of-way or modify an existing wireless telecommunications facility in the right-of-way must obtain a wireless permit under this Section.

(2) Exempt Facilities. The provisions of this Section (other than Sections 79-69 (j)-(n)) shall not be applied to applications for the following:

- a. Installation of a small wireless facility on the strand between two utility poles, provided that the cumulative volume of all wireless facilities on the strand shall not exceed 1 cubic foot, and provided further that the installation does not require replacement of the strand, or excavation, modification, or replacement of either of the utility poles.
- b. Installation of a mobile cell facility (commonly referred to as "cell on wheels" or "cell on truck") for a temporary period in connection with an emergency or event, but no longer than required for the emergency or event, provided that installation does not involve excavation, movement, or removal of existing facilities.
- c. Placement or modification of a wireless telecommunications facility on structures owned by or under the control of the Village. See subsection (m) of this Section.
- d. Placement or modification of a wireless telecommunications facility by Village staff or any person performing work under contract with the Village.

e. Modification of an existing wireless telecommunications facility that makes no material change to the footprint of a facility or to the surface or subsurface of a public street if the activity does not disrupt or impede traffic in the traveled portion of a street, and if the work does not change the visual or audible characteristics of the wireless telecommunications facility.

(d) Nondiscrimination

In establishing the rights, obligations, and conditions set forth in this Section, it is the intent of the Village to treat each applicant and right-of-way user in a competitively neutral and nondiscriminatory manner, to the extent required by law, while taking into account the unique technologies, situation, and legal status of each applicant or request for use of the right-of-way.

(e) Administration

(1) **Administrator.** The Administrator is responsible for administering this Section.

(2) **Powers.** As part of the administration of this Section, the Administrator may:

- a. Adopt wireless regulations governing the placement and modification of wireless telecommunications facilities in addition to but consistent with the requirements of this Section including regulations governing collocation, the resolution of conflicting applications for placement of wireless telecommunications facilities, and aesthetic standards.
- b. Interpret the provisions of the Section and the wireless regulations.
- c. Develop forms and procedures for submission of applications for wireless permits consistent with this Section .
- d. Collect any fee required by this Section .
- e. Establish deadlines for submission of information related to an application, and extend or shorten deadlines where appropriate and consistent with federal laws and regulations.
- f. Issue notices of incompleteness or requests for information in connection with any wireless permit application.
- g. Select and retain an independent consultant or attorney with expertise in telecommunications to review any issue that involves specialized or expert knowledge in connection with any permit application.
- h. Coordinate and consult with other Village staff, committees, and governing bodies to ensure timely action on all other required permits under subsection (f)(2) g. of this Section .
- i. Subject to appeal as provided in subsection (h)(4) of this Section , determine whether to grant, grant subject to conditions, or deny an application.
- j. Take such other steps as may be required to timely act upon wireless permit applications, including issuing written decisions and entering into agreements to

mutually extend the time for action on an application.

(f) Application

(1) **Format.** Unless the wireless regulations provide otherwise, the applicant must submit both a paper copy and an electronic copy (in a searchable format) of any application, as well as any amendments or supplements to the application or responses to requests for information regarding an application, to the Administrator. An application is not complete until both the paper and electronic copies are received by the Administrator.

(2) **Content.** In order to be considered complete, a fully executed application must be submitted using forms provided by the Village and with all required supporting materials and information included or attached thereto, and also, in addition to all other information requested, the following shall be provided:

- a. All information required pursuant to the wireless regulations.
- b. A completed application cover sheet signed by an authorized representative of the applicant, listing all standard permit conditions.
- c. The name of the applicant (including any corporate or trade name), and the name, address, email address, and telephone number of a local representative. If the applicant is a wireless infrastructure provider, the name and contact information for the wireless service provider(s) that will be using the wireless telecommunications facility must also be provided.
- d. A statement of which shot clock or shot clocks apply to the application and the reasons the chosen shot clocks apply.
- e. A separate and complete description of each proposed wireless telecommunications facility and the work that will be required to install or modify it, including but not limited to detail regarding proposed excavations, if any; detailed site plans showing the location of the facility and technical specifications for each element of the facility, clearly describing the site and all structures and facilities at the site before and after installation or modification and identifying the owners of such preexisting structures and facilities; and describing the distance to the nearest residential dwelling unit. Before and after 360-degree photo simulations must be provided for each facility.
- f. A copy of the FCC license for the facility or a sworn written statement from the applicant attesting that the facility will comply with current FCC regulations.
- g. To the extent that filing of the wireless permit application establishes a deadline for action on any other permit that may be required in connection with the wireless telecommunications facility, the wireless permit application must include complete copies of such other permit applications (including for instance but not necessarily limited to electrical permits, building permits, construction permits, traffic control permits, right-of-way permits, excavation permits and erosion control permits), with all engineering completed and with evidence of payment for all fees associated with each permit.

h. A certification by a registered and qualified engineer that the installation can be supported by and does not exceed the tolerances of the structure on which it will be mounted and that all elements of the wireless telecommunications facility comply with applicable safety standards.

i. Payment of all required fees. The fee for application shall be as established and periodically updated by the Village Board from time to time but in no case less than \$500 for a single upfront application that may include up to 5 wireless facilities plus an additional \$100 for each facility beyond 5. For applications which include placement of a new pole, the application fee shall be not less than \$1000. Full payment of application fees must be rendered at the time an application is submitted.

j. If an applicant contends that denial of the application would prohibit or effectively prohibit the provision of service in violation of federal law, or otherwise violate applicable law, the application must provide all evidence on which the applicant relies in support of that claim. Applicants are not permitted to supplement this evidence if doing so would prevent the Village from complying with any deadline for action on an application.

k. If the application is an eligible facilities request, the application must contain information sufficient to show that the application qualifies as an eligible facilities request under 47 C.F.R. § 1.6100(b)(3), including evidence that the application relates to an existing tower or base station that has been approved by the Village. Before and after 360-degree photo simulations must be provided with detailed specifications demonstrating that the modification does not substantially change the physical dimensions of the existing approved tower or base station.

(3) **Waivers.** Requests for waivers from any requirement of this subsection (f) regarding the application requirements shall be made in writing to the Village Zoning Administrator. The Administrator may grant a request for waiver if it is demonstrated that, notwithstanding the issuance of the waiver, the Village will be provided with all information necessary to fully understand the nature of the construction or other activity proposed to be conducted pursuant to the wireless permit sought.

(4) **Fees.** Applicant must pay an application fee concurrent with submittal of the application, the level of such fees to be set by the Village of Mukwonago Village Board from time to time. The applicant shall also be required to pay all costs reasonably incurred in reviewing the application, including costs incurred by the Village in retaining outside consultants to assist in the review.

(5) **Public Records.** Applications are public records that may be made publicly available pursuant to state and federal public records law. Notwithstanding the foregoing, the applicant may designate portions of the application materials that it reasonably believes

contain proprietary or confidential information by clearly marking each portion of such materials accordingly, and the Village shall endeavor to treat the information as proprietary and confidential, subject to applicable state and federal public records law and the Administrator's determination (with guidance of the Village Attorney) that the applicant's request for confidential or proprietary treatment of the application materials is reasonable. The Village shall not be

required to incur any costs to protect the application from disclosure.

(g) General Standards

(1) **Generally.** Wireless telecommunications facilities shall meet the minimum requirements set forth in this Section and the wireless regulations, in addition to the requirements of any other applicable law or regulation.

(2) **Regulations.** The wireless regulations and decisions on wireless permits shall, at a minimum, ensure that the requirements of this Section are satisfied, unless it is determined that the applicant has established that denial of an application would, within the meaning of federal law, prohibit or effectively prohibit the provision of a telecommunications or personal wireless services, or otherwise violate applicable laws or regulations. If that determination is made, the requirements of this Section and the wireless regulations may be waived, but only to the extent required to avoid the prohibition.

(3) **Design Standards.**

a. **Preferred Locations.** The following locations, in the order listed from most to least preferred, are the preferred locations for installations of wireless facilities in public rights-of-way: *(i.e. M-2 Zoning District location options must be ruled out as a prospective location for the facilities and equipment proposed by the applicant before considering prospective locations in the B-3, B-4, B-5, or P-1 Districts, and etc...)*

- 1) M-2 and M-4 Zoning Districts;
- 2) B-3, B-4, B-5, and - P-1 Zoning Districts; and
- 3) Other Zoning Districts.

b. **Non-Preferred Locations.** The applicant should avoid locating facilities or equipment within residential neighborhoods, designated open spaces, parks, and conservation areas. A facility may be permitted in a location other than a preferred location if the applicant provides evidence showing that:

- 1) Adequate coverage can be maintained, existing services can be improved, or new services can be added only if facilities are placed in a non-preferred location; or
- 2) The proposed facility will meet all applicable requirements for the non-preferred location and will complement the character of the surrounding area.

c. **Avoid Significant Buildings and View Sheds.** Wireless communication facilities shall not be located on historically or architecturally significant structures unless visually and architecturally integrated with the structure and shall not interfere with prominent vistas or significant public view corridors.

d. **Collocation Generally.** Subject to the provisions of this section, collocation of facilities is generally preferred over new support structures if it can be accomplished in a way that better complements the character of the surrounding area.

e. **Collocation with non-municipal facilities.** Collocation on facilities or support structures owned by parties other than the Village is subject to the following:

- 1) Where an existing facility or support structure can potentially accommodate collocation of a new wireless facility, collocation will be required unless:
 - a. The applicant submits substantial evidence supporting the unsuitability of the collocation;
 - b. The owner of the existing facility or support structure is unwilling to accommodate the applicant's equipment and cannot be required to cooperate; or
 - c. The Village Zoning Administrator determines that installing a new support structure or collocation with a Village facility is preferable to collocation with another facility or support structure.
- 2) Authorization for collocation on a facility or support structure owned by a party other than the Village will be voided if the facility or support structure is destroyed, removed, relocated, or replaced, unless:
 - a. The owner of the collocated facility obtains a new right-of-way use permit; or
 - b. The facility or support structure accommodating the collocation is replaced with a facility or support structure comparable in size, mass, appearance, and placement, as determined by the Village Zoning Administrator.

f. **General Location Restrictions.**

1) **Obstruction of Traffic.**

a. Facilities and support structures, towers, and utility poles must be situated at least 1 foot back from the curb or nearest traffic lane to reduce the risk of being struck by a motor vehicle or bicycle.

b. Facilities and support structures, towers, and utility poles may not obstruct, impede, or hinder vehicular, pedestrian, or bicycle travel or public safety within the right-of-way, except during an authorized/Village approved temporary lane or sidewalk closure.

c. **Within the Village's established vision clearance triangles (ref Section 100-406 of the Code),** facilities and support structures, towers, and utility poles must be located in such a manner as will minimize visual obstruction for pedestrians and motorists. Any proposed installation within a vision clearance triangle that is determined by the Village to pose a safety

hazard may not be approved.

d. To the extent possible, a facility, support structure, tower, or utility pole should be located and designed so as to avoid interference with right-of-way maintenance activities, such as:

- 1) Grass mowing, brush collection, tree trimming, snow removal and landscaping maintenance;
- 2) Trash collection;
- 3) Maintenance of streets, pavement, sidewalks, and bicycle lanes; and
- 4) Maintenance of other facilities in the rights-of-way.

2) **ADA.** Facilities and support structures, towers, and utility poles at all times must comply with the requirements of the Americans with Disabilities Act of 1990.

3) Facilities and support structures, towers, and utility poles must generally be located in alignment with existing trees, facilities, support structures, towers, utility poles, and streetlights.

4) **Spacing.**

a. A support structure, tower, or utility pole for a wireless facility must **be located at least 25 feet**, from centerline to centerline, of any other support structure, tower or utility pole in a public right-of-way **unless specifically waived or modified by the Village Zoning Administrator due to unique and limiting circumstances of the specific proposed location.**

b. Facilities and support structures, towers, and utility poles must be located equal distance between trees whenever possible, and no closer than 20 feet, from centerline to centerline, to a tree in order to avoid damaging a tree's critical root zone. This distance may be increased if the Village Zoning Administrator determines that the critical root zone of a nearby tree is greater than 20 feet.

5) **Frontage.**

a. Facilities and support structures, towers, and utility poles should not be located along the frontage of any building deemed to be of historic significance on a federal, state, or local level.

b. New facilities and support structures, towers, and utility poles should not be located directly in front of any existing residential, commercial, or industrial structure but rather every effort shall be made to locate these at lot corners.

c. To the extent possible, new facilities and support structures, towers, and utility poles must be located in line with existing lot lines, but in areas where multiple structures abut each other or where no side lot setback requirement exists, structures should not be located directly in front of an

entrance or window of any existing structure.

6) Use of Lighting Elements.

a. A combination support structure and streetlight pole should only be located where an existing pole can be removed and replaced, or at a new location where the Village has identified that a streetlight is necessary. The lighting fixtures shall be of like kind to those which the Village is using within the immediately surrounding area. Installation, maintenance, repair and replacement of such light fixtures shall be the responsibility of the permit holder.

b. **In no case shall the location/placement of a wireless facility be permitted where its location/placement adversely impacts the functionality/intended purpose of the light fixture(s) also located on that pole.**

7) Height Restrictions and Requirements.

a. **Maximum Height of a Wireless Facility.** The height of a wireless facility in the right-of-way may not exceed the greater of 50 feet above ground level at the base of the structure or ten feet above the tallest existing support structure, tower, or utility pole that is in place on the effective date of this ordinance and that is located within 500 feet of the proposed facility.

b. **Minimum Height of Wireless Facility and Equipment** mounted to support structures must not interfere with or create a hazard to pedestrian or vehicular traffic and must be a minimum of 10 feet above any pedestrian or bicycle thoroughfare and a minimum of 16 feet above any traffic lane.

8) Undergrounding

a. **Undergrounded Equipment.** To conceal non-antenna equipment, applicants shall install all non-antenna equipment underground where utilities or other equipment in the right-of-way is also required to be located underground. In all other areas, applicants shall underground its non-antenna equipment to the extent feasible. Additional expense to install and maintain an underground equipment enclosure does not exempt an applicant from this requirement, except where the applicant demonstrates by clear and convincing evidence that this requirement will effectively prohibit the provision of personal wireless services. Nothing in this subsection is intended to require the applicant to install any electric meter required by the applicant's electrical service provider underground.

b. **Ground-Mounted Equipment.** To the extent that the equipment cannot be placed underground if required, applicants shall install ground-mounted equipment in the location so that it does not obstruct pedestrian or vehicular traffic. The Village may require landscaping or other concealment as a condition of approval to conceal ground-mounted equipment. Ground-mounted equipment shall not be permitted in connection with a street light, traffic signal, utility pole or other similar infrastructure in the public right-of-way of the Downtown Area. In the event that the Village approves ground-mounted equipment, the applicant shall conform to the following requirements:

- 1) **Self-Contained Cabinet or Shroud.** The equipment shroud or cabinet shall contain all the equipment associated with the facility other than the antenna. All cables and conduits associated with the equipment shall be concealed from view.
- 2) **Concealment.** The Village may require the applicant to incorporate concealment elements into the proposed design, including but not limited to public art displayed on the cabinet, strategic placement in less obtrusive locations and placement within existing or replacement street furniture.

9) **General Aesthetic Standards.**

a. **Concealment.** Permits for wireless telecommunications facilities shall incorporate specific concealment elements to minimize visual impacts, and design requirements ensuring compliance with all standards for noise emissions. Unless it is determined that another design is less intrusive, or placement is required under applicable law:

- (1) Antennas located at the top of support structures shall, to the maximum extent possible, be incorporated into the structure, or placed within shrouds of a size such that the antenna appears to be part of the support structure;
- (2) Antennas placed elsewhere on a support structure shall, to the maximum extent possible, be integrated into the structure, or be designed and placed to minimize visual impacts.
- (3) Radio units or equipment cabinets holding radio units and mounted on a utility pole shall be placed as high as possible on a support structure, located to avoid interfering with, or creating any hazard to, any other use of the public rights of way, and located on one side of the utility pole. Unless the radio units or **equipment cabinets can be otherwise more appropriately concealed, radio units or equipment cabinets mounted below the communications space on support poles or**

structures shall be designed so that the largest dimension is vertical, and the width is such that the radio units or equipment cabinets are minimally visible from the opposite side of the pole or support structure on which they are placed.

(4) Wiring and cabling shall be neat and concealed within the structure or, if within the structure is not possible, then flush to the support structure in a manner that, to the greatest extent possible blends into the color/materials/design of the structure as will ensure maximum concealment of these components.

(5) No support structures, towers, or utility poles shall be permitted in the public rights-of-way, and no wireless telecommunications facilities shall be permitted above-ground, in underground areas; provided that the Village may permit placements where all elements of the wireless telecommunications facility are concealed and the facility does not appear to a casual observer to be a wireless telecommunications facility.

10) Noise. Facilities must be constructed and operated in a manner that ~~prevents~~ minimizes audible noise.

11) Facilities must not be illuminated, except in accordance with state or federal regulations or if incorporated as part of a street light pole.

12) Signage Prohibited.

a. Signage is not permitted except to comply with FCC or Wisconsin regulations to provide safety warnings.

b. Every facility shall at all times display a small placard that accurately identifies the facility owner and provides the facility owner's unique site number, and also provides a local or toll-free telephone number to contact the facility owner's operations center. This placard shall be as small as is practicable.

c. The design, materials, colors, and location of the placards shall be subject to review and approval by the Village prior to placement. If at any time a new owner or operator provider takes over operation of an existing personal wireless service facility, the new personal wireless service provider shall notify the Village of the change in operation within 30 days and the required and approved placard shall be updated within 30 days to reflect the name and phone number of the new wireless service provider. The colors, materials and design of the updated placard shall match those of the previously approved placard.

13) Trees.

a. Tree "topping" or the improper pruning of trees is prohibited. Any

proposed pruning of trees, shrubs, or other landscaping already existing in the right-of-way must be specifically called out in the application and approved by the Village in writing prior to the start of any pruning or cutting.

(4) Other Standards.

- a. Wireless telecommunications facilities shall be installed and modified in a manner that:
 - (i) Minimizes risks to public safety;
 - (ii) Ensures that placement of facilities on existing structures is within the tolerance of those structures;
 - (iii) Avoids placement of aboveground facilities in underground areas, installation of new support structures or equipment cabinets in the public right-of-way, or placement in residential areas when alternative and suitable commercial, light industrial and/or institutional areas are reasonably available;
 - (iv) Maintains the integrity and character of the neighborhoods and corridors in which the facilities are located;
 - (v) Ensures that installations are subject to periodic review to minimize the intrusion on the right-of-way;
 - (vi) Ensures that the Village bears no risk or liability as a result of the installations; and
 - (vii) Ensures that applicant's use does not inconvenience the public, interfere with the primary uses of the right-of-way, or hinder the ability of the Village or other government entities to improve, modify, relocate, abandon, or vacate the right-of-way or any portion thereof, or to cause the improvement, modification, relocation, vacation, or abandonment of facilities in the right-of-way.
- b. No wireless permit shall be issued unless (i) the wireless service provider applicant has immediate plans to use the proposed facility or (ii) the wireless infrastructure applicant has a contract with a wireless service provider that has immediate plans to use the proposed facility.
- c. In no event may ground-mounted equipment interfere with pedestrian or vehicular traffic and at all times must comply with the requirements of the Americans with Disabilities Act of 1990.

(5) Standard Permit Conditions. All wireless permits under this Section are issued subject to the following minimum conditions:

- a. **Locates.** All permit holders shall be required to have/maintain current and active membership status in the Wisconsin Diggers Hotline/Call811 underground utility locating service for the duration of the time that the permit holder has underground facilities of any sort located in the public rights-of-way throughout the Village of Mukwonago.
- b. **Compliance.** The permit holder shall at all times maintain compliance with all applicable Federal, State, and local laws, regulations, and other rules.
- c. **Term.** A wireless permit issued pursuant to an eligible facilities request shall expire at the same time the permit for the underlying existing wireless telecommunications facility expires. All other wireless permits shall be valid for a period of five years from the date of issuance unless revoked pursuant to subsection (i)(2) of this Section.
- d. **Contact Information.** The permit holder shall at all times maintain with the Village accurate contact information for the permit holder and all wireless service providers making use of the facility, which shall include a phone number, mailing address, and email address for at least one natural person.
- e. **Emergencies.** The Village shall have the right to support, repair, disable, or remove any elements of the facilities in emergencies or when the facility threatens imminent harm to persons or property.
- f. **Indemnities.** The permit holder, by accepting a permit under this Section, agrees to indemnify, defend, and hold harmless the Village, its elected and appointed officials, officers, employees, agents, representatives, and volunteers (collectively, the "Indemnified Parties") from and against any and all suits, actions, legal or administrative proceedings, claims, demands, damages, liabilities, interest, attorneys' fees, costs, and expenses of whatsoever kind or nature in any manner caused in whole or in part, or claimed to be caused in whole or in part, by reason of any act, omission, fault, or negligence, whether active or passive, of the permit holder or anyone acting under its direction or control or on its behalf, even if liability is also sought to be imposed on one or more of the Indemnified Parties. The obligation to indemnify, defend, and hold harmless the Indemnified Parties shall be applicable even if the liability results from an act or failure to act on the part of one or more of the Indemnified Parties. However, the obligation does not apply if the liability results from the willful misconduct of an Indemnified Party.
- g. **Adverse Impacts on Adjacent Properties.** The permit holder shall undertake all reasonable efforts to avoid undue adverse impacts to adjacent properties and/or uses that may arise from the construction, operation, maintenance, modification, or removal of the facility.
- h. **General maintenance.** The wireless communications facility and any associated structures shall be maintained in a neat and clean manner and in accordance with all approved plans and conditions of approval.
- i. **Graffiti Removal.** All graffiti on facilities shall be removed at the sole expense of the permit holder within 48 hours after notification from the Village.

j. **Relocation.** At the request of the Village pursuant to subsection (j) of this Section, the permit holder shall promptly and at its own expense permanently remove and relocate any wireless telecommunications facility in the right-of-way.

k. **Abandonment.** The permit holder shall promptly notify the Village whenever a facility has not been in use for a continuous period of 60 days or longer and must comply with subsection (k) of this Section.

l. **Restoration.** A permit holder who removes or relocates a facility from the right-of-way must restore the right-of-way in accordance with subsection (l) of this Section.

m. **Record Retention.** The permit holder shall retain full and complete copies of all permits and other regulatory approvals issued in connection with the facility, which includes without limitation all conditions of approval, approved plans, resolutions, and other documentation associated with the permit or regulatory approval. In the event the Village cannot locate any such full and complete permits or other regulatory approvals in its official records, and the permit holder fails to retain full and complete records in the permit holder's files, any ambiguities or uncertainties that would be resolved through an examination of the missing documents will be conclusively resolved against the permit holder.

n. **Radio Frequency Emissions.** Every wireless facility shall at all times comply with applicable FCC regulations governing radio frequency emissions, and failure to comply with such regulations shall be treated as a material violation of the terms of the permit.

(g) **Certificate of Insurance.** A certificate of insurance sufficient to demonstrate to the satisfaction of the Administrator (with guidance of the Village Attorney) that the applicant has the capability to cover any liability that might arise out of the presence of the facility in the right-of-way. The Applicant shall provide evidence of liability insurance with limits of not less than \$1,000,000.00 per occurrence and \$2,000,000.00 in the aggregate. Applicant shall provide evidence through a Policy Endorsement that the Village shall be considered an Additional Insured under the General Liability Policy on a primary and non-contributory basis. An Endorsement shall also be required that provides that the Village shall receive notification of the termination or material modification of the Policy with not less than 30 days' notice except in the event of a termination due to non-payment of premium, in which case the notice shall be provided not less than 10 days prior to the termination of the Policy. Evidence of such coverage shall be maintained throughout the duration of the permit and the Applicant's use of Village right-of-way.

(h) Application Processing and Appeal

(1) **Rejection for Incompleteness.** Notices of incompleteness shall be provided in conformity with state, local, and federal law, including 47 C.F.R. § 1.6003(d), as amended.

(2) **Processing Timeline.** Wireless permit applications (including applications for other permits as provided for under Section (f)(2) g. necessary to place or modify the facility) and appeals will be processed in conformity with the shot clocks set forth in state, local, and federal law, as amended and as specifically identified by the applicant in their application/submittal.

(3) **Written Decision.** In the event that an application is denied (or approved with conditions beyond the standard permit conditions set forth in Section (g)(5)), the Administrator shall issue a written decision with the reasons therefor, supported by

substantial evidence contained in a written record.

(4) Appeal to Village Board. Any person adversely affected by the decision of the Administrator may appeal that decision to the Village Board which may decide the issues *de novo*, and whose written decision will be the final decision of the Village. An appeal by a wireless infrastructure provider must be taken jointly with the wireless service provider that intends to use the wireless telecommunications facility.

(5) Deadline to Appeal.

- a. Appeals that involve eligible facilities requests must be filed within three business days of the date of the written decision of the Administrator.
- b. All other appeals not governed by Section (g)(5) a. above, must be filed within ten business days of the date of the written decision of the Administrator, unless the Administrator extends the time therefor. An extension may not be granted where extension would result in approval of the application by operation of law.

(6) Decision Deadline. All appeals shall be conducted so that a timely written decision may be issued in accordance with the applicable shot clock.

(i) Expiration and Revocation

(1) Expiration. A wireless permit issued pursuant to an eligible facilities request shall expire at the same time the permit for the underlying existing wireless telecommunications facility expires. All other wireless permits shall be valid for a period of five years from the date of issuance. Upon expiration of the wireless permit, the permit holder must either:

- a. Remove the wireless telecommunications facility; or,
- b. Submit an application to renew the permit at least 90 days prior to its expiration. The facility must remain in place until the renewal application is acted on by the Village and any appeals from the Village's decision are exhausted.

(2) Revocation for Breach. A wireless permit may be revoked for failure to comply with the conditions of the permit or applicable federal, state, or local laws, rules, or regulations. Upon revocation, the wireless telecommunications facility must be removed within 30 days of receipt of written notice from the Village. All costs incurred by the Village in connection with the revocation, removal, and right-of-way restoration shall be paid by the permit holder.

(3) Failure to Obtain Permit. Unless exempted from permitting by subsection (c)(2) of this Section, a wireless telecommunications facility installed without a wireless permit must be removed within 30 days of receipt of written notice from the Village. All costs incurred by the Village in connection with the notice, removal, and right-of-way restoration shall be paid by entities who own or control any part of the wireless telecommunications facility.

(j) Relocation

Except as otherwise prohibited by state or federal law, a permit holder must promptly and at its own expense, with due regard for seasonal working conditions, permanently remove and relocate

any of its wireless telecommunications facilities in the right-of-way whenever the VILLAGE requests such removal and relocation. The Village may make such a request to prevent the facility from interfering with a present or future Village use of the right-of-way; a public improvement undertaken by the Village an economic development project in which the Village has an interest or investment; when the public health, safety, or welfare require it; or when necessary to prevent interference with the safety and convenience of ordinary travel over the right-of-way. Notwithstanding the foregoing, a permit holder shall not be required to remove or relocate its facilities from any right-of-way that has been vacated in favor of a non-governmental entity unless and until that entity pays the reasonable costs of removal or relocation to the permit holder.

(k) Abandonment

(1) **Cessation of Use.** In the event that a permitted facility within the right-of-way is not in use for a continuous period of 60 days or longer, the permit holder must promptly notify the Village and do one of the following:

- a. Provide information satisfactory to the Administrator that the permit holder's obligations for its facilities under this Section have been lawfully assumed by another permit holder.
- b. Submit to the Administrator a proposal and instruments for dedication of the facilities to the Village. If a permit holder proceeds under this subsection (k)(1) b., the Village may, at its option:
 - (A) Accept the dedication for all or a portion of the facilities;
 - (B) Require the permit holder, at its own expense, to remove the facilities and perform the required restoration under subsection (l); or
 - (C) Require the permit holder to post a bond or provide payment sufficient to reimburse the Village for reasonably anticipated costs to be incurred in removing the facilities and undertaking restoration under subsection (l).
- c. Remove its facilities from the right-of-way within one year of the date the facility went out of use and perform the required restoration under subsection (l), unless the Administrator waives this requirement or provides a later deadline.

(2) **Abandoned Facilities.** Facilities of a permit holder who fails to comply with subsection (k)(1) above and which, for one year, remain unused shall be deemed to be abandoned. Abandoned facilities are deemed to be a nuisance. In addition to any remedies or rights it has at law or in equity, the Village may, at its option:

- a. abate the nuisance and recover the cost from the permit holder or the permit holder's successor in interest;
- b. take possession of the facilities; and/or
- c. require removal of the facilities by the permit holder or the permit holder's successor in interest.

(l) Restoration

In the event that a permit holder removes or is required to remove a wireless telecommunications facility from the right-of-way under this Section (or relocate it pursuant to subsection (j)), the permit holder must, *leave the site in a safe and accessible condition immediately upon such removal and, within 30 days, permanently* restore the right-of-way to its prior condition in accordance with Village specifications. However, a support structure owned by another entity authorized to maintain that support structure in the right-of-way need not be removed but must instead be restored to its prior condition. If the permit holder fails to make the *immediate and/or permanent*

restorations required by this subsection (l) (*see above*), the Village at its option may do such work. In that event, the permit holder shall reimburse the Village, within 30 days of billing therefor, the cost of restoring the right-of-way. In the event circumstances beyond the permit holders control may prevent timely, permanent restoration of the right-of-way, the Village Zoning Administrator may, upon written request of the permit holder within 20 days of the facility removal, grant an extension to the deadline for permanent restoration.

(m) Placement on Village Owned or -Controlled Structures

The Village may negotiate agreements for placement of wireless telecommunications facilities on Village-owned or -controlled structures in the right-of-way. The agreement shall specify, among any other terms the Village may require to be negotiated or specified, the compensation to the Village for use of the structures. The person or entity seeking the agreement shall reimburse the Village for all costs the Village incurred in connection with its review of and action upon the request for an agreement. The Village requires that, upon approval to locate any facilities or equipment upon any Village owned structure in the right-of-way, it shall become that permit holder's responsibility to maintain, repair, replace, remove, reinstall such structure permanently thereafter as needed and at the permit holders sole expense.

(n) Severability

If any section, subsection, clause, phrase, or portion of this Section is for any reason held to be illegal or otherwise invalid by any court or administrative agency of competent jurisdiction, such illegal or invalid portion shall be severable and shall not affect or impair any remaining portion of this Section, which shall remain in full force and effect. Any permit(s) issued based on any rules or orders that are later held to be unlawful, may be terminated at the sole discretion of the Village of Pewaukee Village Board.

SECTION III

Section 79-70 of the Municipal Code of the Village of Mukwonago is hereby created to read as follows:

Sec. 79-70 – Small wireless telecommunication facilities on private property. - specifically.

- (a) Small wireless facility shall have the meaning as set forth in Section 79-69 above.
- (b) Small wireless facilities proposed to be located on private property in the Village of Mukwonago shall be subject to all of the same requirements as set forth in Section 79-69 above except to the extent any such requirement is determined by the Village Zoning Administrator to be uniquely applicable to the location of the facility in the public right-of-way.
- (c) All new small wireless facilities poles or posts and related equipment shall be fabricated using all metal materials and shall be powder coated in a bronze, brown, silver or black matte paint finish. Alternate colors and/or materials, proposed in order to better coordinate with the surrounding views, buildings or environment may be considered/approved by review/action of the Village Zoning Administrator. To the extent there may be existing, approved poles/equipment on the private property, such as for lighting and utility services, the new wireless facilities poles,

posts and related equipment may, at the discretion of the Village Zoning Administrator, be required to match the existing not only as to color and finish but also as to style/design.

(d) Height. The height of small wireless facilities on private property shall be regulated as follows:

- Shall not exceed 50 feet in height, or
- Shall not be more than 10 percent taller than other adjacent structures, or
- Shall not be extended to a height of more than 50 feet, or by more than 10 percent above its preexisting height, whichever is greater, as a result of the collocation of new antenna facilities.

SECTION IV

Section 79-71 of the Municipal Code of the Village of Mukwonago is hereby created to read as follows:

Section 79-71 – Application Shot Clocks

Deadline in Calendar Days	Type of Application	Federal or State Statutory or Regulatory Authority
60 days	Application to collocate a Small Wireless Facility on an existing structure (including non-telecommunications structures)	47 CFR § 1.6003(c)(1)(i)
90 days	Application for Small Wireless Facility involving construction of new structure	47 CFR § 1.6003(c)(1)(iii)
90 days	Application to collocate non-Small Wireless Facility on an existing structure	47 CFR § 1.6003(c)(1)(ii)
150 days	Application for a non-Small Wireless Facility involving construction of a new structure	47 CFR § 1.6003(c)(1)(iv)
60 days	Eligible Facilities Request to add, remove, or replace equipment on an existing tower or base station that does not substantially change the physical dimensions of the tower or base station	47 CFR § 1.6100(c)(2)
60 days	Applications to place a wireless telecommunications facility	Wis. Stat. § 182.017(9)

SECTION V

Chapter 74 of the Municipal Code of the Village of Mukwonago is hereby amended to read as follows:

Any reference to “public works supervisor” or “public works supervision” shall be changed to read “director of public works or designee.”

SECTION VI

Section 74-7 of the Municipal Code of the Village of Mukwonago is hereby repealed and recreated to read as follows:

Section. 74-7. - Obstructions and encroachments.

- (a) *Prohibited.* No person shall encroach upon or in any way obstruct or encumber any street, alley, sidewalk, public grounds or land dedicated to public use, or any part thereof, or permit such encroachment or encumbrance to be placed or remain on any public right-of-way adjoining the premises of which he is the owner or occupant, except as provided in subsection (b) of this section.
- (b) *Exceptions.* The prohibitions of subsection (a) of this section shall not apply to the following:
 - (1) Awnings which do not extend below any point seven feet above the sidewalk, street or alley.
 - (2) Public utility encroachments duly authorized by state law or the village board.
 - (3) Goods, wares, merchandise or fixtures being loaded or unloaded which do not extend more than three feet on the sidewalk, provided such goods, wares, etc., do not remain thereon for a period of more than two hours.
 - (4) Temporary encroachments or obstructions authorized by permit under subsection (c) of this section.
 - (5) Excavations and openings permitted under section 74-6.
 - (6) Encroachments permitted under section 74-7(e).
- (c) *Right-of-way permit.* A right-of-way permit may be issued according to the following conditions:
 - (d) *Required.* Permits for the use of the streets, alleys, sidewalks or other public right-of-ways or places of the village may be granted to applicants by director of public works or designee for the purpose of moving any building or structure or of encumbering the street, alley, sidewalk or way with materials necessary in and about the construction or demolition of any building or structure, provided such applicant has complied with the other requirements of this subsection and has obtained a building permit if required by chapter 18.
- (e) *Poles not to be erected without permission.*
 - (1) Before any person shall erect any telephone, wireless facilities and/or equipment, utility, electric, or railway poles or posts upon any street or alley, a permit

application shall be submitted to the director of public works or designee with the route/location of his proposed lines/poles or any extension showing, as far as practicable, the location of each pole or post and the number and location of any related wires. No such pole or post shall be erected until written permission shall be obtained from the director of public works or designee.

(2) Whenever in the judgement of the director of public works or designee the use of any alley for the purpose of erecting the poles or posts mentioned in subsection (1) of this subsection is practicable, such poles or posts shall be placed upon and along the alley instead of upon and along a public street. When such poles or posts are set in any alley, they shall be located as near as practicable to the side lines, and in such manner as not unreasonably to incommode the public or the adjoining property owner. Whenever such poles or posts are erected in a street, they shall be placed, unless otherwise directed by the director of public works or designee, on the outer edge of the sidewalk just inside of the curb and on the line dividing the lots one from another, but shall not be so placed as to unreasonably incommode the public or the adjoining property owner, or to disturb the drainage of the street, or interfere with or damage the trees or other public or private property on the line of such street or alley unless the written consent of the director of public works or designee shall have been obtained.

(3) Whenever any street on which any of such poles or posts have been set shall be graded or paved, all poles or posts shall be reset immediately so as to conform to the street as reconstructed, and the owner shall immediately put in order all those parts of the streets, alleys, sidewalks, or public grounds so used. Any expense related to the resetting poles shall be the sole responsibility of the pole owner.

(4) All new telephone, small wireless facilities and/or equipment, utility, electric or railway poles or posts and related equipment shall be fabricated using all metal materials and shall be power coated in bronze, brown, silver or black matte paint finish. Alternate colors and/or materials, proposed in order to better coordinate with the surrounding views, buildings, or environmental may be considered and/or approved by review and/or action of the Village Administrator.

(5) The maximum height of any telephone, small wireless facilities and/or equipment, utility, electric, or railway poles or posts in the right-of-way shall be 50 feet above ground level at the base of the structure or 10 feet above the tallest existing (existing as of the effective date of this ordinance) telephone, small wireless facilities and/or equipment, utility, electric or railway poles or posts, structures located in the same right-of-way and within 500 feet of the proposed new facility, whichever is greater.

(6) All poles placed in the public right-of-way must be at least 25 feet from centerline to centerline of any other support structure, tower, pole or post in the public right-of-way unless specifically waived or modified by the Village Administrator due to unique and limiting circumstances of the specific proposed location.

(7) In order to conceal the non-antenna equipment and to preserve the limited space available for vehicle and pedestrian traffic, applicants proposing any new installation in/upon the public way shall install all non pole, post, lighting, and antenna equipment underground to the maximum extent feasible. Additional expense to install and maintain an underground equipment enclosure does not exempt an applicant from this requirement, except where the applicant demonstrates by clear and convincing evidence that this requirement will effectively prohibit the provision of personal wireless services. Nothing in this subsection is intended to require the applicant to install any electric meter required by the applicant's electrical service provider underground.

(8) To the extent that any equipment cannot be placed underground as required above, the applicants shall install ground-mounted equipment in a location that does not obstruct pedestrian or vehicular traffic. The Village may require landscaping or other concealment as a condition of approval to conceal ground-mounted equipment. Ground-mounted equipment shall not be permitted in connection with a street light, traffic signal, utility pole or other similar infrastructure in the public right-of-way. In the event that the Village approves ground-mounted equipment, the applicant shall conform to the following requirements:

a. **Self-Contained Cabinet or Shroud.** The equipment shroud or cabinet shall contain all the equipment associated with the facility other than the antenna. All cables and conduits associated with the equipment shall be concealed from view.

b. **Concealment.** The Village may require the applicant to incorporate concealment elements into the proposed design, including but not limited to public art displayed on the cabinet, strategic placement in less obtrusive location and placement within existing or replacement street furniture.

c. **No ground-mounted equipment shall be permitted closer than five (5) feet from the edge of the public right-of-way.**

(f) **Bond.** No right-of-way permit shall be issued until the applicant shall execute and file with the village clerk a bond in an amount determined by director of public works or designee, conditioned that the applicant will indemnify and save harmless the village from all liability for accidents or damage caused by reason of operations under such permit, will remove such encumbrance upon termination of the operations, will leave the vacated premises in a clean and sanitary condition, and repair any and all damage to the streets, alleys, sidewalks or public property of the village resulting from such building or moving operations.

(g) **Fee.** The fee for a right-of-way permit shall be as set forth the most current village board resolution approving the annual fee schedule.

(h) **Conditions of occupancy.** The permission to occupy or obstruct the streets, alleys, sidewalks or public grounds is intended only for use in connection with the actual erection, alteration, repair, removal of buildings or structures and, with the exception of encroachments permitted under section 74-7(e), shall be given upon the following terms and conditions and subject to revocation without notice by director of public works or designee for violation thereof:

- (1) Such temporary obstruction shall cover not more than one-third of any street or alley.
- (2) Obstructions shall be sufficiently lighted at night so as to be in full view of the public from all directions.

- (3) Sidewalk traffic shall not be interrupted, but temporary sidewalks of not less than four feet in width guarded by a closed fence at least four feet high on both sides may be maintained during the period of occupancy.
 - (4) The process of moving any building or structure shall be as continuous as practicable until completed, and if ordered by director of public works or designee, shall continue during all hours of the day and night.
 - (5) No building or structure shall be allowed to remain overnight on any street crossing or intersection or so near thereto as to prevent easy access to any fire hydrant.
 - (6) Buildings shall be moved only in accordance with the route prescribed jointly by director of public works or designee and the appropriate representative of the village police department.
 - (7) Upon termination of the work necessitating such obstruction, all parts of the streets, alleys, sidewalks or public grounds occupied under the permit shall be vacated, cleaned of all rubbish and obstructions and placed in a safe condition for public travel at the expense of the permittee.
- (i) *Termination.* All right-of-way permits shall automatically terminate at the end of three months from the date of issuance unless an earlier termination date is specified thereon at the direction of the supervisor of inspections or director of public works or designee.
- (j) *Removal by village.* In addition to any other penalty imposed, if the owner or occupant of the premises adjoining an unlawfully obstructed sidewalk shall refuse or neglect to remove such obstruction within 24 hours after notice from director of public works or designee to do so, it shall be the duty of director of public works or designee to cause/order the removal of such obstruction and make return of the cost and expense thereof to the village clerk who shall enter such cost on the next annual tax roll as a special charge against the property abutting each obstructed sidewalk, and such sum shall be levied and collected as other special taxes against real estate.

SECTION VII

Section 100-452(7) of the Municipal Code of the Village of Mukwonago is hereby created to read as follows:

- (7) The height of wireless telecommunications facilities and equipment shall be regulated as to height *only* by the regulations set forth in Chapter 79 of this Code.

SECTION VIII

All Ordinances or parts of Ordinances contravening the terms and conditions of this Ordinance are hereby to that extent repealed.

SECTION IX

The several sections of this Ordinance shall be considered severable. If any section shall be considered by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the other portions of the Ordinance.

SECTION X

This Ordinance shall take effect upon passage and publication as approved by law, and the Village Clerk shall so amend the Code of Ordinances of the Village of Mukwonago, and shall indicate the date and number of this amending ordinance therein.

PASSED AND ADOPTED by the Village Board this _____ day of _____, 2020.

APPROVED:

Fred Winchowky, Village President

Countersigned:

Diana Dykstra, Village Clerk/Treasurer

Village of
Mukwonago
Office of the Village Planner

440 River Crest Court, Mukwonago, Wisconsin 53149 -Tel. (262) 363-6420x2111-Fax (262) 363-6425 -planner@villageofmukwonago.com

January 3, 2020

Fred Winchowky, Plan Commission Chair,
Plan Commissioners

Re: Birchrock Retirement Home Planned Unit Development Amendment as Conditional Use and associated
Site Plan and Architectural Review
210 McDivitt Lane; MUKV2012215002

Dear President Winchowky and Members of the Village Plan Commission:

This item was before the Plan Commission at the December 17, 2020, Plan Commission meeting and the Plan Commission decided to continue the public hearing to the February 11, 2020 Plan Commission meeting so the issue of the proposed structure addition, dumpster enclosure and parking surface area proposed to be within 20 feet of the wetland setback could be heard by the Board of Zoning Appeals (BZA) at the January 30, 2020 meeting. During the January 30, 2020 meeting, the BZA approved the setback requests to the distances shown on the December 12, 2019 Plan Set.

Kristofer Kiefer, of Castle Senior Living, has applied for a Planned Unit Development (PUD) Amendment as a Conditional Use and associated Site Plan and Architectural Review to place a single story 20 unit Residential Care Apartment Complex (RCAC) designed to house those which require an assisted living environment. The proposed location is to the East of the existing structure and existing parking lot. The structure is designed to be connected via a walkway to the existing structure, which would meet Fire Department and Building Code standards.

The property is 2.3 acres in size. The site is zoned R-10, Multiple Family Residence District, with current Planned Unit Development (PUD) Overlay. This district allows applicants to propose some minor modifications with respect to the bulk requirements of zoning standards, including, but not limited to yard setbacks, lot coverage, etc. through a PUD amendment process and application. However, the PUD standards do not permit for deviation from Wetland setback standards.

Proposal

This item was considered at the September 10 Plan Commission meeting as a Concept Review process and the item was recommended to be approved.

The site plan, being presented by the applicant, shows the existing parking surface area being removed, and a new parking lot being situated along the southern portion of the property. The new single story structure is being positioned to the East of the existing structure and being connected with a walkway. There is also a proposed new walkway at the terminus and north end of the existing structure, to connect the hallways with a corridor. The property is to be serviced via available water main and sanitary sewer service from the South, in McDivitt Lane. There is also a proposed pervious driveway to provide for fire truck pulling in and capability to be serviced from the East, along with a dumpster enclosure proposed immediately adjacent to said driveway.

Architectural Review

The Zoning standards for R-10 call for brick or other hardy construction materials. The applicant is proposing the use of LP “Smartside” in a gray “Smokey Ash” color along the main façade, with LP Smartside shake in a light grey color along the peaks and top of the façade with brick accents along some of the base of the façade in a light grey color. There is articulation in the façade, as required by the code. The applicant is proposing white aluminum lap siding along the rear of the structure (north side) which is not readily visible from the street. Staff thinks the proposal is satisfactory, however input from the Commission on this aspect is sought.

Ultimately, the Plan Commission may review and render a determination on findings of the proposal.

Zoning Review

Zoning review considered Sections 100-110, R-10 standards; 100-601, Site Plan; 100-402, Parking Lot Requirements; 100-53, Planned Unit Development Requirements; and other applicable Code sections.

Wetland Setback: Staff reviewed the proposed connector on the existing structure, on the West side of the development. This proposed new corridor encroaches within the Village required 20 foot setback requirement of a delineated wetland, as well as the proposed pervious paving surface and dumpster enclosure along the northeast side of the property. Per Village Ordinance, all new structures and/or additions within this area are to be considered by the Village Board of Zoning Appeals. The BZA heard the case during the January 30, 2020 meeting and approved the requests for setback variances. Therefore, the matter is considered completed and staff is recommending approval of setbacks with relation to the wetlands.

Trees: Per Section 34, a tree removal policy must be observed for site clearing and the Village calls out a need to retain up to 60 percent of all trees identified as at least 8 inches in diameter. Staff understands as of the date of this report the applicant is assessing this and is filing a tree removal permit in accordance to the Code requirements.

Impervious Coverage: The amount of area covered by this request, inclusive of additional proposed paving and additional roof area brings the impervious area to the proposed 41,790 s.f., as stated on the plans, which is 41% of the site. However, this number includes the wetlands area and Staff has requested the applicant demonstrate that this number takes into account the Village required inclusion of wetland areas of a rate of 50%. The applicant is requesting the impervious coverage be allowed to be increased to the proposed 51% of the coverage, to provide for the necessary parking lot and building footprints for the facility. The Code permits the request may be called out as a PUD amendment and the applicant is seeking from the Plan Commission an allowance up to 51% of the site to be impervious, to accommodate the parking requirements and proposed building footprint. This is reflected in item number four (4.) below.

Stormwater Management: The proposed stormwater management plan is satisfactory, pending final comments documents requested by the Village Engineer in a letter dated January 6, 2020 and resubmitted for final review and approval. These comments are minor and as of the writing of this staff summary, should be easily corrected by the applicant’s engineer prior to any Village permit issuance and possibly prior to the February 11, 2020 Plan Commission meeting. The site is able to meet the Village’s Ordinance, and Should the Planning Commission and Village Board choose to approve the documents, staff recommends that approvals be made subject to addressing items from the Village Engineer comment letter Dated January 6, 2020. Staff understands the applicants were waiting on the final decision of the Board of Appeals determination on January 30, prior to making any corrections.

Lighting: Applicant has supplied light fixture proposal which are capable of meeting all requirements pertaining to shielding from adjacent property owners and onto the Village streets. Staff finds the fixtures acceptable.

Landscaping: The resulting 27 parking stalls requires 15 s.f. per stall, or 405 s.f. of landscaping to be proposed within the parking surface area. There is 180 s.f. plus an additional 550 s.f. of landscaping proposed between the structure and the parking surface area. Pursuant to the guidelines in section 100-402(f)6., the proposed landscaping is acceptable.

Parking Lot: Staff finds the proposed parking is compliant with standards requiring one space for every three beds plus one space for each employee. There are 40 beds and 27 spaces provided. This equates to 14 spaces required for the occupants and 11 spaces for employees. Staff finds the stalls provided meet the code requirements. Staff also has confirmed the applicant has provided for a cross hatch area by the front entrance that would permit for a three point turn for a typical Village ambulance response call. There is a pervious paving along the northern edge of the property, in the form of an additional curb cut, which shall provide for a fire truck to pull in to provide for full response to the sides of the structures. This area is recommended by staff to be snow plowed in the winter months and manicured to the point of being usable year round.

The proposed new dumpster enclosure will need to meet Zoning design standards, which shall include utilizing block walls as this would match the proposed building façade (Village Code requirement). The current plans show a dumpster fenced in area, but lacks any detail. Staff will require this to be submitted and approved prior to building permit issuance.

There is a need to supply more detailed utility and stormwater and erosion control plans, to be reviewed and approved by the Village Engineer and Utilities offices prior to start of construction.

Recommendation for PUD Amendment as Conditional Use and Associated Site Plan and Architectural Review

Staff is recommending approval with the conditions listed below. The site plan conforms to R-10 setbacks and parking requirements with the following specified modifications to the R-10 zoning district and parking lot setback standards:

1. For the R-10 Zoning standards, the rear yard building setback shall be permitted to be amended from the required 40 feet to the shown 24.4 feet, on the provided plan set from the applicant and on file with the Zoning Administrator at Village Hall.
2. For the Parking Lot standards, the setback of the edge of parking surface area shall be permitted to be amended from the required 20 feet to the shown 15 feet with landscaping between the surface and the roadway, as shown on the provided plan set from the applicant and on file with the Zoning Administrator at Village Hall.
3. For the impervious coverage standards, the total amount of impervious coverage shall be permitted to be amended from the required 40% to the proposed percentage of 51%, as calculated and shown on the plans submitted by the applicants dated December 12, 2019 to accommodate the desire for parking on the site.
4. Site Plan and Architectural Review approval for the new single story 20 unit RCAC structure and associated parking lot, building additions, storm water pond, shall be subject to all plans and information submitted for the application by the applicant, Castle Senior Living, and dated December 12, 2019, with all plans and information on file in the office of the Zoning Administrator. The plans may be further modified to conform to other conditions of approval; the building and floor plans may be modified with the approval of the Zoning Administrator and Supervisor of Inspections to conform to Building and Fire Safety Codes

and all plans may be further modified to conform to Village design standards. However, the basic layout and design of the site shall remain unchanged.

5. Approval shall be valid for one (1) year from date of approval by the Village Board and will be unique to the applicant and this proposal only.
6. Prior to the start of any site construction or issuance of a building permit, whichever occurs first, the following shall occur:
 - a. All final site development plans shall be consistent with the plans noted in Condition No. 5 and all calculations verified or as modified.
 - b. Approval of the site construction and building plans by the Fire Chief, which may include, but are not limited to, Knox box and notification requirements, internal fire suppression, external fire department connection location and hydrant locations.
 - c. Approval of building plans by the Building Inspector after receipt of approval of building plans by the State of Wisconsin.
 - d. The Village Engineer, the Utilities Director and the Public Works Director shall approve all updated and revised site engineering and utility plans and documents, including a complete Erosion Control Plan, and Stormwater Management Plan. Items specified in the letter from the Village Engineer dated January 6, 2020 shall be satisfied with the consent of the Village Engineer prior to permit issuance.
 - e. The Village Board shall approve a Stormwater Maintenance Agreement.
 - f. Approval of building plans shall include appropriate locations of the external mechanical equipment (if applicable) to be placed hidden from view from neighboring properties, as approved by the Zoning Administrator.
 - g. Approval of dumpster construction plan specifications showing block construction and shielded metal gates to ensure the Zoning standards are met, as approved by the Zoning Administrator.
 - h. A pre-construction meeting shall occur with Village Staff to ensure all applicable items mentioned above have been remedied.
7. Prior to temporary occupancy issuance, and if needed prior to final occupancy permit, the following shall occur:
 - a. Completion of all site grading in accordance with submitted and approved plans.
 - b. Completion of the storm water management basin for the overall development.
 - c. Completion of the building and additions in accordance with approved plans and all applicable codes.
 - d. Completion of paving of driveways and parking lots, including parking signage, space pavement markings and all other pavement markings.
8. Prior to final occupancy permit, which shall be issued no later than 120 days after any temporary occupancy permit, the following shall occur:
 - a. Completion of all items required in Condition No. 7.
 - b. Installation of all Zoning Administrator approved site landscaping as shown on approved plans.



Village of Mukwonago GIS

210 McDivitt Ln Aerial

DISCLAIMER: The Village of Mukwonago does not guarantee the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.



SCALE: 1" = 167'

VILLAGE OF MUKWONAGO

440 River Crest Court

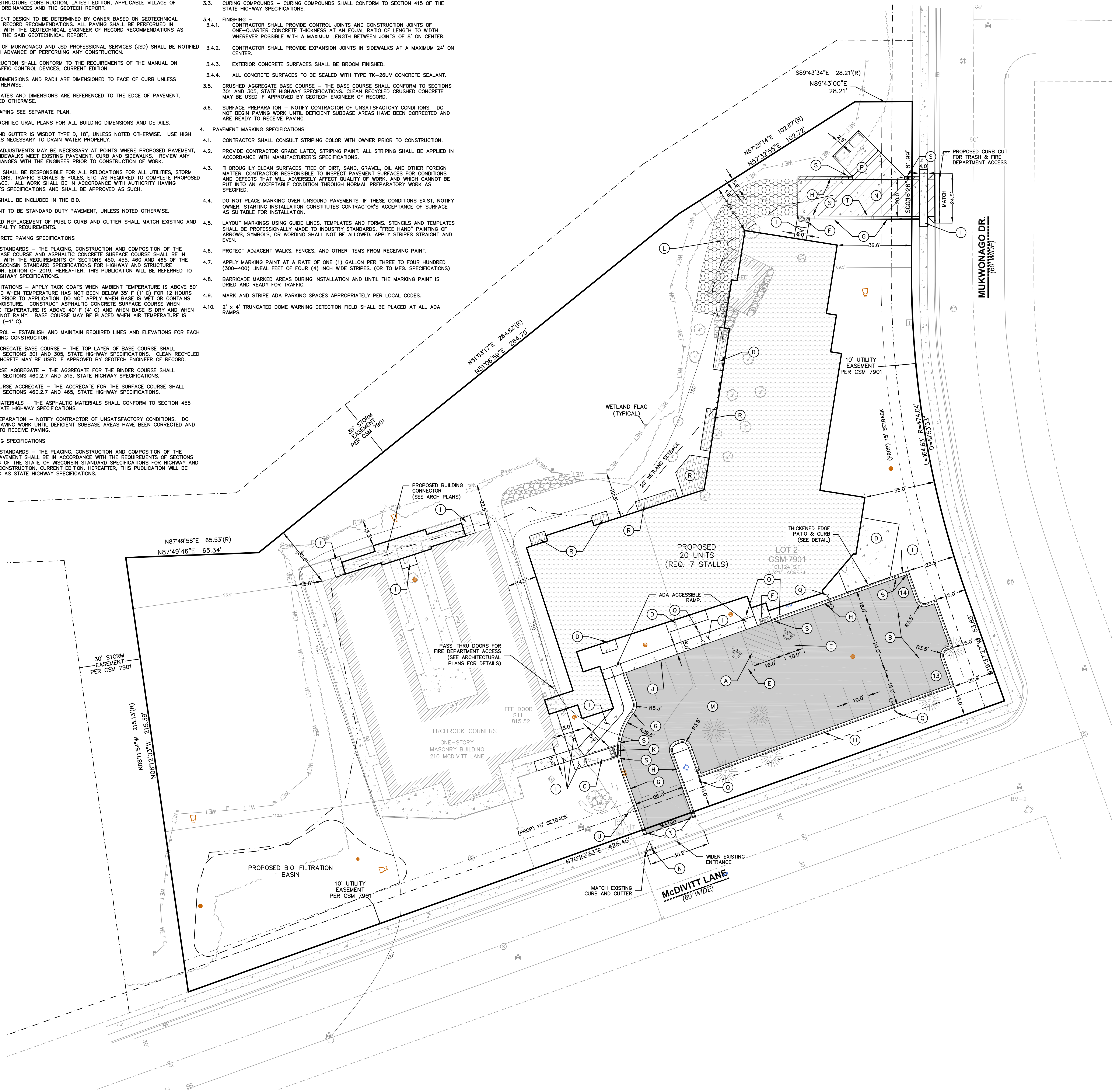
PO Box 206

Mukwonago, WI 53149

262-363-6420

Print Date: 12/4/2019

1.	GENERAL	3.2.	REINFORCEMENT – CONCRETE PAVEMENT SHALL BE REINFORCED WITH NOVOMESH 950 (OR EQUAL) FIBER REINFORCEMENT AT A RATE OF 5 LBS/300 SQ. YARD.
1.1.	ALL PAVING SHALL CONFORM TO "STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY & STRUCTURE CONSTRUCTION, LATEST EDITION, APPLICABLE VOLUME OF MUKUNAGO ORDINANCES AND THE GEOTECH REPORT.	3.3.	CURING COMPOUNDS – CURING COMPOUNDS SHALL CONFORM TO SECTION 415 OF THE STATE HIGHWAY SPECIFICATIONS.
1.2.	FINAL PAVEMENT DESIGN TO BE DETERMINED BY OWNER BASED ON GEOTECHNICAL ENGINEER OF RECORD RECOMMENDATIONS. ALL PAVING SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER OF RECORD RECOMMENDATIONS AS SPECIFIED IN THE SAID GEOTECHNICAL REPORT.	3.4.	FINISHING –
1.3.	THE VILLAGE OF MUKUNAGO AND JSO PROFESSIONAL SERVICES (JSO) SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF PERFORMING ANY CONSTRUCTION.	3.4.1.	CONTRACTOR SHALL PROVIDE CONTROL JOINTS AND CONSTRUCTION JOINTS OF ONE-QUARTER CONCRETE THICKNESS AT AN EQUAL RATIO OF LENGTH TO WIDTH. WHEREVER POSSIBLE WITH A MAXIMUM LENGTH BETWEEN JOINTS OF 8' ON CENTER.
1.4.	SIGN CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.	3.4.2.	CONTRACTOR SHALL PROVIDE EXPANSION JOINTS IN SIDEWALKS AT A MAXIMUM 24' ON CENTER.
1.5.	ALL PAVING DIMENSIONS AND RADII ARE DIMENSIONED TO FACE OF CURB UNLESS SPECIFIED OTHERWISE.	3.4.3.	EXTERIOR CURBED SURFACES SHALL BE BROOM FINISH.
1.6.	ALL COORDINATES AND DIMENSIONS ARE REFERENCED TO THE EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.	3.4.4.	ALL CONCRETE SURFACES TO BE SEALED WITH TYPE TK-26UV CONCRETE SEALANT.
1.7.	FOR LANDSCAPING SEE SEPARATE PLAN.	3.5.	CRUSHED AGGREGATE BASE COURSE – THE BASE COURSE SHALL CONFORM TO SECTIONS 301 AND 305, STATE HIGHWAY SPECIFICATIONS. CLEAN RECYCLED CRUSHED CONCRETE MAY BE USED IF APPROVED BY GEOTECH ENGINEER OF RECORD.
1.8.	REFER TO ARCHITECTURAL PLANS FOR ALL BUILDING DIMENSIONS AND DETAILS.	3.6.	SURFACE PREPARATION – NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.
1.9.	ALL CURB AND GUTTER IS WISDOT TYPE D, 18", UNLESS NOTED OTHERWISE. USE HIGH SIDE CURB AS NECESSARY TO DRAIN WATER PROPERLY.	4.	PAVEMENT MARKING SPECIFICATIONS
1.10.	SOME FIELD ADJUSTMENTS MAY BE NECESSARY AT POINTS WHERE PROPOSED PAVEMENT, CURB AND SIDEWALKS MEET EXISTING PAVEMENT, CURB AND SIDEWALKS. REVIEW ANY REQUIRED CHANGES WITH THE ENGINEER PRIOR TO CONSTRUCTION OF WORK.	4.1.	CONTRACTOR SHALL CONSULT STRIPING COLOR WITH OWNER PRIOR TO CONSTRUCTION.
1.11.	CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS FOR ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED TO COMPLETE PROPOSED ITEMS IN PLACE. ALL WORK SHALL BE IN ACCORDANCE WITH AUTHORITY HAVING JURISDICTION SPECIFICATIONS AND APPROVED AS SUCH.	4.2.	PROVIDE CONTRACTOR GRADE LATEX, STRIPING PAINT. ALL STRIPING SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
1.12.	ALL COSTS SHALL BE INCLUDED IN THE BID.	4.3.	THOROUGHLY CLEAN SURFACES FREE OF DIRT, SAND, GRAVEL, OIL AND OTHER FOREIGN MATTER. CONTRACTOR RESPONSIBLE TO INSPECT PAVING SURFACES FOR CONDITIONS AND DEFECTS THAT WILL ADVERSELY AFFECT QUALITY OF WORK AND WHICH CANNOT BE PUT INTO AN ACCEPTABLE CONDITION THROUGH NORMAL PREPARATORY WORK AS SPECIFIED.
1.13.	ALL PAVEMENT TO BE STANDARD UTILITY PAVEMENT, UNLESS NOTED OTHERWISE.	4.4.	DO NOT PLACE MARKING OVER UNSOUND PAVEMENTS. IF THESE CONDITIONS EXIST, NOTIFY OWNER. STARTING INSTALLATION CONSTITUTES CONTRACTOR'S ACCEPTANCE OF SURFACE AS SUITABLE FOR INSTALLATION.
1.14.	ANY REQUIRED REPLACEMENT OF PUBLIC CURB AND GUTTER SHALL MATCH EXISTING AND MEET MUNICIPALITY REQUIREMENTS.	4.5.	LAYOUT MARKINGS USING GUIDE LINES, TEMPLATES AND FORMS. STENCILS AND TEMPLATES IF BEING USED MUST BE IDENTIFIED BY THE CONTRACTOR. "FREE HAND" PAINTING, ARROWS, SYMBOLS, OR WORDING SHALL NOT BE ALLOWED. APPLY STRIPES STRAIGHT AND EVEN.
2.	ASPHALTIC CONCRETE PAVING SPECIFICATIONS	4.6.	PROJECT ADJACENT WALKS, FENCES, AND OTHER ITEMS FROM RECEIVING PAINT.
2.1.	COXES AND STANDARDS – THE PLACING, CONSTRUCTION AND COMPOSITION OF THE ASPHALTIC BASE COURSE AND ASPHALTIC CONCRETE SURFACE COURSE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS 450, 455, 460 AND 465 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, EDITION OF 2019. HEREAFTER, THIS PUBLICATION WILL BE REFERRED TO AS STATE HIGHWAY SPECIFICATIONS.	4.7.	APPLY MARKING PAINT AT A RATE OF ONE (1) GALLON PER THREE TO FOUR HUNDRED (300-400) LINEAL FEET OF FOUR (4) INCH WIDE STRIPES. (OR TO MFG. SPECIFICATIONS)
2.2.	WEATHER LIMITATIONS – APPLY TACK COATS WHEN AMBIENT TEMPERATURE IS ABOVE 50° F (10° C) AND WHEN TEMPERATURE HAS NOT BEEN BELOW 35° F (1° C) FOR 12 HOURS IMMEDIATELY PRIOR TO APPLICATION. DO NOT APPLY WHEN WET OR THIN LAYER EXCESS OF MOISTURE. CONSTRUCTION OF ASPHALTIC CONCRETE SURFACE COURSE WHEN ATMOSPHERIC TEMPERATURE IS ABOVE 40° F (4° C) AND WHEN BASE IS DRY AND WHEN SURFACE IS NOT RAINY. BASE COURSE MAY BE PLACED WHEN AIR TEMPERATURE IS ABOVE 50° F (1° C).	4.8.	BARRICADE MARKED AREAS DURING INSTALLATION AND UNTIL THE MARKING PAINT IS DRIED AND READY FOR TRAFFIC.
2.3.	GRADE CONTROL – ESTABLISH AND MAINTAIN REQUIRED LINES AND ELEVATIONS FOR EACH COURSE DURING CONSTRUCTION.	4.9.	MARK AND STRIPE ADA PARKING SPACES APPROPRIATELY PER LOCAL CODES.
2.4.	CRUSHED AGGREGATE BASE COURSE – THE TOP LAYER OF BASE COURSE SHALL CONFORM TO SECTIONS 301 AND 305, STATE HIGHWAY SPECIFICATIONS. CLEAN RECYCLED CRUSHED CONCRETE MAY BE USED IF APPROVED BY GEOTECH ENGINEER OF RECORD.	5.	2' x 4' TRUNCATED DOME WARNING DETECTION FIELD SHALL BE PLACED AT ALL ADA CROSSINGS
2.5.	BINDER COURSE AGGREGATE – THE AGGREGATE FOR THE BINDER COURSE SHALL CONFORM TO SECTIONS 460.2.7 AND 315, STATE HIGHWAY SPECIFICATIONS.		
2.6.	SURFACE COURSE AGGREGATE – THE AGGREGATE FOR THE SURFACE COURSE SHALL CONFORM TO SECTIONS 460.2.7 AND 465, STATE HIGHWAY SPECIFICATIONS.		
2.7.	ASPHALTIC MATERIALS – THE ASPHALTIC MATERIALS SHALL CONFORM TO SECTION 455 AND 460, STATE HIGHWAY SPECIFICATIONS.		
2.8.	SURFACE PREPARATION – NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.		
3.	CONCRETE PAVING SPECIFICATIONS		
3.1.	COXES AND STANDARDS – THE PLACING, CONSTRUCTION AND COMPOSITION OF THE CONCRETE PAVEMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS 415 AND 416 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, CURRENT EDITION. HEREAFTER, THIS PUBLICATION WILL BE REFERRED TO AS STATE HIGHWAY SPECIFICATIONS.		



- A** DIAGONAL HATCH – SWS/4° AT 45° @ 2'-0" O.C.
- B** SWKS STALLS – 18'-0" SWS/4° @ 10'-0" O.C.
- C** 5' CONCRETE SIDEWALK WITH RAILING (SEE DETAIL)
- D** CONCRETE PATIOS, REFER TO ARCHITECTURAL PLANS FOR DETAILS
- E** ACCESSIBLE PARKING SPACE. SEE DETAILS FOR ACCESSIBLE PARKING SPACE SIZE, SIGN AND SYMBOL. ("V" – INDICATES VAN ACCESSIBLE SPACE)
- F** SIDEWALK RAMP W/ DETAGGABLE WARNING FIELD (SEE DETAIL)
- G** 18" STANDARD CURB AND GUTTER (SEE DETAIL)
- H** 18" REJECT CURB AND GUTTER (SEE DETAIL)
- I** CONCRETE SIDEWALK (SEE DETAIL)
- J** THINNED EDGE SIDEWALK (SEE DETAIL)
- K** 18" VALLEYED CURB AND GUTTER (SEE DETAIL)
- L** GRASSPAVE 2" (SEE DETAIL)
- M** STANDARD DUTY HMA PAVEMENT (SEE DETAILS)
- N** HEAVY DUTY CONCRETE PAVEMENT (SEE DETAILS)
- O** ADA PARKING SIGN (SEE DETAIL)
- P** TRASH ENCLOSURE, REFER TO ARCHITECTURAL PLANS FOR DETAILS
- Q** LIGHTPOLE
- R** RAISED WOODEN DECK, REFER TO ARCH PLANS FOR DETAILS
- S** 2' CURB TAPER (SEE DETAIL)
- T** CURB WEIR (SEE DETAIL)
- U** EXISTING MONUMENT SIGN TO BE RELOCATED

* THE WETLAND AREAS ARE SPLIT SO THAT 50% OF THE AREA IS IMPERVIOUS AND 50% IS PERVIOUS FOR EXISTING AND PROPOSED AREA CALCULATIONS.

PROPERTY LINE

EASEMENT LINE

WETLAND BOUNDARY

BUILDING OUTLINE

PAVEMENT SETBACK LINE

EDGE OF PAVEMENT

STANDARD CURB AND GUTTER

REJECT CURB AND GUTTER

STANDARD DUTY ASPHALT PAVEMENT

HEAVY DUTY ASPHALT PAVEMENT

HEAVY DUTY CONCRETE PAVEMENT

CONCRETE

LIGHT POLE

ADA PARKING SIGN

ADA PARKING SIGN

PROPOSED STORM CATCH BASIN

PROPOSED FLARED END SECTION

PROPOSED HYDRANT

PLAN MODIFICATIONS:		
#	Date:	Description:
1	12/12/2019	Revised per City Comments
2		
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Design/Drawn:	CAP
Approved:	DSR
Date:	11/06/2019

SITE PLAN

SHEET NUMBER:

C3.0

JSD PROJECT NO: 19-9231



MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:

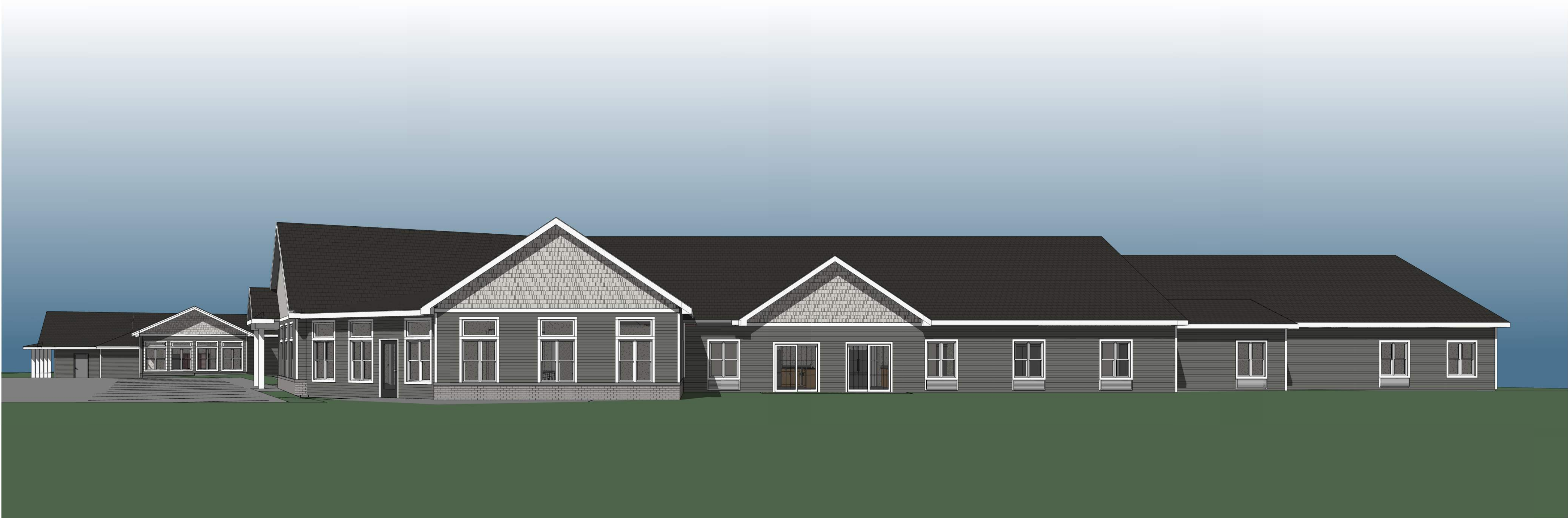


CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:

**BIRCHROCK CASTLE
ADDITION**

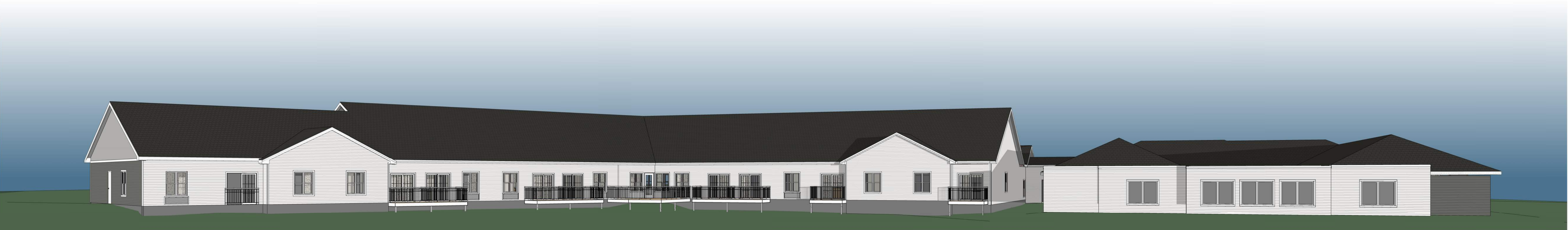
PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN



1 EAST VIEW LOOKING WEST



2 SOUTH VIEW LOOKING NORTH



3 NORTH VIEW LOOKING SOUTH EAST



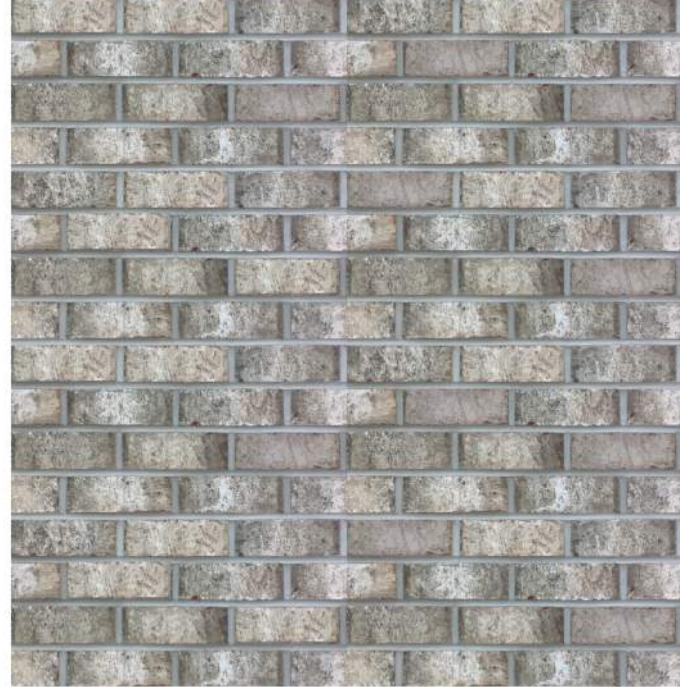
LP SMARTSIDE - LAP SIDING
DIAMOND KOTE - SMOKEY ASH



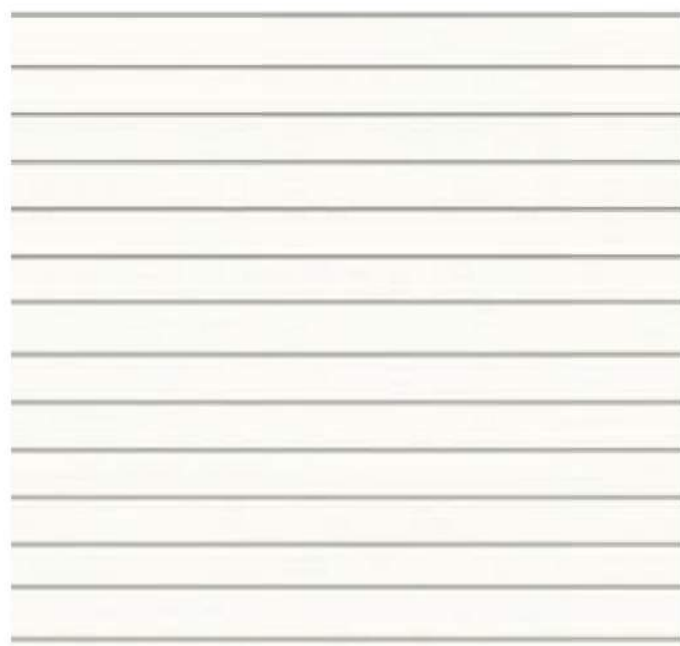
LP SMARTSIDE - SHAKE
DIAMOND KOTE - LIGHT GREY



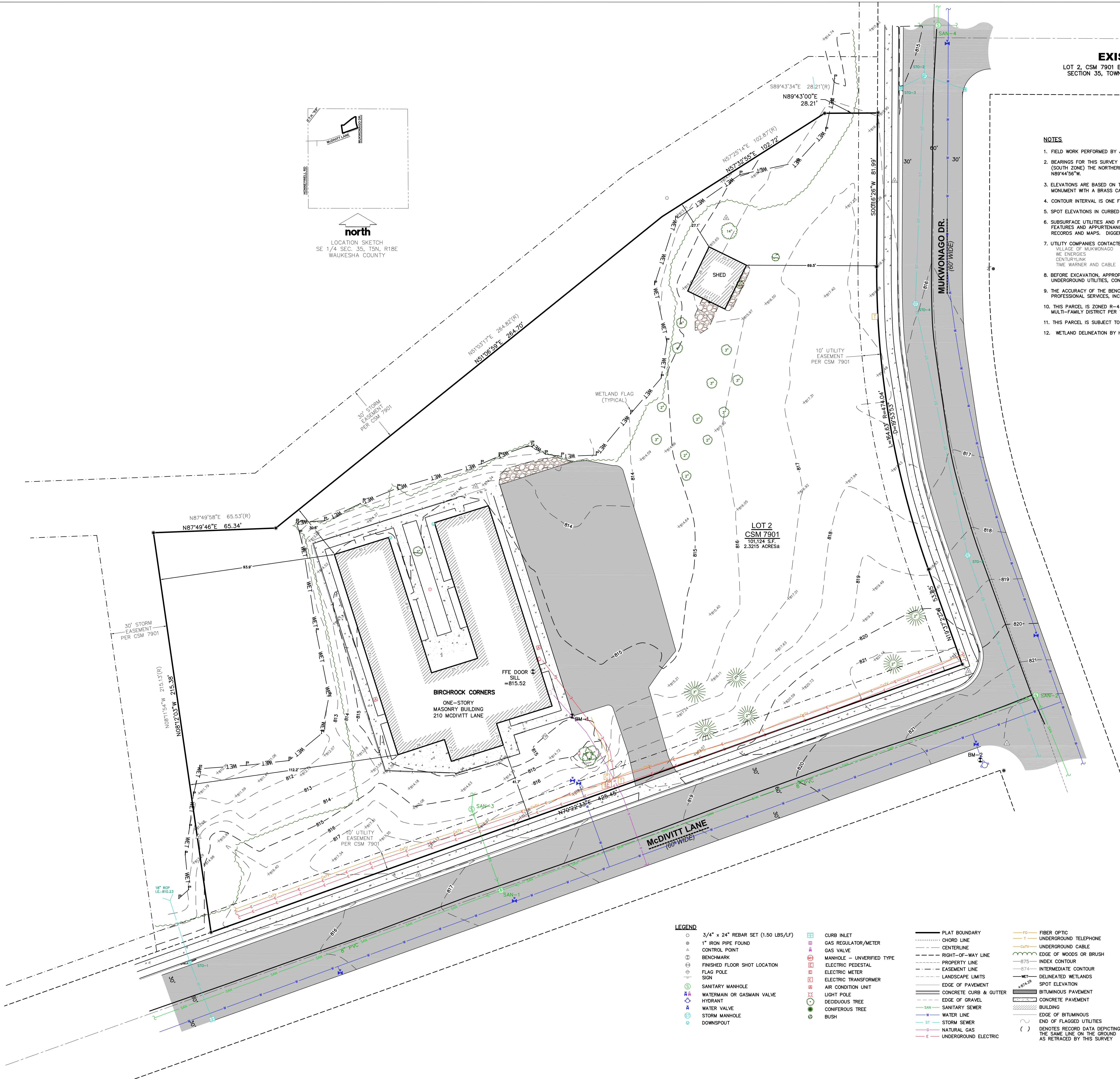
LP SMARTSIDE - TRIM
DIAMOND KOTE - WHITE



CHAMPION BRICK
GENERAL SHALE-CORTEZ
MATCH EXISTING



ALUMINUM LAP SIDING
WHITE



EXISTING CONDITIONS SURVEY

LOT 2, CSM 7901 BEING A PART OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 35, TOWN 5 NORTH, RANGE 18 EAST, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN.

NOTES

1. FIELD WORK PERFORMED BY JSD PROFESSIONAL SERVICES, INC. ON JUNE 24, 25 & 27, 2019.
2. BEARINGS FOR THIS SURVEY AND MAP ARE REFERENCED TO THE WISCONSIN STATE PLANE COORDINATE SYSTEM 1927, (SOUTH ZONE) THE NORTHERLY LINE OF THE SOUTHEAST QUARTER SECTION 35, T5N, R18E, RECORDED AS N89°44'56"W.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NOVD23). BENCHMARK IS CONCRETE MONUMENT WITH A BRASS CAP MARKING THE EAST 1/4 CORNER OF SECTION 35, T5N, R18E, ELEVATION = 826.61'
4. CONTOUR INTERVAL IS ONE FOOT.
5. SPOT ELEVATIONS IN CURBED AREAS REFERENCE THE PAVEMENT EDGE ELEVATIONS.
6. SUBSURFACE UTILITIES AND FEATURES SHOWN ON THIS MAP HAVE BEEN APPROXIMATED BY LOCATING SURFICIAL FEATURES AND APPURTENANCES, LOCATING DIGGERS HOTLINE FIELD MARKINGS AND BY REFERENCE TO UTILITY RECORDS AND MAPS. DIGGERS HOTLINE TICKET NO. 20192518651, WITH A CLEAR DATE OF 06/25/2019.
7. UTILITY COMPANIES CONTACTED THRU DIGGERS HOTLINE:
VILLAGE OF MUKWONAGO
WE ENERGIES
CENTURYLINK
TIME WARNER AND CABLE
8. BEFORE EXCAVATION, APPROPRIATE UTILITY COMPANIES SHOULD BE CONTACTED. FOR EXACT LOCATION OF UNDERGROUND UTILITIES, CONTACT DIGGERS HOTLINE, AT 1.800.242.8511.
9. THE ACCURACY OF THE BENCHMARKS SHOWN ON THIS MAP SHALL BE VERIFIED BEFORE BEING UTILIZED. JSD PROFESSIONAL SERVICES, INC. DOES NOT WARRANT THE ACCURACY OF THESE BENCHMARKS.
10. THIS PARCEL IS ZONED R-4 PLANNED RESIDENTIAL DEVELOPMENT DISTRICT R-10 MULTI-FAMILY DISTRICT R-10 MULTI-FAMILY DISTRICT PER THE VILLAGE OF MUKWONAGO GIS ZONING MAP.
11. THIS PARCEL IS SUBJECT TO ALL EASEMENTS AND AGREEMENTS, BOTH RECORDED AND UNRECORDED.
12. WETLAND DELINEATION BY HELIANTHUS ON JUNE 25, 2019 AND LOCATED BY JSD JNC ON JUNE 25, 2019.

SANITARY SEWER MANHOLES					
STRUCT. ID	RIM ELEVATION	INVERT	ELEVATION	PIPE SIZE	PIPE TYPE
SAN-1	817.61	N	807.10	6"	PVC
		W	806.72	8"	PVC
		E	807.11	8"	PVC
SAN-2	822.04	W	811.65	8"	PVC
		S	811.74	8"	PVC
		NE & S	807.44	6"	PVC
SAN-3	815.64	E&W	799.41	8"	PVC
SAN-4	815.18	N	801.41	6"	PVC

STORM SEWER STRUCTURES					
INLET ID	RIM ELEVATION	INVERT	ELEVATION	PIPE SIZE	PIPE TYPE
STO-1	814.92	S	810.0	18"	—
STO-2	815.16	N	809.8	18"	—
		NOT ACCESSIBLE	—	—	—
STO-3	815.16	E&W	808.4	—	—
STO-4	815.94	N&S	809.5	—	—
STO-5	816.27	N&S	812.1	—	—

BENCHMARKS		
BENCH MARK	ELEVATION	DESCRIPTION
BM-1	815.17	CHISELED SQUARE IN CORNER OF CONCRETE SIDEWALK
BM-2	823.58	SW BOLT ON HYDRANT AT SW CORNER OF INTERSECTION

JSD DOES NOT GUARANTEE THE BENCHMARK ELEVATIONS LISTED ON THIS MAP ARE ACCURATE AND SHOULD BE VERIFIED PRIOR TO CONSTRUCTION ACTIVITIES.

LEGEND

- 3/4" x 24" REBAR SET (1.50 LBS/LF)
- 1" IRON PIPE FOUND
- CONTROL POINT
- BENCHMARK
- FINISHED FLOOR SHOT LOCATION
- FLAG POLE
- SIGN
- SANITARY MANHOLE
- WATERMAIN OR GASMAIN VALVE
- HYDRANT
- WATER VALVE
- STORM MANHOLE
- DOWNSPOUT
- CURB INLET
- GAS REGULATOR/METER
- GAS VALVE
- MANHOLE - UNVERIFIED TYPE
- ELECTRIC PEDESTAL
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- AIR CONDITION UNIT
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- BUSH
- PLAT BOUNDARY
- CHORD LINE
- CENTERLINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EASEMENT LINE
- LANDSCAPE LIMITS
- EDGE OF PAVEMENT
- CONCRETE CURB & GUTTER
- EDGE OF GRAVEL
- SANITARY SEWER
- WATER LINE
- STORM SEWER
- NATURAL GAS
- UNDERGROUND ELECTRIC
- FIBER OPTIC
- UNDERGROUND TELEPHONE
- UNDERGROUND CABLE
- EDGE OF WOODS OR BRUSH
- INDEX CONTOUR
- INTERMEDIATE CONTOUR
- DELINEATED WETLANDS
- SPOT ELEVATION
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- BUILDING
- EDGE OF BITUMINOUS
- END OF FLAGGED UTILITIES
- RECORDED DATA DEPICTING THE SAME LINE ON THE GROUND AS RETRACED BY THIS SURVEY



LEGAL DESCRIPTION

LOT 2, CERTIFIED SURVEY MAP NO. 7901, RECORDED IN VOLUME 68 OF WAUKESHA COUNTY CERTIFIED SURVEY MAPS ON PAGES 140-146 AS DOCUMENT NUMBER 2089198, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN.

TAX KEY NO: MUKY201215002



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MILWAUKEE REGIONAL OFFICE
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WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:



CLIENT ADDRESS:
210 MCDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE
ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

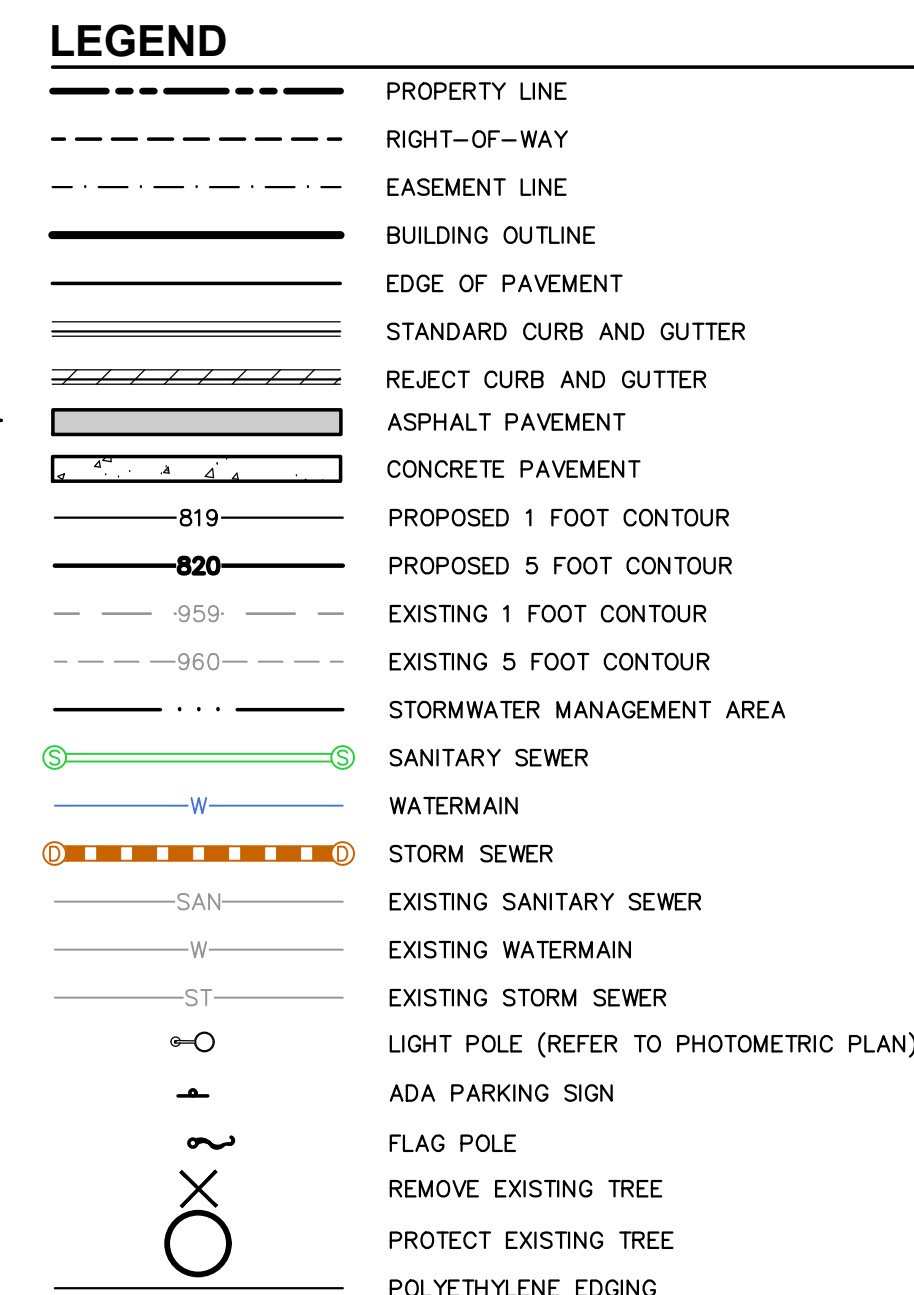
PLAN MODIFICATIONS:		
#	Date:	Description:
1	12/12/2019	Revised per City Comments
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Design/Drawn: CAP
Approved: DGP
Date: 11/06/2019

SHEET TITLE:
EXISTING CONDITIONS
SURVEY

SHEET NUMBER:
C1.0

JSD PROJECT NO: 19-0231



GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY FOR EXISTING CONDITIONS NOTES AND LEGEND.
2. ALL WORK IN THE ROW SHALL BE IN ACCORDANCE WITH THE MUNICIPAL STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION.
3. JSD SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES.
4. DRAWING FOR REVIEW – NOT FOR CONSTRUCTION UNLESS OTHERWISE NOTED IN THE TITLE BLOCK.
5. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL FINE GRADING AND TOPSOILING WITH GENERAL CONTRACTOR
6. REFER TO "LANDSCAPE DETAILS, NOTES & SPECIFICATIONS" SHEET FOR ADDITIONAL DETAILS, NOTES AND SPECIFICATION INFORMATION INCLUDING MATERIALS, GUARANTEE AND EXECUTION RELATED TO LANDSCAPE PLAN
7. CONTRACTOR SHALL REVIEW SITE CONDITIONS FOR UTILITY CONFLICTS, DRAINAGE ISSUES, SUBSURFACE ROCK, AND PLANT PLACEMENT CONFLICTS PRIOR TO ANY INSTALLATION. IF ANY CONFLICTS ARE IDENTIFIED, THE CONTRACTOR SHALL ADVISE IMPACT ON PLANTING OPERATIONS TO LANDSCAPE ARCHITECT
8. DO NOT COMMENCE PLANTING OPERATIONS UNTIL ALL ADJACENT SITE IMPROVEMENTS AND FINISH GRADING EFFORTS ARE COMPLETE.

PLANT SCHEDULE

DECIDUOUS TREES	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	BW	6	<i>Betula populifolia</i> 'Whitespire' / Whitespire Birch	B & B	1.5" Cal
	CV2	1	<i>Ortaeque viridis</i> 'Winter King' / 'Winter King' Hawthorn	B & B	1.5" Cal
EVERGREEN TREES	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	TE	14	<i>Thuja occidentalis</i> 'Emerald' / Emerald Arborvitae	B & B	Min. 4' Ht.
	TH	8	<i>Thuja occidentalis</i> 'Holmstrup' / Holmstrup Arborvitae	B & B	Min. 4' Ht.
CANOPY TREES	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	AS	3	<i>Acer rubrum</i> 'October Glory' TM / October Glory Maple	B & B	2" Cal
	GA	3	<i>Ginkgo biloba</i> 'Autumn Gold' TM / Autumn Gold Ginkgo	B & B	2" Cal
	QB	2	<i>Quercus bicolor</i> / Swamp White Oak	B & B	2" Cal
ORNAMENTAL TREES	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	CN	1	<i>Cercis canadensis</i> 'Minnesota Strain' / Minnesota Strain Redbud	B & B	1.5" Cal
	MS	2	<i>Malus</i> x 'Spring Snow' / Spring Snow Crab Apple	B & B	5' Ht.
DECIDUOUS SHRUBS	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	CB	18	<i>Cornus baileyi</i> / Bailey's Red-twig Dogwood	3 gal	Min. 18"-24"
	CF	4	<i>Cornus sericea</i> 'Flaviramea' / Yellow Twig Dogwood	5 gal	Min. 18"-24"
	HA	3	<i>Hydrangea arborescens</i> 'Annabelle' / Annabelle Smooth Hydrangea	3 gal	Min. 18"-24"
	PG	5	<i>Potentilla fruticosa</i> 'Gold Star' / Gold Star Potentilla	1 Gal	18-12" Ht.
	RG3	18	<i>Rugosa</i> 'Gro-Low' / Gro-Low Fragrant Sumac	3 gal	
	RC	28	<i>Ribes alpinum</i> 'Compacta' / Compact Alpine Currant	3 gal	12-18" Ht.
	SF	3	<i>Spiraea japonica</i> 'Flaming Mound' / Flaming Mound Spirea	3 gal	18-12" Ht.
	SG	7	<i>Spiraea japonica</i> 'Goldflame' / Spirea	3 gal	12-18" Ht.
	SM3	5	<i>Spiraea japonica</i> 'Walburna' / Magic Carpet Spirea	2 gal	18-12" Ht.
	VS	8	<i>Viburnum trilobum</i> 'Spring Red' / Spring Red Compact Cranberrybush Viburnum	3 gal	18- 24" Ht.
EVERGREEN SHRUBS	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	II	5	<i>Ilex glabra</i> 'Compacta' / Compact Inkberry	3 gal	12-18" Ht.
	MA	4	<i>Juniperus sabina</i> 'Mini-Arcadia' / Mini Arcadia Juniper	3 gal	18" Tall
LOW EVERGREEN SHRUB	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	JB	2	<i>Juniperus sabina</i> 'Buffalo' / Buffalo Juniper	3 gal	12" Tall/Wide
	JM	11	<i>Juniperus sabina</i> 'Mini-Arcadia' / Mini Arcadia Juniper	3 gal	
ORNAMENTAL GRASSES/PERENNIALS	CODE	QTY	BOTANICAL NAME / COMMON NAME	CONT	SIZE
	AAF	19	<i>Astilbe ardensis</i> 'Fanal' / Fanal Red Astilbe	1 gal	Cont.
	AV	8	<i>Astilbe chinensis</i> 'Visions in White' / Chinese Astilbe	1 gal	Cont.
	OK	15	<i>Calamagrostis</i> x <i>acutiflora</i> 'Karl Foerster' / Feather Reed Grass	1 gal	Cont.
	HH	18	<i>Hemerocallis</i> x 'Happy Returns' / Happy Returns Daylily	1 gal	Cont.
	HB	4	<i>Heuchera</i> x 'Berry Smoothie' / Berry Smoothie Coral Bells	Cont.	18-12" Ht.
	HF	5	<i>Hosta</i> x 'Fire and Ice' / Fire and Ice Hosta	Cont.	18-12" Ht.
	PL	5	<i>Perovskia atriplicifolia</i> 'Little Spire' TM / Little Spire Russian Sage	1 gal	Cont.
	RG2	35	<i>Rudbeckia fulgida</i> sylvianiflora 'Goldstrum' / Black-eyed Susan	1 gal	Cont.
	SM	19	<i>Salvia nemorosa</i> 'Mainacht' / Midnight Salvia	Cont.	18-12" Ht.
	SL	9	<i>Sedum spurium</i> 'Lemon Drop' / Lemon Drop Sedum	Cont.	18-12" Ht.



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Professional Services, Inc.
Engineers • Surveyors • Planners

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W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT



CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
**BIRCHROCK CASTLE
ADDITION**

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS

#	Date:	Description:
1	11.05.19	(PUD SUBMITTAL)
2	12.12.19	PER VILLAGE COMMENTS
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Design/Drawn: _____
Approved: _____

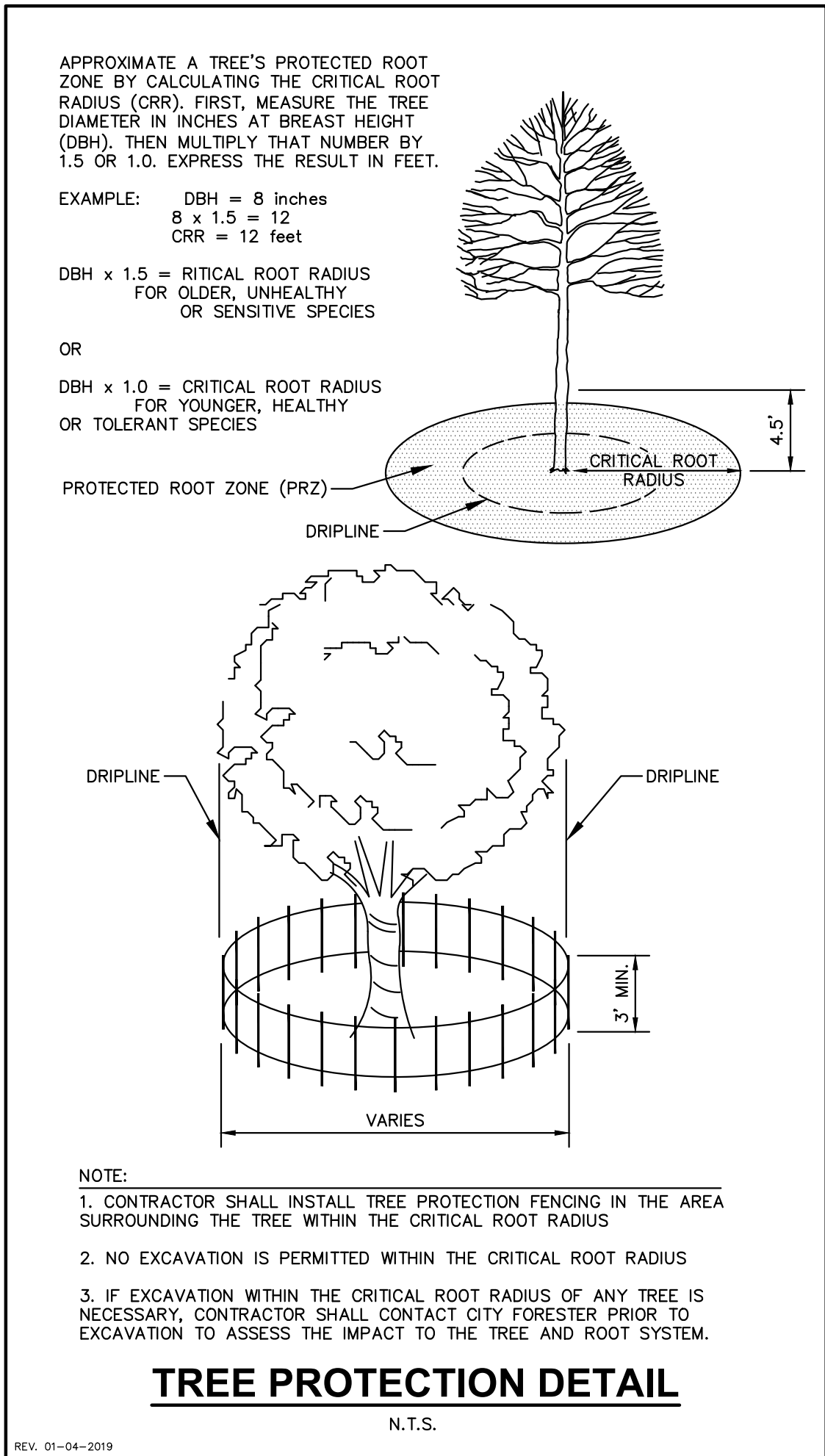
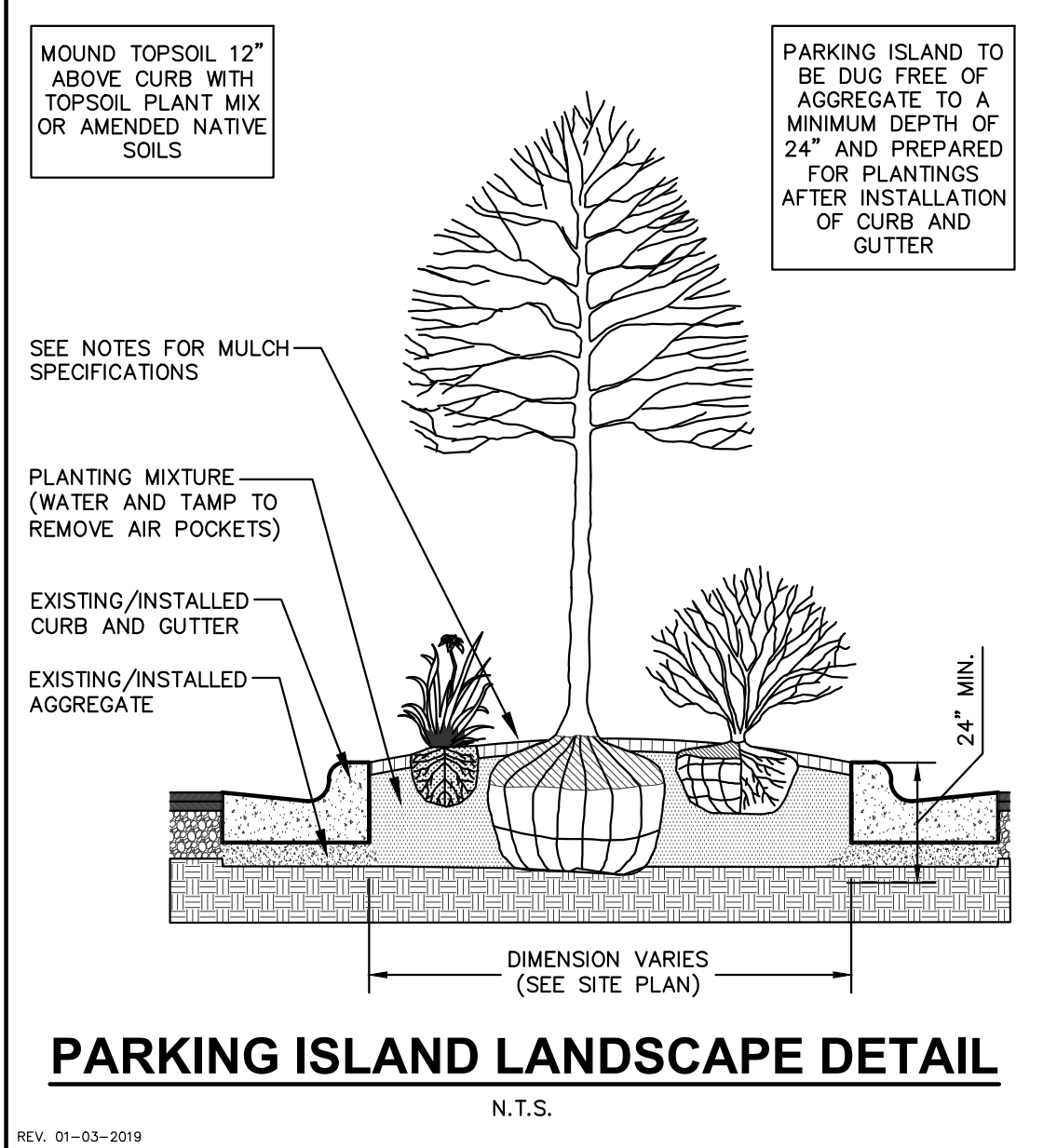
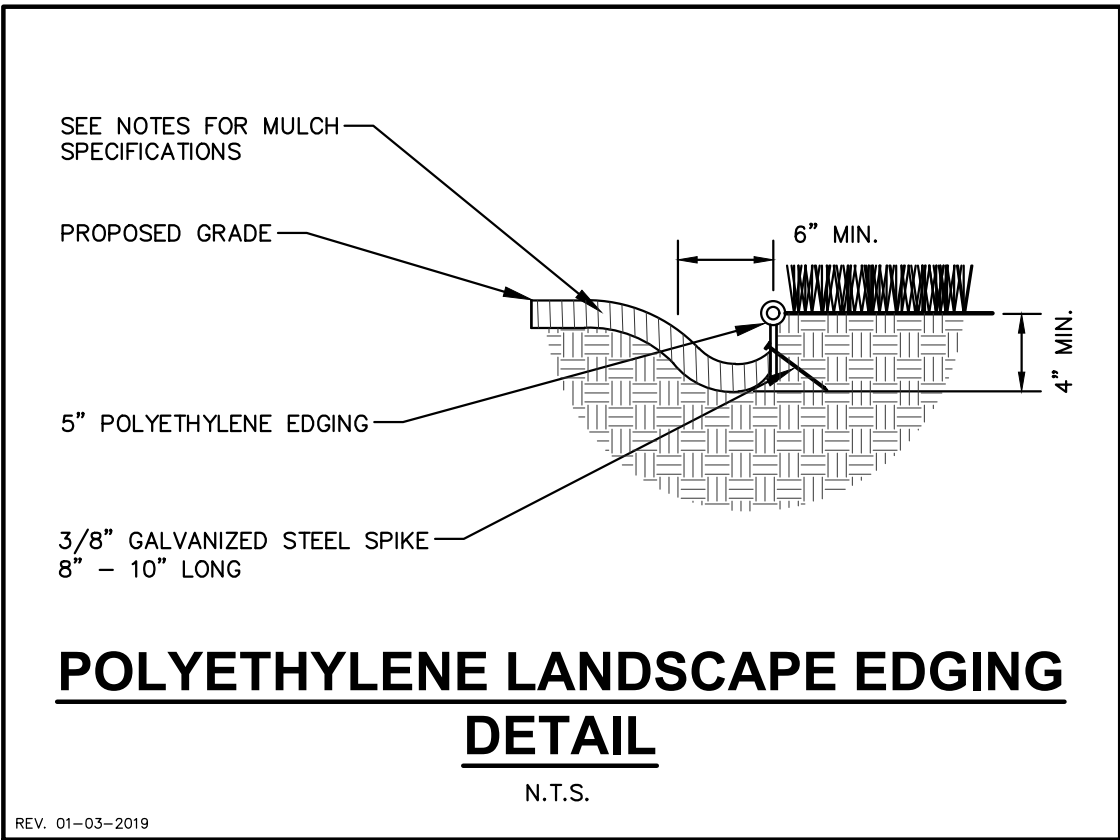
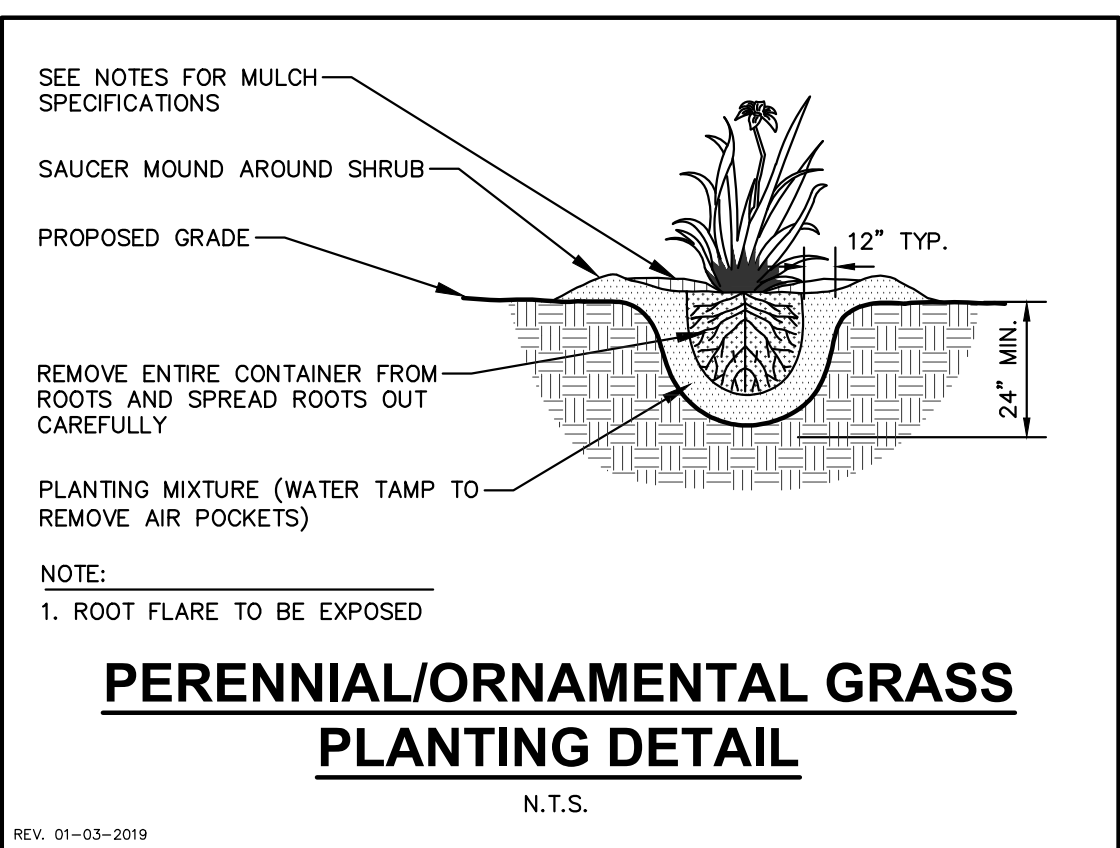
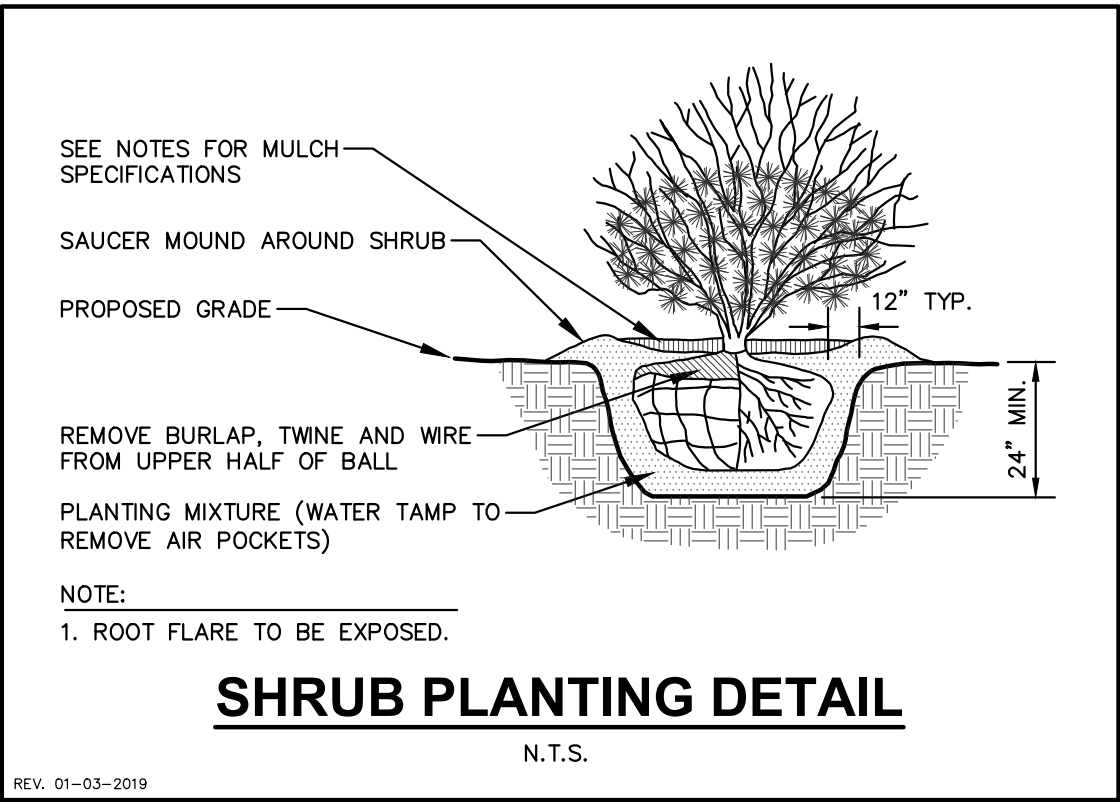
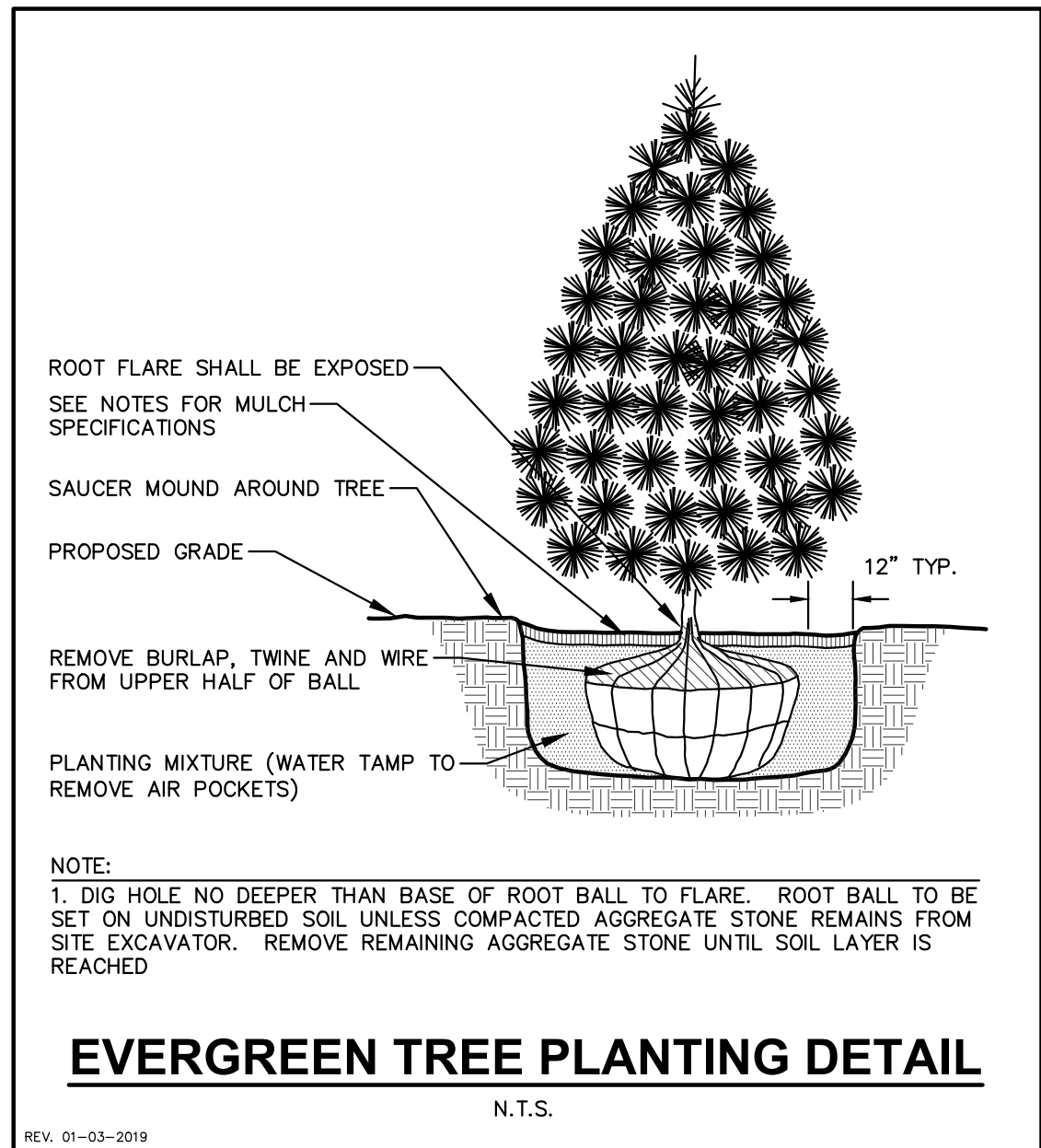
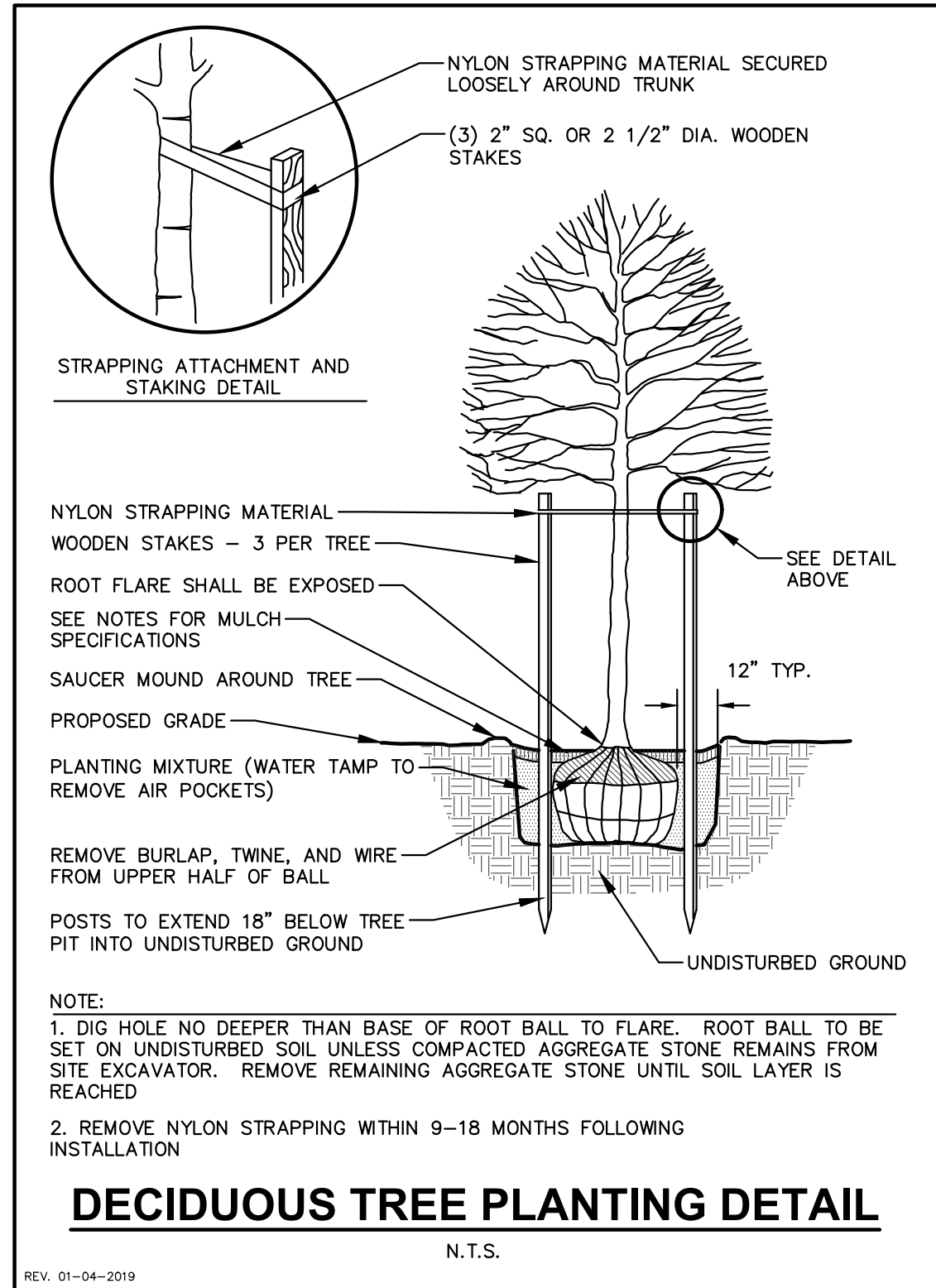
SHEET TITLE:
LANDSCAPE PLAN

SHEET NUMBER:

L1.0

JSD PROJECT NO.

[illegible]



GENERAL NOTES

- GENERAL: ALL WORK IN THE R-O-W AND PUBLIC EASEMENTS SHALL BE IN ACCORDANCE WITH LOCAL MUNICIPAL REQUIREMENTS. JSD SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES. LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR REPAIRING ANY DAMAGE DONE TO UTILITIES. CONTRACTOR MUST CALL 1-800-242-8511 FOR UTILITY LOCATIONS AT LEAST THREE DAYS PRIOR TO DIGGING. HAND DIG AND INSTALL ALL PLANTS THAT ARE NEAR EXISTING UTILITIES. PROTECT PREVIOUSLY INSTALLED WORK OF OTHER TRADES. CONTRACTOR IS RESPONSIBLE FOR STAKING THE PLANT MATERIALS FOR REVIEW BY OWNER PRIOR TO DIGGING AND PLACEMENT AND SHALL COORDINATE ALL FINE GRADING AND RESTORATION WITH THE GRADING CONTRACTOR.
- DELIVERY AND HANDLING: DO NOT DELIVER MORE PLANT MATERIALS THAN CAN BE PLANTED IN ONE DAY, UNLESS ADEQUATE, APPROPRIATE AND SECURE STORAGE IS PROVIDED AND APPROVED BY OWNER'S REPRESENTATIVE. AT ALL TIMES, PROTECT ALL PLANT MATERIALS FROM WIND AND DIRECT SUN. DELIVER PLANTS WITH LEGIBLE IDENTIFICATION LABELS. PROTECT PLANTS DURING DELIVERY AND DO NOT PRUNE PRIOR TO DELIVERY. ALL TREES AND SHRUBS SHALL BE PLANTED ON THE DAY OF DELIVERY; IF THIS IS NOT POSSIBLE, PROTECT THE PLANT MATERIALS NOT PLANTED BY STORING THEM IN A SHADED, SECURE AREA, PROTECTING THE ROOT MASS WITH WET SOIL, MULCH, HAY OR OTHER SUITABLE MEDIUM. CONTRACTOR TO KEEP ALL PLANT MATERIALS ADEQUATELY WATERED TO PREVENT ROOT DESICCATION. DO NOT REMOVE CONTAINER GROWN STOCK FROM CONTAINERS BEFORE TIME OF PLANTING. DO NOT PICK UP CONTAINER OR BALLED PLANTS BY STEM OR ROOTS. ALL PLANTS SHALL BE LIFTED AND HANDLED FROM THE BOTTOM OF THE CONTAINER OR BALL, PERFORM ACTUAL PLANTING ONLY WHEN WEATHER AND SOIL CONDITIONS ARE SUITABLE IN ACCORDANCE WITH LOCALLY ACCEPTED BEST HORTICULTURAL PRACTICES.
- MATERIALS - PLANTS: ALL PLANTS SHALL CONFORM TO THE LATEST VERSION OF THE AMERICAN STANDARD FOR NURSERY STOCK ANSI Z60.1. PLANTS SHALL BE TRUE TO SPECIES AND VARIETY SPECIFIED AND NURSERY GROWN IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICES UNDER CLIMATIC CONDITIONS SIMILAR TO THOSE IN THE LOCALITY OF THE PROJECT FOR AT LEAST 2 YEARS. PLANTS SHALL BE FRESHLY DUG (DURING THE MOST RECENT FAVORABLE HARVEST SEASON). PLANTS SHALL BE SO TRAINED IN DEVELOPMENT AND APPEARANCE AS TO BE UNQUESTIONABLY SUPERIOR IN FORM, COMPACTNESS, AND SYMMETRY. PLANTS SHALL BE SOUND, HEALTHY, VIGOROUS, WELL BRANCHED AND DENSELY FOLIATED WHEN IN LEAF, AND FREE OF DISEASE AND INSECTS (ADULT EGGS, PUPAE OR LARVAE). THEY SHALL HAVE HEALTHY, WELL-DEVELOPED ROOT SYSTEMS AND SHALL BE FREE FROM PHYSICAL DAMAGE OR OTHER CONDITIONS THAT WOULD PREVENT THRIVING GROWTH OR PREMATURE MORTALITY. PLANTS SHALL BE OF THE HIGHEST QUALITY, POSSESS TYPICAL GROWTH HABITS AND FORM FOR THEIR SPECIES AND BE FREE OF INJURY. PARKWAY TREES AND PARKING LOT TREES SHALL HAVE A MINIMUM BRANCHING HEIGHT OF SIX (6) FEET ABOVE THE GROUND TO ALLOW ADEQUATE VISUAL AND PHYSICAL CLEARANCE.
- PRUNING: THE CONTRACTOR SHALL PRUNE ALL TREES AND REPAIR ANY INJURIES THAT OCCURRED DURING THE PLANTING PROCESS. DOUBLE LEADERS, DEAD BRANCHES, AND LIMBS DAMAGED OR BROKEN DURING THE PLANTING PROCESS, SHALL BE PRUNED. THIS SHALL BE THE ONLY PRUNING ALLOWED AT PLANTING. PRUNING SHALL CONFORM TO THE LATEST VERSION OF THE AMERICAN STANDARD FOR TREE CARE OPERATIONS, ANSI A300. PRUNE TREES IN ACCORDANCE WITH NAA GUIDELINES. DO NOT TOP TREES. PRUNE SHRUBS ACCORDING TO STANDARD HORTICULTURAL PRACTICES. ON CUTS OVER 3/4" IN DIAMETER AND BRUISES OR SCARS ON BARK, TRACE THE INJURED CAMBIUM LAYER BACK TO LIVING TISSUE AND REMOVE. SMOOTH AND SHAPE WOUNDS SO AS NOT TO RETAIN WATER. TREAT THE AREA WITH AN APPROVED INCONSPICUOUS LATEX BASED ANTISEPTIC TREE PAINT, IF PRUNING OCCURS "IN SEASON". DO NOT PRUNE ANY OAK TREES DURING THE MONTHS FROM APRIL TO OCTOBER.
- CLEANUP: THE WORK AREA SHALL BE KEPT SAFE AND NEAT AT ALL TIMES. DISPOSED OF EXCESS SOIL, REMOVE ALL CUTTINGS AND WASTE MATERIALS. SOIL AND BRANCHES, BIND AND WRAP THESE MATERIALS, ANY REJECTED PLANTS, AND ANY OTHER DEBRIS RESULTING FROM ALL PLANTING TASKS AND PROMPTLY CLEAN UP AND REMOVE FROM THE PROJECT SITE. UNDER NO CIRCUMSTANCES SHALL THE ACCUMULATION OF SOIL, BRANCHES OR OTHER DEBRIS BE ALLOWED UPON A PUBLIC PROPERTY IN SUCH A MANNER AS TO RESULT IN A PUBLIC SAFETY HAZARD OR DAMAGE. LIKEWISE, UNDER NO CIRCUMSTANCES SHALL ANY DEBRIS OR INCIDENTAL MATERIALS BE ALLOWED UPON ADJACENT PRIVATE PROPERTY.
- ANY SUBSTITUTIONS IN PLANT TYPE, LOCATION, OR SIZE SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
- CONTRACTOR TO VERIFY PLANT MATERIAL QUANTITIES AND SQUARE FOOTAGES. QUANTITIES SHOWN ON PLAN TAKE PRECEDENCE OVER THOSE ON SCHEDULE.

LANDSCAPE MATERIAL NOTES

- MATERIALS - PLANTING MIXTURE: ALL HOLES EXCAVATED FOR TREES, SHRUBS, PERENNIALS AND ORNAMENTAL GRASSES SHALL BE BACKFILLED WITH TWO (2) PARTS TOPSOIL, ONE (1) PART SAND AND ONE (1) PART COMPOST. SOIL MIXTURE SHALL BE WELL BLENDED PRIOR TO INSTALLATION.
- MATERIALS - TOPSOIL: TOPSOIL TO BE CLEAN, FRIABLE LOAM FROM A LOCAL SOURCE, FREE FROM STONES OR DEBRIS OVER 3/4" IN DIAMETER, AND FREE FROM TOXINS OR OTHER DELETERIOUS MATERIALS. TOPSOIL SHALL HAVE A pH VALUE BETWEEN 6 AND 7. TOPSOIL AND PLANTING SOIL SHALL BE TESTED TO ENSURE CONFORMANCE WITH THESE SPECIFICATIONS AND SHALL BE AMENDED TO MEET THESE SPECIFICATIONS. PROVIDE TEST RESULTS TO OWNER'S REPRESENTATIVE PRIOR TO PLACEMENT. DO NOT PLACE FROZEN OR MUDDY TOPSOIL. APPLY SOIL AMENDMENTS TO ALL LANDSCAPE AREAS PER SOIL TEST.
- MATERIALS - SHREDDED HARDWOOD BARK MULCH: ALL PLANTING AREAS LABELED ON PLAN SHALL RECEIVE CERTIFIED WEED FREE, SHREDDED HARDWOOD BARK MULCH INSTALLED TO A MINIMUM AND CONSISTENT DEPTH OF 3-INCHES. SHREDDED HARDWOOD BARK MULCH SIZE & COLOR TO BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION. FERTILIZER SHALL BE IN ACCORDANCE WITH APPLICABLE LOCAL, COUNTY AND STATE REQUIREMENTS. SHREDDED HARDWOOD BARK MULCH AREAS SHALL NOT RECEIVE WOVEN WEED BARRIER FABRIC.
- MATERIALS - TREE & SHRUB RINGS: ALL TREES AND/OR SHRUBS PLANTED IN SEEDED LAWN AREAS TO BE INSTALLED WITH A MINIMUM 5' DIAMETER SHREDDED HARDWOOD BARK MULCH TREE RING SPREAD TO A CONSISTENT DEPTH OF 3-INCHES. ALL TREE RINGS SHOULD BE INSTALLED WITH A 5" DEPTH SHOVEL CUT EDGE, ANGLED 45 DEGREES INTO SOIL AT A 5' DIAMETER ABOUT THE CENTER OF THE TREE PLANTING. A PRE-EMERGENT GRANULAR HERBICIDE WEED-PREVENTER SHOULD BE MIXED WITH MULCH USED TO INSTALL TREE RING AS WELL AS TOPICALLY APPLIED TO COMPLETED INSTALLATION OF TREE RING.
- MATERIALS - POLYETHYLENE EDGING: EDGING SHALL BE 5" DEEP, POLYETHYLENE EDGING. OWNER'S REPRESENTATIVE SHALL APPROVE PRODUCT SPECIFICATION PROVIDED BY LANDSCAPE CONTRACTOR.

SEEDING & POND VEGETATION NOTES

- MATERIALS - TURFGRASS SEED: DISTURBED LAWN AREAS LABELED ON PLAN AS SUCH, SHALL RECEIVE 6" OF TOPSOIL AND EARTH CARPETS "MADISON PARKS" GRASS SEED, OR EQUIVALENT AS APPROVED BY THE OWNER'S REPRESENTATIVE, INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. IN ADDITION TO TURFGRASS SEED, ANNUAL RYE SHALL BE APPLIED TO ALL DISTURBED AREAS AT A RATE OF 1 1/2 LBS PER 1000 SQUARE FEET. FERTILIZE AND MULCH PER MANUFACTURER'S RECOMMENDATIONS. MULCH SHALL BE CERTIFIED NOXIOUS WEED SEED-FREE.
- MATERIALS - PRAIRIE SEED MIX: BIO-INFILTRATION BASIN AREAS LABELED ON PLAN AS SUCH, SHALL BE BROADCAST SEEDING WITH "DIVERSE PRAIRIE FOR MEDIUM SOILS" SEED MIX, AS PROVIDED BY PRAIRIE NURSERY, P.O. BOX 306, WESTFIELD, WISCONSIN, 53984, TEL. 608-296-3679 (OR APPROVED EQUIVALENT). INSTALL SEED WITH SUPPLEMENTAL MATERIALS AND AMENDMENTS AS RECOMMENDED BY SEED SUPPLIER AND AT RATES AND OPTIMUM TIMES OF THE YEAR AS RECOMMENDED BY THE SEED SUPPLIER TO ENSURE SUCCESSFUL GERMINATION AND SEED/ROOT ZONE GROWTH DEVELOPMENT. REFER TO PRODUCT SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.

CONTRACTOR AND OWNER RESPONSIBILITY NOTES

- GUARANTEE: THE CONTRACTOR SHALL GUARANTEE ALL PLANTS THROUGH ONE (1) YEAR AFTER ACCEPTANCE BY THE OWNER'S REPRESENTATIVE. PLANTS SHALL BE ALIVE AND IN HEALTHY AND FLOURISHING CONDITION AT THE END OF THE GUARANTEE PERIOD. THE CONTRACTOR SHALL REPLACE (AT NO COST TO OWNER) ANY PLANTS THAT ARE DEAD OR NOT IN A VIGOROUS THRIVING CONDITION. REPLACEMENT PLANTS SHALL BE OF THE SAME KIND AND SIZE AS ORIGINALLY SPECIFIED UNLESS OTHERWISE DIRECTED BY OWNER'S REPRESENTATIVE. RESTORE BEDS AS NECESSARY FOLLOWING PLANT REPLACEMENT, INCLUDING BUT NOT LIMITED TO BEDDING, EDGING, MULCH, ETC. REPLACE PLANTS DAMAGED AT TIME OF PLANTING. REPAIR AREAS DISTURBED IN ANY WAY DURING PLANT REPLACEMENT AT NO COST TO OWNER. CONTRACTOR SHALL PROVIDE A ONE (1)-YEAR STRAIGHTENING GUARANTEE FOR ALL TREES.
- CONTRACTOR IS RESPONSIBLE FOR STAKING THE PLANT MATERIALS FOR REVIEW BY OWNER'S REPRESENTATIVE PRIOR TO DIGGING AND PLACEMENT AND SHALL COORDINATE ALL FINE GRADING AND RESTORATION WITH THE GRADING CONTRACTOR.
- MAINTENANCE: (CONTRACTOR) FOR ALL PLANTINGS AND SEEDED LAWN AREAS: THE CONTRACTOR SHALL MAINTAIN ALL PLANTINGS AND LAWN AREAS FOR A MINIMUM TIME PERIOD OF 60 DAYS, UNTIL FINAL ACCEPTANCE BY OWNER'S REPRESENTATIVE. THE CONTRACTOR IS RESPONSIBLE FOR ADEQUATELY WATERING PLANTS AND LAWN/TURFGRASS DURING THIS 60 DAY ESTABLISHMENT PERIOD. CONTRACTOR IS RESPONSIBLE FOR THE ESTABLISHMENT OF HEALTHY VIGOROUS PLANT MATERIALS AND LAWN/TURFGRASS GROWTH. CONTRACTOR IS ALSO RESPONSIBLE FOR ANY PRUNING OF PLANT MATERIALS, AND SHAPING AND/OR REPLACEMENT OR SUPPLEMENT OF DEFICIENT SHREDDED HARDWOOD BARK MULCH DURING THIS PERIOD. LONG TERM PLANT MATERIALS AND LAWN/TURFGRASS MAINTENANCE AND ANY PROGRAM FOR SUCH IS THE RESPONSIBILITY OF THE OWNER. ALL PLANTINGS AND LAWN/TURFGRASS AREAS SHALL BE MAINTAINED IN A MANICURED CONDITION UNTIL THE TIME WHEN THE OWNER'S ACCEPTANCE IS GIVEN.
- MAINTENANCE: (OWNER) THE OWNER IS RESPONSIBLE FOR THE CONTINUED MAINTENANCE, REPAIR AND REPLACEMENT OF ALL LANDSCAPING MATERIALS AND WEED BARRIER FABRIC AS NECESSARY FOLLOWING THE ONE (1) YEAR CONTRACTOR GUARANTEE PERIOD.

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W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:

Castle
Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:

**BIRCHROCK CASTLE
ADDITION**

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:		
#	Date:	Description:
1	11.05.19	(PUD SUBMITTAL)
2	12.12.19	PER VILLAGE COMMENTS
3		
4		
5		
6		
7		
8		
9		
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11		
12		
13		
14		
15		

Design/Drawn: MAS
Approved: MAS

SHEET TITLE:
**LANDSCAPE NOTES,
DETAILS &
SPECIFICATIONS**

SHEET NUMBER:

L2.0

JSD PROJECT NO:

19-0231

STORM WATER MANAGEMENT PLAN

Project:
**Castle Senior Living
Mukwonago CBRF**
Village of Mukwonago, Wisconsin
JSD Project No: 19-9231

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**NOVEMBER 6, 2019
REVISED DECEMBER 12, 2019**

Prepared for:



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Building relationships with a commitment to client
satisfaction through trust, quality and experience **46**

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APPENDICES

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APPENDIX 2 - SOIL DATA

- USDA SOIL MAP
- WDNR SURFACE WATER DATA VIEWER MAP

APPENDIX 3 - EXISTING SITE HYDROLOGY

- EXISTING CONDITIONS HYDROLOGY EXHIBIT
- EXISTING HYDROCAD OUTPUT

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- PROPOSED CONDITIONS HYDROLOGY EXHIBIT
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APPENDIX 5 - WATER QUALITY CALCULATIONS

- POST-DEVELOPMENT INPUT SUMMARY
- POST-DEVELOPMENT OUTPUT SUMMARY

APPENDIX 6 - DESIGN DETAILS

- PROPOSED EROSION CONTROL PLAN
- PROPOSED GRADING & UTILITY PLAN
- PROPOSED BIORETENTION BASIN DETAILS
- STORM SEWER SIZING CALCULATIONS
- ANTI-SEEP COLLAR DESIGN

APPENDIX 7 - OPERATION AND MAINTENANCE PLAN

1.0 INTRODUCTION

The proposed CBRF addition will be located along the north side of McDivitt Lane and the west side of Mukwonago Drive in the Village of Mukwonago, Waukesha County, Wisconsin. The site is positioned in the Northwest 1/4 of the Southeast 1/4 of Section 35, Township 5 North, Range 18 East. The site is generally bounded by wetlands to the north and west and roads to the south and east. A location map illustrating the project site has been included in **Appendix 1**.

This Stormwater Management Plan has been created to address runoff rate control, water quality treatment, and infiltration requirements for the proposed CBRF Property.

This stormwater management system has been designed in accordance with Village of Mukwonago Code (Section 34-110 and Section 34-111). The stormwater for the project was designed as a “new development” site with an increase of 19,400 square feet of impervious area. A bio-retention basin will be built in the southwest corner of the site with the outlet being discharged into the wetlands. 430 linear feet of storm sewer will be installed to route the stormwater into the bio-basin

The proposed expansion consists of demolishing the existing parking lot east of the existing building. A 15,770 sq.ft. building addition will be constructed with new surface lots and driveways.

The proposed storm water management system has been designed to maintain or reduce the peak 1-yr, 2-yr, 10-year and 100-year runoff rates discharging from the existing stormwater pond at the southeast corner of the site. Please refer to **Section 3.0** and **Section 5.0** for design criteria and additional details of the stormwater facilities.

2.0 EXISTING CONDITIONS

The site consists of the existing Castle Senior Living building, associated parking lot and sidewalk, a shed, and mowed and maintained open land. The existing topography flows from the south to the north of the site into the existing wetland. See **Appendix 3** for an Existing Conditions Hydrology Exhibit.

In addition, multiple soil types have been identified on-site using soils data obtained from the United States Department of Agriculture – Natural Resources Conservation Service Web Soil Survey. A soil location map illustrating the various soils has been included in **Appendix 2**. A listing of the soil map units and descriptions is shown in Table 1 below.

Table 1 – Soil Types

Map Symbol	Map Unit Name	Hydrologic Soil Group
Sm	Sebewa silt loam, 1-2% slopes	B/D
Ph	Pella silt loam, 0-2% slopes	B/D

3.0 DESIGN CRITERIA

3.1 Village of Mukwonago

Village of Mukwonago Municipal Code Division 4 – Stormwater Management and Erosion Control (Sec. 34-110 and Sec. 34-111)

3.2 Wisconsin Department of Natural Resources

WDNR – Technical Standards (NR151 and NR216)

Water Quantity: Village of Mukwonago ordinance requires that the Stormwater management practices reduce the peak post-development 100-year discharge rate to the peak pre-development 10-year discharge rate and also the peak post-development 10-year discharge rate to the peak pre-development 2-year discharge rate. Refer to **Section 5.1** for a description of the on-site water quantity measures.

Water Quality: Village of Mukwonago and the WDNR requires for a redevelopment, storm water discharges shall be treated to remove a minimum of 40% of the total suspended solids load, based on an average annual rainfall for a redevelopment and 80% for new developments. Please refer to **Section 5.2** for a description of the on-site water quality measures.

Infiltration: Village of Mukwonago states according to Sec. 34-110(d)(3)(f)1, sites are exempt “the soils at the proposed bottom of an infiltration system have a measured infiltration rate of less than 0.6 inches per hour using a scientifically credible field test method.”

NR 151 states: Infiltration practices located in the following areas may be credited toward meeting the requirement under the following conditions, but the decision to infiltrate under these conditions is optional:

1. Where the infiltration rate of the soil measured at the proposed bottom of the infiltration system is less than 0.6 inches per hour using a scientifically credible field test method.

As shown on the USDA Soils Map in **Appendix 2**, the silty loam soils on site have an infiltration rate significantly lower than 0.6 in/hr and so the site is exempt from infiltration requirements.

4.0 ANALYSIS

HydroCAD® Stormwater Modeling System (Version 10.00) software has been used to analyze stormwater characteristics for the CBRF project. HydroCAD® uses the accepted TR-55 methodology for determining peak runoff rates and runoff discharge volumes. Curve numbers for proposed ground cover have been selected using the standard values specified in TR-55 for a type “B” soil. Rainfall depths utilized in the HydroCAD® model were based on the rainfall depths specified in NOAA Atlas 14 with the MSE 3 rainfall intensity curve. Results of the modeling have been included in **Appendix 3** and **Appendix 4**. The corresponding rainfall depths are shown below in Table 2.

Table 2 – Rainfall Depths

Storm Event	Rainfall Depth
1-year	2.40"
2-year	2.70"
10-year	3.81"
100-year	6.18"

The sediment reduction and infiltration volume characteristics of the proposed stormwater management facilities have been analyzed using WinSLAMM® (Version 10.3.3) Source Loading and Management Model. Peak release rates from the proposed stormwater devices were based on the results of the HydroCAD® modeling. WinSLAMM® input and output data have been included in **Appendix 5**.

5.0 DESIGN

The proposed building expansion will encompass approximately 1.3 acres. The proposed expansion will be located within the 50 foot protective area of the wetland as defined by Village Ordinance Section 34-110(d)(4)a.4. The development will include installation of private utilities, construction of the building expansion with associated parking, and construction of a bio-filtration basin. The storm water runoff from the new impervious areas will be conveyed to the bio-filtration basin via proposed storm sewers. The bio-basin has been designed to reduce the peak discharge and to also meet the standard for TSS removal. Therefore the site meets the protective area exemption defined in Village Ordinance Section 34-110(d)(4)c.3

Drainage Area 1S represents 1.07 acres encompassing the building roof, parking lot, and landscape areas that will drain to the bio-filtration basin (1P).

Bio-filtration basin 1P will control peak runoff release and total suspended solids, and outlet to the existing wetlands on site. In the event the outlet structure becomes clogged or otherwise inoperable, storm water will discharge by an overflow weir into the wetlands.

The remaining sub-catchments, Drainage Areas 2S, 3S & 4S, represents 0.23 acres. Runoff from these areas will discharge from the site undetained but has still been included in the total runoff calculations.

A Proposed Conditions Hydrology Exhibit illustrating the drainage areas has been included in **Appendix 4**. Please refer to **Appendix 6** for additional details of the storm water wet pond and outlet structures.

5.1 Runoff Rate and Volume Control

The proposed stormwater biofiltration basin has been designed to meet the peak runoff release rates in accordance with the Village of Mukwonago ordinance for the 1-year 2-year, 10-year, and 100-year storm events.

Village of Mukwonago ordinance requires that the Stormwater management practices reduce the peak post-development 100-year discharge rate to the peak pre-development 10-year discharge rate and also the peak post-development 10-year discharge rate to the peak pre-development 2-year discharge rate. Table 3 summarizes the existing release rates for the developed compared to the proposed peak release rates determined using HydroCAD®. Please refer to **Appendix 3** and **Appendix 4** for additional details of the existing and proposed peak runoff rate calculations.

Table 3 – Peak Release Rates

	Existing Release Rate (cfs)	Proposed Release Rate (cfs)
1-year	0.63	0.12
2-year	0.96	0.18
10-year	2.46	0.73
100-year	6.44	2.33

Table 5 and Table 6 present the proposed drainage area and storm water management facility characteristics, respectively.

Table 5 – Proposed Drainage Area Hydrologic Characteristics

Drainage Area (HydroCAD® Node)	Area (Acres)	Curve Number	Peak Runoff Rate (cfs)			
			1-year	2-year	10-year	100-year
1S	1.07	84	2.01	2.45	4.19	8.01
2S	0.18	64	0.05	0.09	0.27	0.79
3S	0.04	73	0.03	0.04	0.09	0.21
4S	0.02	93	0.05	0.06	0.08	0.14

Table 6 – Proposed Storm Water Management Facility Characteristics

Stormwater Management Facility		1-year	2-year	10-year	100-year
1P	Peak Inflow (cfs)	2.01	2.45	4.19	8.01
	Peak Outflow (cfs)	0.04	0.13	0.65	2.00
	Peak Water Surface Elevation	813.11	813.20	813.67	814.90
	Spillway Elevation	814.90			
	Top of Berm Elevation	815.50			

5.2 Water Quality – Total Suspended Solids Treatment

Water quality for the Mukwonago CBRF Expansion will be achieved through the settling of suspended solids in the proposed bio-filtration basin. The bio-filtration basin has been designed in accordance with the parameters set forth in WDNR Technical Standard 1004. Because the site has both redevelopment and new development areas a composite reduction rate of 72.8% was determined by weighing the reduction rates by area.

Type of Area	Area (sqft)	Removal rate
--------------	-------------	--------------

Redevelopment	10,203	40%
New development	46,417	80%
<i>Total</i>	56,620	72.8%

Calculation of overall TSS reduction for the site has been determined based on the difference between the total mass of solids generated under the “without controls” and “after controls” conditions using WinSLAMM® software. Table 7 summarizes the TSS reduction as calculated using WinSLAMM®. Refer to **Appendix 5** for input and output data used in the water quality and infiltration models.

Table 7 – Total Suspended Solids Loading

Without Controls (lbs)	After Controls (lbs)	Percent Reduction
324.8	81.37	74.95%

5.3 Infiltration

NR 151.124(3)(c)1 states that infiltration is not required through the bio-filtration basin. WDNR classifies silt loam as having an infiltration rate of 0.13 in/hr which is below the required rate of 0.6 in/hr.

5.4 Storm Sewer

Storm sewer will be constructed within the proposed site to convey storm water to the basin. The storm sewers have been sized to collect runoff from building roofs and pavement. All private storm sewers have been designed in accordance with the rational method and have been sized to accommodate runoff from the 100-year storm event. Complete storm sewer design computations have been included in **Appendix 6**.

6.0 CONCLUSION

The stormwater management facilities for the Mukwonago CBRF Expansion have been designed to meet or exceed Village of Mukwonago ordinance and WDNR Technical Standards NR151 and NR216. The post-development stormwater peak runoff release rates have been reduced below the City of Pewaukee’s allowable peak release rates. The stormwater facilities will provide an overall TSS reduction of 74.95%.

(Appendices Follow)

APPENDIX 1

Location Map



SITE LOCATION



APPENDIX 2

Soil Data

- USDA Soil Map
- WDRN Surface Water Data Viewer Map



Soil Map—Milwaukee and Waukesha Counties, Wisconsin



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

9/20/2019
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Milwaukee and Waukesha Counties, Wisconsin

Survey Area Data: Version 14, Sep 12, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 29, 2011—Mar 28, 2012

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.



Natural Resources
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Web Soil Survey
National Cooperative Soil Survey

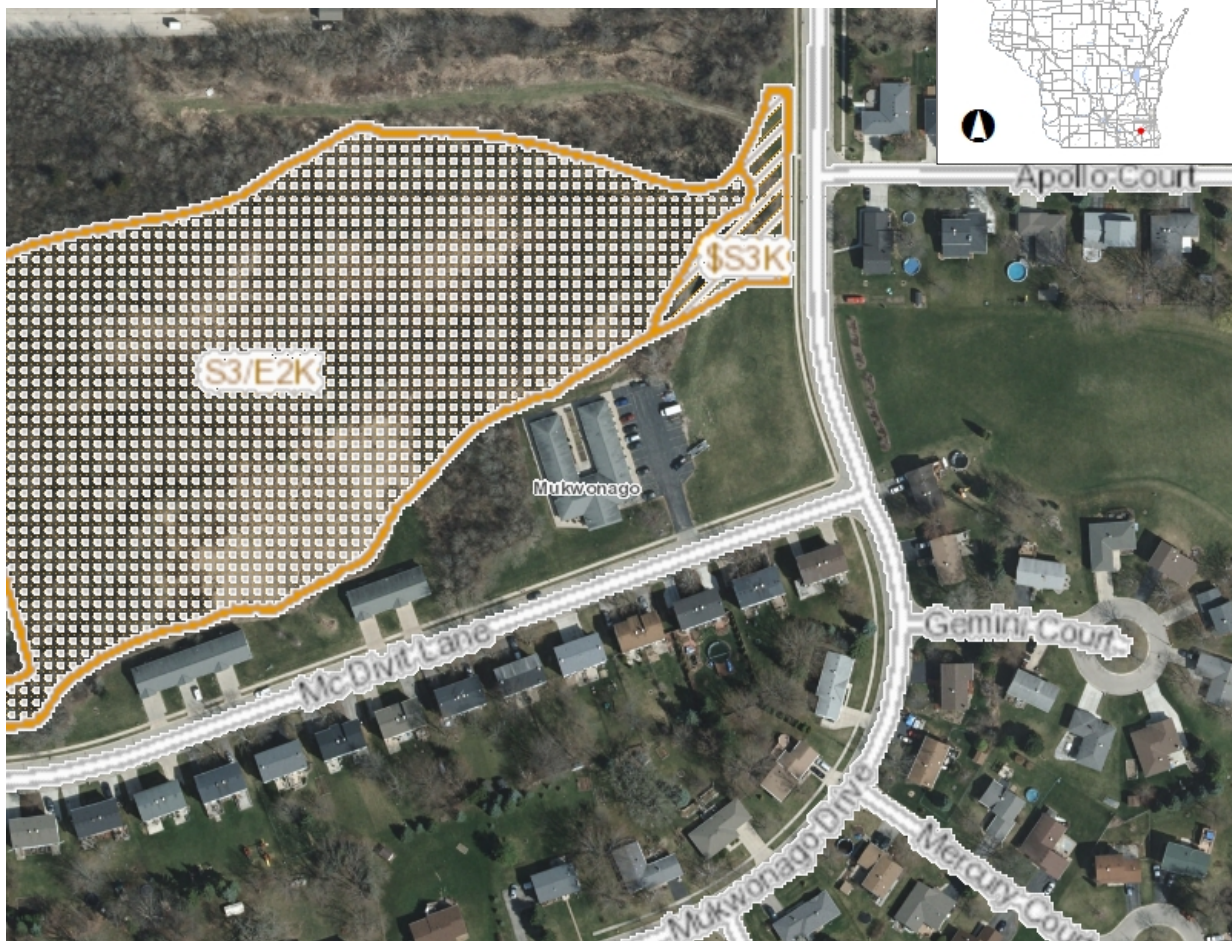
9/20/2019
Page 2 of 3

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MgA	Martinton silt loam, 1 to 3 percent slopes	0.0	0.0%
Ph	Pella silt loam, 0 to 2 percent slopes	3.3	95.4%
Sm	Sebewa silt loam, 0 to 2 percent slopes	0.2	4.6%
Totals for Area of Interest		3.4	100.0%



Surface Water Data Viewer Map



Legend

- Wetland Identifications and Confirmations
 - Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
 - Filled Points
 - Wetland Class Areas
 - Wetland
 - Upland
 - Filled Areas
- Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
- Filled Points
- Wetland Class Areas
 - Wetland
 - Upland
- Filled Areas
- Intermittent Streams
- 24K Hydrography Streams and Rivers
- 24K Hydrography Lakes and Open Water
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
 - Interstate Highway
 - State Highway

Notes

0.1 0 0.03 0.1 Miles

NAD_1983_HARN_Wisconsin_TM

1: 1,980

DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>

APPENDIX 3

EXISTING SITE HYDROLOGY

- Existing Conditions Hydrology Exhibit
- Existing Conditions HydroCAD Output



MADISON | MILWAUKEE
KENOSHA | APPLETON | WAUSAU

CLIENT:



PROJECT:
**MUKWONAGO
CBRF BUILDING**

PROJECT LOCATION:
**CITY OF MUKWONAGO
WAUKESHA COUNTY, WI**

PLAN MODIFICATIONS

[illegible]

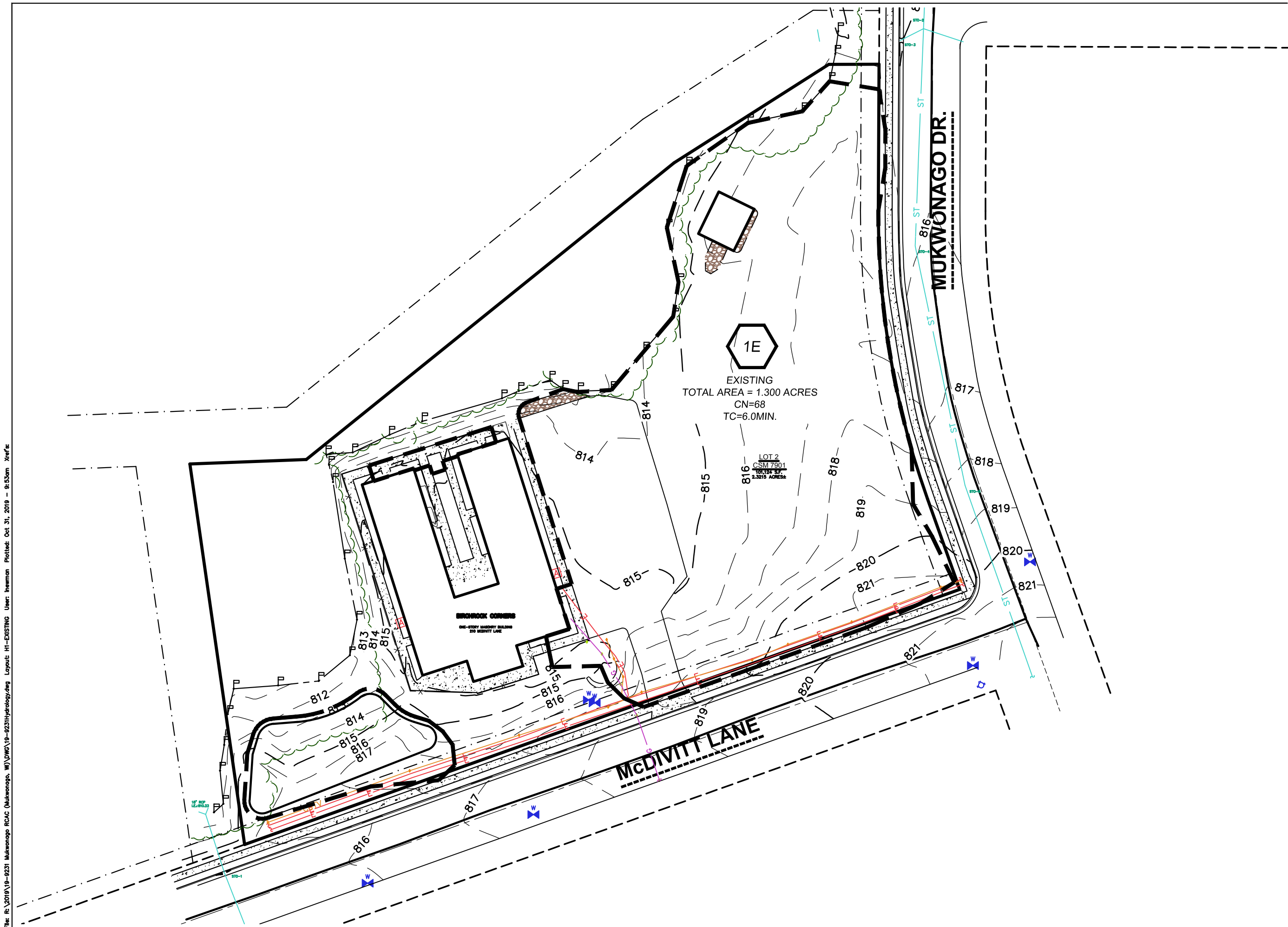
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Approved:	DSR

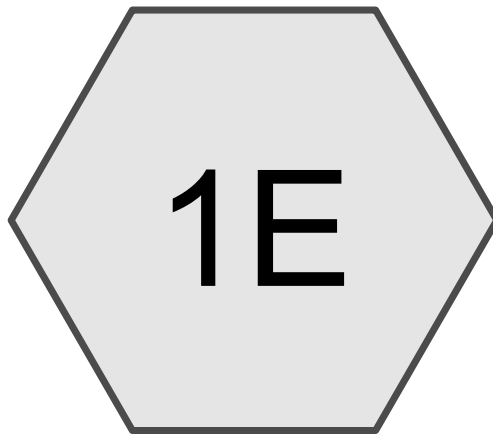
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EXISTING HYDROLOGY

SHEET NUMBER:

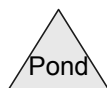
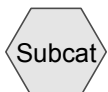
H1.0

JSD PROJECT NO: 19-92





EXISTING



Routing Diagram for 19-9231 Mukwonago RCAC revised
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19-9231 Mukwonago RCAC revised

Prepared by Microsoft

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Page 2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.055	61	>75% Grass cover, Good, HSG B (1E)
0.010	96	Gravel surface, HSG B (1E)
0.235	98	IMPERVIOUS (1E)

19-9231 Mukwonago RCAC revised

MSE 24-hr 3 1 Year Rainfall=2.40"

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Page 3

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1E: EXISTING

Runoff Area=56,620 sf 18.09% Impervious Runoff Depth=0.34"

Tc=6.0 min CN=68 Runoff=0.63 cfs 0.037 af

Summary for Subcatchment 1E: EXISTING

Runoff = 0.63 cfs @ 12.15 hrs, Volume= 0.037 af, Depth= 0.34"

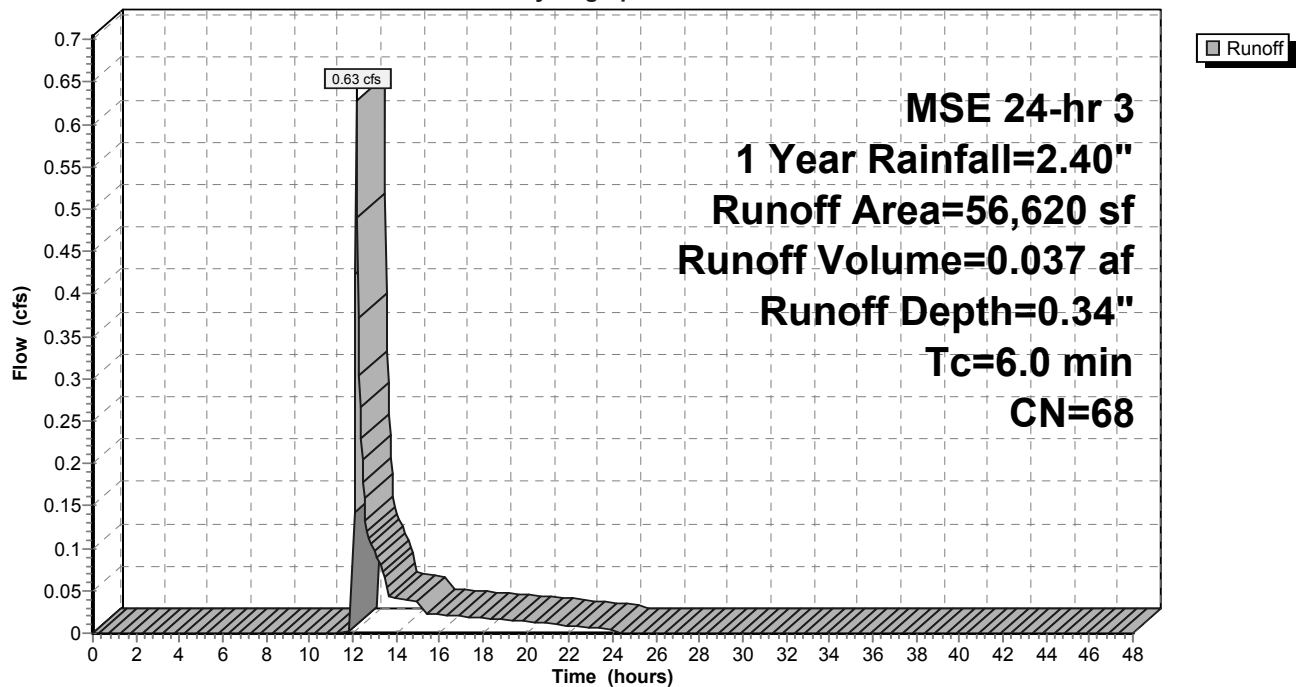
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

Area (sf)	CN	Description
45,945	61	>75% Grass cover, Good, HSG B
* 10,240	98	IMPERVIOUS
435	96	Gravel surface, HSG B
56,620	68	Weighted Average
46,380		81.91% Pervious Area
10,240		18.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1E: EXISTING

Hydrograph



19-9231 Mukwonago RCAC revised

MSE 24-hr 3 2 Year Rainfall=2.70"

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1E: EXISTING

Runoff Area=56,620 sf 18.09% Impervious Runoff Depth=0.48"

Tc=6.0 min CN=68 Runoff=0.96 cfs 0.052 af

Summary for Subcatchment 1E: EXISTING

Runoff = 0.96 cfs @ 12.15 hrs, Volume= 0.052 af, Depth= 0.48"

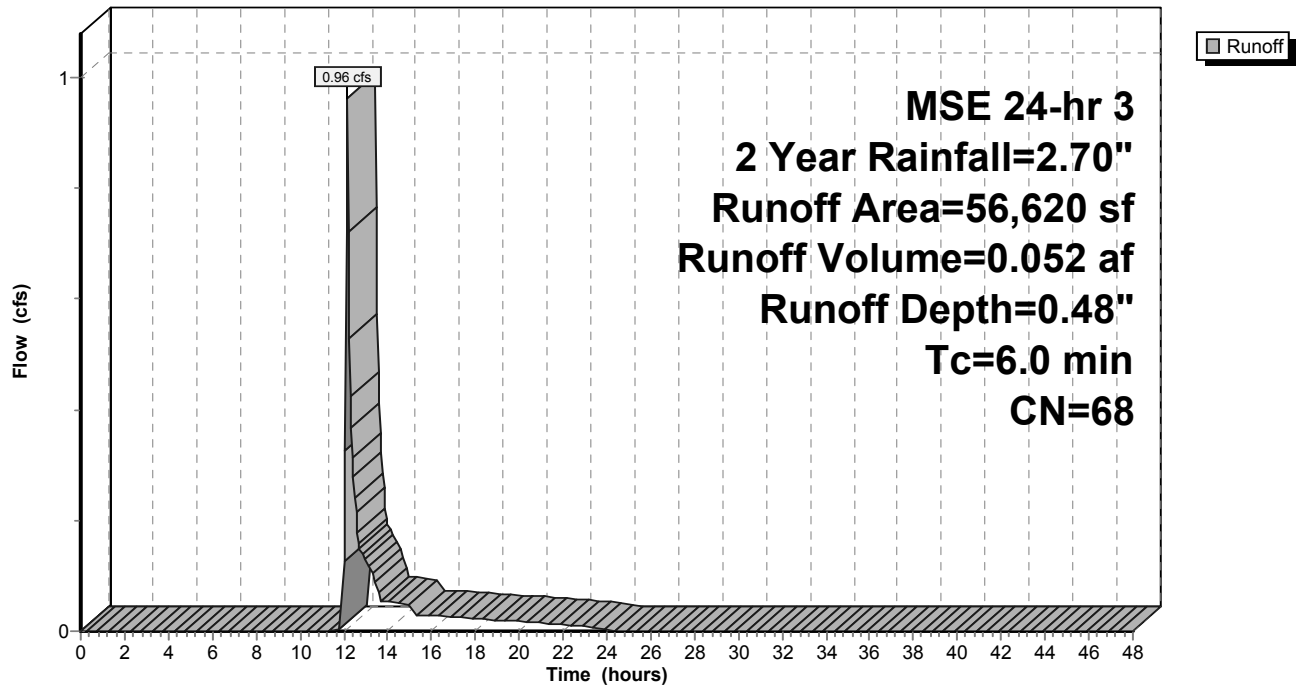
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

Area (sf)	CN	Description
45,945	61	>75% Grass cover, Good, HSG B
* 10,240	98	IMPERVIOUS
435	96	Gravel surface, HSG B
56,620	68	Weighted Average
46,380		81.91% Pervious Area
10,240		18.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1E: EXISTING

Hydrograph



19-9231 Mukwonago RCAC revised

MSE 24-hr 3 10 Year Rainfall=3.81"

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1E: EXISTING

Runoff Area=56,620 sf 18.09% Impervious Runoff Depth=1.08"

Tc=6.0 min CN=68 Runoff=2.46 cfs 0.117 af

Summary for Subcatchment 1E: EXISTING

Runoff = 2.46 cfs @ 12.14 hrs, Volume= 0.117 af, Depth= 1.08"

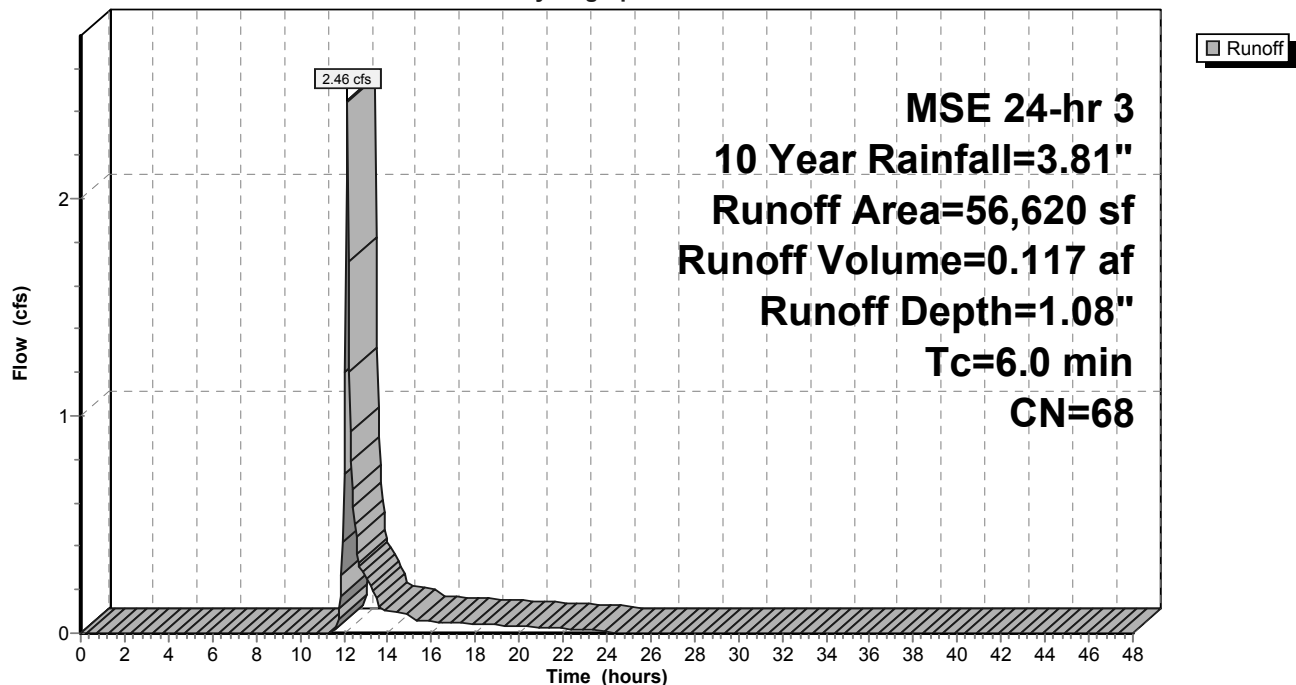
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

Area (sf)	CN	Description
45,945	61	>75% Grass cover, Good, HSG B
* 10,240	98	IMPERVIOUS
435	96	Gravel surface, HSG B
56,620	68	Weighted Average
46,380		81.91% Pervious Area
10,240		18.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1E: EXISTING

Hydrograph



19-9231 Mukwonago RCAC revised

MSE 24-hr 3 100 Year Rainfall=6.18"

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1E: EXISTING

Runoff Area=56,620 sf 18.09% Impervious Runoff Depth=2.76"

Tc=6.0 min CN=68 Runoff=6.44 cfs 0.299 af

Summary for Subcatchment 1E: EXISTING

Runoff = 6.44 cfs @ 12.14 hrs, Volume= 0.299 af, Depth= 2.76"

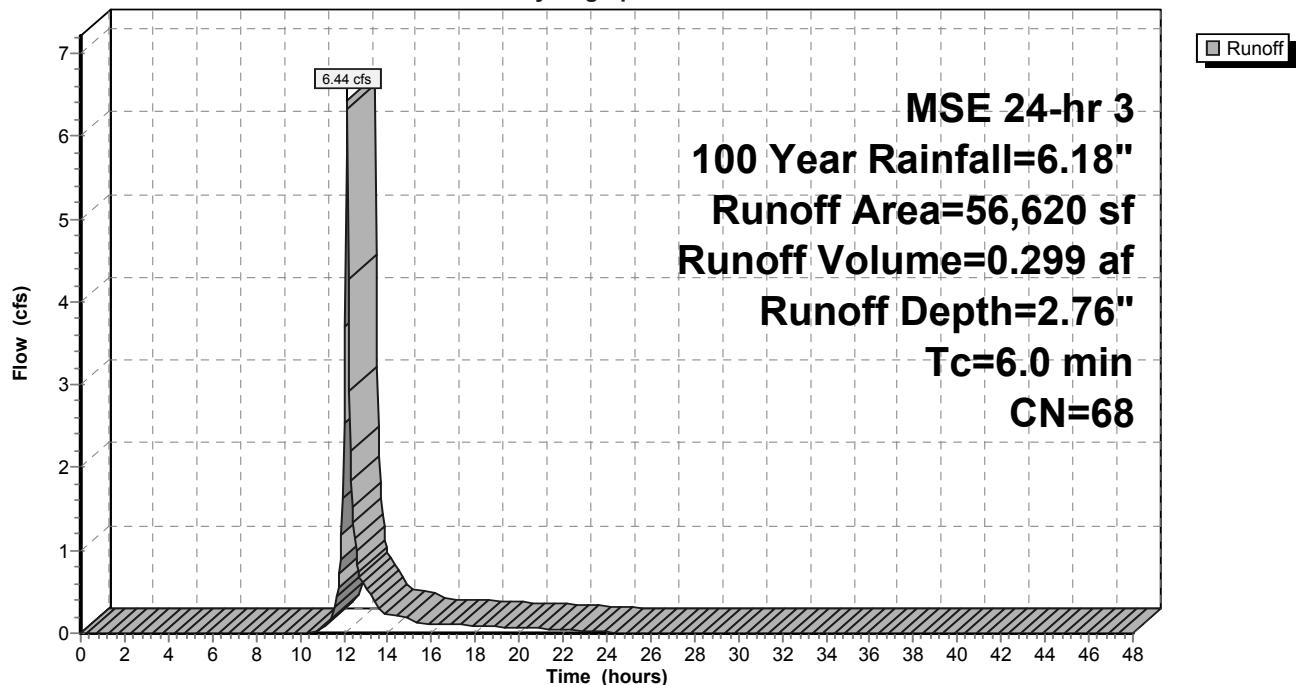
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MSE 24-hr 3 100 Year Rainfall=6.18"

Area (sf)	CN	Description
45,945	61	>75% Grass cover, Good, HSG B
* 10,240	98	IMPERVIOUS
435	96	Gravel surface, HSG B
56,620	68	Weighted Average
46,380		81.91% Pervious Area
10,240		18.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1E: EXISTING

Hydrograph



APPENDIX 4

PROPOSED SITE HYDROLOGY

- Proposed Conditions Hydrology Exhibit
- Proposed Conditions HydroCAD Output



MADISON | MILWAUKEE
KENOSHA | APPLETON | WAUSAU

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:



CLIENT ADDRESS:
210 McDIVITT LN
MUKWONAGO, WI 53149

PROJECT:
**MUKWONAGO
CBRF BUILDING**

PROJECT LOCATION:
CITY OF MUKWONAGO
WAUKESHA COUNTY, WI

PLAN MODIFICATIONS:

[illegible]

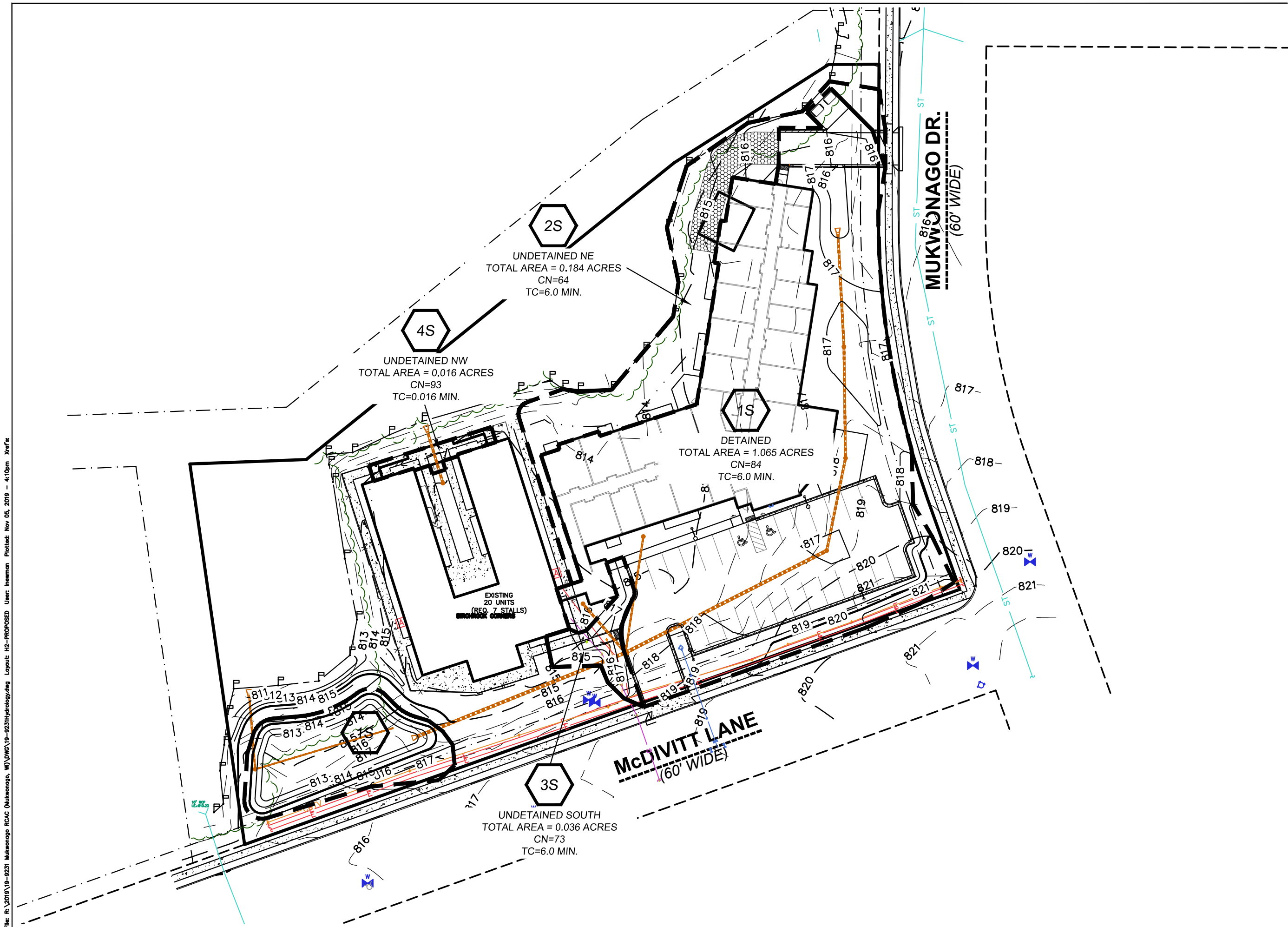
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Approved:	DSR

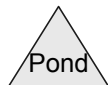
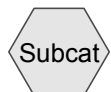
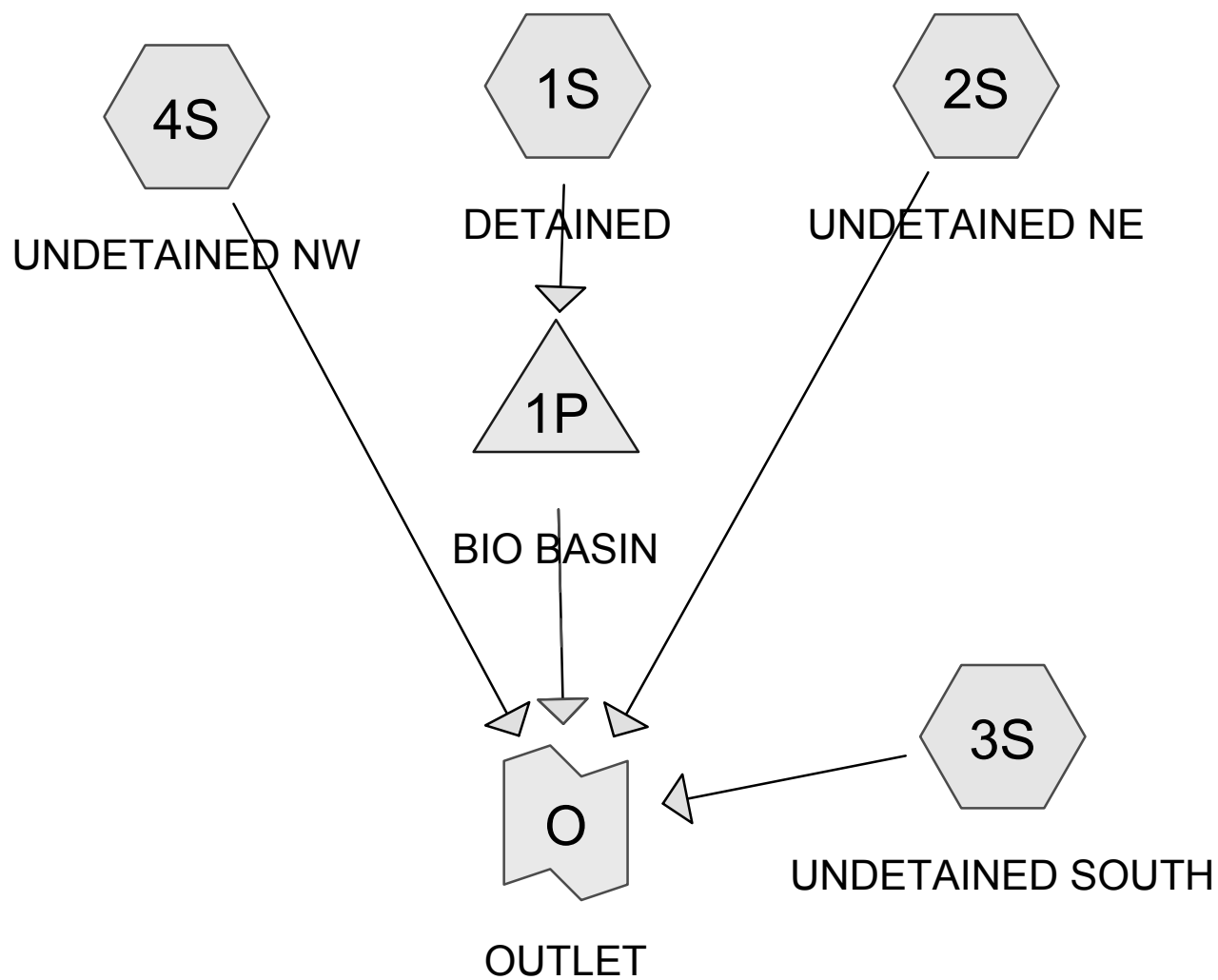
SHEET TITLE:
PROPOSED HYDROLOGY

SHEET NUMBER:

H2.0

JSD PROJECT NO: 19-9231





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Page 2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.592	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S, 4S)
0.041	98	DRIVEWAY (1S, 2S)
0.260	98	PARKING (1S)
0.011	98	ROOF (4S)
0.034	98	SIDEWALK (1S, 2S, 3S, 4S)
0.362	98	Unconnected roofs, HSG C (1S)

19-9231 Mukwonago RCAC revised*MSE 24-hr 3 1 Year Rainfall=2.40"*

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Page 3

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DETAINED

Runoff Area=46,335 sf 62.65% Impervious Runoff Depth=1.05"
Tc=6.0 min CN=84 Runoff=2.01 cfs 0.093 af

Subcatchment2S: UNDETAINEDNE

Runoff Area=8,000 sf 8.62% Impervious Runoff Depth=0.24"
Tc=6.0 min CN=64 Runoff=0.05 cfs 0.004 af

Subcatchment3S: UNDETAINEDSOUTH

Runoff Area=1,570 sf 32.17% Impervious Runoff Depth=0.51"
Tc=6.0 min CN=73 Runoff=0.03 cfs 0.002 af

Subcatchment4S: UNDETAINEDNW

Runoff Area=715 sf 86.71% Impervious Runoff Depth=1.69"
Tc=6.0 min CN=93 Runoff=0.05 cfs 0.002 af

Pond 1P: BIO BASIN

Peak Elev=813.11' Storage=3,066 cf Inflow=2.01 cfs 0.093 af
Discarded=0.01 cfs 0.024 af Primary=0.04 cfs 0.019 af Secondary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.043 af

Link O: OUTLET

Inflow=0.12 cfs 0.026 af
Primary=0.12 cfs 0.026 af

19-9231 Mukwonago RCAC revised

MSE 24-hr 3 1 Year Rainfall=2.40"

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Page 4

Summary for Subcatchment 1S: DETAINED

Runoff = 2.01 cfs @ 12.14 hrs, Volume= 0.093 af, Depth= 1.05"

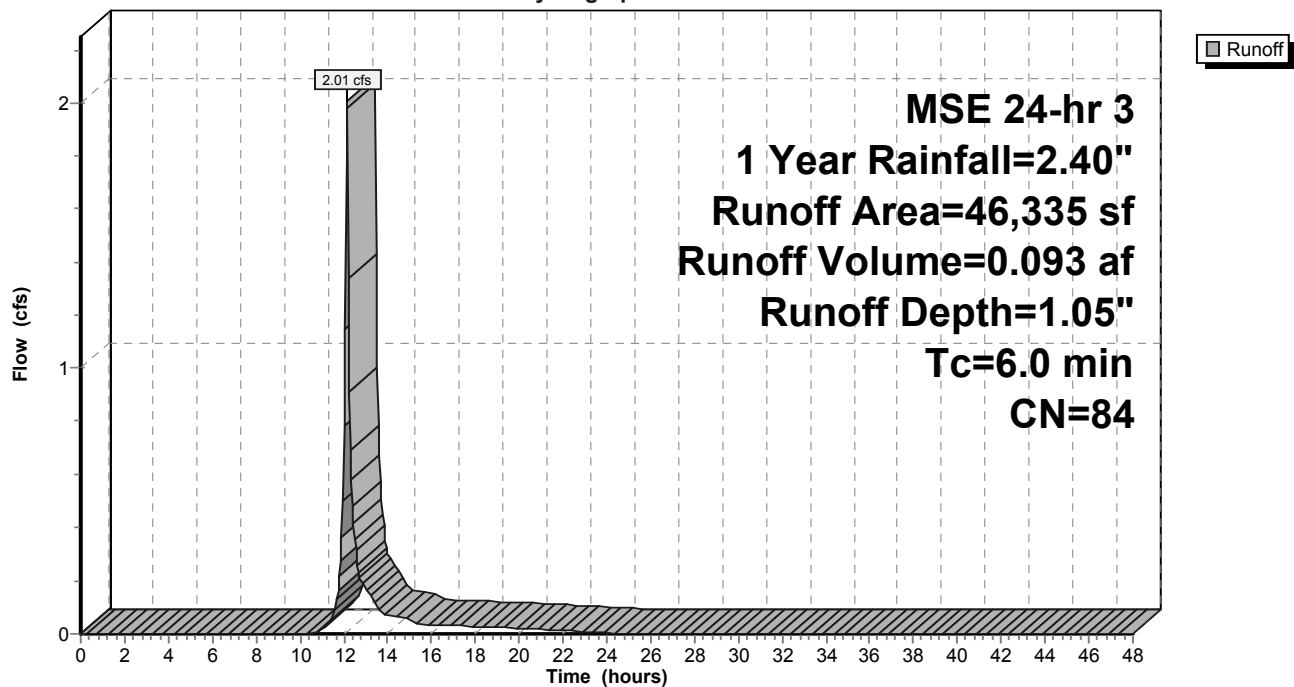
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

	Area (sf)	CN	Description
*	1,710	98	DRIVEWAY
	14,750	61	>75% Grass cover, Good, HSG B
	15,770	98	Unconnected roofs, HSG C
*	11,310	98	PARKING
*	240	98	SIDEWALK
	2,555	61	>75% Grass cover, Good, HSG B
	46,335	84	Weighted Average
	17,305		37.35% Pervious Area
	29,030		62.65% Impervious Area
	15,770		54.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: DETAINED

Hydrograph



Summary for Subcatchment 2S: UNDETAINED NE

Runoff = 0.05 cfs @ 12.17 hrs, Volume= 0.004 af, Depth= 0.24"

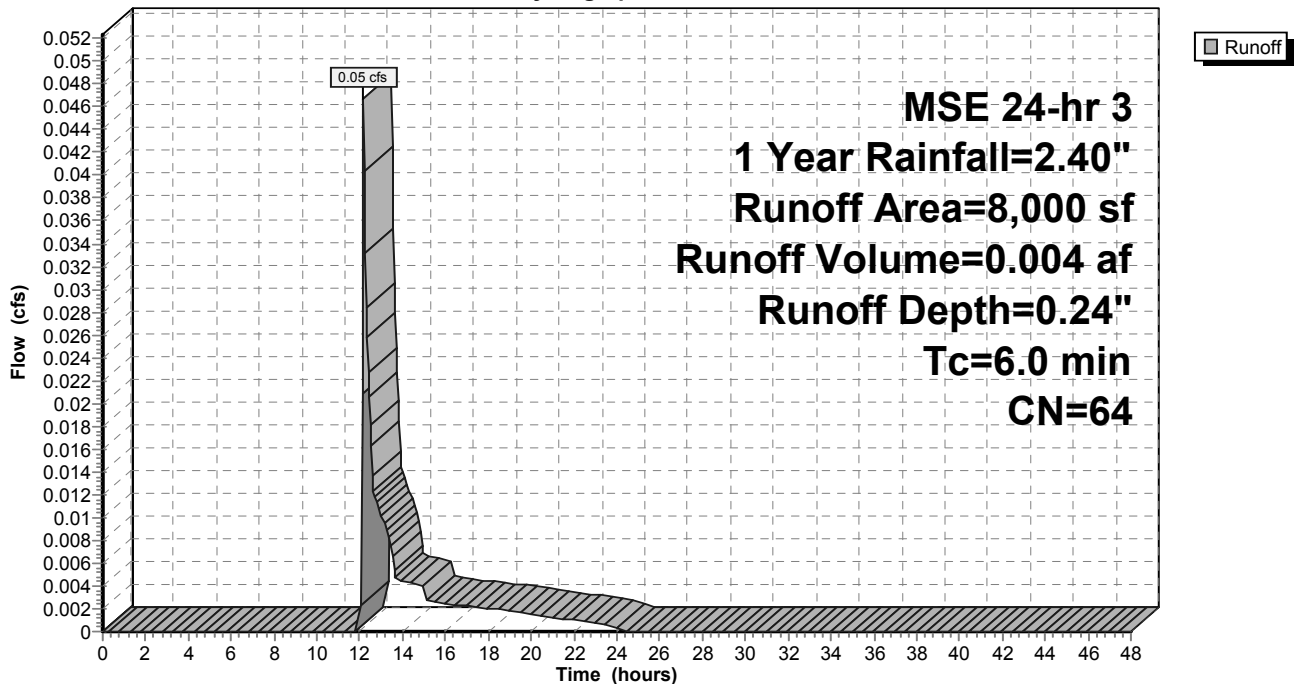
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

	Area (sf)	CN	Description
	5,975	61	>75% Grass cover, Good, HSG B
*	80	98	DRIVEWAY
*	610	98	SIDEWALK
	1,335	61	>75% Grass cover, Good, HSG B
	8,000	64	Weighted Average
	7,310		91.37% Pervious Area
	690		8.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: UNDETAINED NE

Hydrograph



Summary for Subcatchment 3S: UNDETAINED SOUTH

Runoff = 0.03 cfs @ 12.15 hrs, Volume= 0.002 af, Depth= 0.51"

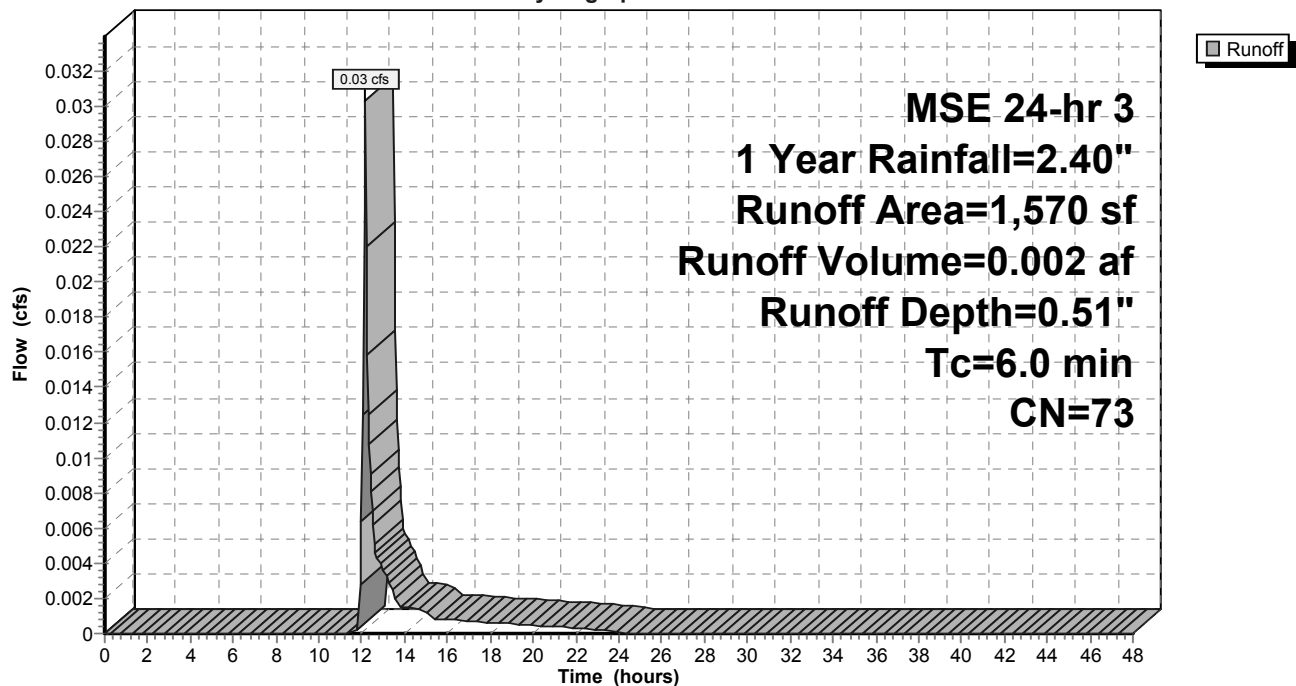
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

Area (sf)	CN	Description
1,065	61	>75% Grass cover, Good, HSG B
* 505	98	SIDEWALK
1,570	73	Weighted Average
1,065		67.83% Pervious Area
505		32.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: UNDETAINED SOUTH

Hydrograph



Summary for Subcatchment 4S: UNDETAINED NW

Runoff = 0.05 cfs @ 12.13 hrs, Volume= 0.002 af, Depth= 1.69"

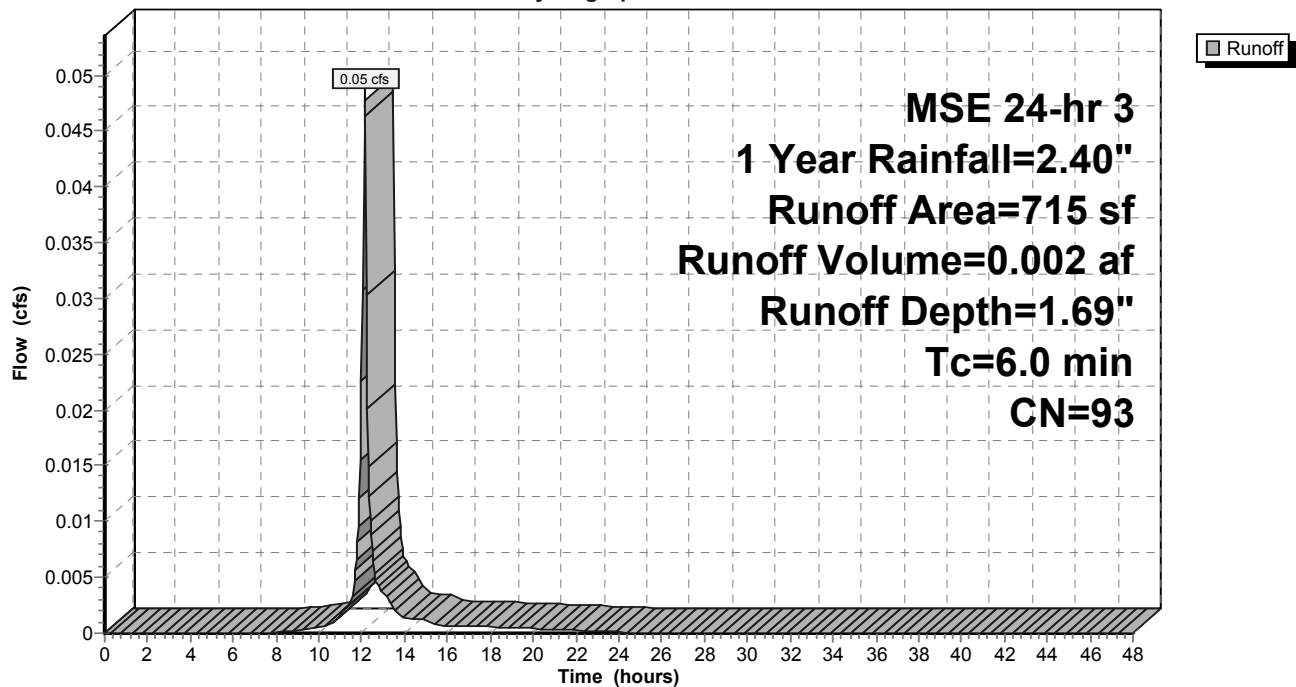
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

Area (sf)	CN	Description
95	61	>75% Grass cover, Good, HSG B
* 490	98	ROOF
* 130	98	SIDEWALK
715	93	Weighted Average
95		13.29% Pervious Area
620		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: UNDETAINED NW

Hydrograph



Summary for Pond 1P: BIO BASIN

Inflow Area = 1.064 ac, 62.65% Impervious, Inflow Depth = 1.05" for 1 Year event
 Inflow = 2.01 cfs @ 12.14 hrs, Volume= 0.093 af
 Outflow = 0.05 cfs @ 15.08 hrs, Volume= 0.043 af, Atten= 97%, Lag= 176.9 min
 Discarded = 0.01 cfs @ 15.08 hrs, Volume= 0.024 af
 Primary = 0.04 cfs @ 15.08 hrs, Volume= 0.019 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 813.11' @ 15.08 hrs Surf.Area= 2,362 sf Storage= 3,066 cf

Plug-Flow detention time= 739.4 min calculated for 0.043 af (46% of inflow)
 Center-of-Mass det. time= 649.0 min (1,463.4 - 814.4)

Volume	Invert	Avail.Storage	Storage Description			
#1	809.00'	10,888 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	2,289	225.0	0.0	0	0	2,289
810.00	2,289	225.0	33.0	755	755	2,514
811.00	2,289	225.0	33.0	755	1,511	2,739
811.50	2,289	225.0	33.0	378	1,888	2,852
812.00	2,289	225.0	27.0	309	2,197	2,964
813.00	2,289	225.0	27.0	618	2,815	3,189
814.00	3,017	248.0	100.0	2,645	5,460	4,086
815.00	3,824	272.0	100.0	3,413	8,873	5,113
815.50	4,239	281.0	100.0	2,015	10,888	5,533

Device	Routing	Invert	Outlet Devices
#1	Discarded	809.00'	0.150 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 20.00'
#2	Primary	811.50'	8.0" Round Culvert L= 41.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.50' / 810.83' S= 0.0162 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#3	Device 2	811.93'	6.0" Round Culvert L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.93' / 811.50' S= 0.0050 '/' Cc= 0.900 n= 0.100, Flow Area= 0.20 sf
#4	Device 3	811.50'	3.600 in/hr Exfiltration over Surface area above 811.50' Conductivity to Groundwater Elevation = 800.00' Excluded Surface area = 2,289 sf
#5	Device 2	813.00'	6.0" Vert. Orifice/Grate C= 0.600
#6	Device 2	814.80'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#7	Secondary	814.90'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 15.08 hrs HW=813.11' (Free Discharge)

↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.04 cfs @ 15.08 hrs HW=813.11' (Free Discharge)

↑2=Culvert (Passes 0.04 cfs of 1.50 cfs potential flow)

↑3=Culvert (Passes 0.01 cfs of 0.08 cfs potential flow)

↑4=Exfiltration (Controls 0.01 cfs)

↑5=Orifice/Grate (Orifice Controls 0.03 cfs @ 1.12 fps)

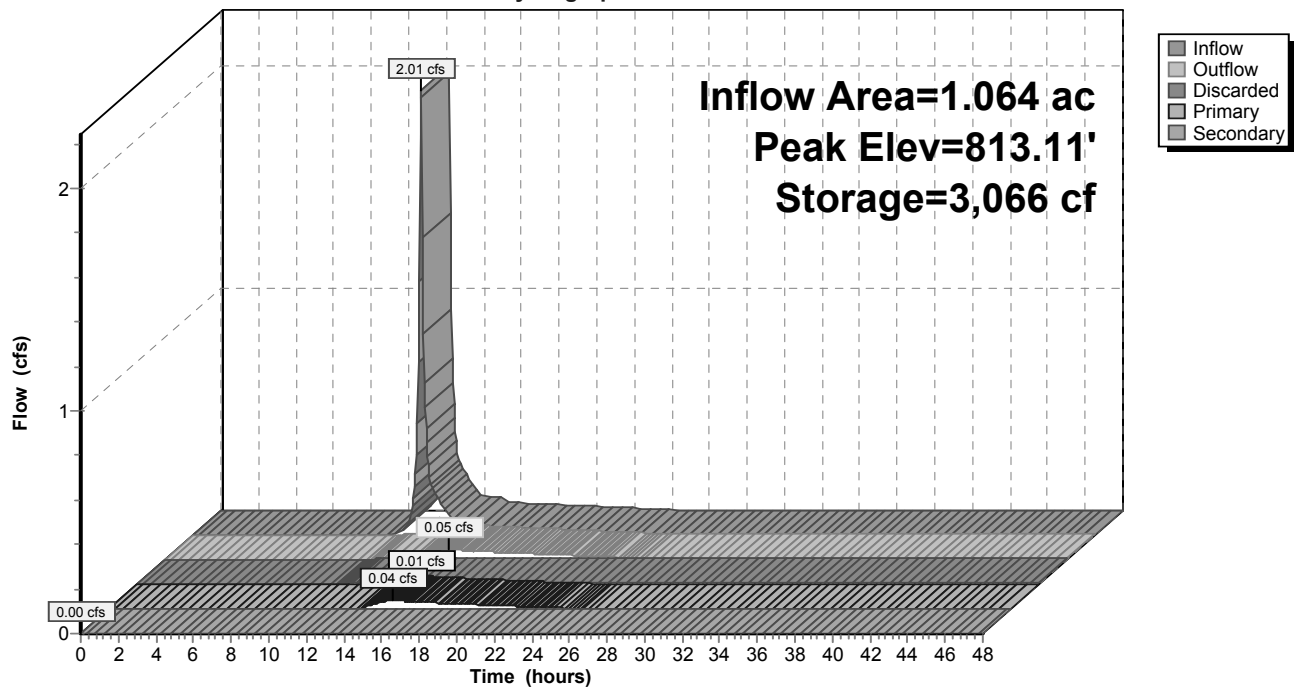
↑6=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=809.00' (Free Discharge)

↑7=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 1P: BIO BASIN

Hydrograph



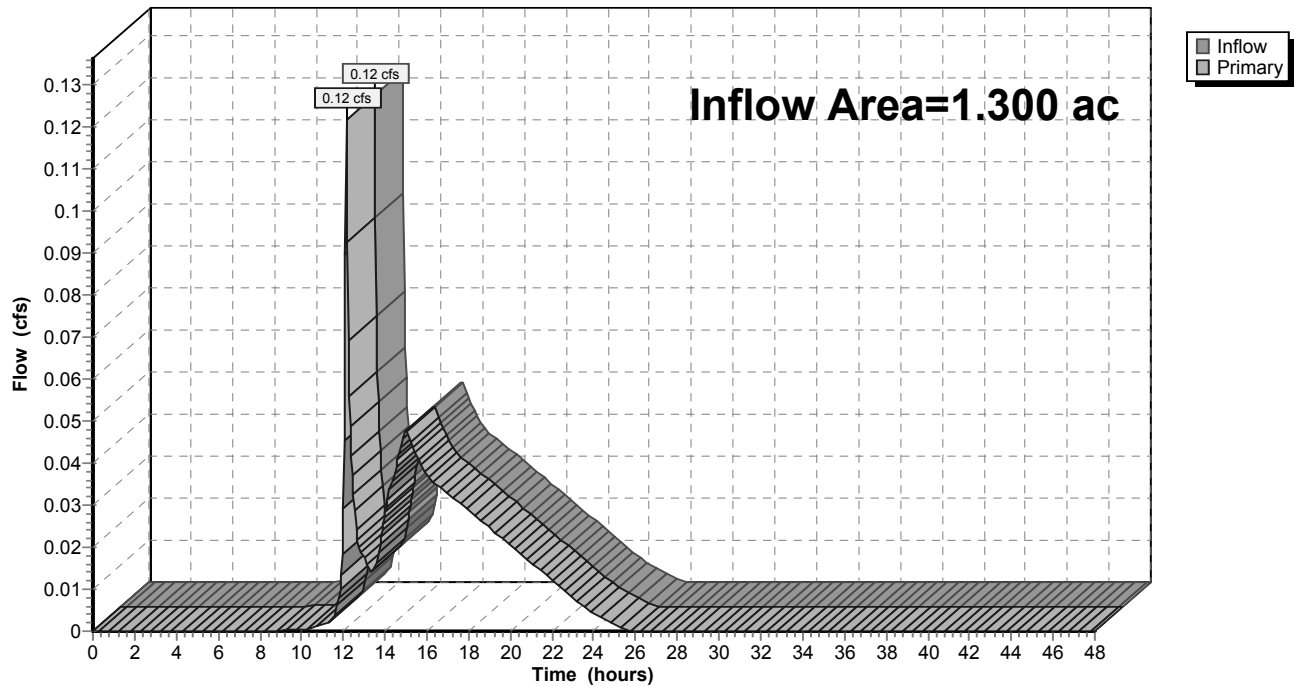
Summary for Link O: OUTLET

Inflow Area = 1.300 ac, 54.48% Impervious, Inflow Depth = 0.24" for 1 Year event
 Inflow = 0.12 cfs @ 12.15 hrs, Volume= 0.026 af
 Primary = 0.12 cfs @ 12.15 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link O: OUTLET

Hydrograph



19-9231 Mukwonago RCAC revised*MSE 24-hr 3 2 Year Rainfall=2.70"*

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DETAINED

Runoff Area=46,335 sf 62.65% Impervious Runoff Depth=1.29"
Tc=6.0 min CN=84 Runoff=2.45 cfs 0.114 af

Subcatchment2S: UNDETAINEDNE

Runoff Area=8,000 sf 8.62% Impervious Runoff Depth=0.35"
Tc=6.0 min CN=64 Runoff=0.09 cfs 0.005 af

Subcatchment3S: UNDETAINEDSOUTH

Runoff Area=1,570 sf 32.17% Impervious Runoff Depth=0.67"
Tc=6.0 min CN=73 Runoff=0.04 cfs 0.002 af

Subcatchment4S: UNDETAINEDNW

Runoff Area=715 sf 86.71% Impervious Runoff Depth=1.98"
Tc=6.0 min CN=93 Runoff=0.06 cfs 0.003 af

Pond 1P: BIO BASIN

Peak Elev=813.20' Storage=3,291 cf Inflow=2.45 cfs 0.114 af
Discarded=0.01 cfs 0.025 af Primary=0.13 cfs 0.039 af Secondary=0.00 cfs 0.000 af Outflow=0.14 cfs 0.064 af

Link O: OUTLET

Inflow=0.18 cfs 0.049 af
Primary=0.18 cfs 0.049 af

Summary for Subcatchment 1S: DETAINED

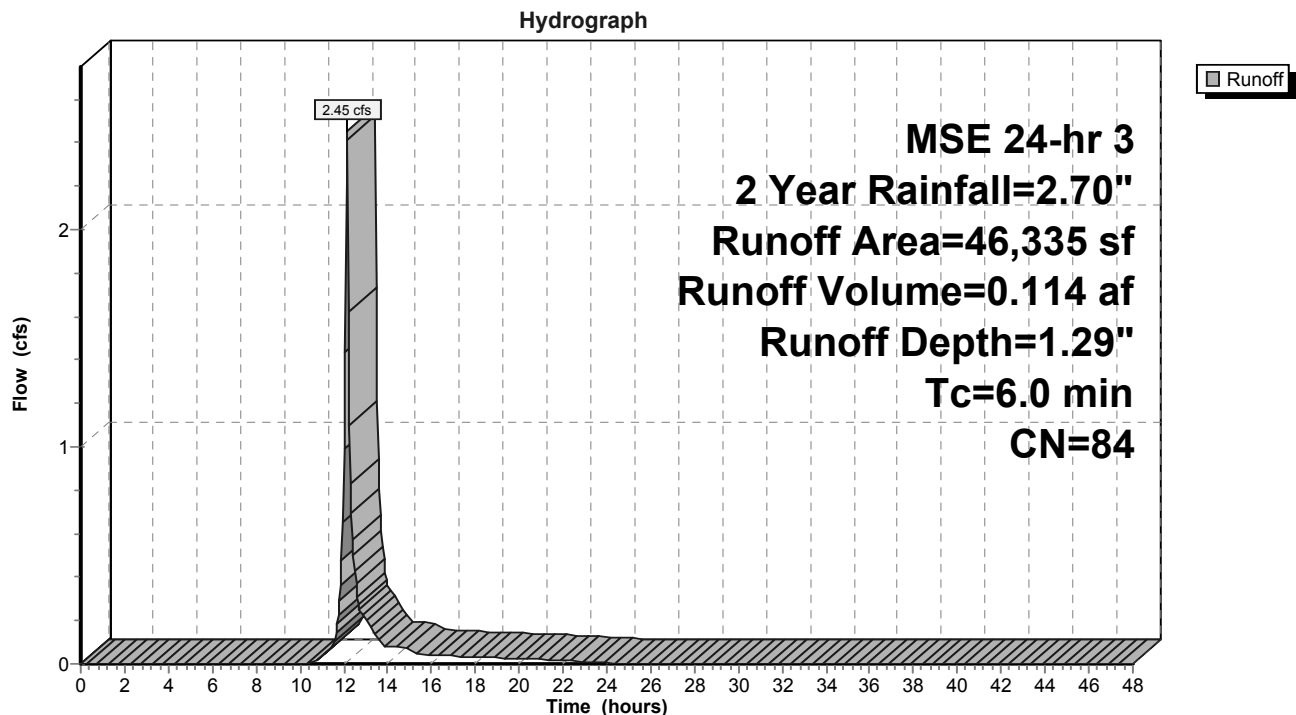
Runoff = 2.45 cfs @ 12.13 hrs, Volume= 0.114 af, Depth= 1.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

	Area (sf)	CN	Description
*	1,710	98	DRIVEWAY
	14,750	61	>75% Grass cover, Good, HSG B
	15,770	98	Unconnected roofs, HSG C
*	11,310	98	PARKING
*	240	98	SIDEWALK
	2,555	61	>75% Grass cover, Good, HSG B
	46,335	84	Weighted Average
	17,305		37.35% Pervious Area
	29,030		62.65% Impervious Area
	15,770		54.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: DETAINED



Summary for Subcatchment 2S: UNDETAINED NE

Runoff = 0.09 cfs @ 12.16 hrs, Volume= 0.005 af, Depth= 0.35"

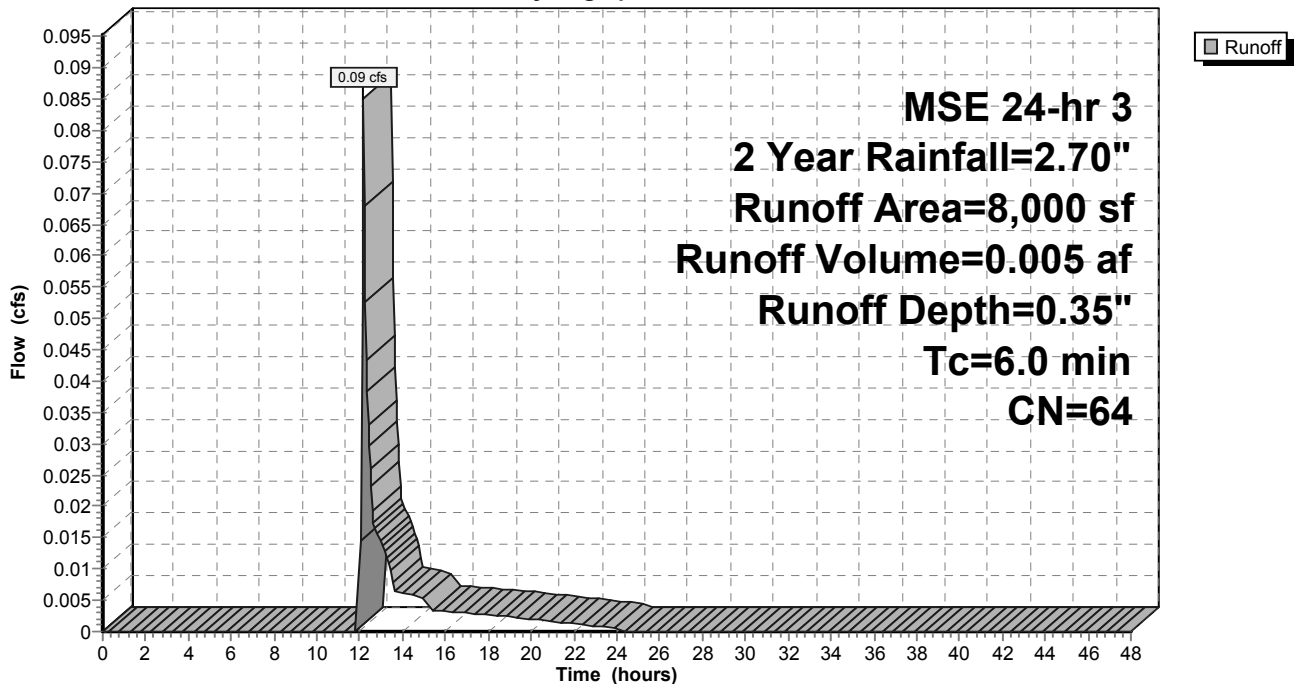
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

	Area (sf)	CN	Description
	5,975	61	>75% Grass cover, Good, HSG B
*	80	98	DRIVEWAY
*	610	98	SIDEWALK
	1,335	61	>75% Grass cover, Good, HSG B
	8,000	64	Weighted Average
	7,310		91.37% Pervious Area
	690		8.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: UNDETAINED NE

Hydrograph



Summary for Subcatchment 3S: UNDETAINED SOUTH

Runoff = 0.04 cfs @ 12.14 hrs, Volume= 0.002 af, Depth= 0.67"

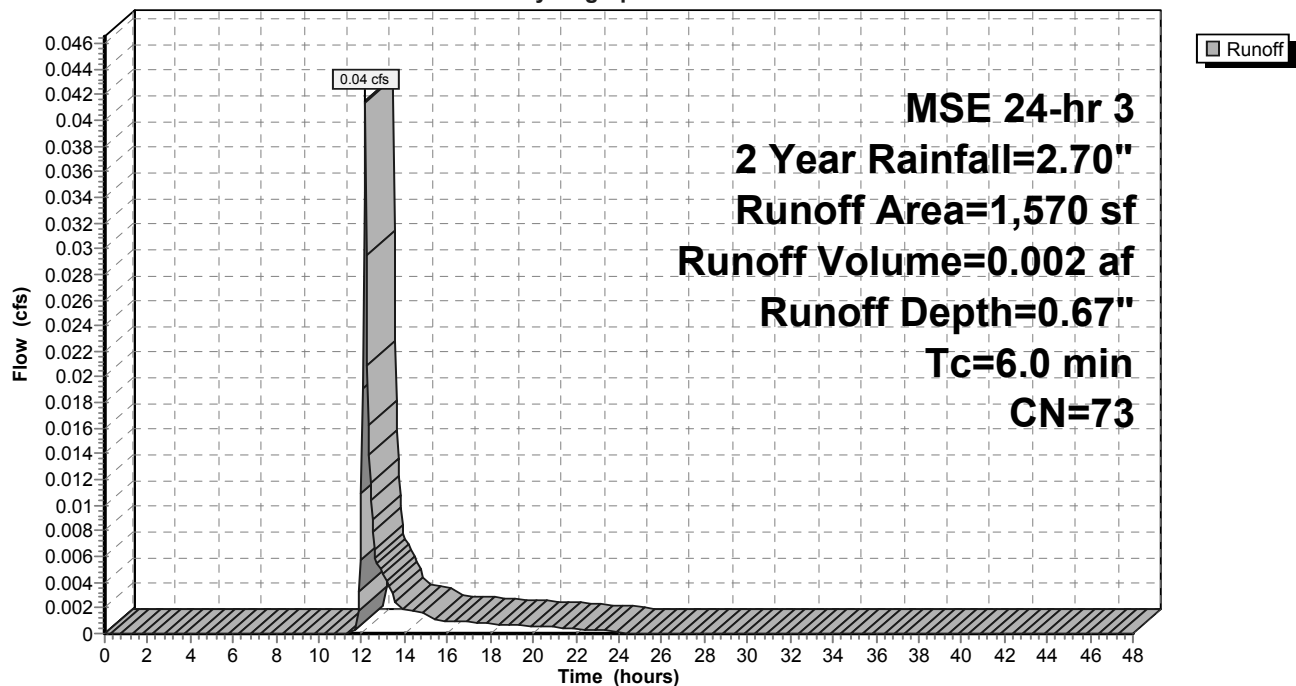
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

Area (sf)	CN	Description
1,065	61	>75% Grass cover, Good, HSG B
* 505	98	SIDEWALK
1,570	73	Weighted Average
1,065		67.83% Pervious Area
505		32.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: UNDETAINED SOUTH

Hydrograph



Summary for Subcatchment 4S: UNDETAINED NW

Runoff = 0.06 cfs @ 12.13 hrs, Volume= 0.003 af, Depth= 1.98"

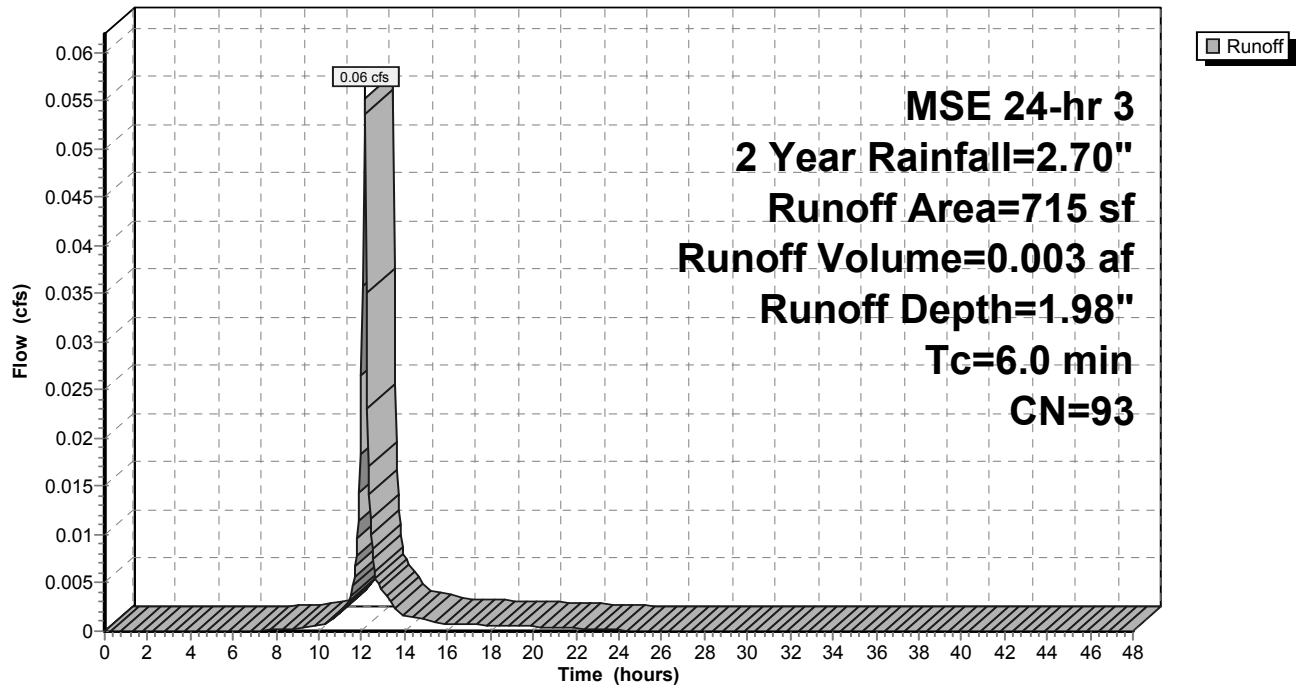
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

Area (sf)	CN	Description
95	61	>75% Grass cover, Good, HSG B
* 490	98	ROOF
* 130	98	SIDEWALK
715	93	Weighted Average
95		13.29% Pervious Area
620		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: UNDETAINED NW

Hydrograph



Summary for Pond 1P: BIO BASIN

Inflow Area = 1.064 ac, 62.65% Impervious, Inflow Depth = 1.29" for 2 Year event
 Inflow = 2.45 cfs @ 12.13 hrs, Volume= 0.114 af
 Outflow = 0.14 cfs @ 13.48 hrs, Volume= 0.064 af, Atten= 94%, Lag= 80.7 min
 Discarded = 0.01 cfs @ 13.48 hrs, Volume= 0.025 af
 Primary = 0.13 cfs @ 13.48 hrs, Volume= 0.039 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 813.20' @ 13.48 hrs Surf.Area= 2,428 sf Storage= 3,291 cf

Plug-Flow detention time= 548.9 min calculated for 0.064 af (56% of inflow)
 Center-of-Mass det. time= 464.5 min (1,274.7 - 810.2)

Volume	Invert	Avail.Storage	Storage Description			
#1	809.00'	10,888 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	2,289	225.0	0.0	0	0	2,289
810.00	2,289	225.0	33.0	755	755	2,514
811.00	2,289	225.0	33.0	755	1,511	2,739
811.50	2,289	225.0	33.0	378	1,888	2,852
812.00	2,289	225.0	27.0	309	2,197	2,964
813.00	2,289	225.0	27.0	618	2,815	3,189
814.00	3,017	248.0	100.0	2,645	5,460	4,086
815.00	3,824	272.0	100.0	3,413	8,873	5,113
815.50	4,239	281.0	100.0	2,015	10,888	5,533

Device	Routing	Invert	Outlet Devices
#1	Discarded	809.00'	0.150 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 20.00'
#2	Primary	811.50'	8.0" Round Culvert L= 41.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.50' / 810.83' S= 0.0162 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#3	Device 2	811.93'	6.0" Round Culvert L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.93' / 811.50' S= 0.0050 '/' Cc= 0.900 n= 0.100, Flow Area= 0.20 sf
#4	Device 3	811.50'	3.600 in/hr Exfiltration over Surface area above 811.50' Conductivity to Groundwater Elevation = 800.00' Excluded Surface area = 2,289 sf
#5	Device 2	813.00'	6.0" Vert. Orifice/Grate C= 0.600
#6	Device 2	814.80'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#7	Secondary	814.90'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 13.48 hrs HW=813.20' (Free Discharge)

↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.12 cfs @ 13.48 hrs HW=813.20' (Free Discharge)

↑2=Culvert (Passes 0.12 cfs of 1.55 cfs potential flow)

↑3=Culvert (Passes 0.01 cfs of 0.09 cfs potential flow)

↑4=Exfiltration (Controls 0.01 cfs)

↑5=Orifice/Grate (Orifice Controls 0.11 cfs @ 1.53 fps)

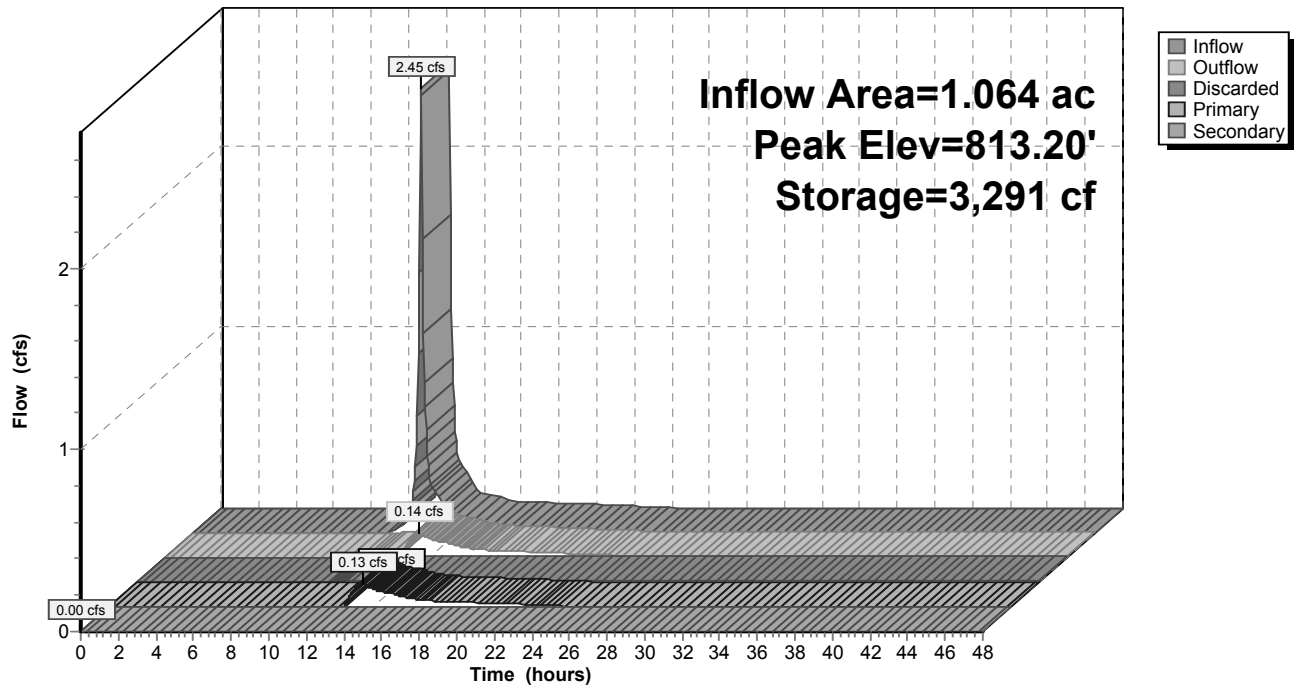
↑6=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=809.00' (Free Discharge)

↑7=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 1P: BIO BASIN

Hydrograph



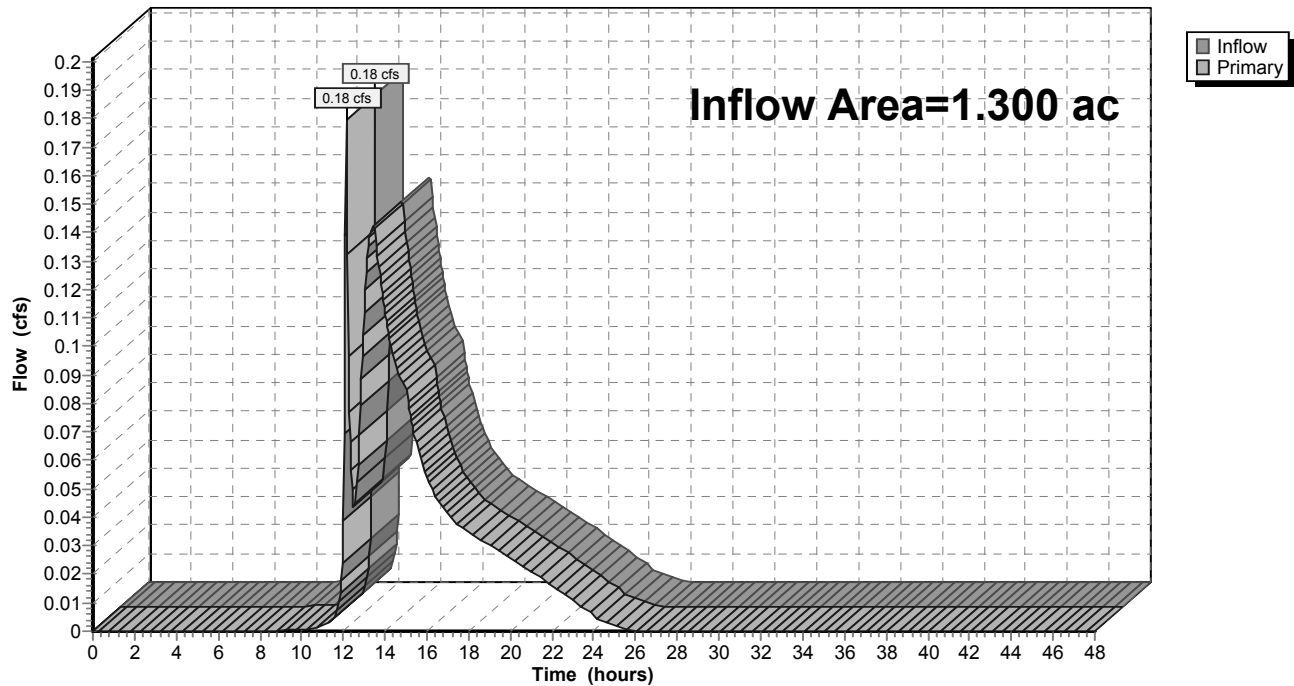
Summary for Link O: OUTLET

Inflow Area = 1.300 ac, 54.48% Impervious, Inflow Depth = 0.45" for 2 Year event
 Inflow = 0.18 cfs @ 12.15 hrs, Volume= 0.049 af
 Primary = 0.18 cfs @ 12.15 hrs, Volume= 0.049 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link O: OUTLET

Hydrograph



19-9231 Mukwonago RCAC revised*MSE 24-hr 3 10 Year Rainfall=3.81"*

Prepared by Microsoft

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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DETAINED

Runoff Area=46,335 sf 62.65% Impervious Runoff Depth=2.22"
Tc=6.0 min CN=84 Runoff=4.19 cfs 0.197 af

Subcatchment2S: UNDETAINEDNE

Runoff Area=8,000 sf 8.62% Impervious Runoff Depth=0.88"
Tc=6.0 min CN=64 Runoff=0.27 cfs 0.013 af

Subcatchment3S: UNDETAINEDSOUTH

Runoff Area=1,570 sf 32.17% Impervious Runoff Depth=1.39"
Tc=6.0 min CN=73 Runoff=0.09 cfs 0.004 af

Subcatchment4S: UNDETAINEDNW

Runoff Area=715 sf 86.71% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=93 Runoff=0.08 cfs 0.004 af

Pond 1P: BIO BASIN

Peak Elev=813.67' Storage=4,506 cf Inflow=4.19 cfs 0.197 af
Discarded=0.01 cfs 0.026 af Primary=0.65 cfs 0.121 af Secondary=0.00 cfs 0.000 af Outflow=0.66 cfs 0.146 af

Link O: OUTLET

Inflow=0.76 cfs 0.142 af
Primary=0.76 cfs 0.142 af

19-9231 Mukwonago RCAC revised

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MSE 24-hr 3 10 Year Rainfall=3.81"

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Summary for Subcatchment 1S: DETAINED

Runoff = 4.19 cfs @ 12.13 hrs, Volume= 0.197 af, Depth= 2.22"

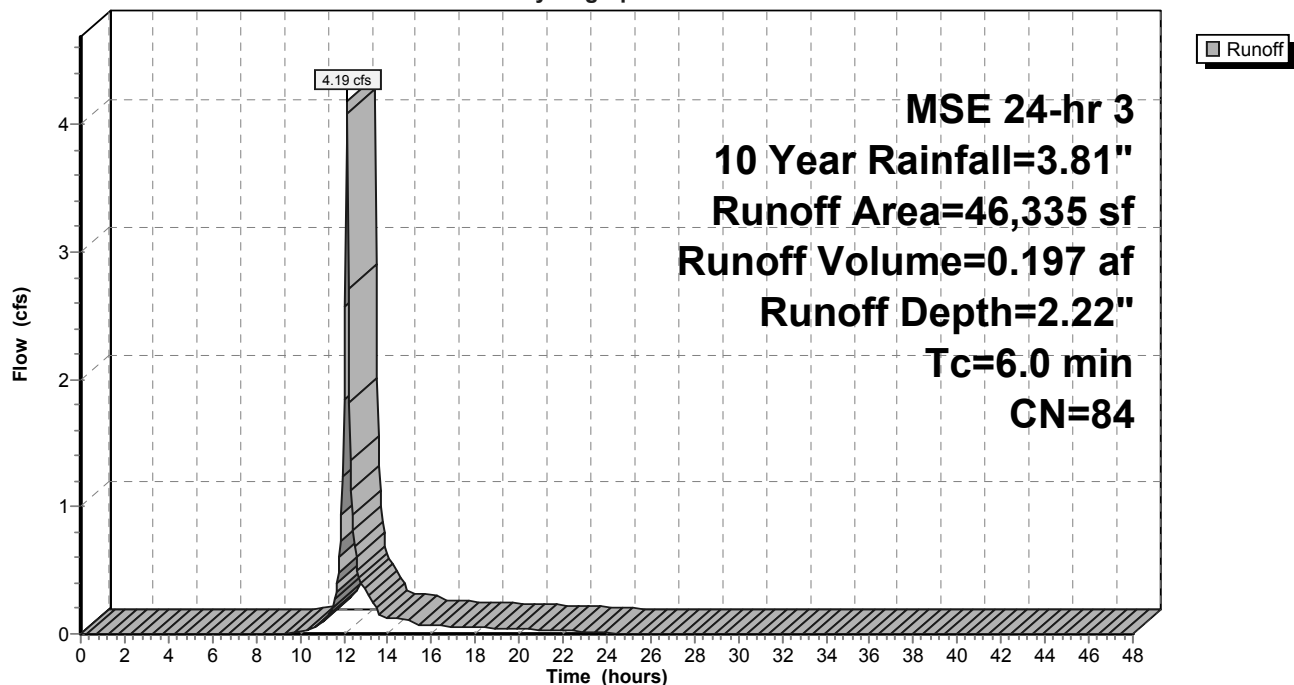
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

	Area (sf)	CN	Description
*	1,710	98	DRIVEWAY
	14,750	61	>75% Grass cover, Good, HSG B
	15,770	98	Unconnected roofs, HSG C
*	11,310	98	PARKING
*	240	98	SIDEWALK
	2,555	61	>75% Grass cover, Good, HSG B
	46,335	84	Weighted Average
	17,305		37.35% Pervious Area
	29,030		62.65% Impervious Area
	15,770		54.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: DETAINED

Hydrograph



Summary for Subcatchment 2S: UNDETAINED NE

Runoff = 0.27 cfs @ 12.14 hrs, Volume= 0.013 af, Depth= 0.88"

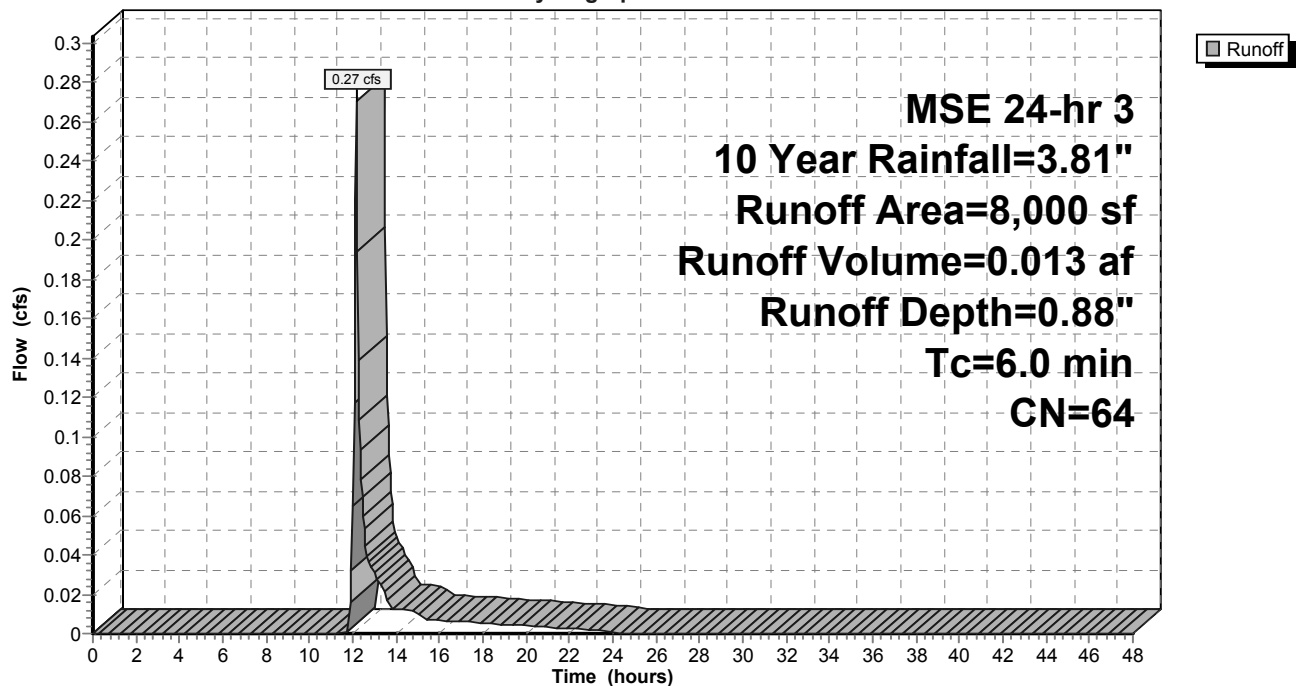
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

Area (sf)	CN	Description
5,975	61	>75% Grass cover, Good, HSG B
* 80	98	DRIVEWAY
* 610	98	SIDEWALK
1,335	61	>75% Grass cover, Good, HSG B
8,000	64	Weighted Average
7,310		91.37% Pervious Area
690		8.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: UNDETAINED NE

Hydrograph



Summary for Subcatchment 3S: UNDETAINED SOUTH

Runoff = 0.09 cfs @ 12.14 hrs, Volume= 0.004 af, Depth= 1.39"

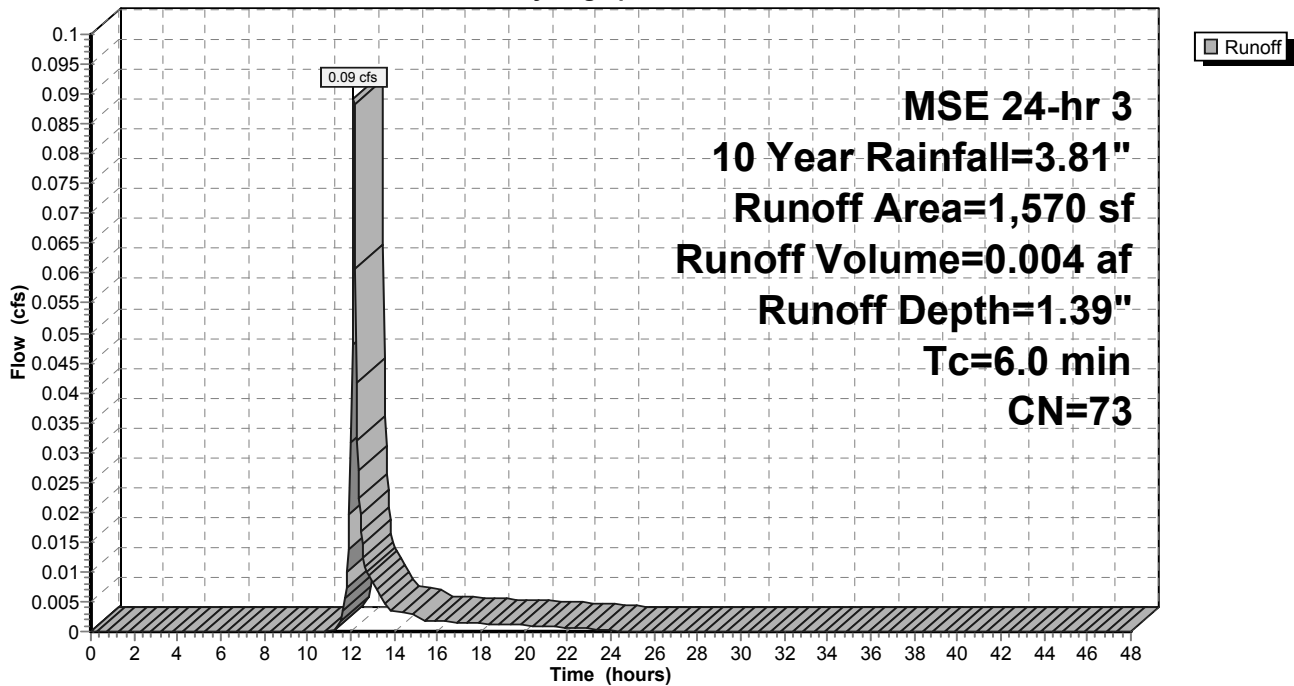
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

Area (sf)	CN	Description
1,065	61	>75% Grass cover, Good, HSG B
* 505	98	SIDEWALK
1,570	73	Weighted Average
1,065		67.83% Pervious Area
505		32.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: UNDETAINED SOUTH

Hydrograph



Summary for Subcatchment 4S: UNDETAINED NW

Runoff = 0.08 cfs @ 12.13 hrs, Volume= 0.004 af, Depth= 3.04"

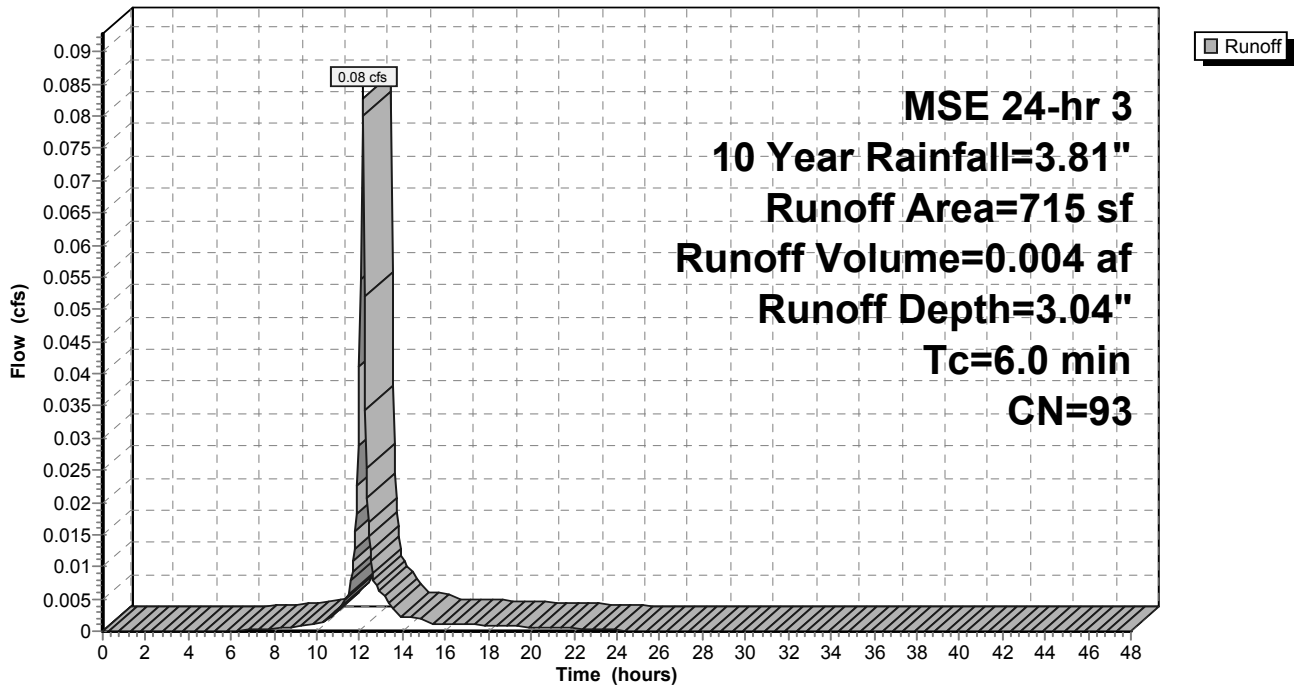
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

Area (sf)	CN	Description
95	61	>75% Grass cover, Good, HSG B
* 490	98	ROOF
* 130	98	SIDEWALK
715	93	Weighted Average
95		13.29% Pervious Area
620		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: UNDETAINED NW

Hydrograph



Summary for Pond 1P: BIO BASIN

Inflow Area = 1.064 ac, 62.65% Impervious, Inflow Depth = 2.22" for 10 Year event
 Inflow = 4.19 cfs @ 12.13 hrs, Volume= 0.197 af
 Outflow = 0.66 cfs @ 12.52 hrs, Volume= 0.146 af, Atten= 84%, Lag= 23.0 min
 Discarded = 0.01 cfs @ 12.52 hrs, Volume= 0.026 af
 Primary = 0.65 cfs @ 12.52 hrs, Volume= 0.121 af
 Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 813.67' @ 12.52 hrs Surf.Area= 2,766 sf Storage= 4,506 cf

Plug-Flow detention time= 297.2 min calculated for 0.146 af (74% of inflow)
 Center-of-Mass det. time= 227.3 min (1,026.4 - 799.1)

Volume	Invert	Avail.Storage	Storage Description			
#1	809.00'	10,888 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	2,289	225.0	0.0	0	0	2,289
810.00	2,289	225.0	33.0	755	755	2,514
811.00	2,289	225.0	33.0	755	1,511	2,739
811.50	2,289	225.0	33.0	378	1,888	2,852
812.00	2,289	225.0	27.0	309	2,197	2,964
813.00	2,289	225.0	27.0	618	2,815	3,189
814.00	3,017	248.0	100.0	2,645	5,460	4,086
815.00	3,824	272.0	100.0	3,413	8,873	5,113
815.50	4,239	281.0	100.0	2,015	10,888	5,533

Device	Routing	Invert	Outlet Devices
#1	Discarded	809.00'	0.150 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 20.00'
#2	Primary	811.50'	8.0" Round Culvert L= 41.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.50' / 810.83' S= 0.0162 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#3	Device 2	811.93'	6.0" Round Culvert L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.93' / 811.50' S= 0.0050 '/' Cc= 0.900 n= 0.100, Flow Area= 0.20 sf
#4	Device 3	811.50'	3.600 in/hr Exfiltration over Surface area above 811.50' Conductivity to Groundwater Elevation = 800.00' Excluded Surface area = 2,289 sf
#5	Device 2	813.00'	6.0" Vert. Orifice/Grate C= 0.600
#6	Device 2	814.80'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#7	Secondary	814.90'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 12.52 hrs HW=813.67' (Free Discharge)

↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=0.65 cfs @ 12.52 hrs HW=813.67' (Free Discharge)

↑2=Culvert (Passes 0.65 cfs of 1.80 cfs potential flow)

↑3=Culvert (Passes 0.04 cfs of 0.10 cfs potential flow)

↑4=Exfiltration (Controls 0.04 cfs)

↑5=Orifice/Grate (Orifice Controls 0.61 cfs @ 3.12 fps)

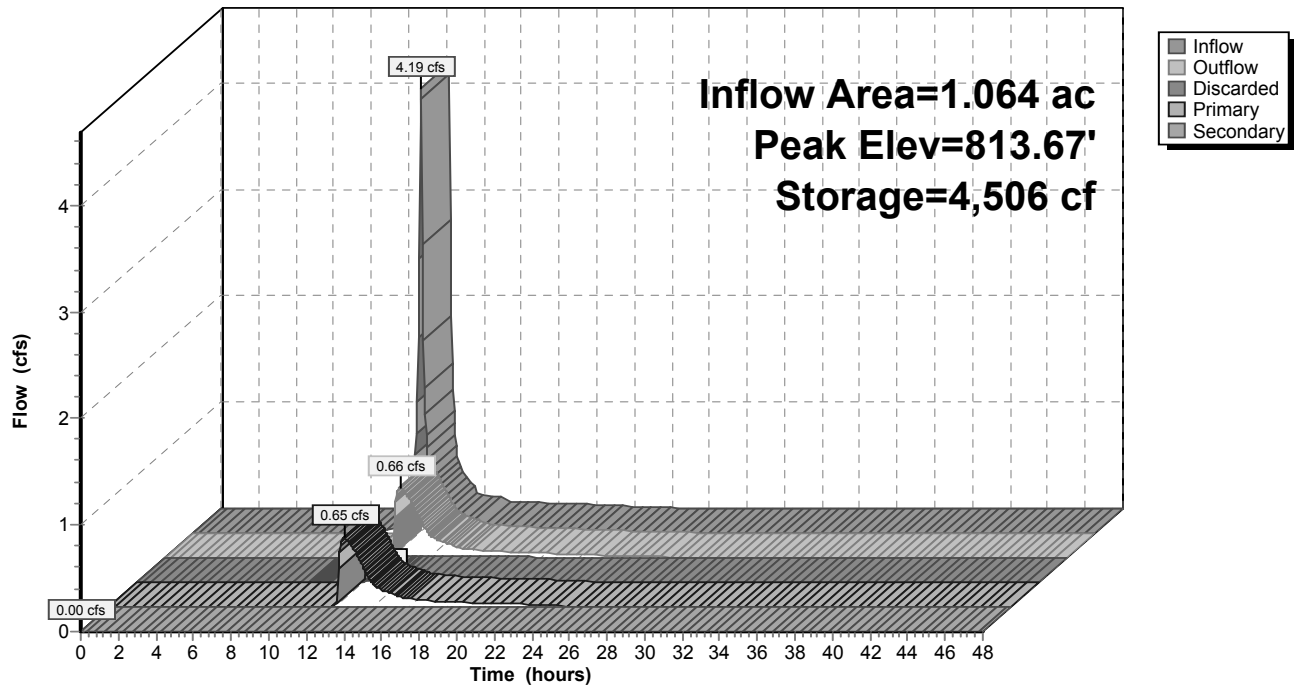
↑6=Orifice/Grate (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=809.00' (Free Discharge)

↑7=Broad-Crested Rectangular Weir(Controls 0.00 cfs)

Pond 1P: BIO BASIN

Hydrograph



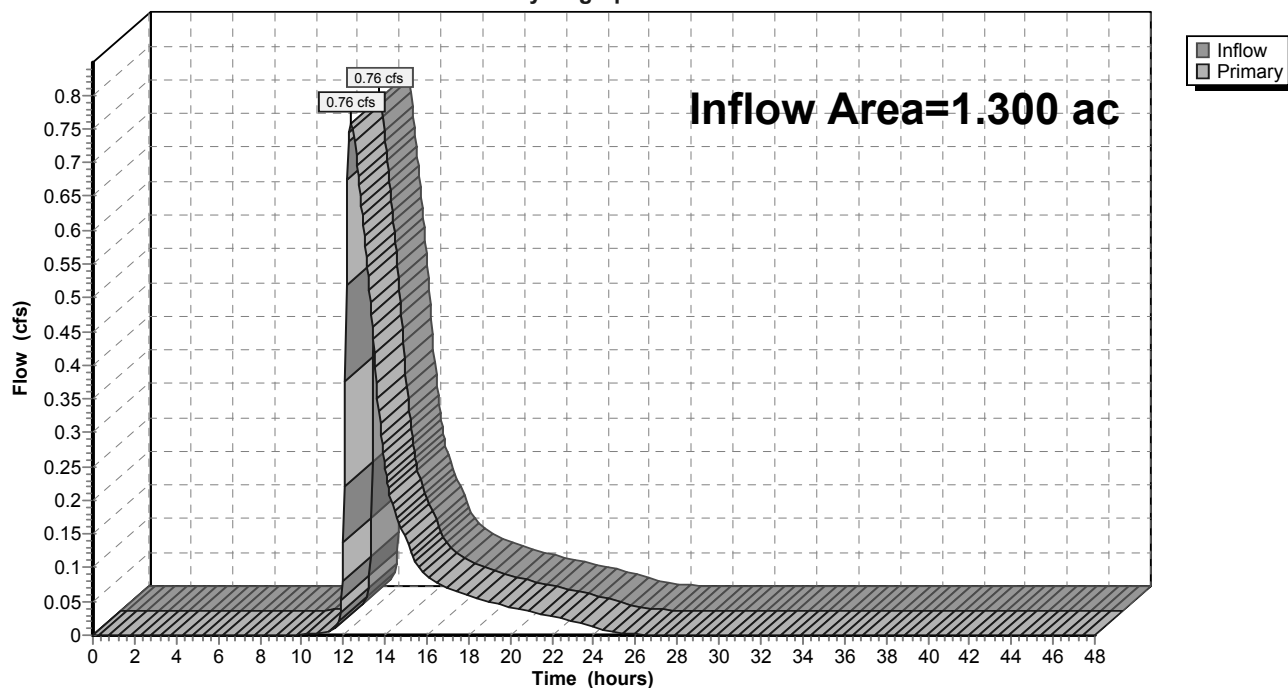
Summary for Link O: OUTLET

Inflow Area = 1.300 ac, 54.48% Impervious, Inflow Depth = 1.31" for 10 Year event
Inflow = 0.76 cfs @ 12.37 hrs, Volume= 0.142 af
Primary = 0.76 cfs @ 12.37 hrs, Volume= 0.142 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link O: OUTLET

Hydrograph



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Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1S: DETAINED

Runoff Area=46,335 sf 62.65% Impervious Runoff Depth=4.38"
Tc=6.0 min CN=84 Runoff=8.01 cfs 0.389 af

Subcatchment2S: UNDETAINEDNE

Runoff Area=8,000 sf 8.62% Impervious Runoff Depth=2.41"
Tc=6.0 min CN=64 Runoff=0.79 cfs 0.037 af

Subcatchment3S: UNDETAINEDSOUTH

Runoff Area=1,570 sf 32.17% Impervious Runoff Depth=3.23"
Tc=6.0 min CN=73 Runoff=0.21 cfs 0.010 af

Subcatchment4S: UNDETAINEDNW

Runoff Area=715 sf 86.71% Impervious Runoff Depth=5.37"
Tc=6.0 min CN=93 Runoff=0.14 cfs 0.007 af

Pond 1P: BIO BASIN

Peak Elev=814.90' Storage=8,498 cf Inflow=8.01 cfs 0.389 af
Discarded=0.01 cfs 0.028 af Primary=2.00 cfs 0.310 af Secondary=0.00 cfs 0.000 af Outflow=2.02 cfs 0.338 af

Link O: OUTLET

Inflow=2.33 cfs 0.364 af
Primary=2.33 cfs 0.364 af

Summary for Subcatchment 1S: DETAINED

Runoff = 8.01 cfs @ 12.13 hrs, Volume= 0.389 af, Depth= 4.38"

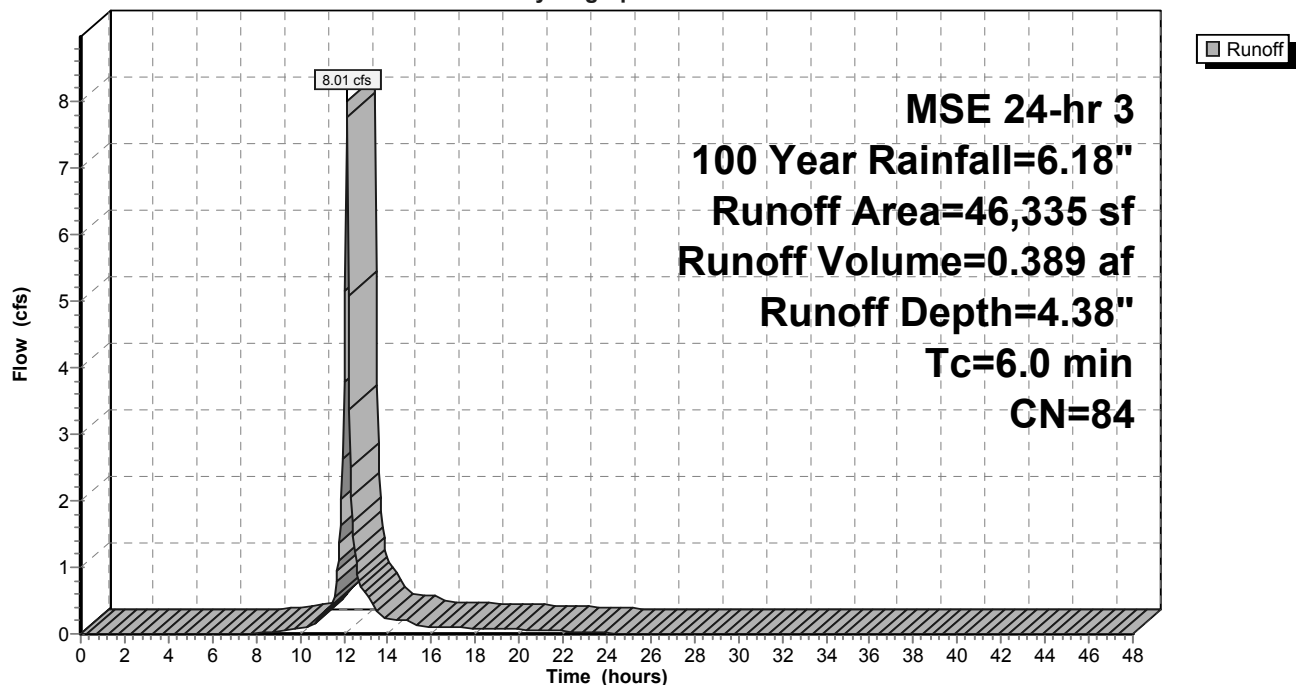
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

	Area (sf)	CN	Description
*	1,710	98	DRIVEWAY
	14,750	61	>75% Grass cover, Good, HSG B
	15,770	98	Unconnected roofs, HSG C
*	11,310	98	PARKING
*	240	98	SIDEWALK
	2,555	61	>75% Grass cover, Good, HSG B
	46,335	84	Weighted Average
	17,305		37.35% Pervious Area
	29,030		62.65% Impervious Area
	15,770		54.32% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 1S: DETAINED

Hydrograph



Summary for Subcatchment 2S: UNDETAINED NE

Runoff = 0.79 cfs @ 12.14 hrs, Volume= 0.037 af, Depth= 2.41"

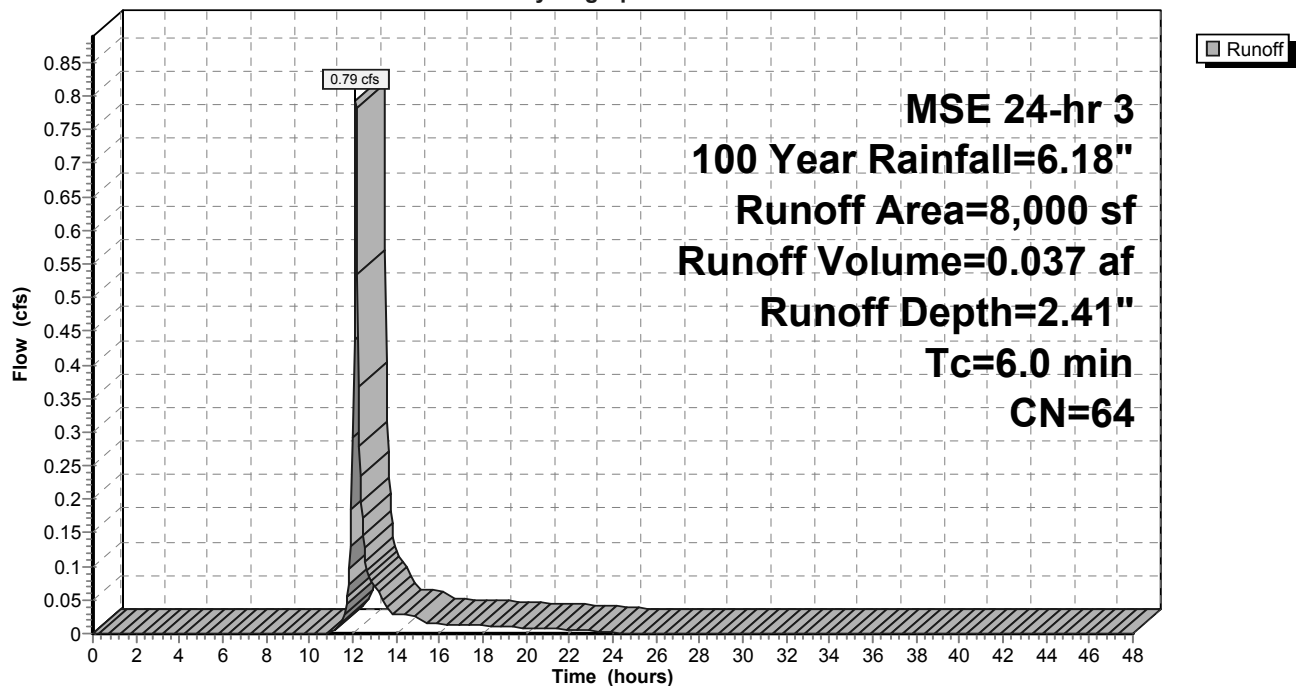
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

Area (sf)	CN	Description
5,975	61	>75% Grass cover, Good, HSG B
* 80	98	DRIVEWAY
* 610	98	SIDEWALK
1,335	61	>75% Grass cover, Good, HSG B
8,000	64	Weighted Average
7,310		91.37% Pervious Area
690		8.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 2S: UNDETAINED NE

Hydrograph



Summary for Subcatchment 3S: UNDETAINED SOUTH

Runoff = 0.21 cfs @ 12.13 hrs, Volume= 0.010 af, Depth= 3.23"

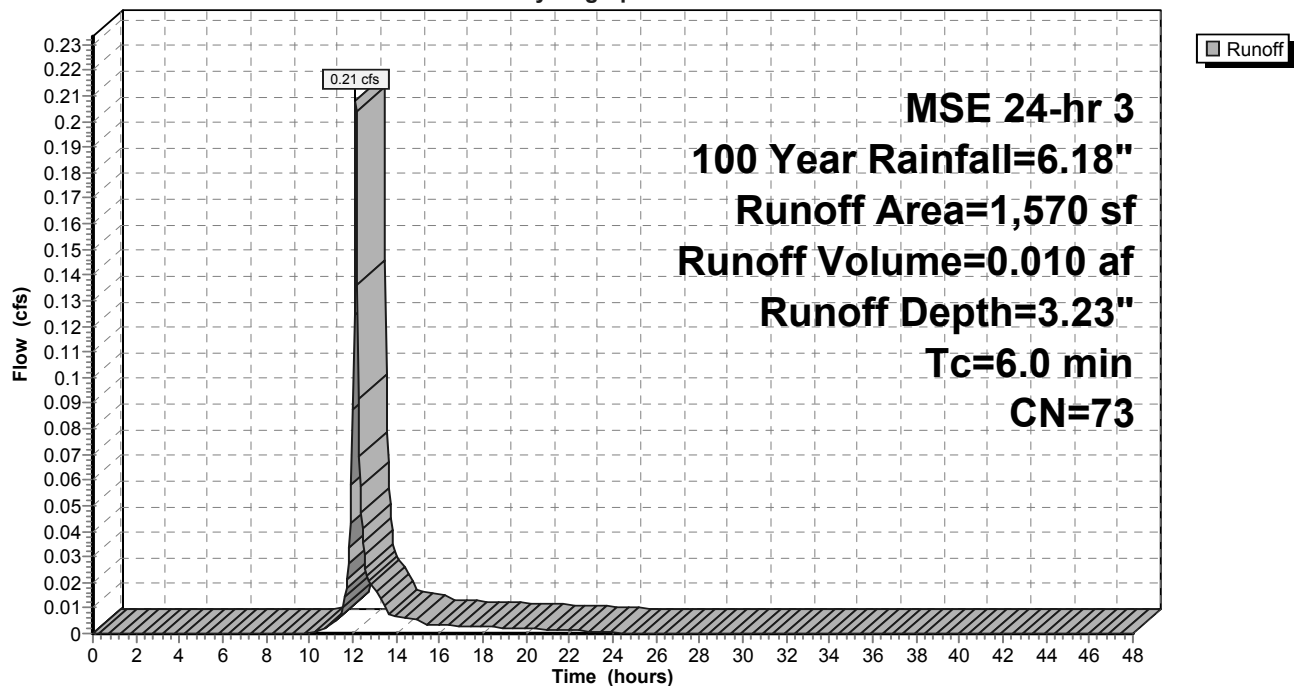
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

Area (sf)	CN	Description
1,065	61	>75% Grass cover, Good, HSG B
* 505	98	SIDEWALK
1,570	73	Weighted Average
1,065		67.83% Pervious Area
505		32.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 3S: UNDETAINED SOUTH

Hydrograph



Summary for Subcatchment 4S: UNDETAINED NW

Runoff = 0.14 cfs @ 12.13 hrs, Volume= 0.007 af, Depth= 5.37"

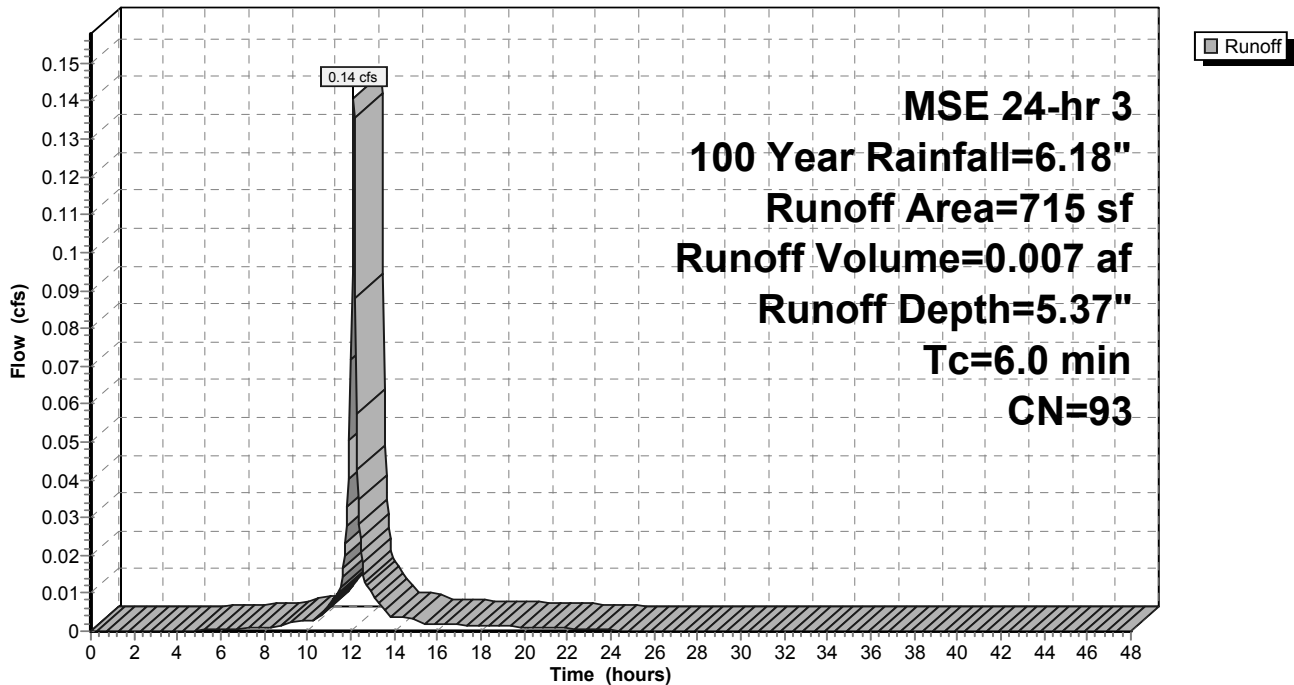
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

Area (sf)	CN	Description
95	61	>75% Grass cover, Good, HSG B
* 490	98	ROOF
* 130	98	SIDEWALK
715	93	Weighted Average
95		13.29% Pervious Area
620		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment 4S: UNDETAINED NW

Hydrograph



Summary for Pond 1P: BIO BASIN

Inflow Area = 1.064 ac, 62.65% Impervious, Inflow Depth = 4.38" for 100 Year event
 Inflow = 8.01 cfs @ 12.13 hrs, Volume= 0.389 af
 Outflow = 2.02 cfs @ 12.36 hrs, Volume= 0.338 af, Atten= 75%, Lag= 14.0 min
 Discarded = 0.01 cfs @ 12.36 hrs, Volume= 0.028 af
 Primary = 2.00 cfs @ 12.36 hrs, Volume= 0.310 af
 Secondary = 0.00 cfs @ 12.35 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 814.90' @ 12.36 hrs Surf.Area= 3,740 sf Storage= 8,498 cf

Plug-Flow detention time= 182.9 min calculated for 0.337 af (87% of inflow)
 Center-of-Mass det. time= 135.3 min (920.8 - 785.5)

Volume	Invert	Avail.Storage	Storage Description			
#1	809.00'	10,888 cf	Custom Stage Data (Irregular) Listed below (Recalc)			
Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
809.00	2,289	225.0	0.0	0	0	2,289
810.00	2,289	225.0	33.0	755	755	2,514
811.00	2,289	225.0	33.0	755	1,511	2,739
811.50	2,289	225.0	33.0	378	1,888	2,852
812.00	2,289	225.0	27.0	309	2,197	2,964
813.00	2,289	225.0	27.0	618	2,815	3,189
814.00	3,017	248.0	100.0	2,645	5,460	4,086
815.00	3,824	272.0	100.0	3,413	8,873	5,113
815.50	4,239	281.0	100.0	2,015	10,888	5,533

Device	Routing	Invert	Outlet Devices
#1	Discarded	809.00'	0.150 in/hr Exfiltration over Horizontal area Conductivity to Groundwater Elevation = 20.00'
#2	Primary	811.50'	8.0" Round Culvert L= 41.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.50' / 810.83' S= 0.0162 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#3	Device 2	811.93'	6.0" Round Culvert L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.93' / 811.50' S= 0.0050 '/' Cc= 0.900 n= 0.100, Flow Area= 0.20 sf
#4	Device 3	811.50'	3.600 in/hr Exfiltration over Surface area above 811.50' Conductivity to Groundwater Elevation = 800.00' Excluded Surface area = 2,289 sf
#5	Device 2	813.00'	6.0" Vert. Orifice/Grate C= 0.600
#6	Device 2	814.80'	24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#7	Secondary	814.90'	20.0' long x 10.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 12.36 hrs HW=814.90' (Free Discharge)

↑1=Exfiltration (Controls 0.01 cfs)

Primary OutFlow Max=1.98 cfs @ 12.36 hrs HW=814.90' (Free Discharge)

↑2=Culvert (Passes 1.98 cfs of 2.32 cfs potential flow)

↑3=Culvert (Passes 0.13 cfs of 0.13 cfs potential flow)

↑4=Exfiltration (Controls 0.13 cfs)

5=Orifice/Grate (Orifice Controls 1.21 cfs @ 6.18 fps)

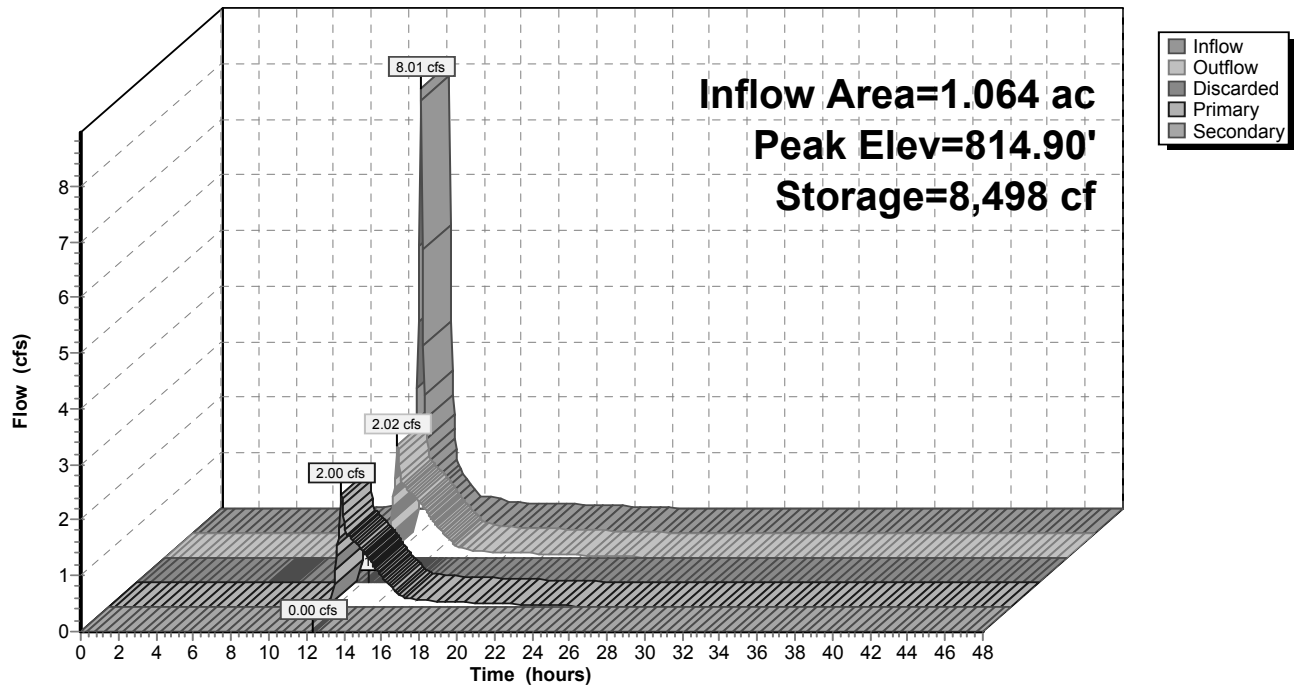
6=Orifice/Grate (Weir Controls 0.64 cfs @ 1.03 fps)

Secondary OutFlow Max=0.00 cfs @ 12.35 hrs HW=814.90' (Free Discharge)

↑7=Broad-Crested Rectangular Weir(Weir Controls 0.00 cfs @ 0.04 fps)

Pond 1P: BIO BASIN

Hydrograph



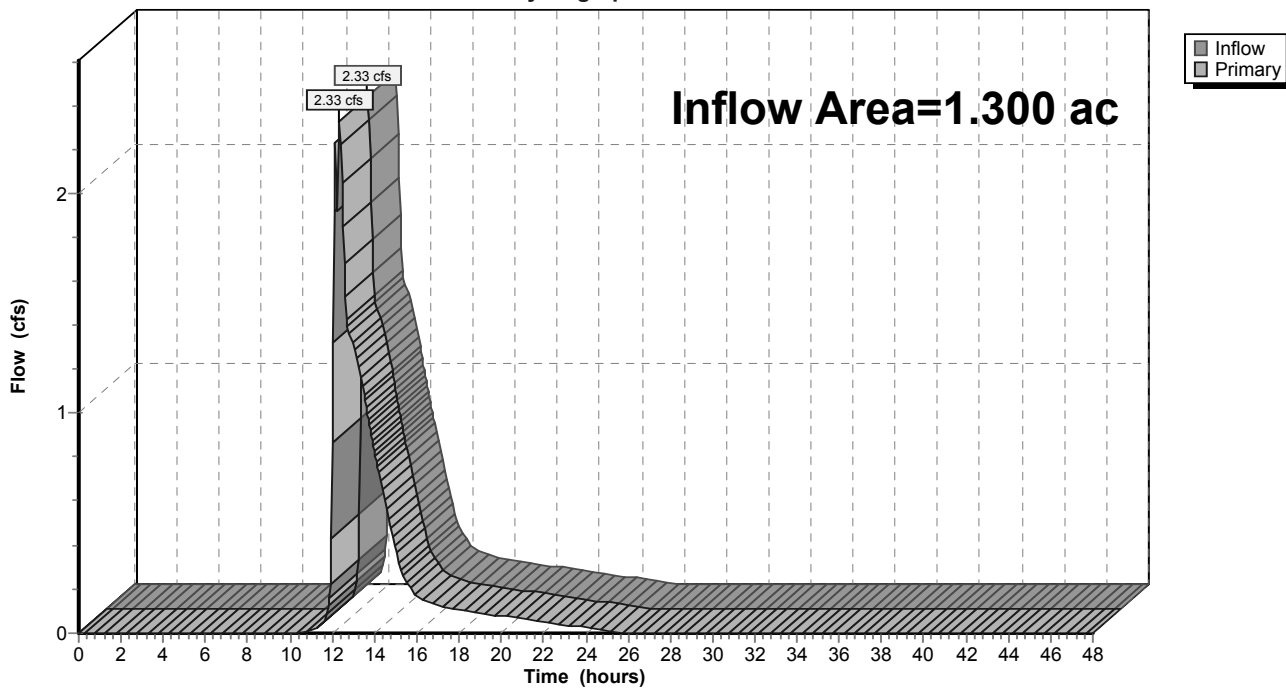
Summary for Link O: OUTLET

Inflow Area = 1.300 ac, 54.48% Impervious, Inflow Depth = 3.36" for 100 Year event
 Inflow = 2.33 cfs @ 12.35 hrs, Volume= 0.364 af
 Primary = 2.33 cfs @ 12.35 hrs, Volume= 0.364 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link O: OUTLET

Hydrograph



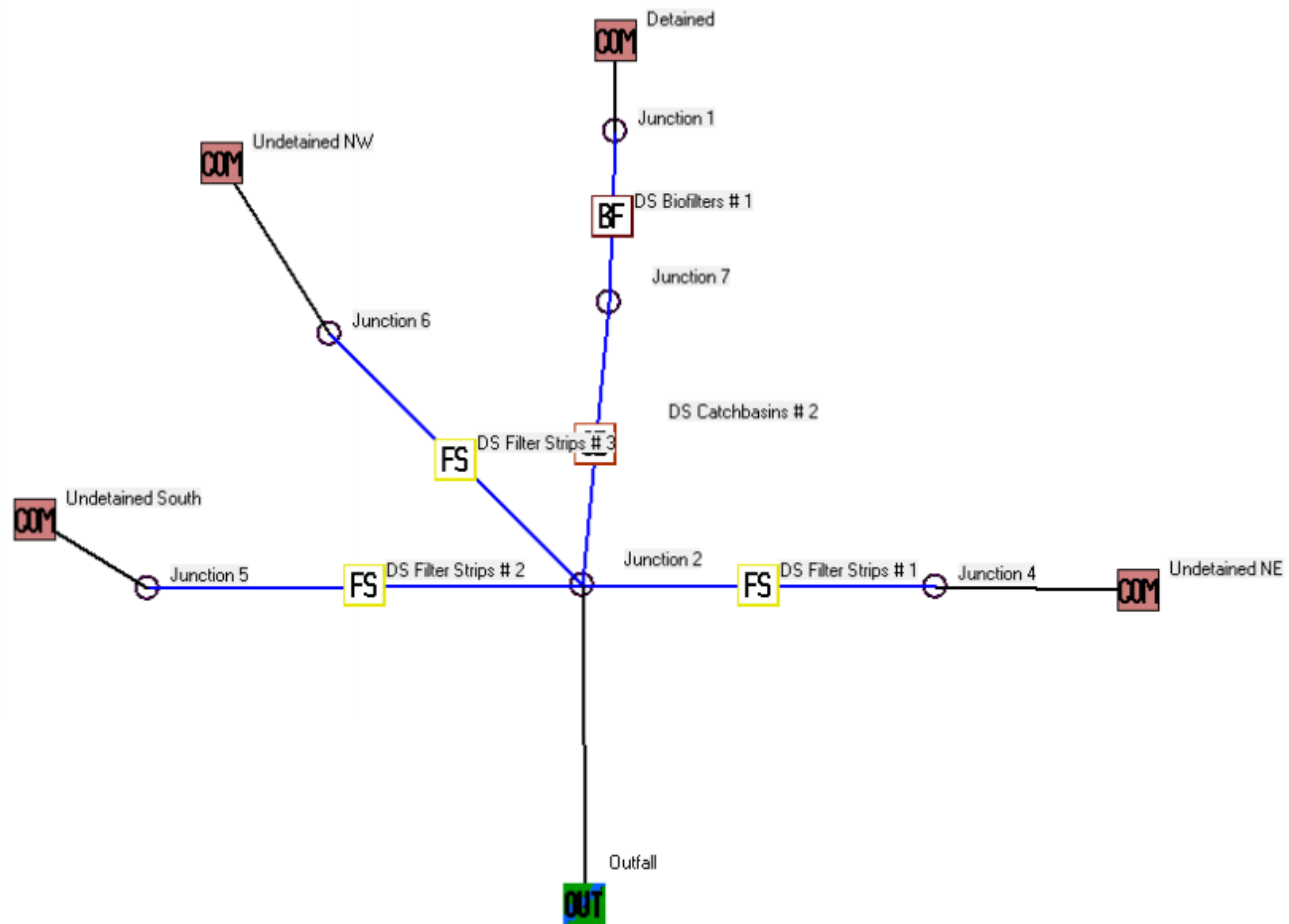
APPENDIX 5

Water Quality Calculations

- Post-Development Input Summary
- Post-Development Output Summary



SLAMM MODELING



INPUT SUMMARY

Data file name: R:\2019\19-9231 Mukwonago RCAC (Mukwonago, WI)\04 Civil\SWMP\Modeling\winslamm\19-9231Castle Senior Living.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\winSLAMM Files\Rain Files\wisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\winSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\winSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\winSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\winSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\winSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\winSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\winSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\winSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\winSLAMM Files\WI_GEO03.ppdxd
Source Area PSD and Peak to Average Flow Ratio File: C:\winSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 03/28/69 Study period ending date: 12/06/69
Date: 11-06-2019 Time: 09:30:49
Site information:

LU# 1 - Commercial: Detained Total area (ac): 1.064
1 - Roofs 1: 0.362 ac. Pitched Connected Source Area PSD File: C:\winSLAMM Files\NURP.cpz
13 - Paved Parking 1: 0.260 ac. Connected Source Area PSD File: C:\winSLAMM Files\NURP.cpz
25 - Driveways 1: 0.039 ac. Connected Source Area PSD File: C:\winSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.006 ac. Connected Source Area PSD File: C:\winSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.397 ac. Normal Silty Source Area PSD File: C:\winSLAMM Files\NURP.cpz

LU# 2 - Commercial: Undetained South Total area (ac): 0.036
25 - Driveways 1: 0.012 ac. Connected Source Area PSD File: C:\winSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.024 ac. Normal Silty Source Area PSD File: C:\winSLAMM Files\NURP.cpz

LU# 3 - Commercial: Undetained NE Total area (ac): 0.184
25 - Driveways 1: 0.002 ac. Connected Source Area PSD File: C:\winSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.014 ac. Connected Source Area PSD File: C:\winSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.031 ac. Normal Silty Source Area PSD File: C:\winSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.137 ac. Normal Silty Source Area PSD File: C:\winSLAMM Files\NURP.cpz

LU# 4 - Commercial: Undetained NW Total area (ac): 0.016
 1 - Roofs 1: 0.011 ac. Flat Disconnected Normal Silty Source Area PSD File: C:\winSLAMM
 Files\NURP.cpz
 31 - Sidewalks 1: 0.003 ac. Disconnected Normal Silty Source Area PSD File: C:\winSLAMM
 Files\NURP.cpz
 51 - Small Landscaped Areas 1: 0.002 ac. Normal Silty Source Area PSD File: C:\winSLAMM
 Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1

1. Top area (square feet) = 4239
2. Bottom area (square feet) = 2289
3. Depth (ft): 6.86
4. Biofilter width (ft) - for Cost Purposes Only: 23
5. Infiltration rate (in/hr) = 0.15
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 2.5
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 0
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0

Soil Data Soil Type Fraction in Eng. Soil

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 20
2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 5.86

Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 3
2. Stand pipe height above datum (ft): 5.7

Outlet type: Surface Discharge Pipe

1. Surface discharge pipe outlet diameter (ft): 0.5
2. Pipe invert elevation above datum (ft): 4
3. Number of surface pipe outlets: 1

Outlet type: Drain Tile/Underdrain

1. Underdrain outlet diameter (ft): 0.5

2. Invert elevation above datum (ft): 2.5
3. Number of underdrain outlets: 1

Control Practice 2: Filter Strip CP# 1 (DS) - DS Filter Strips # 1

Total drainage area (acres)= 0.184
Fraction of drainage area served by filter strips (ac) = 1.00
Total filter strip width (ft) = 150.0
Effective flow length (ft) = 15
Infiltration rate (in/hr)= 0.150
Typical longitudinal slope (ft.H/ft.V) = 0.015
Typical grass height (in) = 6.0
Swale retardance factor = C
Use stochastic analysis to determine infiltration rate: False
Infiltration rate coefficient of variation (COV) = 0.00
Particle size distribution file name: Not needed - calculated by program
Surface Clogging Load (lbs/sf) = 3.50

Control Practice 3: Catchbasin Cleaning CP# 1 (DS) - DS Catchbasins # 2

1. Fraction of area served by catchbasins = 1.00
2. Number of catchbasins = 1
3. Average sump depth below catchbasin outlet invert (feet) = 2
4. Depth of sediment in catchbasin sump at beginning of study period (ft) = 0
5. Typical outlet pipe diameter (ft) = 0.67
6. Typical outlet pipe Mannings n = 0.01
7. Typical outlet pipe slope (ft/ft) = 0.016
8. Typical catchbasin sump surface area (square feet) = 7.1
9. Total catchbasin depth (feet) = 5
10. Inflow hydrograph peak to average flow ratio = 3.8
11. Leakage rate through sump bottom (in/hr) = 0
12. Catchbasin Critical Particle Size File Name:
13. Catchbasin cleaning frequency: Once every two years

Data file name: R:\2019\19-9231 Mukwonago RCAC (Mukwonago, WI)\04 Civil\SWMP\Modeling\Winslamm\19-9231Castle Senior Living.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 03/28/69 Study period ending date: 12/06/69
Model Run Start Date: 03/28/69 Model Run End Date: 12/06/69
Date of run: 12-04-2019 Time of run: 15:44:12
Total Area Modeled (acres): 1.300
Years in Model Run: 0.67

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	63825	-	81.52	324.8	-
Outfall Total with Controls:	27187	57.40%	47.94	81.37	74.95%
Annualized Total After Outfall Controls:	40837			122.2	

Pollutant	Conc. No Controls	Conc. With Controls	Conc. Units	Pollutant Yield No Controls	Pollutant Yield With Controls	Pol. Yield Units	Percent Reduction
Particulate Solids	81.52	47.94	mg/L	324.8	81.37	lbs	74.95 %
Particulate Phosphorus	0.2372	0.1398	mg/L	0.9451	0.2373	lbs	74.89 %

APPENDIX 6

Design Details

- Proposed Erosion Control Plan
- Proposed Grading & Utility Plan
- Proposed Bioretention Basin Detail
- Storm Sewer Sizing Calculations
- Anti-Seep Collar Design





CREATE THE VISION TELL THE STORY

MADISON MILWAUKEE WAUSAU
APPLETON KENOSHA CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:



CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE
ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

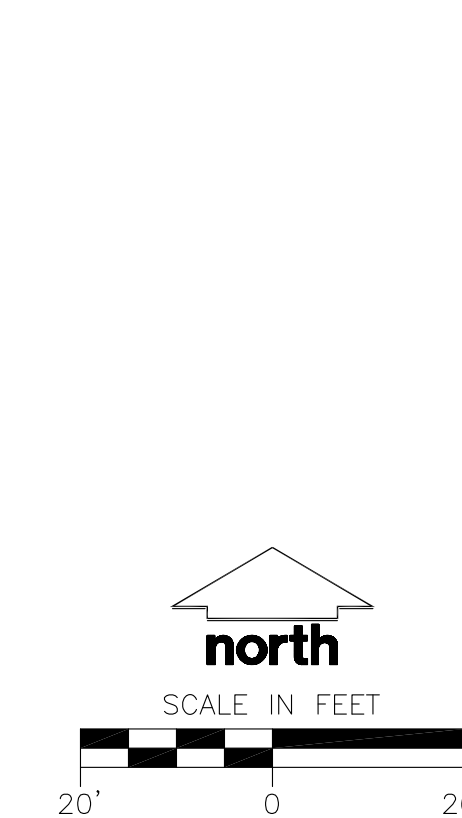
EROSION CONTROL NOTES

- ALL CONSTRUCTION SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN WISCONSIN'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER GENERAL PERMIT FOR CONSTRUCTION SITE LAND DISTURBANCE ACTIVITIES. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR) TECHNICAL STANDARDS AND VILLAGE OF MUKWONAGO ORDINANCES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS ASSOCIATED WITH THE PROJECT TO OBTAIN A COPY OF, AND UNDERSTAND, THESE STANDARDS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
- THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL CONTROL MEASURES AS DIRECTED BY JSD PROFESSIONAL SERVICES, INC. (JSD) OR AUTHORITY HAVING JURISDICTION SHALL BE INSTALLED WITHIN 24 HOURS OF REQUEST.
- MODIFICATIONS TO THE APPROVED EROSION CONTROL PLAN IN ORDER TO MEET UNFORESEEN FIELD CONDITIONS ARE ALLOWED IF THE MODIFICATIONS CONFORM TO WDNR TECHNICAL STANDARDS. CONTRACTOR IS RESPONSIBLE TO NOTIFY JSD AND AUTHORITY HAVING JURISDICTION OF ANY CHANGES TO THE EROSION CONTROL AND STORMWATER MANAGEMENT PLANS. ALL MODIFICATIONS MUST BE APPROVED BY JSD/AUTHORITY HAVING JURISDICTION PRIOR TO DEVIATION FROM THE APPROVED PLAN.
- INSTALL PERIMETER EROSION CONTROL MEASURES (SUCH AS CONSTRUCTION ENTRANCE(S), SILT FENCE AND EXISTING INLET PROTECTION) PRIOR TO ANY SITE WORK, INCLUDING GRADING OR DISTURBANCE OF EXISTING SURFACE COVER, AS SHOWN ON PLAN IN ORDER TO PROTECT ADJACENT PROPERTIES/STORM SEWER SYSTEMS FROM SEDIMENT TRANSPORT.
- CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED AT THE LOCATION OF VEHICLE INGRESS/EGRESS POINT(S) AS SHOWN ON THE PLAN. CONTRACTOR IS RESPONSIBLE TO COORDINATE LOCATION(S) WITH THE PROPER AUTHORITY HAVING JURISDICTION, PROVIDE NECESSARY FEES AND OBTAIN ALL REQUIRED APPROVALS OR PERMITS. ADDITIONAL CONSTRUCTION ENTRANCES OTHER THAN AS SHOWN ON THE PLANS MUST BE PRIOR APPROVED BY THE APPLICABLE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION. CONSTRUCTION ENTRANCES SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO ADJACENT PUBLIC STREETS AFTER EACH WORKING DAY OR MORE FREQUENTLY AS REQUIRED.
- PAVED SURFACES ADJACENT TO CONSTRUCTION ENTRANCES SHALL BE SWEEPED AND/OR SCRAPED TO REMOVE ACCUMULATED SOIL, DIRT AND/OR DUST AFTER THE END OF EACH WORK DAY AND AS REQUESTED BY THE AUTHORITY HAVING JURISDICTION.
- THE ADJACENT INLETS THAT WILL COLLECT RUNOFF FROM DISTURBED AREAS SHALL BE PROTECTED TO PREVENT SEDIMENT DEPOSITION. INLET PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL INSTALLED STORM SEWER, ALL INLETS, STRUCTURES, PIPES, AND SWALES SHALL BE KEPT CLEAN AND FREE OF SEDIMENTATION AND DEBRIS.
- AT A MINIMUM, SEDIMENT TRAPS AND NECESSARY TEMPORARY DRAINAGE PROVISIONS SHALL BE CONSTRUCTED AND OPERATING DURING SIGNIFICANT MASS GRADING OPERATIONS TO PREVENT OFFSITE DISCHARGE OF UNTREATED RUNOFF.
- ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR INSPECTION AND REPAIR DURING CONSTRUCTION. THE OWNER WILL BE RESPONSIBLE IF EROSION CONTROL IS REQUIRED AFTER THE CONTRACTOR HAS COMPLETED THE PROJECT.
- DITCH CHECKS AND APPLICABLE EROSION NETTING/MATTING SHALL BE INSTALLED IMMEDIATELY AFTER COMPLETION OF GRADING EFFORTS WITHIN DITCHES/SWALES TO PREVENT SOIL TRANSPORTATION.
- EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, SANITARY SEWER, WATER MAIN, ETC.) OUTSIDE OF THE PERIMETER CONTROLS SHALL INCORPORATE THE FOLLOWING:
 - PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
 - BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
 - DISCHARGE TRENCH WATER INTO A SEDIMENTATION BASIN OR FILTERING TANK IN ACCORDANCE WITH THE Dewatering TECHNICAL STANDARD NO. 1061 PRIOR TO RELEASE INTO THE STORM SEWER, RECEIVING STREAM, OR DRAINAGE DITCH.
- INLET PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL INSTALLED STORM SEWER AND DITCH. CHECKS SHALL BE IMMEDIATELY FITTED AT ALL INSTALLED CULVERT INLETS TO PREVENT SEDIMENT DEPOSITION WITHIN STORM SEWER SYSTEMS.
- TOPSOIL STOCKPILE SHALL BE LOCATED GENERALLY AS SHOWN. CONTRACTOR MAY SUBMIT AN ALTERNATE PLAN FOR LOCATION OF TEMPORARY TOPSOIL STOCKPILE TO ENGINEER FOR APPROVAL. INSTALL EROSION CONTROLS ON THE DOWNSTREAM SIDE OF STOCKPILE. STOCKPILE REMAINS UNDISTURBED FOR MORE THAN SEVEN (7) DAYS, TEMPORARY SEEDING AND STABILIZATION IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS IS REQUIRED. IF DISTURBANCE OCCURS BETWEEN NOVEMBER 15TH AND MAY 15TH, THE MULCHING SHALL BE PERFORMED BY HYDRO-MULCHING WITH A "TACKIFIER."
- EROSION CONTROL MEASURES TEMPORARILY REMOVED FOR UNAVOIDABLE CONSTRUCTION ACTIVITIES SHALL BE IN WORKING ORDER PRIOR TO THE COMPLETION OF EACH WORK DAY.
- PUMPS MAY BE USED AS BYPASS DEVICES. IN NO CASE SHALL PUMPED WATER BE DIVERTED OUTSIDE THE PROJECT LIMITS.
- GRADING EFFORTS SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. EROSION AND SEDIMENT CONTROL MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS AND THE USE OF TEMPORARY OR PERMANENT MEASURES. ALL DISTURBED AREAS THAT WILL NOT BE WORKED FOR A PERIOD OF FOURTEEN (14) DAYS REQUIRE TEMPORARY SEEDING FOR EROSION CONTROL. SEEDING FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS.
- ALL DISTURBED SLOPES EXCEEDING 4:1 YET LESS THAN 3:1, SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75BN EROSION MATTING (OR APPROVED EQUAL) AND DISTURBED SLOPES EXCEEDING 3:1 YET LESS THAN 2:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN C125BN (OR APPROVED EQUAL) OR APPLICATION OF AN APPROVED POLYMER SOIL STABILIZATION TREATMENT OR A COMBINATION THEREOF, AS REQUIRED WITHIN 7 DAYS OF REACHING FINAL GRADE AND/OR AS SOON AS CONDITIONS ALLOW. DRAINAGE SWALES SHALL BE STABILIZED WITH CLASS II, TYPE B EROSION MATTING. EROSION MATTING AND/OR NETTING USED ONSITE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES AND WDNR TECHNICAL STANDARDS 1052 AND 1053.
- STABILIZATION PRACTICES:
 - 18.1. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. NO MORE THAN SEVEN (7) DAYS SHALL PASS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS CEASED UNLESS:
 - 18.2. THE INITIATION OF STABILIZATION MEASURES BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY HAS CEASED IS PRELUDED BY SNOW COVER. IN THAT EVENT, STABILIZATION SHALL BE INITIATED AS SOON AS PRACTICABLE.
 - 18.3. CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN FOURTEEN (14) DAYS FROM WHEN ACTIVITY CEASED. (I.E. THE TOTAL TIME PERIOD THAT THE CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN FOURTEEN (14) DAYS. IN THAT EVENT, STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED.
 - 18.4. STABILIZATION MEASURES SHALL BE DETERMINED BASED ON SITE CONDITIONS AT THE TIME OF CONSTRUCTION ACTIVITY HAS CEASED, INCLUDING BUT NOT LIMITED TO WEATHER CONDITIONS AND LENGTH OF TIME MEASURE MUST BE EFFECTIVE. THE FOLLOWING ARE ACCEPTABLE STABILIZATION MEASURES:
 - PERMANENT SEEDING IN ACCORDANCE WITH APPROVED CONSTRUCTION SPECIFICATION
 - TEMPORARY SEEDING; MAY CONSIST OF SPRING OATS(100LBS/ACRE) AND/OR WHEAT OR CEREAL RYE (100LB/ACRE)
 - HYDRO-MULCHING WITH A TACKIFIER
 - GEOTEXTILE EROSION MATTING
 - SEEDING
- DURING PERIODS OF EXTENDED DRY WEATHER, THE CONTRACTOR SHALL KEEP A WATER TRUCK ON SITE FOR THE PURPOSE OF WATERING DOWN SOILS WHICH MAY OTHERWISE BECOME AIRBORNE. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING WIND EROSION (DUST) DURING CONSTRUCTION AT THEIR EXPENSE. REFER TO WDNR TECHNICAL STANDARD 1068.
- DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE VISUALLY INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM ON A DAILY BASIS.
- MAINTAIN SOIL. EROSION CONTROL DEVICES THROUGH THE DURATION OF THIS PROJECT. EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL LAND DISTURBING CONSTRUCTION ACTIVITY AT THE SITE HAS BEEN COMPLETED AND THAT A UNIFORM PERENNIAL VEGETATIVE COVER HAS BEEN ESTABLISHED WITH A DENSITY OF AT LEAST 70% FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES OR THAT EMPLOY EQUIVALENT PERMANENT STABILIZATION MEASURES. DISTURBANCE ASSOCIATED WITH EROSION CONTROL REMOVAL SHALL BE IMMEDIATELY STABILIZED.
- QUALIFIED PERSONNEL (PROVIDED BY THE GENERAL/PRIME CONTRACTOR) SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED AND EROSION AND SEDIMENT CONTROLS WITHIN 24 HOURS OF ALL 0.5-INCH OR MORE PRECIPITATION EVENTS WITH A MINIMUM INSPECTION INTERVAL OF ONCE EVERY SEVEN (7) CALENDAR DAYS IN THE ABSENCE OF A QUALIFYING RAIN OR SNOWFALL EVENT. REPORTING SHALL BE IN ACCORDANCE WITH PART IV D.4. (a)-(f) OF THE NPDES GENERAL PERMIT. CONTRACTOR SHALL IMMEDIATELY ARRANGE TO HAVE ANY DEFICIENT ITEMS REVEALED DURING INSPECTIONS REPAIRED/REPLACED.
- THE FOLLOWING MAINTENANCE PRACTICES SHALL BE USED TO MAINTAIN, IN GOOD AND EFFECTIVE OPERATING CONDITIONS, VEGETATION, EROSION AND SEDIMENT CONTROL MEASURES, AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THIS PLAN. UPON IDENTIFICATION, DEFICIENCIES IN STORMWATER CONTROLS SHALL BE ADDRESSED IMMEDIATELY. THE MAINTENANCE PROCEDURES FOR THIS DEVELOPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO THOSE LISTED BELOW:
 - SILT FENCE - REPAIR OR REPLACE ANY DAMAGED FILTER FABRIC AND/OR STAKES. REMOVE ACCUMULATED SEDIMENT WHEN IT HAS REACHED ONE-HALF THE ABOVE GROUND HEIGHT OF THE FENCE.
 - CONSTRUCTION ENTRANCE - AS NEEDED, ADD STONE TO MAINTAIN CONSTRUCTION ENTRANCE DIMENSIONS AND EFFECTIVENESS.
 - EROSION CONTROL MATTING - REPAIR MATTING IMMEDIATELY IF INSPECTION REVEALS BREACHED OR FAILED CONDITION. SOIL AND RE-GRADE SOIL WHERE CHANNELIZATION HAS OCCURRED.
 - DIVERSION BERM/SWALE - REPLACE OR RE-COMPACT THE CONSTRUCTION MATERIALS AS NECESSARY.
 - INLET PROTECTION - CLEAN, REPAIR OR REPLACE FILTER FABRIC AND/OR STONE WHEN CONTROL MEASURE IS CLOGGED. INLET FILTER BAGS SHALL BE REPLACED ONCE BAG BECOMES ONE-HALF FULL OF SEDIMENT.

ADDITIONAL POLLUTANT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION ACTIVITIES SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- CONSTRUCTION WASTE SHALL BE PROPERLY DISPOSED OF. THIS INCLUDES ALL CONSTRUCTION SITE WASTE MATERIAL, EXCAVATION WASTE, AND WASTE FROM VEHICLES. THE CONTRACTOR SHALL ENSURE THAT NO MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, BURNED, OR DISCHARGED TO THE WATERS OF THE STATE. VEHICLES HAULING MATERIAL AWAY FROM THE SITE SHALL BE COVERED WITH A TARP/AUIN TO PREVENT BLOWING DEBRIS.
- DUST CONTROL SHALL BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING METHODS:
 - COVERING SOIL OR MORE OF THE SOIL SURFACE WITH A NON-ERODIBLE MATERIAL
 - ROUGHENING THE SOIL TO PRODUCE RIDGES PERPENDICULAR TO THE PREVAILING WIND. RIDGES SHALL BE AT LEAST SIX (6) INCHES IN HEIGHT.
 - FREQUENT WATERING OF EXCAVATION AND FILL AREAS.
 - PROVIDING GRAVEL OR PAVING AT ENTRANCE/EXIT DRIVES, PARKING AREAS AND TRANSIT PATHS.
 - STREET SWEEPING SHALL BE PERFORMED TO IMMEDIATELY REMOVE ANY SEDIMENT TRACKED ON PAVEMENTS.

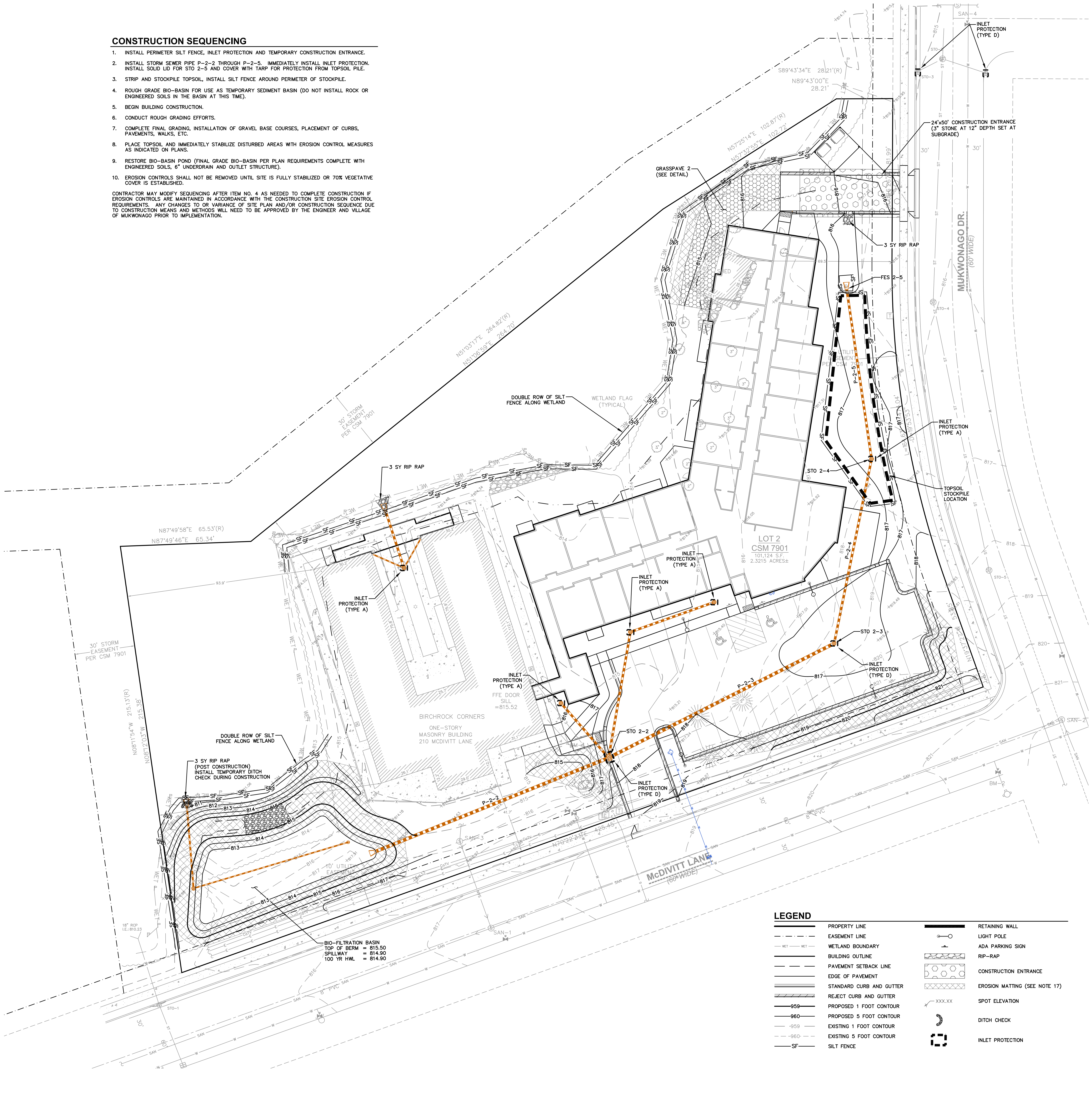
- CONTRACTOR/OWNER SHALL FILE A NOTICE OF TERMINATION UPON COMPLETION OF THE PROJECT IN ACCORDANCE WITH WDNR REQUIREMENTS AND/OR PROPERTY SALE IN ACCORDANCE WITH WDNR REQUIREMENTS.



CONSTRUCTION SEQUENCING

- INSTALL PERIMETER SILT FENCE, INLET PROTECTION AND TEMPORARY CONSTRUCTION ENTRANCE.
- INSTALL STORM SEWER PIPE P-2-2 THROUGH P-2-5. IMMEDIATELY INSTALL INLET PROTECTION. INSTALL SOLID LID FOR STO 2-5 AND COVER WITH TARP FOR PROTECTION FROM TOPSOIL PILE.
- STRIP AND STOCKPILE TOPSOIL. INSTALL SILT FENCE AROUND PERIMETER OF STOCKPILE.
- ROUGH GRADE BIO-BASIN FOR USE AS TEMPORARY SEDIMENT BASIN (DO NOT INSTALL ROCK OR ENGINEERED SOILS IN THE BASIN AT THIS TIME).
- BEGIN BUILDING CONSTRUCTION.
- CONDUCT ROUGH GRADING EFFORTS.
- COMPLETE FINAL GRADING, INSTALLATION OF GRAVEL BASE COURSES, PLACEMENT OF CURBS, PAVEMENTS, WALKS, ETC.
- PLACE TOPSOIL AND IMMEDIATELY STABILIZE DISTURBED AREAS WITH EROSION CONTROL MEASURES AS INDICATED ON PLANS.
- RESTORE BIO-BASIN POND (FINAL GRADE BIO-BASIN PER PLAN REQUIREMENTS COMPLETE WITH ENGINEERED SOILS, 6" UNDERDRAIN AND OUTLET STRUCTURE).
- EROSION CONTROLS SHALL NOT BE REMOVED UNTIL SITE IS FULLY STABILIZED OR 70% VEGETATIVE COVER IS ESTABLISHED.

CONTRACTOR MAY MODIFY SEQUENCING AFTER ITEM NO. 4 AS NEEDED TO COMPLETE CONSTRUCTION IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS. ANY CHANGES TO OR VARIANCE OF SITE PLAN AND/OR CONSTRUCTION SEQUENCE DUE TO CONSTRUCTION MEANS AND METHODS WILL NEED TO BE APPROVED BY THE ENGINEER AND VILLAGE OF MUKWONAGO PRIOR TO IMPLEMENTATION.



LEGEND

PROPERTY LINE	RETAINING WALL
EASEMENT LINE	LIGHT POLE
WETLAND BOUNDARY	ADA PARKING SIGN
BUILDING OUTLINE	RIP-RAP
PAVEMENT SETBACK LINE	CONSTRUCTION ENTRANCE
EDGE OF PAVEMENT	EROSION MATTING (SEE NOTE 17)
STANDARD CURB AND GUTTER	SPOT ELEVATION
REJECT CURB AND GUTTER	DITCH CHECK
PROPOSED 1 FOOT CONTOUR	INLET PROTECTION
PROPOSED 5 FOOT CONTOUR	
EXISTING 1 FOOT CONTOUR	
EXISTING 5 FOOT CONTOUR	
SILT FENCE	

UTILITY NOTES

1. ALL EXISTING UTILITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALI. INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATIONS OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTRACTOR/OWNER SHALL CALL "DIGGER'S HOTLINE" PRIOR TO ANY CONSTRUCTION.
2. PRIOR TO CONSTRUCTION, THE PRIME CONTRACTOR IS RESPONSIBLE FOR:
 - EXAMINING ALL SITE CONDITIONS RELATIVE TO THE CONDITIONS INDICATED ON THE ENGINEERING DRAWINGS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER AND RESOLVED PRIOR TO THE START OF CONSTRUCTION.
 - OBTAINING ALL PERMITS INCLUDING PERMIT COSTS, TAP FEES, METER DEPOSITS, BONDS, AND ALL OTHER FEES REQUIRED FOR PROPOSED WORK TO OBTAIN OCCUPANCY.
 - VERIFYING ALL ELEVATIONS, LOCATIONS AND SIZES OF SANITARY, WATER AND STORM LATERALS AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS. NOTIFY ENGINEER OF ANY DISCREPANCY. NO WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS RESOLVED.
 - NOTIFYING ALL UTILITIES PRIOR TO INSTALLATION OF ANY UNDERGROUND IMPROVEMENTS.
 - NOTIFYING THE DESIGN ENGINEER AND MUNICIPALITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE FOR APPROPRIATE CONSTRUCTION OBSERVATION.
 - COORDINATING ALL CONSTRUCTION WITH OTHER CONTRACTORS INVOLVED WITH CONSTRUCTION OF THE PROPOSED DEVELOPMENT AND FOR REPORTING ANY ERRORS OR DISCREPANCIES BETWEEN THESE PLANS AND PLANS PREPARED BY OTHERS.
3. ALL UTILITY WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN HEREIN REFERRED TO AS THE "STANDARD SPECIFICATIONS" AND ALL STATE AND LOCAL CODES AND SPECIFICATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE WHICH SPECIFICATIONS AND CODES APPLY, AND TO COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE LOCAL AND STATE AUTHORITIES.
4. SPECIFICATIONS SHALL COMPLY WITH THE VILLAGE OF MUKWONAGO SPECIFICATIONS AND WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES DSSPS 362.
5. TRACER WIRES SHALL BE INSTALLED AS NECESSARY IN ACCORD WITH 182.071(2)(R) OF THE STATE STATUTES AND THE VILLAGE OF MUKWONAGO REQUIREMENTS.
6. LENGTHS OF ALL UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM PLAN. LENGTHS ARE SHOWN FOR CONTRACTOR CONVENIENCE ONLY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPUTATIONS OF MATERIALS REQUIRED TO COMPLETE WORK. LENGTHS SHALL BE FIELD VERIFIED DURING CONSTRUCTION.
7. CONTRACTOR SHALL FIELD VERIFY LOCATIONS, ELEVATIONS, AND SIZES OF PROPOSED UTILITIES AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS PRIOR TO ATTEMPTING CONNECTIONS AND BEGINNING UTILITY CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY DURING THE CONSTRUCTION OF IMPROVEMENTS.
9. CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT ALL UTILITY COVERS (SUCH AS MANHOLE COVERS, VALVE BOX COVERS, ETC.) TO MATCH THE FINISHED GRADES OF THE AREAS EFFECTED BY THE CONSTRUCTION.
10. THE PRIME CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION WITH OTHER CONTRACTORS INVOLVED WITH CONSTRUCTION OF THE PROPOSED DEVELOPMENT AND FOR REPORTING ANY ERRORS OR DISCREPANCIES BETWEEN THESE PLANS AND PLANS PREPARED BY OTHERS.
11. ANY SANITARY SEWER, SANITARY SEWER SERVICES, WATER MAIN, WATER SERVICES, STORM SEWER, OR OTHER UTILITIES, WHICH ARE TO REMAIN, THAT ARE DAMAGED BY THE CONTRACTORS, SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
12. SANITARY AND WATER SERVICES TO BE INTERNALLY FED FROM EXISTING BUILDING. SEE ARCHITECTURAL PLANS FOR DETAILS.
13. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING UTILITY AS-BUILT PLANS. DRAWINGS PREPARED TO MUNICIPALITY STANDARDS ARE REQUIRED PRIOR TO OCCUPANCY PERMIT ISSUANCE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING AND REPORTING ANY CHANGES TO THE DRAWINGS OR ADDITIONAL ITEMS TO THE ENGINEER AS WORK PROGRESSES.
14. SEE TABLE FOR STORM SEWER STRUCTURE INFORMATION.
15. STORM SEWER SPECIFICATIONS --
PIPE -- ALL STORM SEWER USED ON THIS PROJECT SHALL BE HIGH DENSITY POLYETHYLENE UNLESS OTHERWISE NOTED.
HIGH DENSITY POLYETHYLENE SMOOTH-WALLED INTERIOR CORRUGATED PIPE SHALL BE AS MANUFACTURED BY ADS OR EQUAL, WITH WATER TIGHT JOINTS, MANHOLE "N" VALUE OF 0.010 AND SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-284 TYPE S. MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D3350, D2412, AND D2321 WITH ELASTOMERIC GASKETS CONFORMING TO ASTM F447.

INLETS AND FRAMES

INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 362.35(9)(b)-3.

FRAMES AND GRATES SHALL BE GRAY IRON MATERIAL (PER ASTM A-48) OF STYLES / NEMA/CATALOG NUMBERS AS INDICATED ON THESE CONSTRUCTION DRAWINGS.

MANHOLES AND FRAMES

MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF SPS 362.35(9)(b).

FRAMES AND LIDS SHALL BE GRAY IRON MATERIAL (PER ASTM A-48) OF STYLES/NEMA/CATALOG NUMBERS AS INDICATED ON THESE CONSTRUCTION DRAWINGS. INTERNAL CHIMNEY SEALS SHALL BE CRETEX SPECIALTY PRODUCTS, OR EQUAL.

CLEANOUTS -- CLEANOUTS SHALL BE EQUIPPED WITH FROST SLEEVES IN ACCORDANCE WITH SPS 362.35(9)(a)(2). (REFER TO DETAIL)

ROOF LEADER/STORM DRAIN LINES -- ALL ROOF LEADERS/STORM DRAIN LINES ENCOUNTERED WHICH ARE NOT SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF JSD PRIOR TO ABANDONMENT, REMOVAL, OR CONNECTION TO THE PROPOSED STORM SEWER SYSTEM.

16. WATER MAIN SPECIFICATIONS --

PIPE -- ALL WATERMAIN PIPE USED ON THIS PROJECT SHALL BE POLYVINYL CHLORIDE UNLESS OTHERWISE NOTED.

POLYVINYL CHLORIDE (PVC) PIPE SHALL MEET THE REQUIREMENTS OF AWWA STANDARD C-900, CLASS 150, DR-18, WITH CAST IRON G.D. AND INTEGRAL ELASTOMERIC BELL AND SPIGOT JOINTS. NON-METALLIC WATER MAINS SHALL BE INSTALLED WITH BLUE INSULATION TRACER WIRE AND CONFORM WITH SPS 362.30(1)(b).

VALVES AND VALVE BOXES -- GATE VALVES SHALL BE AWWA GATE VALVES MEETING THE REQUIREMENTS OF AWWA C-500 AND CHAPTER 8.2.7.0 OF THE "STANDARD SPECIFICATIONS". GATE VALVES AND VALVE BOXES SHALL CONFORM TO LOCAL PLUMBING ORDINANCES.

HYDRANTS -- HYDRANTS SHALL CONFORM TO THE SPECIFICATIONS OF THE VILLAGE OF MUKWONAGO. THE DISTANCE FROM THE GROUND LINE TO THE CENTERLINE OF THE LOWEST NOZZLE AND THE LOWEST CONNECTION OF THE FIRE DEPARTMENT SHALL BE NO LESS THAN 18-INCHES AND NO GREATER THAN 23-INCHES (SEE DETAIL).

THRUST BLOCKS SHOULD BE USED WHEREVER NECESSARY TO PREVENT SEPARATION OF JOINTS AND PIPE MOVEMENT. JOINT RESTRAINTS MAY ALSO BE USED AS APPLICABLE.

10-GAUGE TRACER WIRE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF ALL PRIVATE WATER MAINS, HYDRANT LEADS, FIRE DEPARTMENT CONNECTION LEADS AND LATERALS. THE TRACER WIRE SHALL BE EXTENDED TO THE SURFACE AT THE BUILDING WALL AND ALL OTHER SYSTEM LIMITS AND ENCLOSED IN RISER BOX WITH "WATER" ON THE COVER.

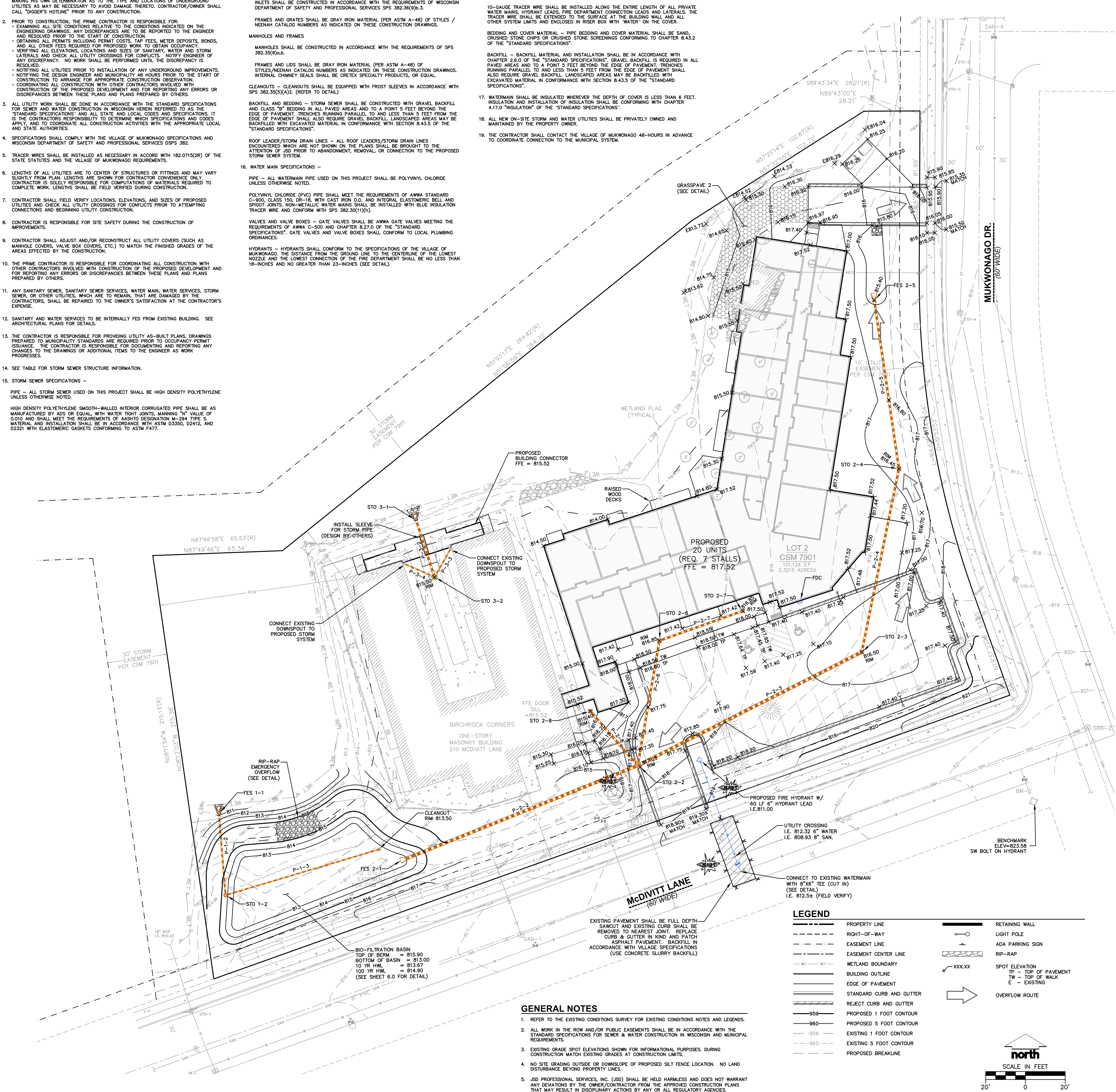
BEDDING AND COVER MATERIAL -- PIPE BEDDING AND COVER MATERIAL SHALL BE SAND, CRUSHED STONE CHIPS OR CRUSHED STONE SCREENINGS CONFORMING TO CHAPTER 8.4.3.2 OF THE "STANDARD SPECIFICATIONS".

BACKFILL -- BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS". GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.4.3.5 OF THE "STANDARD SPECIFICATIONS".

17. WATERMAIN SHALL BE INSULATED WHEREVER THE DEPTH OF COVER IS LESS THAN 6 FEET. INSULATION AND INSTALLATION OF INSULATION SHALL BE CONFORMING WITH CHAPTER 4.17.0 "INSULATION" OF THE "STANDARD SPECIFICATIONS".

18. ALL NEW ON-SITE STORM AND WATER UTILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE PROPERTY OWNER.

19. THE CONTRACTOR SHALL CONTACT THE VILLAGE OF MUKWONAGO 48-HOURS IN ADVANCE TO COORDINATE CONNECTION TO THE MUNICIPAL SYSTEM.



GRADING AND SEEDING NOTES

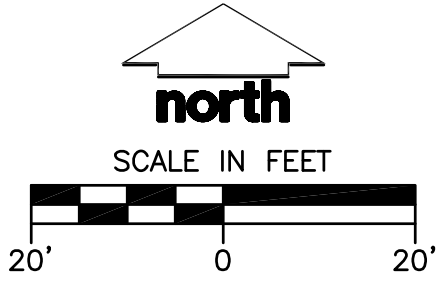
1. THE CONTRACTOR SHALL FIELD VERIFY THE FOLLOWING:
 - A. ELEVATIONS OF THE BENCHMARKS PRIOR TO COMMENCING WORK.
 - B. LOCATION AND ELEVATION OF:
 1. EXISTING PIPE INVERTS
 2. FLOOR ELEVATIONS
 3. CURB OR PAVEMENT WHERE MATCHING INTO EXISTING WORK
 - C. HORIZONTAL CONTROL BY REFERENCING SHOWN COORDINATES TO KNOWN PROPERTY LINES.
2. ALL PROPOSED GRADES SHOWN ARE FINISHED GRADES. CONTRACTOR SHALL VERIFY ALL GRADES, MAKE SURE ALL AREAS DRAIN PROPERLY AND SHALL REPORT ANY DISCREPANCIES TO THE JSD PROFESSIONAL SERVICES, INC. (JSD) PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.
3. CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR COMPUTATIONS OF ALL GRADING QUANTITIES. WHILE JSD ATTEMPTS TO PROVIDE A COST-EFFECTIVE APPROACH TO BALANCE EARTHWORK, GRADING DESIGN IS BASED ON MANY FACTORS, INCLUDING SAFETY, AESTHETICS, AND COMMON ENGINEERING STANDARDS OF CARE. THEREFORE, NO GUARANTEE CAN BE MADE FOR A BALANCED SITE.
4. THE CONTRACTOR MAY SOLICIT APPROVAL FROM JSD/OWNER TO ADJUST FINAL GRADES FROM DESIGN GRADES TO PROVIDE AN OVERALL SITE BALANCE AS A RESULT OF FIELD CONDITIONS.
5. ALL UNSURFACED AREAS ARE TO RECEIVE FOUR INCHES OF TOPSOIL AND BE SEEDED, MULCHED AND WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
6. THIS GRADING PLAN IS BASED ON A TOPOGRAPHIC SURVEY. SOME FIELD ADJUSTMENTS MAY BE NECESSARY AT POINTS WHERE GRADES MEET EXISTING. REVIEW ANY REQUIRED CHANGES WITH JSD PRIOR TO CONSTRUCTION OF WORK.
7. PROPERTY CORNER MARKERS SHALL BE CAREFULLY PROTECTED. MONUMENTS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
8. PROPOSED CONTOURS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. ALL CONSTRUCTION SHALL BE BASED UPON PROPOSED STAFF ELEVATIONS WHERE PROVIDED.
9. PARKING LOT AND DRIVEWAY ELEVATIONS ARE PAVEMENT GRADES LOCATED ALONG THE FLANGE LINE, NOT TOP OF CURB GRADES, UNLESS OTHERWISE NOTED.
10. ALL EXCAVATIONS AND MATERIAL PLACEMENT SHALL BE COMPLETED TO DESIGN ELEVATIONS AS DEPICTED IN THE PLANS.
11. GRADING ACTIVITIES SHALL BE IN A MANNER TO ALLOW POSITIVE DRAINAGE ACROSS DISTURBED SOILS, WHICH MAY INCLUDE EXCAVATION OF TEMPORARY DITCHES TO PREVENT PONDING, AND IF NECESSARY, PUMPING TO ALLEVIATE PONDING. CONTRACTOR SHALL PREVENT SURFACE WATER FROM ENTERING INTO EXCAVATIONS. IN NO WAY SHALL OWNER BE RESPONSIBLE FOR REMEDIATION OF UNSUITABLE SOILS CREATED/ORIGINATED AS A RESULT OF IMPROPER SITE GRADING OR SEQUENCING. CONTRACTOR SHALL SEQUENCE GRADING ACTIVITIES TO LIMIT EXPOSURE OF DISTURBED SOILS DUE TO WEATHER.
12. THE CONTRACTOR IS RESPONSIBLE FOR MEETING MINIMUM COMPACTION STANDARDS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR SITE COMPACTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY ENGINEER/OWNER IF PROPER COMPACTION CANNOT BE OBTAINED. THE PROJECT'S GEOTECHNICAL CONSULTANT SHALL DETERMINE WHICH IN-SITU SOILS ARE TO BE CONSIDERED UNSUITABLE SOILS. THE ENGINEER/OWNER AND GEOTECHNICAL TESTING CONSULTANT WILL DETERMINE IF REMEDIAL MEASURES WILL BE NECESSARY.
13. IN THE EVENT THAT ANY MOISTURE-DENSITY TEST(S) FAIL TO MEET SPECIFICATION REQUIREMENTS, THE CONTRACTOR SHALL PERFORM CORRECTIVE WORK AS NECESSARY TO BRING THE MATERIAL INTO COMPLIANCE AND RETEST THE FAILED AREA AT NO COST TO THE OWNER.
14. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY JSD/OWNER IF GROUNDWATER IS ENCOUNTERED DURING EXCAVATION.
15. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ADEQUATE AND SAFE TEMPORARY SHORING, BRACING, RETENTION STRUCTURES, AND EXCAVATIONS.
16. THE SITE SHALL BE COMPLETED TO WITHIN 0.10-FT (+/-) OF THE PROPOSED GRADES AS INDICATED WITHIN THE PLANS PRIOR TO PLACEMENT OF TOPSOIL OR STONE. CONTRACTOR IS ENCOURAGED TO SEQUENCE CONSTRUCTION SUCH THAT THE SITE IS DIVIDED INTO SMALLER AREAS TO ALLOW STABILIZATION OF DISTURBED SOILS IMMEDIATELY UPON COMPLETION OF INDIVIDUAL SMALLER AREAS.
17. CONTRACTOR SHALL CONTACT "DIGGER'S HOTLINE" FOR LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES AND SHALL BE RESPONSIBLE FOR PROTECTING SAID UTILITIES FROM ANY DAMAGE DURING CONSTRUCTION.
18. WORK WITHIN ANY ROADWAY RIGHT-OF-WAY SHALL BE COORDINATED WITH THE APPROPRIATE AUTHORITY HAVING JURISDICTION PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FEES. GRADING WITHIN RIGHT-OF-WAY IS SUBJECT TO APPROVAL BY SAID AUTHORITY. RESTORATION OF RIGHT-OF-WAY IS CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST OF GRADING. RESTORATION SHALL INCLUDE ALL ITEMS NECESSARY TO RESTORE RIGHT-OF-WAY IN-KIND INCLUDING LANDSCAPING.
19. CONTRACTOR SHALL COMPLY WITH ALL CITY AND/OR STATE CONSTRUCTION STANDARDS/ORDINANCES.
20. CONTRACTOR SHALL PROVIDE NOTICE TO THE MUNICIPALITY IN ADVANCE OF ANY SOIL DISTURBING ACTIVITIES, IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.
21. ALL DISTURBED AREAS SHALL BE SODDED AND/OR SEEDED AND MULCHED IMMEDIATELY FOLLOWING GRADING ACTIVITIES. SOD/SEED MIX TO BE IN ACCORDANCE WITH LANDSCAPE PLAN.
22. CONTRACTOR SHALL WATER ALL NEWLY SODDED/SEEDED AREAS DURING THE SUMMER MONTHS WHENEVER THERE IS A 7 DAY LAPSE WITH NO SIGNIFICANT RAINFALL.
23. CONTRACTOR TO DEEP TILL ALL COMPACTED PEROUS SURFACES PRIOR TO SODDING AND/OR SEEDING AND MULCHING.
24. ALL SLOPES 20% OR GREATER SHALL BE TEMPORARY SEEDED, MULCHED, OR OTHER MEANS OF COVER PLACED ON THEM WITHIN 2 WEEKS OF DISTURBANCE.
25. ALL EXPOSED SOIL AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE OR ON WHICH LAND DISTURBING ACTIVITIES WILL NOT BE PERFORMED FOR A PERIOD GREATER THAN 30 DAYS AND REQUIRE VEGETATIVE COVER FOR LESS THAN 1 YEAR, REQUIRE TEMPORARY SEEDED FOR EROSION CONTROL. SEEING FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH MNR TECHNICAL STANDARD 1059 AND VILLAGE OF MUKWONAGO ORDINANCES.

PROPOSED STRUCTURES TABLE					
LABEL	RIM EL. (FT)	INVERT EL. (FT)	DEPTH (FT)	STRUCTURE DESC.	FRAME & GRATE
FES 1-1		S INV: 810.83 (8')		8 IN HDPE FES	
FES 2-1		E INV: 813.00 (18')		18 IN HDPE FES	
FES 2-5		S INV: 815.40 (12')		12 IN HDPE FES	
STO 1-2	814.50	N INV: 811.50 (8') E INV: 811.50 (6')	3.0	36 IN CB (FLAT)	R-2565-G
STO 2-2	817.25	W INV: 813.25 (18') NE INV: 813.25 (18') NW INV: 813.25 (12') N INV: 813.25 (12')	4.0	72 IN MH (FLAT)	R-1550 SOLID LID
STO 2-3	816.50	SW INV: 813.50 (18') N INV: 813.50 (12')	3.0	48 IN MH (FLAT)	R-2501 TYPE D
STO 2-4	816.45	S INV: 813.88 (12') N INV: 813.88 (12')	2.6	12 IN DB	12 IN DOME GRATE
STO 2-6	816.85	S INV: 813.60 (12') E INV: 813.60 (12')	3.2	24 IN DB	24 IN DOME GRATE
STO 2-7	816.85	W INV: 813.85 (12')	3.3	12 IN DB	12 IN DOME GRATE
STO 2-8	815.40	SE INV: 813.32 (12')	2.1	24 IN DB	24 IN DOME GRATE
STO 3-1		S INV: 812.50 (12')		12 IN HDPE FES	
STO 3-2	815.00	N INV: 812.65 (12') NE INV: 812.65 (6') NW INV: 812.65 (6')	2.4	24 IN DB	24 IN DOME GRATE

PROPOSED PIPES TABLE								
LABEL	FROM	TO	LENGTH	INVERT EL. (FT)	DISCHARGE EL. (FT)	SLOPE	SIZE & MATERIAL	
P-1-2	STO 1-2	FES 1-1	41'	811.50	810.83	1.62%	8 IN HDPE	
P-1-3	STO 1-2	81'		811.90	811.50	0.50%	6 IN HDPE	
P-2-2	STO 2-2	FES 2-1	125'	813.25	813.00	0.20%	18 IN HDPE	
P-2-3	STO 2-3	STO 2-2	126'	813.50	813.25	0.20%	18 IN HDPE	
P-2-4	STO 2-4	STO 2-3	94'	813.88	813.50	0.40%	12 IN HDPE	
P-2-5	FES 2-5	STO 2-4	86'	815.40	813.88	1.77%	12 IN HDPE	
P-2-6	STO 2-6	STO 2-2	64'	813.60	813.25	0.55%	12 IN HDPE	
P-2-7	STO 2-7	STO 2-6	45'	813.85	813.60	0.56%	12 IN HDPE	
P-2-8	STO 2-8	STO 2-2	36'	813.32	813.25	0.20%	12 IN HDPE	
P-3-2	STO 3-1	STO 3-2	30'	812.50	812.65	0.50%	12 IN HDPE	
P-3-3	Downspout	STO 3-2	17'	812.83	812.65	1.08%	6 IN HDPE	
P-3-4	Downspout	STO 3-2	17'	812.83	812.65	1.07%	6 IN HDPE	

LEGEND

- PROPERTY LINE
- RIGHT-OF-WAY
- EASEMENT LINE
- EASEMENT CENTER LINE
- WETLAND BOUNDARY
- BUILDING OUTLINE
- EDGE OF PAVEMENT
- STANDARD CURB AND GUTTER
- RECT CURB AND GUTTER
- PROPOSED 1 FOOT CONTOUR
- PROPOSED 5 FOOT CONTOUR
- EXISTING 1 FOOT CONTOUR
- EXISTING 5 FOOT CONTOUR
- PROPOSED BREAKLINE
- RETAINING WALL
- LIGHT POLE
- ADA PARKING SIGN
- RIP-RAP
- SPOT ELEVATION
TP - TOP OF PAVEMENT
TW - TOP OF WALK
E - EXISTING
- OVERFLOW ROUTE



GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY FOR EXISTING CONDITIONS NOTES AND LEGENDS.
2. ALL WORK IN THE ROW AND/OR PUBLIC EASEMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN AND MUNICIPAL REQUIREMENTS.
3. EXISTING GRADE SPOT ELEVATIONS SHOWN FOR INFORMATIONAL PURPOSES. DURING CONSTRUCTION MATCH EXISTING GRADES AT CONSTRUCTION LIMITS.
4. NO SITE GRADING OUTSIDE OR DOWNSLOPE OF PROPOSED SILT FENCE LOCATION. NO LAND DISTURBANCE BEYOND PROPERTY LINES.
5. JSD PROFESSIONAL SERVICES, INC. (JSD) SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES.



CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:



CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
**BIRCHROCK CASTLE
ADDITION**

PROJECT LOCATION:
**VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN**

PLAN MODIFICATIONS:		
#	Date:	Description:
1	12/12/2019	Revised per City Comments
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAR
Approved: DSR
Date: 11/06/2019

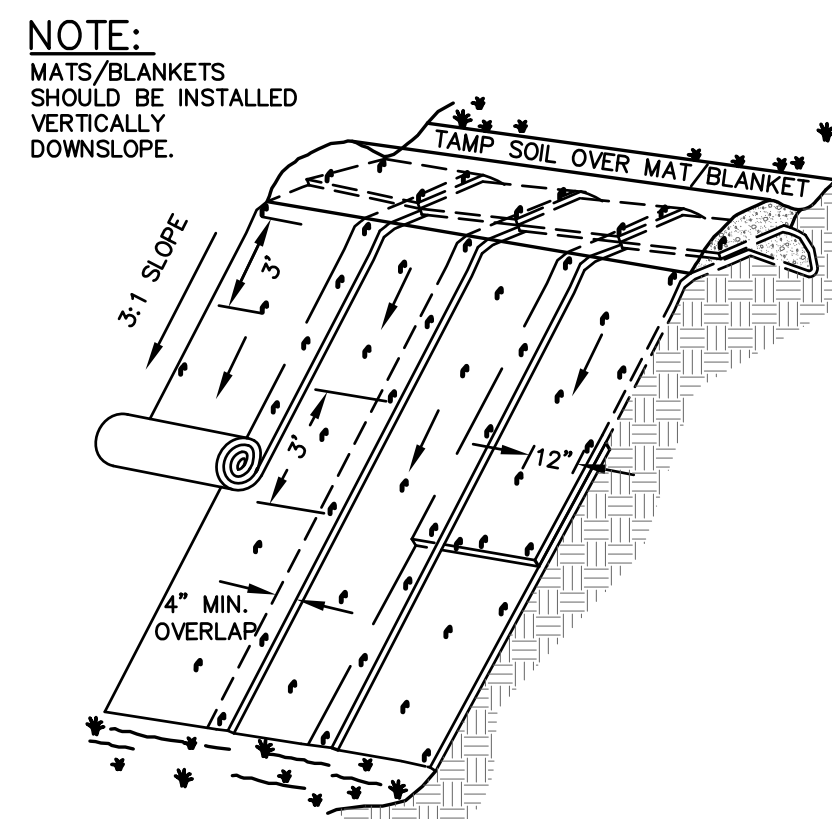
SHEET TITLE:
**GRADING AND UTILITY
PLAN**

SHEET NUMBER:

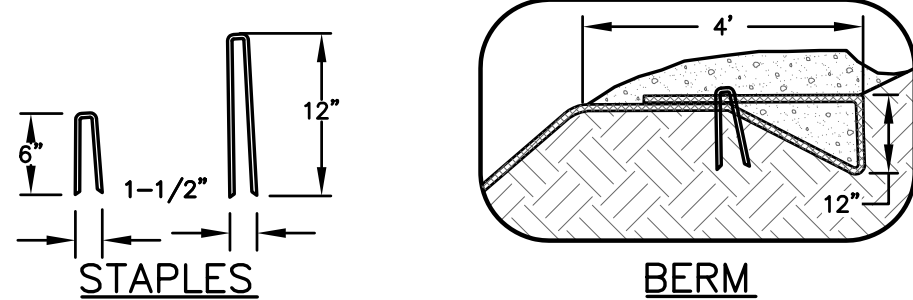
C5.0

JSD PROJECT NO: 19-0231





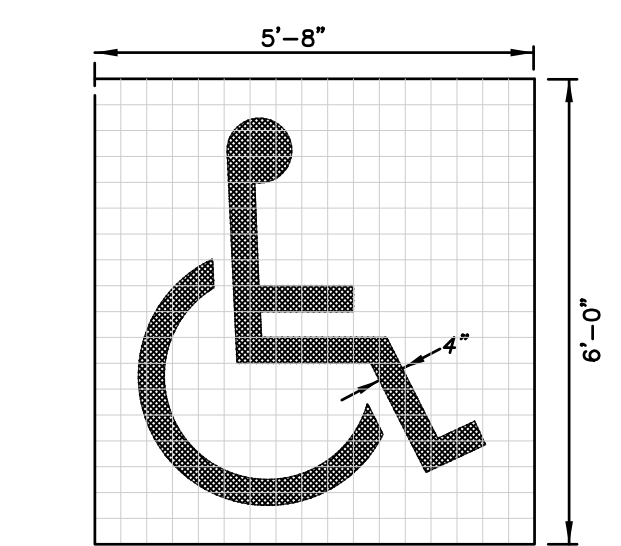
ISOMETRIC VIEW
TYPICAL SLOPE
STABILIZATION



GENERAL NOTES:

1. EROSION MAT CONSTRUCTION SHALL BE IN ACCORDANCE WITH WISCONSIN DNR TECHNICAL STANDARD 1052 "NON-CHANNEL EROSION MAT".
2. ONLY W8DOT EROSION CONTROL PRODUCT ACCEPTABILITY LIST (PAL) APPROVED MATS SHALL BE ALLOWED. REFER TO EROSION CONTROL PLAN FOR EXACT MAT CLASSIFICATION.
3. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
4. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
5. ONLY W8DOT EROSION CONTROL PRODUCT ACCEPTABILITY LIST (PAL) APPROVED MATS SHALL BE ALLOWED. REFER TO EROSION CONTROL PLAN FOR EXACT MAT CLASSIFICATION.

EROSION MATTING

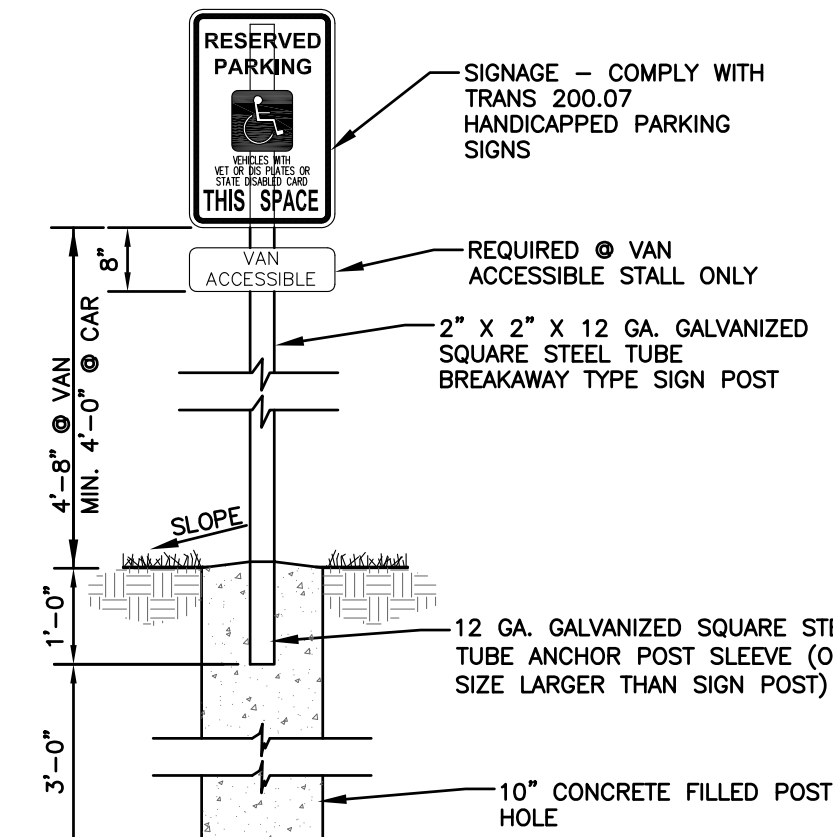


4"x4" GRID FOR LAYOUT PURPOSES ONLY
FOR ALL ACCESSIBLE AND VAN ACCESSIBLE SPACES

NOTE:
SYMBOL DETAILS ARE SHOWN FOR INTENT ONLY. CONTRACTOR SHALL VERIFY EXACT REQUIREMENTS PRIOR TO CONSTRUCTION.

PAINTED SYMBOL

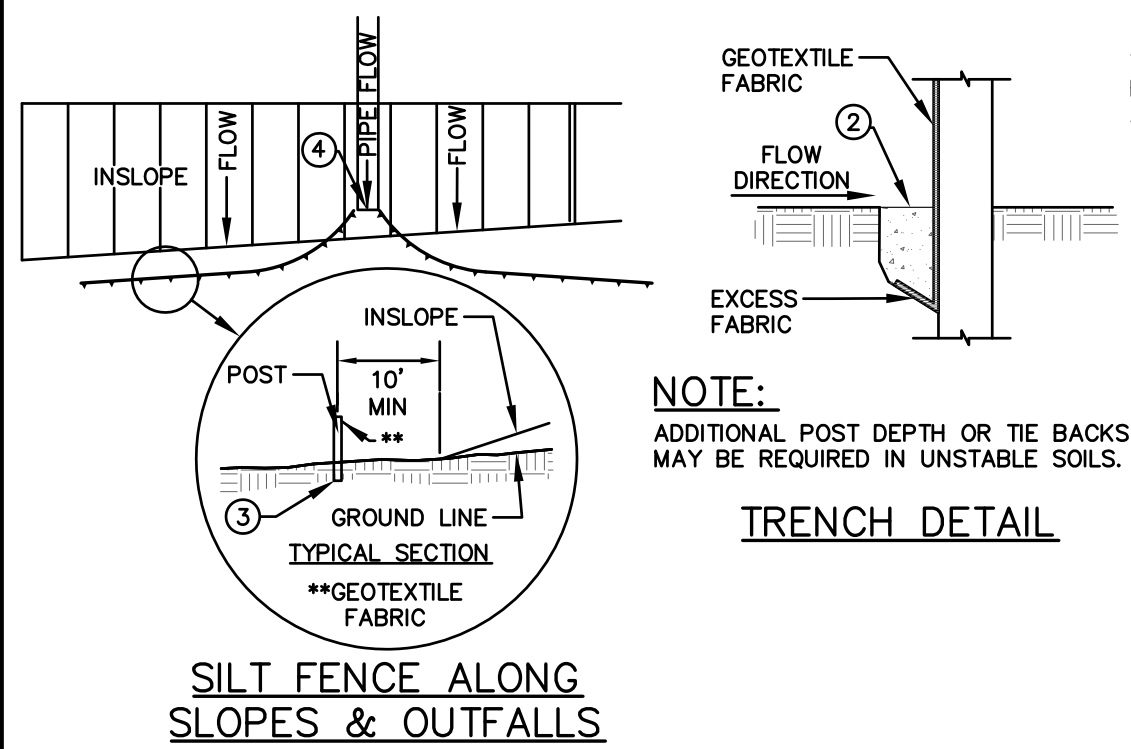
N.T.S.



NOTE:
OPTION: DRIVEN POST MAY BE UTILIZED IN LIEU OF CONCRETE BASE. PROVIDE MIN. 3'-0" LONG ANCHOR POST SLEEVE.

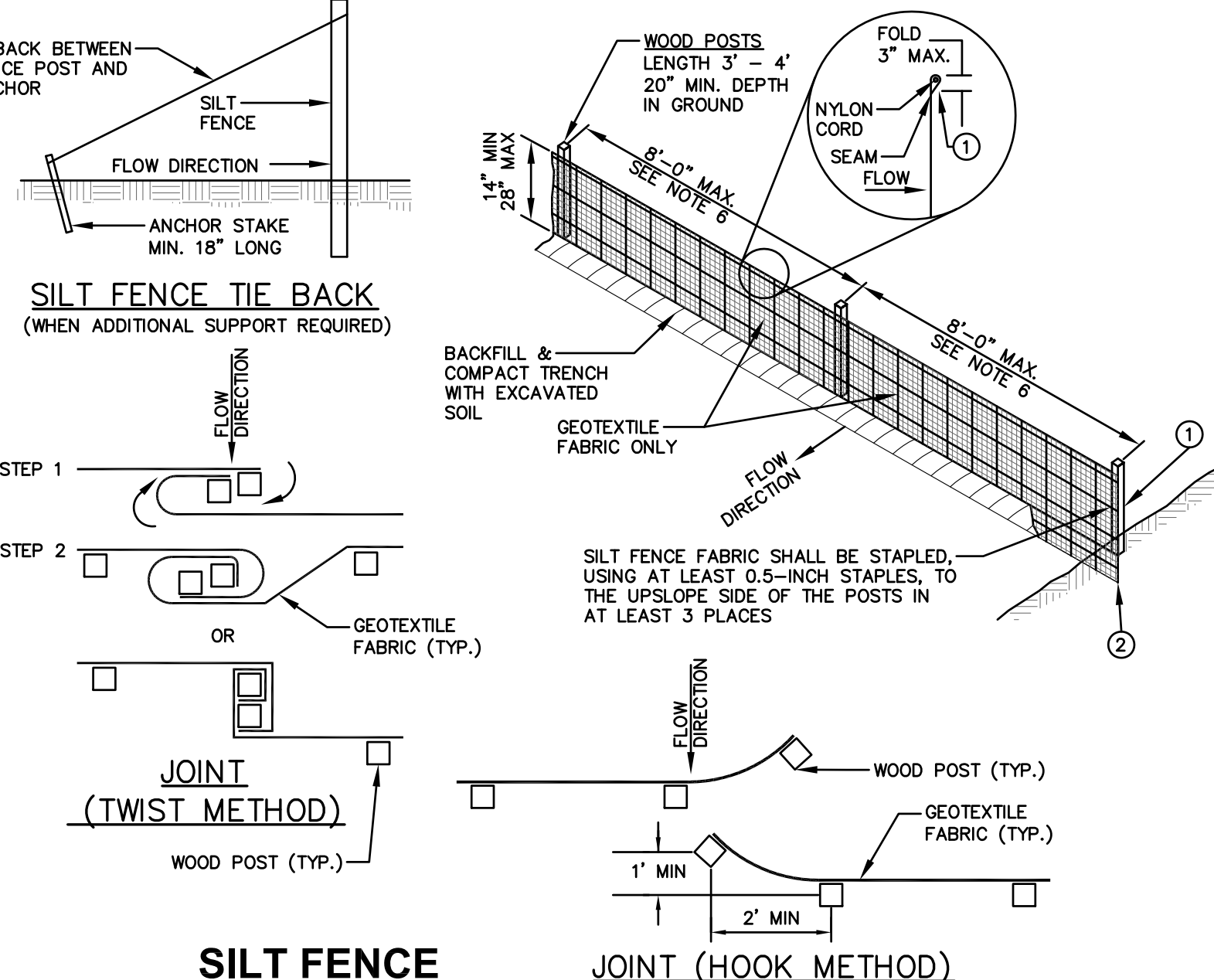
ADA SIGN

N.T.S.



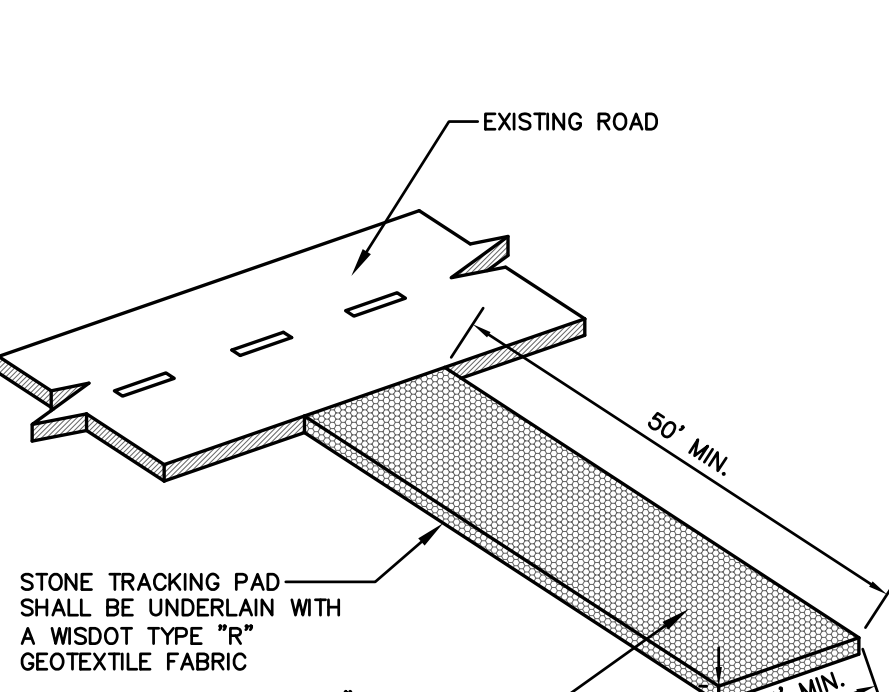
SILT FENCE ALONG SLOPES & OUTFALLS

- GENERAL NOTES:
1. SILT FENCE SHALL BE ANCHORED BY SPREADING AT LEAST 8-INCHES OF FABRIC IN A 4-INCH WIDE AND 8-INCH DEEP TRENCH OR 8-INCH DEEP V-TRENCH ON THE UPSLOPE SIDE OF THE FENCE. TRENCHES SHALL NOT BE EXCAVATED DEEPER THAN NECESSARY FOR PROPER INSTALLATION.
 2. FOLD MATERIAL TO FIT TRENCH AND BACKFILL AND COMPACT TRENCH WITH EXCAVATED SOIL.
 3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1.125-INCHES x 1.125-INCHES OF DRIED OAK OR HICKORY.
 4. SILT FENCE TO EXTEND ABOVE THE TOP OF PIPE.
 5. SILT FENCE CONSTRUCTION AND GEOTEXTILE FABRIC SHALL CONFORM TO W8NR TECHNICAL STANDARD 1056.
 6. POST SPACING SHALL BE SELECTED BASED ON GEOTEXTILE FABRIC (8'-FEET FOR WOVEN & 3'-FEET FOR NON-WOVEN)



SILT FENCE

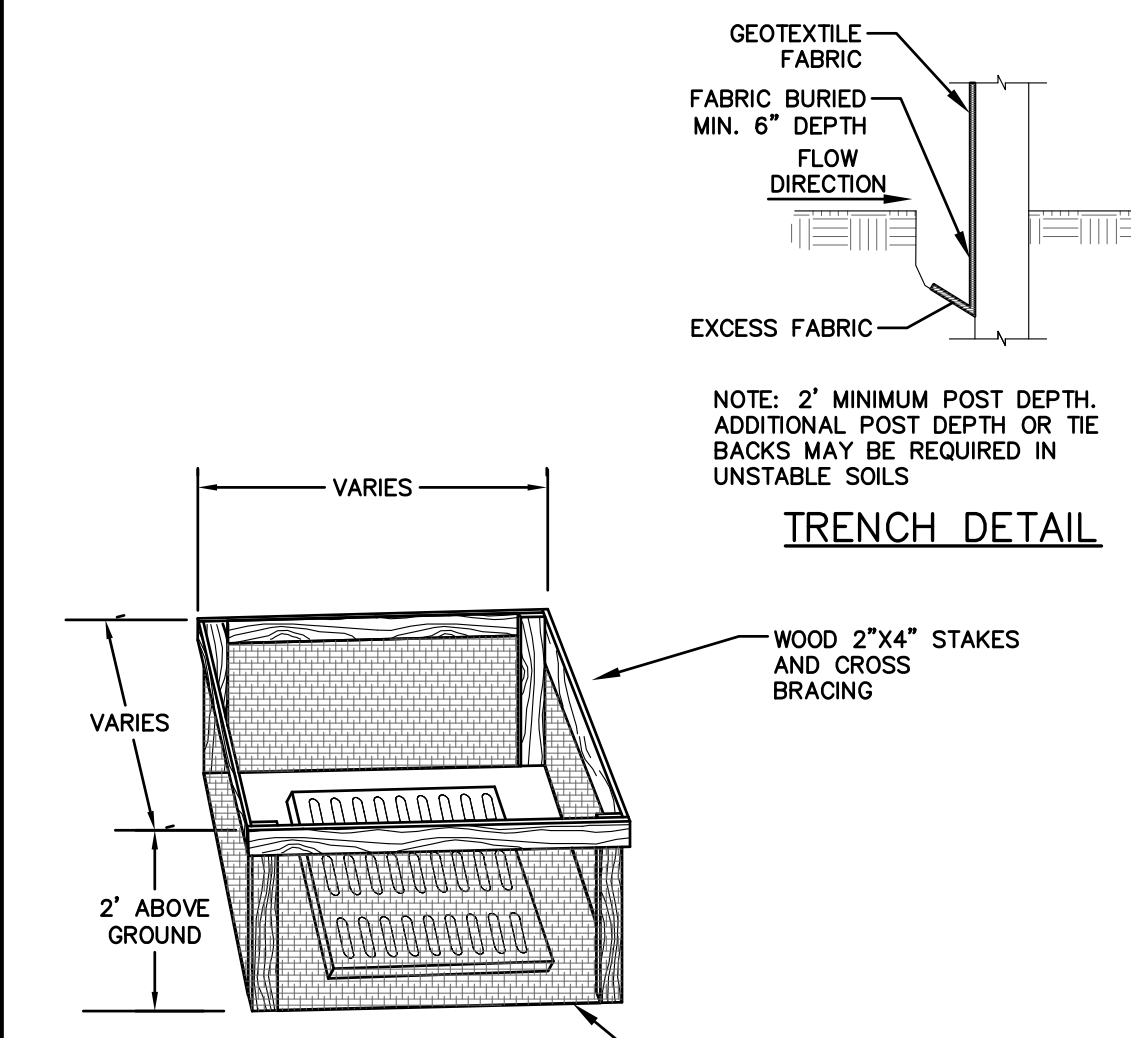
N.T.S.



NOTE:
CONTRACTOR TO VERIFY LOCATION WITH OWNER.

CONSTRUCTION ENTRANCE

N.T.S.



INLET PROTECTION - TYPE "A"

FABRIC SHALL BE BURIED IN TRENCH TO PREVENT UNDERMINING OF THE INLET PROTECTION (SEE TRENCH DETAIL)

GENERAL NOTES:

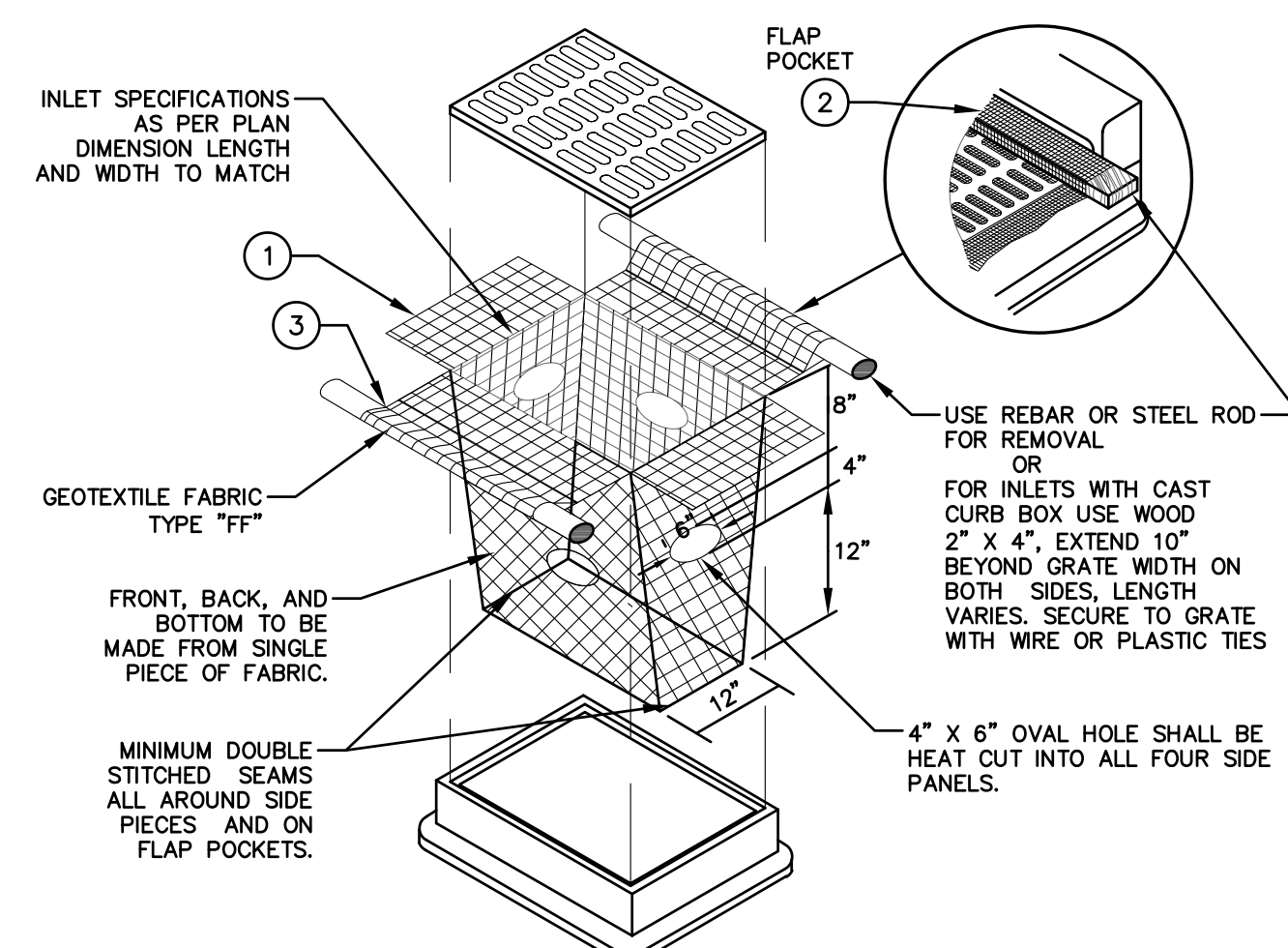
INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.
MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.
WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

INSTALLATION NOTES:

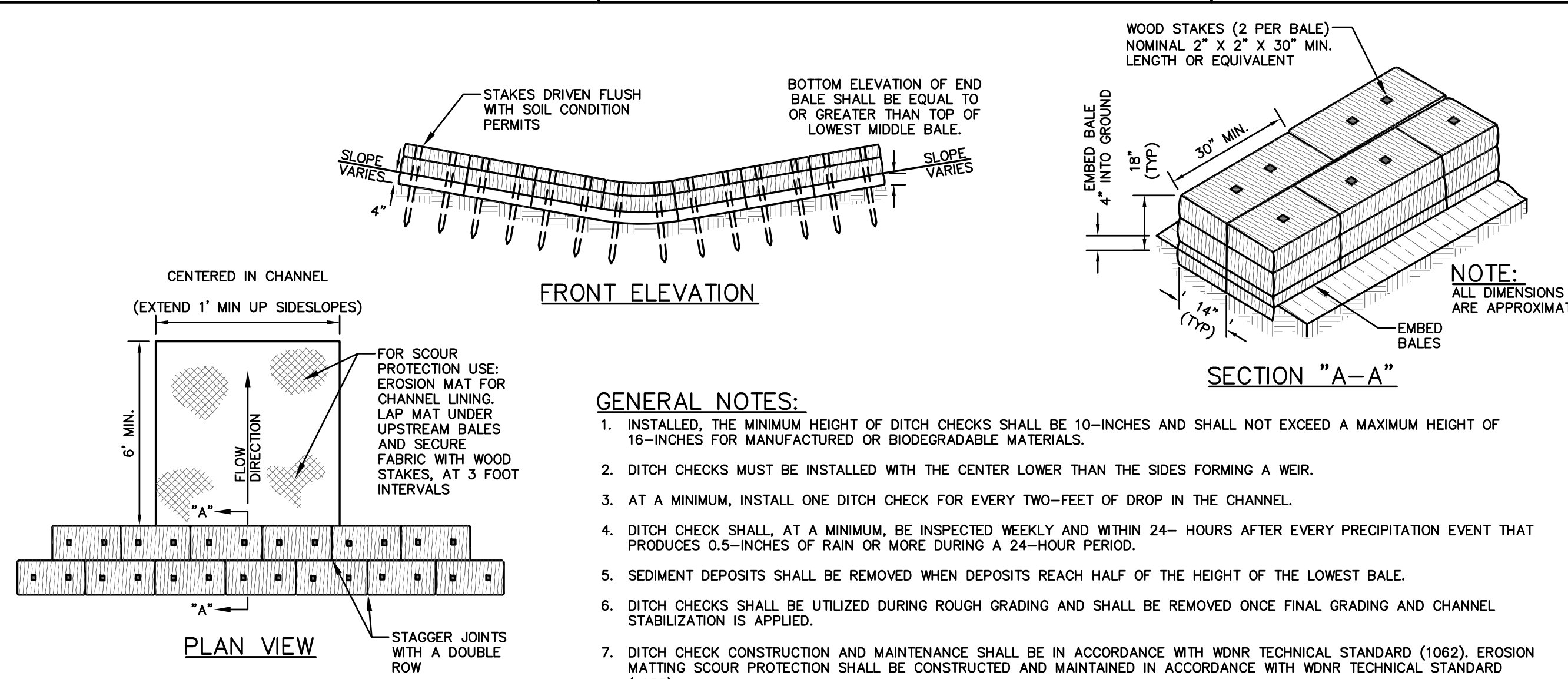
TYPE "D"
DO NOT INSTALL INLET PROTECTION TYPE "D" IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.
TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3 INCHES OF THE GRATE.
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES OF 3 INCHES. WHERE NECESSARY THE CONTRACTOR SHALL CATCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCHES CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4 INCHES FROM THE BOTTOM OF THE BAG.

INLET PROTECTION

N.T.S.



INLET PROTECTION - TYPE "D"



GENERAL NOTES:

1. INSTALLED, THE MINIMUM HEIGHT OF DITCH CHECKS SHALL BE 10-INCHES AND SHALL NOT EXCEED A MAXIMUM HEIGHT OF 16-INCHES FOR MANUFACTURED OR BIODEGRADABLE MATERIALS.
2. DITCH CHECKS MUST BE INSTALLED WITH THE CENTER LOWER THAN THE SIDES FORMING A WEIR.
3. AT A MINIMUM, INSTALL ONE DITCH CHECK FOR EVERY TWO-FEET OF DROP IN THE CHANNEL.
4. DITCH CHECK SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24- HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5-INCHES OF RAIN OR MORE DURING A 24-HOUR PERIOD.
5. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN DEPOSITS REACH HALF OF THE HEIGHT OF THE LOWEST BAILE.
6. DITCH CHECKS SHALL BE UTILIZED DURING ROUGH GRADING AND SHALL BE REMOVED ONCE FINAL GRADING AND CHANNEL STABILIZATION IS APPLIED.
7. DITCH CHECK CONSTRUCTION AND MAINTENANCE SHALL BE IN ACCORDANCE WITH W8NR TECHNICAL STANDARD (1062), EROSION MATTING SCOUR PROTECTION SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH W8NR TECHNICAL STANDARD (1053).

DITCH CHECK (STRAW BALES)

N.T.S.

RATIONAL METHOD STORM SEWER CALCULATIONS										Project No: BIRCHROCK CASTLE ADDITION										MILWAUKEE REGIONAL OFFICE 2338 N H1610 Bussia Road, Suite 100 Waukesha, Wisconsin 53188 (Ph) 262-513-0666 Fax: (262) 513-1232										 JSD Professional Services, Inc. Engineers • Surveyors • Planners																															
										Project Location: Mukwonago, WI										Performed by: JRN																																									
										JSD Project Number: 19-9231										Date: 12/13/2019																																									
Structure abbreviations are as follows: ES - End Section, MH - Manhole, FI - Field Inlet, TD - Trench Drain, BC - Building Connection, RD - Roof Drain, STB - Stub																																																													
PIPE LOCATION										STRUCTURE CONTRIBUTING AREA										PIPE FLOW										PIPE DATA										PIPE CAPACITY INFORMATION										ELEVATIONS										COVER	
										ROOF PAVED GRASS INDIV INDIV COM										STORM INTENSITY INDIV TOTAL TOTAL																				ACTUAL FLOW																				DROP	
										C = 0.95 C = 0.95 C = 0.10										EVENT IN/HR RUNOFF (CFS) FLOW (CFS) FLOW (GPM)																				VEL FILL TIME TO TIME IN										THRU (F/FT)										CROW	
LINE										UP STRUCT DOWN STRUCT										SQ FT (SQ FT) (SQ FT) (ACRES) UNITLESS										LENGTH (FT) DIA. (IN) SLOPE %										REOD DROP ACTUAL DROP PARTS VEL FLOW (CFS) (GPM) (MIN) (SEC)										INVERT INVERT										DOWN	
1										FES 2-5 STO 2-1										7825 2910 0.25 0.25 60 1.34 40 0.94 12.00 1.77%										0.012 0.10 1.52 0.32 5.59 5.13										10.26 10.00										N/A											
2										STO 2-3 STO 2-3										1910 665 1370 0.09 0.69 100 7.23 0.45 1.79 805 94.16 12.00 0.40%										0.012 0.20 0.38 0.68 3.40 2.44 10.26 10.72										0.00 816.45 813.88 813.50										1.47											
3										STO 2-3 STO 2-1										1910 7595 3075 0.31 0.78 100 7.12 1.73 3.52 1582 126.46 18.00 0.20%										0.012 0.12 0.25 0.64 3.11 0.99 11.39 10.30										0.00 816.50 813.50 813.25 1.39										1.43											
4										STO 2-2 FES 2-1										3120 3045 545 0.15 0.89 100 6.96 0.95 4.59 2061 125.26 18.00 0.20%										0.012 0.20 0.25 0.80 3.26 0.59 11.39 12.03										0.00 817.25 813.25 813.00 2.35										3.30											
1										STO 2-2 STO 2-2										0 140 840 0.02 0.31 100 11.05 0.08 0.08 34 65.80 4.00 0.20%										0.012 0.09 0.13 0.77 1.19 0.09 0.00 9.92										0.00 817.20 813.38 813.25 3.40										3.40											
1										STO 2-8 STO 2-2										0 100 260 0.01 0.41 100 11.05 0.04 0.04 17 36.30 4.00 0.20%										0.012 0.01 0.07 0.47 1.04 0.09 0.00 0.58										0.00 815.40 813.32 813.25 1.74										1.74											

Anti-Seep Collar Design

Project: MUKWONAGO CBRF
Project Location: MUKWONAGO, WI
JSD Project # : 19-9231

MADISON REGIONAL OFFICE
161 Horizon Drive, Suite 101
Verona, Wisconsin 53593
Ph: (608) 848-5060 Fax: (608) 848-2255

MILWAUKEE REGIONAL OFFICE
W238 N1610 Busse Rd., Ste 100
Waukesha, Wisconsin 53188
Ph: (262) 513-0666 Fax: (262) 513-1232

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

Performed By: IRN

Date: 10/24/2019

SOUTH BIORETENTION

Discharge Pipe Diameter = 0.67 ft
Discharge Pipe Slope = 0.0162 ft/ft
100yr Pond Water Surface Elev. = 814.90
Pond Discharge Pipe Elev. = 811.50
Embankment Side Slope (H:1) = 3.00

Notes:

L_s - Length of Discharge Pipe in Saturated Zone

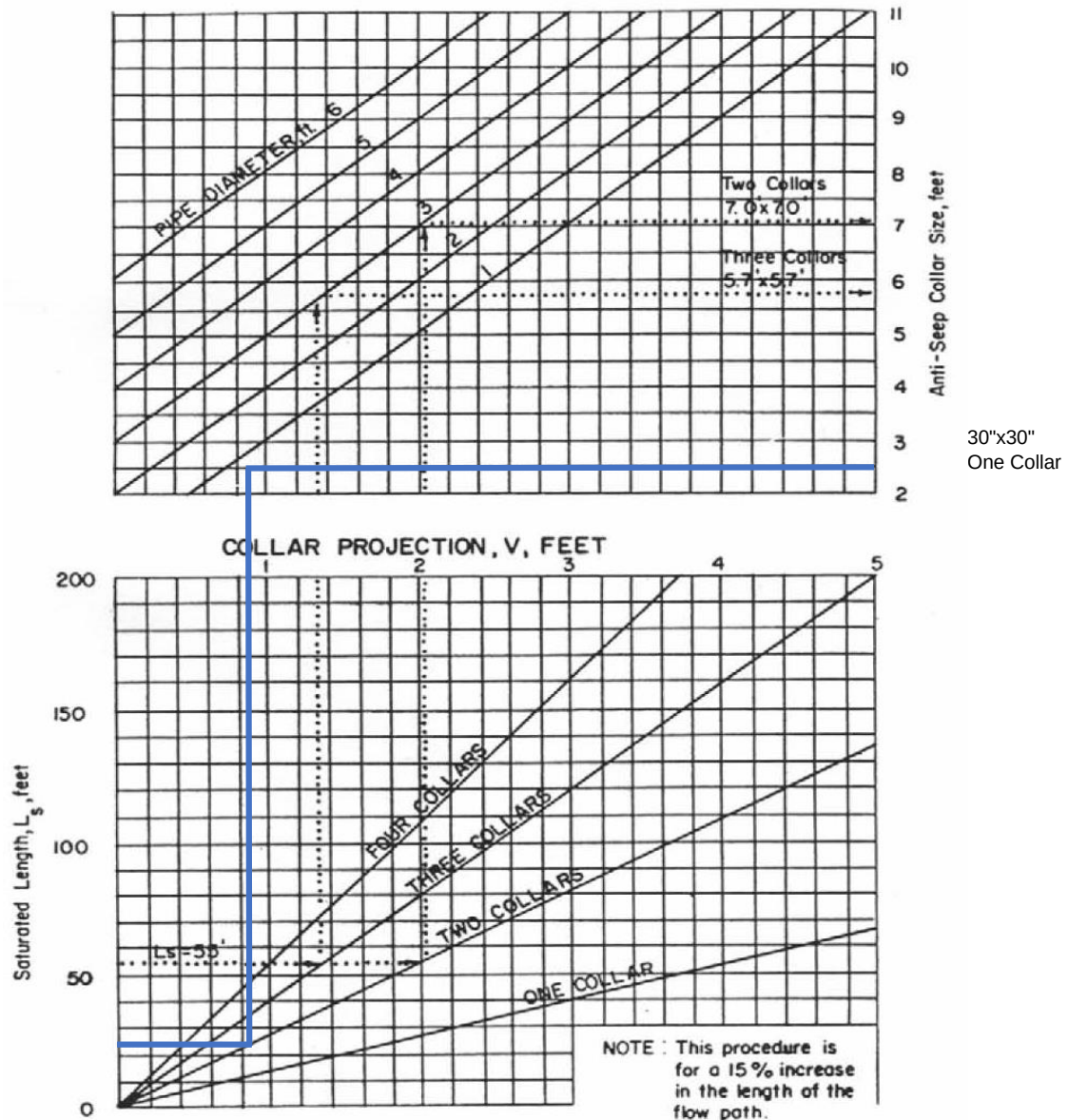
y - Headwater Acting on Discharge Pipe

z - Embankment Side Slope

$$L_s = y(z + 4) \left[1 + \frac{\text{PipeSlope}}{0.25 - \text{PipeSlope}} \right]$$

$$L_s = (814.90 - 811.50) (3.00 + 4) \left[1 + \frac{0.0162}{(0.25 - 0.01620)} \right] \quad L_s = 25.45 \text{ ft}$$

Figure 5A.31(2)
Anti-Seep Collar Design Charts (USDA - NRCS)



APPENDIX 7

Operation and Maintenance Plan



Birchrock Castle Addition
Storm Water Maintenance Agreement
Village of Mukwonago, County of Waukesha, WI

_____, as “Owner” of the property described in Exhibit A, in accordance with Chapter 34 of the Village of Mukwonago Municipal Code, agrees to install and maintain storm water *management practices* on the subject property in accordance with approved plans and Storm Water Permit conditions. The Owner further agrees to the terms stated in this document to ensure that the storm water management practices continue serving the intended functions in perpetuity. This Agreement includes the following exhibits:

Exhibit A: Legal Description of the real estate for which this Agreement applies (“Property”).

Exhibit B: Location Map - shows an accurate location of each storm water management practice affected by this Agreement.

Exhibit C: Maintenance Plan - prescribes those activities that must be carried out to maintain compliance with this Agreement.

Exhibit D: Design Summary - contains a summary of key Engineering calculations and other data used to design the storm water management practices.

Exhibit E: As-built survey (to be recorded as an addendum) - shows a detailed “as-built” cross section and plan view of the storm water management practices.

Exhibit F: Engineering/Construction Verification (to be recorded as an addendum) - provides verification from a Professional Engineer that the design and construction of the storm water management practices complies with all applicable technical standards and the Village’s requirements.

NOTE: After construction verification has been accepted by the Village of Mukwonago, for all planned storm water management practices, an addendum(s) to this agreement shall be recorded by the Village showing construction details and construction verification. The addendum(s) may contain several additional exhibits, as described below.

Through this Agreement, the Owner hereby subjects the Property to the following covenants, conditions and restrictions:

1. Upon execution of this Agreement, the Village shall record the Agreement at the Waukesha County or Walworth County Register of Deeds, as applicable. The recording of this Agreement shall be a condition for the issuance of a Storm Water Permit. An addendum to this Agreement shall be recorded upon project completion which shall include submittal of Exhibit E and Exhibit F in an acceptable form to the Village. The recording of Amendment #1 including Exhibit E and Exhibit F shall be a condition for the issuance of an occupancy permit.
2. The Owner shall construct, maintain and if necessary reconstruct the storm water management practices so as to maintain their compliance with applicable governmental, statutes, ordinances or rules. The Owner shall be responsible for the routine and extraordinary maintenance and repair of the storm water management practices identified in Exhibit B in accordance with the maintenance plan contained in Exhibit C.
3. The Owner shall, at their own cost inspect the storm water best management practices on an annual basis and maintain records of annual inspections and maintenance performed. Records shall be made available to the Village upon request within 30 days of written notice. Annual

inspections shall be performed as detailed in Exhibit C Maintenance Plan of the storm water maintenance agreement and shall be performed to determine if the facility is functioning within the design parameters. Commencing in _____ - and every five years thereafter the Owner shall, at their own cost, have a certification inspection of the storm water management practices conducted by a professional engineer, who shall then file a report with the Village of Mukwonago no later than December 31st of the same year. Upon written notification by Village of Mukwonago or its designee the Owner shall, at their own cost and within a reasonable time period determined by the Village of Mukwonago, have an inspection of the storm water management practices conducted by a professional engineer, who shall then file a report with the Village of Mukwonago. The Owner shall thereafter timely complete any maintenance or repair work recommended in any of the above reports. The Owner shall be liable for the failure to undertake any maintenance or repairs.

4. In addition, and independent of the requirements under paragraph 2 above, the Village of Mukwonago, or its designee, is authorized but not required to access the property as necessary to conduct inspections of the storm water management BMP's to ascertain compliance with the terms and intent of this Agreement and the activities prescribed in Exhibit C. The Village of Mukwonago may require work to be done which differs from the report(s) described in paragraph 3 above, if the Village of Mukwonago reasonably concludes that such work is necessary and consistent with the intent of this agreement and /or with Chapter 34 of the Village Code of Ordinances. Upon notification by the Village of Mukwonago of required maintenance or repairs, the Owner shall complete the specified maintenance or repairs within a reasonable time frame, as determined by the Village of Mukwonago.
5. If the Owner does not complete an inspection under 3 above or complete the required maintenance or repairs under 2 above within the specified time period, the Village of Mukwonago is authorized, but not required, to perform the specified inspections, maintenance or repairs. In the case of an emergency situation, as determined by the Village of Mukwonago, no notice shall be required prior to the Village of Mukwonago performing emergency maintenance or repairs.

The cost of inspections or measures undertaken by the Village pursuant to this agreement shall be first paid from the proceeds of any surety maintained to secure the performance by the Owner/Developer of its obligations under this agreement and the conditions of the use, site and architectural approval. In the event that the costs of said measures shall exceed the value of the surety or the surety has expired or been terminated, then in that event the cost of said measures shall be assessed as a special charge for current services pursuant to Wis Stat Sec. 66.0627. Any such assessment which is not paid within 60 days after billing shall be deemed a delinquent special charge and shall become a lien upon the parcel against which such charge has been assessed. Such delinquent charges shall be extended upon the current or next tax roll as a delinquent tax against the parcels for which payment has not been received by the Village and all proceedings in relation to the collection, return and sale of property for delinquent real estate taxes shall apply to such special charges. The Developer hereby consents to the levy of such charge and waives notice and the right to hearing.

6. This Agreement shall run with the property and be binding upon all heirs, successors and assigns. After the Village records this document, the Village of Mukwonago shall have the sole authority to modify this agreement contingent upon the Village of Mukwonago providing a 30 day written notice to the current Owner. Any modifications shall conform to the minimum requirements of Chapter 34 (or its successor) and be written so as to ensure the long-term maintenance of the storm water BMP's.
7. The Owner/Developer agrees to pledge a surety in a form acceptable to the Village of Mukwonago to secure performance of the obligations arising from the construction and maintenance of the storm water BMPs provided for under this Agreement in the amount of 120% of the actual cost of the storm water BMPs. Said surety shall remain in effect for a period of three (3) years from the date of the execution of this Agreement or until drawn upon in full by the

Village or one year (1) from the date of the certification of the storm water improvements whichever occurs first. Release of the surety prior to the deadlines stated herein shall be governed by Mukwonago Village code section 34-108(c) as amended

8. This Agreement shall be governed and construed in accordance with the laws of the State of Wisconsin.

Dated this ____ day of _____, 201____

Owner:

Authorized Representative of

(Printed Name of Authorized Representative)

State of Wisconsin:
County of Waukesha

Personally came before me this ____ day of _____, 20____, the above named _____, as the authorized Representative of _____ for the purpose of signing this document, to me known to be the person who executed the foregoing instrument and acknowledged the same.

[Name]

Notary Public, Waukesha County, WI

My commission expires: _____

Accepted by the Village of Mukwonago this ____ day of _____, 201____.

Fred Winchowky, Village President

Diana Dykstra, Village Clerk

This document was drafted by:
Attorney Mark G. Blum
Hippenmeyer, Reilly, Blum,
Schmitzer, Fabian & English, S.C.
P.O. Box 766
Waukesha, WI 53187-0766
Telephone: (262) 549-8181
Facsimile: (262) 549-8191
Email: mgbлум@hrblawfirm.com

Exhibit A – Legal Description

The following description and reduced copy map identifies the land parcel(s) affected by this Agreement. For a larger scale view of the referenced document, contact the Waukesha County Register of Deeds office.

Project Identifier: Mukwonago CBRF building

Date of Recording: 11/6/95

Map Produced By: Gary Schaefer

Legal Description: Lot 2 of Certified Survey Map No. 7901, recorded on December 22, 1995 in Volume 68 of Certified Survey Maps on Pages 140 to 146, as Document No. 2089198, being a redivision of Outlet 1, Mukwonago Estates East, being a resubdivision of Lots 43 and 44, 56 to 61 inclusive, 78 to 82 inclusive, 103 and 104, 157 to 200 inclusive, Outlet 1, Part of outlot 2, and all of Outlots 3, 4, 7 and 8 in "Mukwonago Estates", being a subdivision of part of the Northwest 1/4 of the Southeast 1/4 of Section 35, Township 5 North, Range 18 East, in the Village of Mukwonago, County of Waukesha, State of Wisconsin

Exhibit B - Location Map
Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of the construction plans, as shown below. The practices include the **Biofiltration Basin, Catch basins and storm sewer system.**

All of the noted storm water management practices are located in Lot 2 of CSM 7901, as noted in Exhibit A.

Subdivision Name: N/A

Storm water Practices: **Biofiltration Basin, Catch Basin and Storm Sewer System**

Location of Practices: **The Biofiltration Basin is located in the SW corner of site, the catch basin and storm sewer are located within the parking lot and landscape areas in front of the building**

Owners: Castle Senior Living

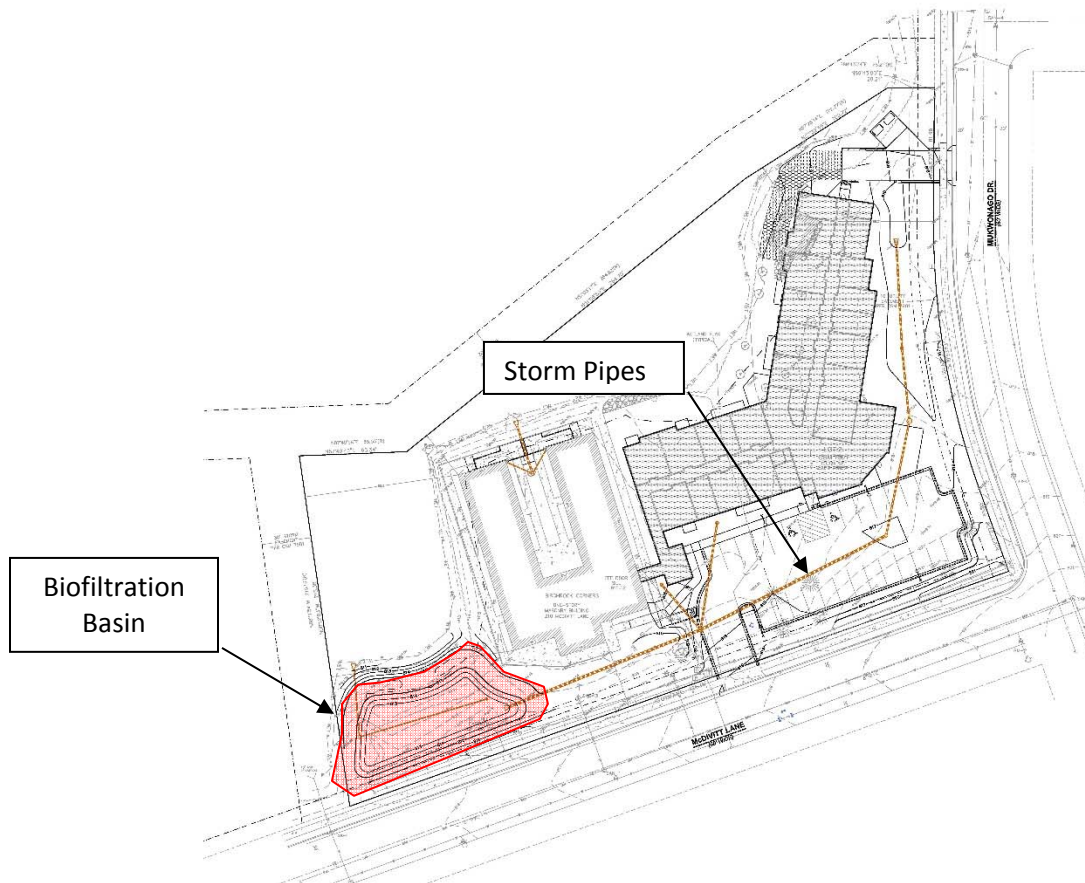


Exhibit C
Maintenance Plan

BIOFILTRATION
OPERATIONS AND MAINTENANCE

I. ROUTINE MAINTENANCE

A. Inspection

1. Performance of the bioretention should be inspected monthly and after every major storm event, following the initial construction to evaluate if the basin is draining within the design time limits.
 - a. Water plants should be watered as necessary the first year to establish plants.
2. If performance does not meet the design goals, complete repairs to the facility to meet the design requirements.
3. Following the initial year of monthly inspections, quarterly inspections of the facility should be made. Inspect the facility for:
 - a. Differential settlement
 - b. Cracking
 - c. Erosion
 - d. Leakage
 - e. Tree and woody plant growth on the embankments and plant health
 - f. Condition of the inlets and outlets and level spreaders
 - g. Sediment accumulation
 - h. Vigor and density of vegetation on the floor of the basin and buffer strips
 - i. pH testing of the soil
 - j. Observation wells and/or under drains

B. Mowing – Native Vegetation

1. During establishment of vegetation, the first mowing shall occur once it reaches a height of 10 to 12 inches.
2. Control woody plant invasion by mowing once a year. The vegetation height shall be 5 to 6 inches after mowing.
3. Mow once per year in the fall after November 1st.
4. Remove trash and debris at the time of mowing.

C. Erosion Control

1. Inspect quarterly for erosion. Inspection after major storm events for erosion problems is also recommended if practical
2. Repair all eroded areas immediately. Temporary erosion controls may be necessary to facilitate repairs.

D. Tilling

1. If the basin is located on marginally permeable soils, annual or semi-annual tilling may be needed to maintain infiltration capacity.
2. Tilled areas should be immediately re-vegetated to prevent erosion.

E. Pre-Treatment Systems

1. Maintenance of the pre-treatment system should include sediment removal, oil and grease skimming, and grass filter strip maintenance.
2. Inspect the structural elements of the pre-treatment system and repair if needed.

- F. Mulch
 - 1. Re-mulch void areas as needed.
 - 2. Add additional mulch once per year.

II. NON-ROUTINE MAINTENANCE

- A. Structural Maintenance
 - 1. Inspect pipe systems quarterly.
 - 2. Remove and replace pipe systems that have eroded or rusted.
 - 3. Earthen structures should be inspected annually. Erosion should be repaired immediately upon discovery.
- B. Restoration of Infiltration Capacity
 - 1. Over time the original infiltration capacity of the basin will be diminished.
 - 2. Deep tilling can be done to restore the infiltration capacity of the basin. The basin will be drained and the soils dried to a depth of 8 inches.
 - 3. The top 2 to 3 inches of topsoil, chisel plowing, and adding topsoil and compost can be done.
 - 4. The basin must be restored with native plantings.
- C. Watering
 - 1. Water plants need to be watered as necessary during the first growing season.
 - 2. After the first growing season, water as necessary during dry periods.

STORM SEWER SYSTEM OPERATIONS AND MAINTENANCE

I. INSPECTION

- A. Frequency
 - a. Inspect catch basins, inlets and manholes at least once per year.
 - b. Inspect storm sewer end sections at least twice per year and after major rainfall events.
- B. Inspection
 - a. Catch Basins, Inlets and Manholes
 - i. Inspect for sediment deposition in the bottom of structures.
 - ii. Check frames and lids for cracks and wear such as rocking lids or lids moved by traffic and for shifted frames.
 - iii. Check chimneys for cracked mortar, cracked lift rings and spalling.
 - iv. Check for leaks at joints.
 - v. Check surrounding areas for pollutants such as leaks from dumpsters, minor spills and oil dumping.
 - b. Storm Sewer End sections
 - i. Observe for obstructions, accumulation of sediment and trash, undermining and joint separation.
 - ii. Inspect end treatment for settlement, scour and displaced armoring.

II. STANDARD MAINTENANCE

- A. Catch Basins, Inlets and Manholes
 - a. Repair any deterioration threatening structural integrity immediately.
 - b. Replace worn or cracked frames and lids. Frames that have shifted should be re-centered and re-set on the structure.

- c. Repair any spalled or cracked mortar. Cracked rings should be repaired or replaced.
- d. Repair leaking joints.
- e. Clean manhole and storm inlet inverts of deposited material. Catch basins should be cleaned before the sump is 40 percent full or every 2-years, whichever comes first.
- f. Remove potential sources of contamination away from catch basins, inlets and manholes.

B. Storm Sewer End sections

- a. End sections should be free flowing; trash, debris and obstructions should be removed to prevent backups.
- b. End sections which have separated from the storm sewer pipe shall be reset on firm bedding and reconnected to the existing storm sewer pipe. Restrain joints if necessary.
- c. Scour areas shall be repaired immediately. Replace missing soil with clean fill and replace/install end treatment. Missing armoring will require additional stone, typically one class larger.
- d. Excessive material deposited at the storm sewer outfall is indicative of: a disturbed area upstream draining to the system or a potential failure of a system component. Disturbed areas draining to the system should be stabilized immediately or diverted to drain to a BMP. Potential system failures require non-standard maintenance.

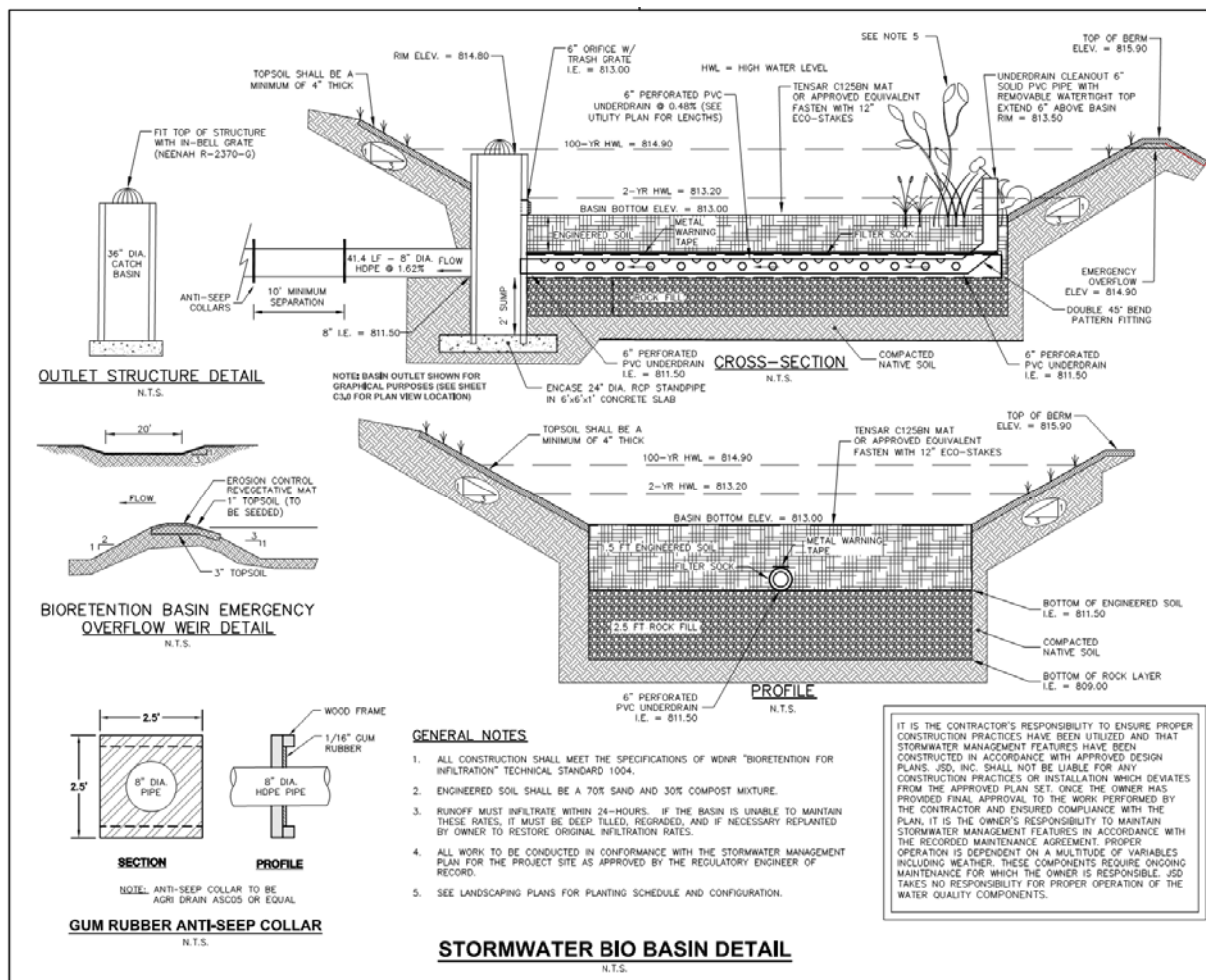
III. NON-STANDARD MAINTENANCE

A. Non-standard maintenance includes inspection, repair or replacement of buried structures.

- a. Televising of buried structures (pipes) should occur when excessive material is found within the system or at an outfall with no apparent source area visible at the surface, or the system experiences frequent backups.
- b. Follow the recommendations for the repair and/or replacement of system components televised by a firm specializing in this work.

Exhibit D Design Summary

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the maintenance requirements beyond the minimum requirements in Exhibit D to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the storm water practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Responsible Party to enforcement of the provisions of this Agreement by the City of Mukwonago.



Luminaire Schedule							
Symbol	Qty	Label	Arrangement	LMF	Lum. Lumens	Lum. Watts	Part Number
	4	4B	SINGLE	1.010	8950	86	OSQ-A-NM-4ME-B-57K-xx-xx + OSQ-DAXx + OSQ-BLSMF

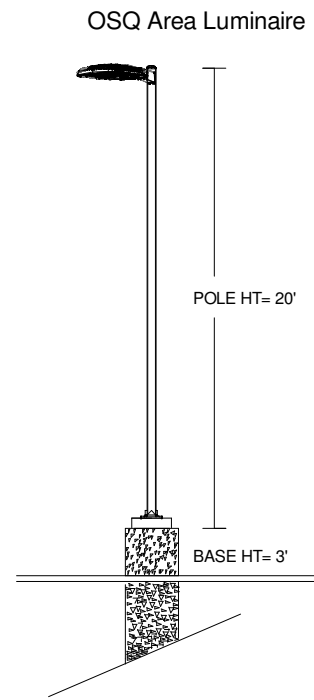
Calculation Summary (Footcandles calculated using predicted lumen values @ 50K hrs of operation)						
Label	Units	Avg	Max	Min	Avg/Min	Max/Min
PARKING LOT	Fc	2.44	3.5	1.0	2.44	3.50
PROPERTY LINE	Fc	0.05	0.4	0.0	N.A.	N.A.

Pole Schedule
(4) SSS-4-11-20-CW-BS-1D-C-XX (20' X 4" STEEL SQUARE POLE)

Proposed poles meet 130 MPH sustained winds.

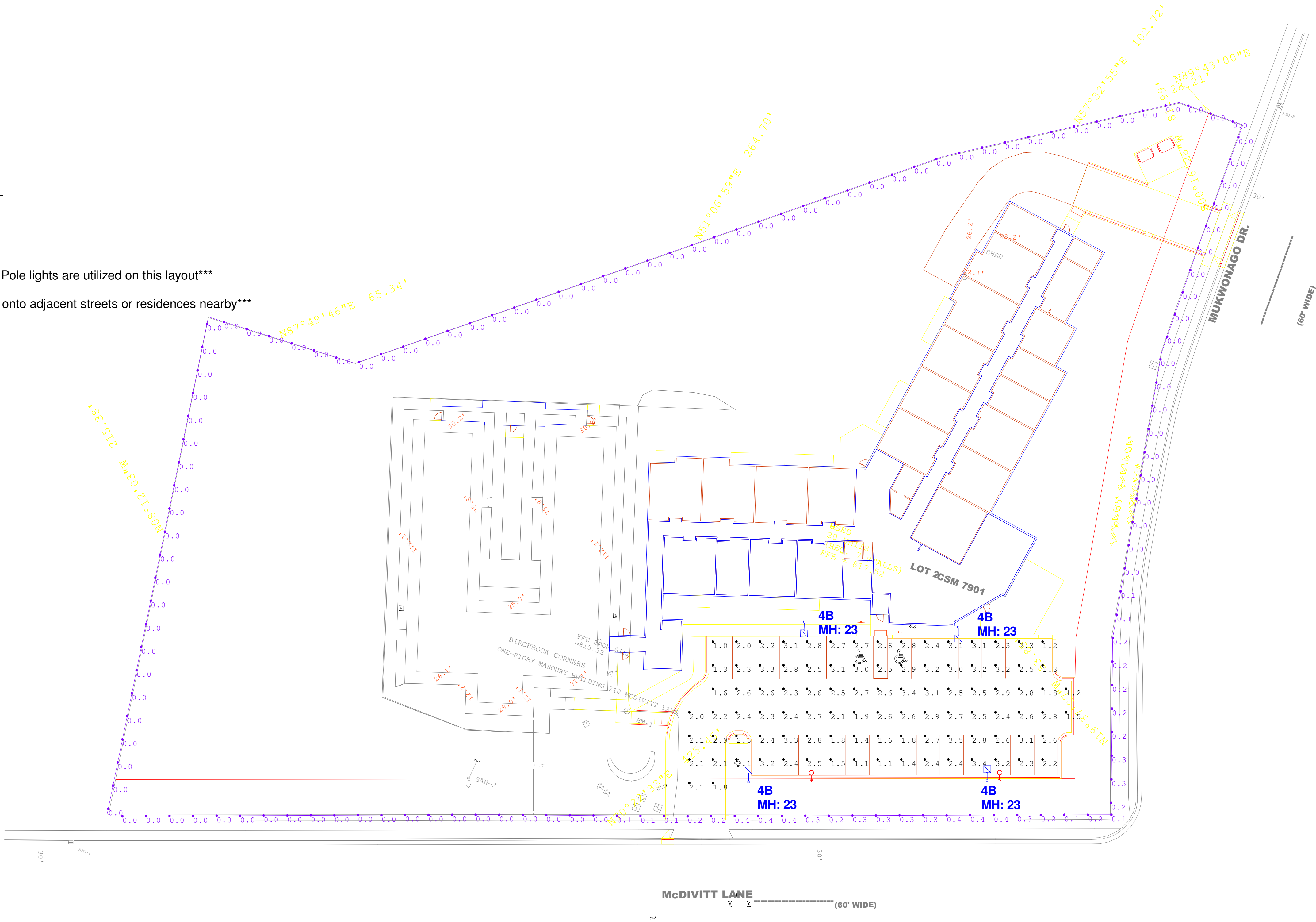
Additional Equipment:
(4) OSQ-DAXX (DIRECT ARM MOUNT)
(4) OSQ-BLSMF (BACK LIGHT SHIELD)

*** CUSTOMER TO VERIFY ORDERING INFORMATION AND CATALOGUE NUMBER PRIOR TO PLACING ORDER ***



****Note: no lights on mounted on the exterior of the building stucture. Pole lights are utilized on this layout****

****Back light shields are used with every fixture to reduce the spill light onto adjacent streets or residences nearby****



CREE LIGHTING
A COMPANY OF IDEAL INDUSTRIES, INC.
8201 Washington Ave, Racine, WI 53406 <https://creelighting.com> • (800) 236-6800

Illumination results shown on this lighting design are based on project parameters provided to Cree Lighting used in conjunction with luminaire test procedures conducted under laboratory conditions. Actual project conditions differing from these design parameters may affect field results. The customer is responsible for verifying dimensional accuracy along with compliance with any applicable electrical, lighting, or energy code.

Project Name: Castle Senior Living 210 Mcdivitt Ln Mukwonago, WI 53149

SR-39448

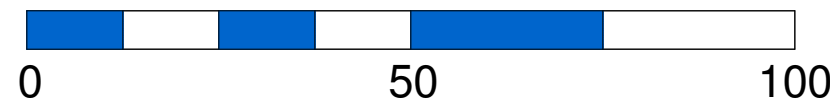
Footcandles calculated at grade

Filename: 191105JP1LJSR1.AGI

Layout By:
Linda Schaller

Date:12/12/2019

Scale 1" = 25'



February 4, 2020

Fred Winchowky, Plan Commission Chair,
Plan Commissioners

Re: Pro Health Site Plan Amendment to Incorporate Propane Tank Pad and above ground horizontal propane tank on East Side of Facility; MUKV2016993002

Dear President Winchowky and Members of the Village Plan Commission:

Proposal

The plans detail the construction of a 70'x16' stone pad on which a 66-ft long, 9-ft diameter above-ground propane storage tank will be placed. The plans also detail an area adjacent to the tank in which a central utility plant will be constructed in the future. This feature is proposed along the periphery of the facility, and as such, is a Site Plan Amendment which is a substantial change to the originally approved site plan for the facility.

Zoning Review

Zoning review considered Section 100-156 (B-5 zoning standards).

Following full staff review, including the Fire Department, there were a few minor concerns, which can be addressed as conditions, should the Plan Commission agree to do so. The proposed conditions are:

1. It is recommended to place landscaping plantings in a manner to effectively “soften” the view of the proposed tank. The Code States: “In addition to the required plantings in areas with the highest potential of public view, the landscaping shall be distributed throughout the site with emphasis on screening of unsightly site elements, such as refuse enclosures, utility boxes, building mechanical equipment and service doors and loading docks.”
2. There is a concern over the site fence not being extended to road surface along east side. Please show this or explain why this is not required.
3. There is a public safety concern over a need for bollards and/or fencing around the propane tank so as to prevent a vehicle from running into the tank. Please select an option and show on the site plan for review.

Stormwater Management: The proposed stormwater management plan is satisfactory, following a review completed by the Village Engineer. The Engineer noted there is no Wisconsin DNR regulations pertaining to the above ground storage of propane in proximity to the storm water detention feature on site.

Lighting: Applicant has supplied light fixture proposal which are capable of meeting all requirements pertaining to shielding from adjacent property owners and onto the Village streets. Staff finds the fixtures acceptable.

Landscaping:

There is a need to supply more detailed landscaping provision, as noted above. Staff will ask for a revised landscaping plan and the Village Planner shall review and finalize, prior to permit issuance.

Recommendation for Site Plan Amendment

Staff is recommending approval with the conditions listed below. The site plan conforms to setbacks and is recommended approval with the following conditions:

1. Prior to the start of any site construction or issuance of a building permit, whichever occurs first, the following shall occur:
 - a. Approval of landscaping plan by Village Planner addressing concerns over providing landscaping and plantings sufficient enough to satisfy Code Section 100-156.j.5.c.(B-5 zoning standards).
 - b. Approval of building plans by the Building Inspector addressing a need for installation of bollards and/or fencing, deemed sufficient enough by the Building Inspector to prevent a vehicle from crashing into the above ground tank, after receipt of approval of building plans by the State of Wisconsin.
 - c. The Village Engineer, the Utilities Director and the Public Works Director shall approve all updated and revised site engineering and utility plans and documents, including a complete Erosion Control Plan, and Stormwater Management Plan. Items specified in the letter from the Village Engineer dated January 21, 2020 shall be satisfied with the consent of the Village Engineer prior to permit issuance.



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denver 1899 Wynkoop Street, Suite 300
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414 / 259 0037 fax

www.graef-usa.com

PROJECT INFORMATION

PHC - MUKWONAGO
EXPANSION

240 Maple Avenue
Mukwonago, WI 53149



ISSUANCE AND REVISIONS

DATE	DESCRIPTION
12/20/2018	BID PACKAGE 2: CORE AND SHELL
02/08/2019	CONSTRUCTION BULLETIN 02 (BP1)
01/13/2020	VILLAGE SITE PLAN

SHEET INFORMATION

PROJECT MANAGER SJF
PROJECT NUMBER 2018-0215.00

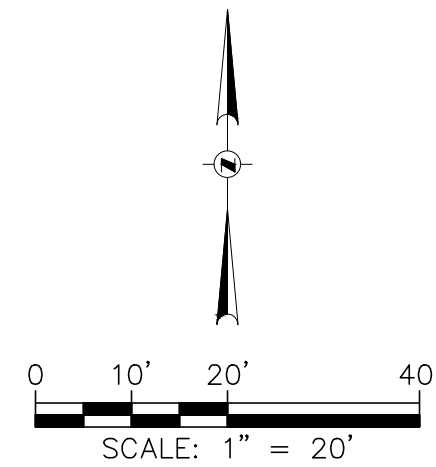
LAYOUT PLAN

C300

© Eppstein Uhen Architects, Inc.

LEGEND

- ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- CONCRETE PAVEMENT



GENERAL NOTES

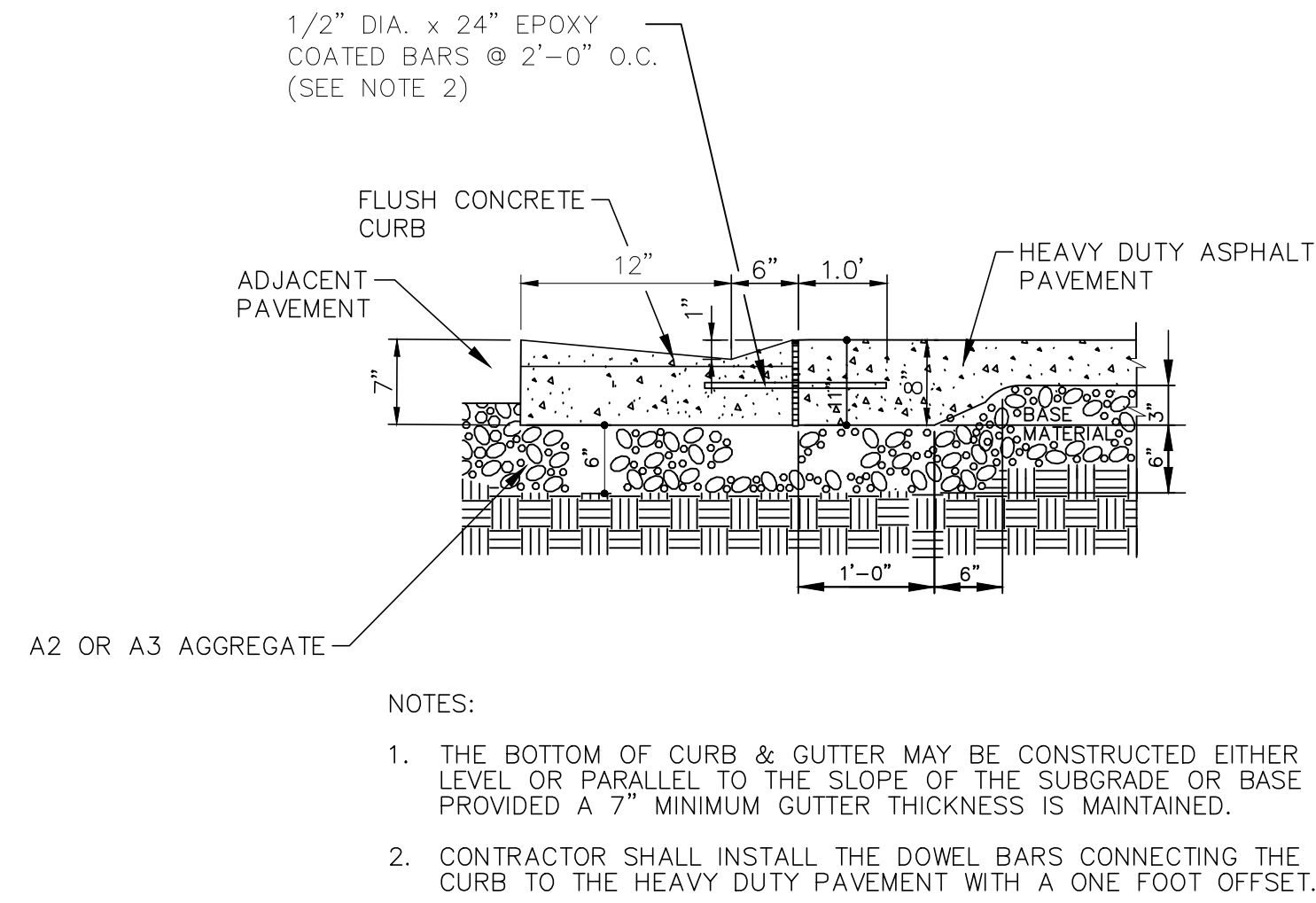
- THE BASE SURVEY WAS PREPARED BY GRAEF IN OCTOBER 2013. UNDERGROUND UTILITIES AND STRUCTURES HAVE SHOWN TO A REASONABLE DEGREE OF ACCURACY BASED ON SURVEY DATA AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND TO AVOID DAMAGE THERETO.
- REFER TO SHEET C000 FOR BENCHMARKS, DATUM AND TOPOGRAPHIC ELEMENTS.
- CONTRACTOR SHALL VERIFY LOCATION OF PROPOSED WORK AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING WORK.

LAYOUT NOTES

- THE BUILDING OUTLINE SHOWN IS FOR REFERENCE PURPOSES ONLY AND SHALL NOT BE USED FOR STAKING PURPOSES. THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECT AND STRUCTURAL ENGINEER ON THE STAKING OF THE BUILDING.
- ROADWAYS AND PARKING LOTS SHALL BE CONSTRUCTED OF BITUMINOUS ASPHALT PAVEMENT WITH CRUSHED AGGREGATE BASE MATERIAL.
- STONE PAD UNDER TANK SHALL BE 6"-8" OF 1"-2" CLEAR STONE ON A FABRIC WEED BARRIER.

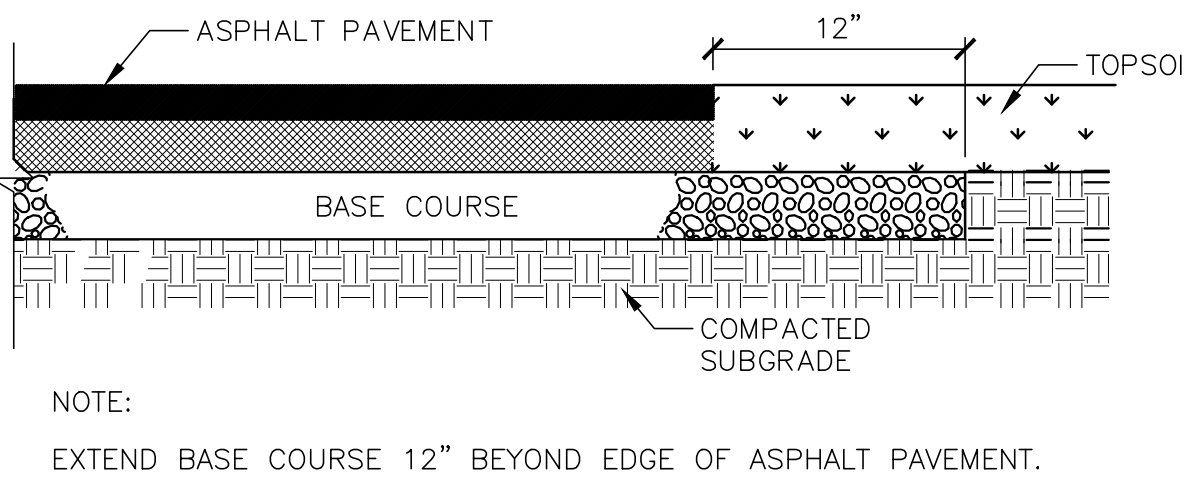
SETBACK REQUIREMENTS

- MIN. STREET YARD: 60 FEET, PER 40 FEET OF GREENSPACE
MIN. REAR YARD: 60 FEET, PER 20 FEET OF GREENSPACE
MIN. SIDE YARD: GREATER OF 50% OF BUILDING HEIGHT OR 20 FEET, PER 20 FEET OF GREENSPACE



FLUSH CONCRETE CURB AND GUTTER

SCALE N.T.S.



PAVEMENT EDGE CONDITION

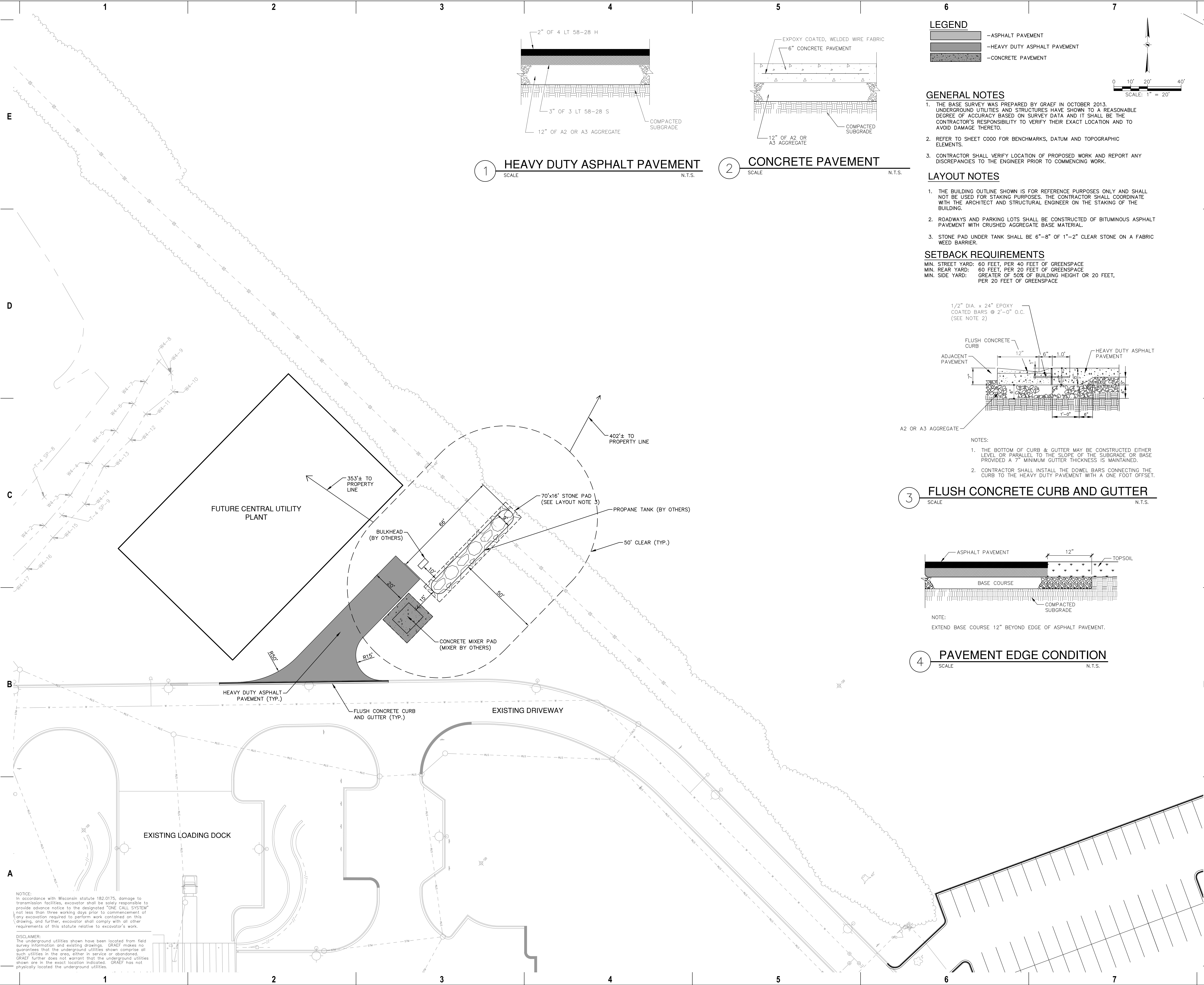
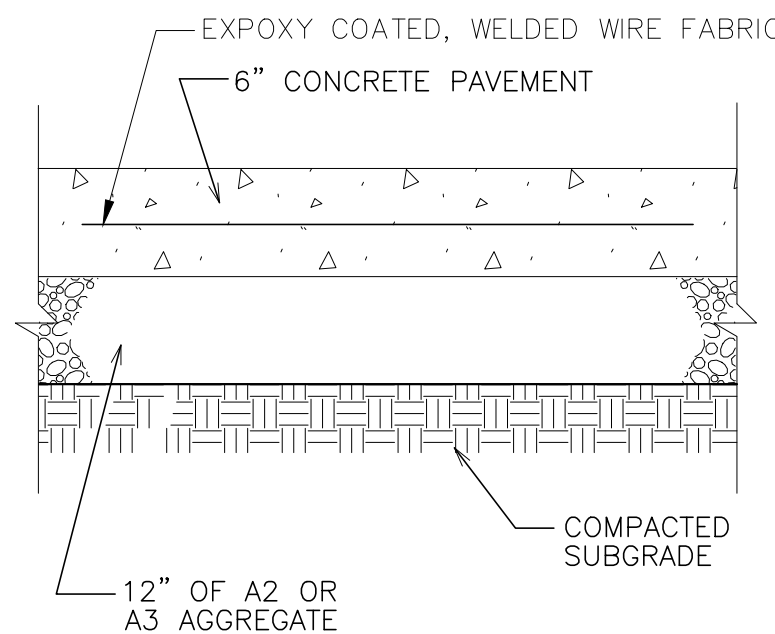
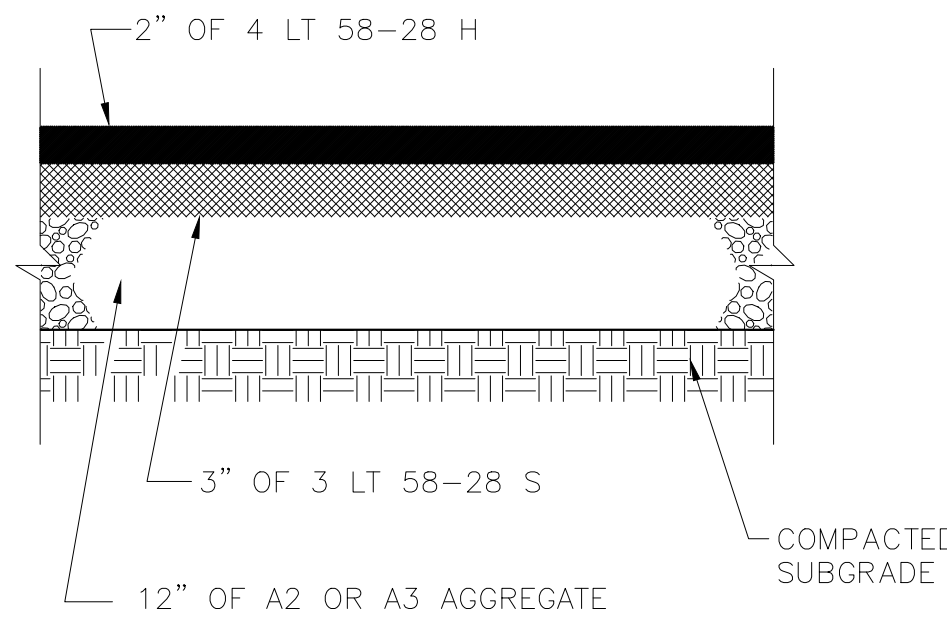
SCALE N.T.S.

HEAVY DUTY ASPHALT PAVEMENT

SCALE N.T.S.

CONCRETE PAVEMENT

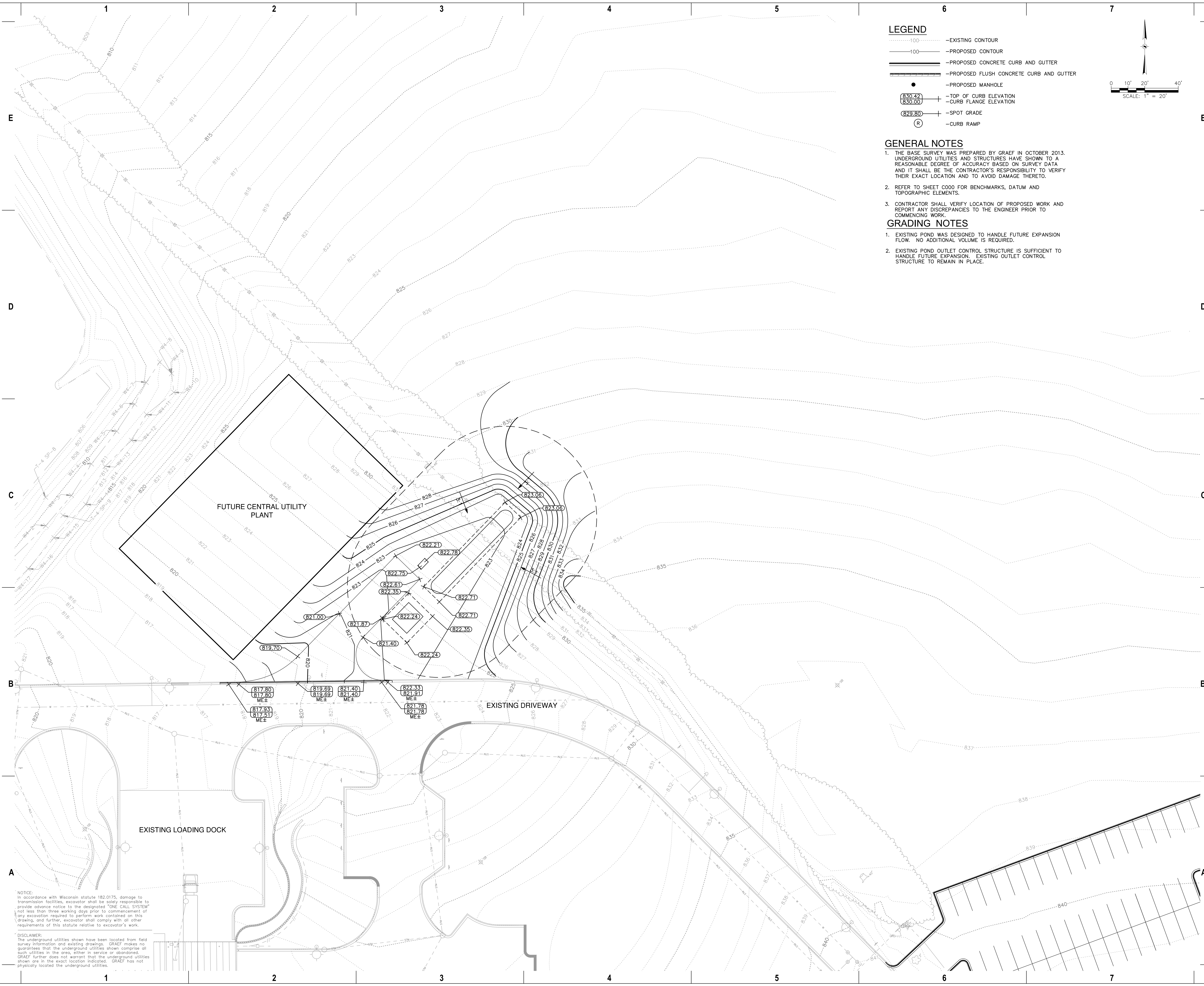
SCALE N.T.S.



NOTICE:
In accordance with Wisconsin statute 182.0175, damage to transmission facilities, excavator shall be solely responsible to provide advance notice to the designated "ONE CALL SYSTEM" not less than three working days prior to commencement of any excavation required to perform work contained on this drawing, and further, excavator shall comply with all other requirements of this statute relative to excavator's work.

DISCLAIMER:
The underground utilities shown have been located from field survey information and existing drawings. GRAEF makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. GRAEF further does not warrant that the underground utilities shown are in the exact location indicated. GRAEF has not physically located the underground utilities.

X:\ML\2018\20180215\CAD\Std\dwg\00Propane Tank Drawings\C_00_C400_Grading_215
1/13/2020 10:50 AM



LEGEND

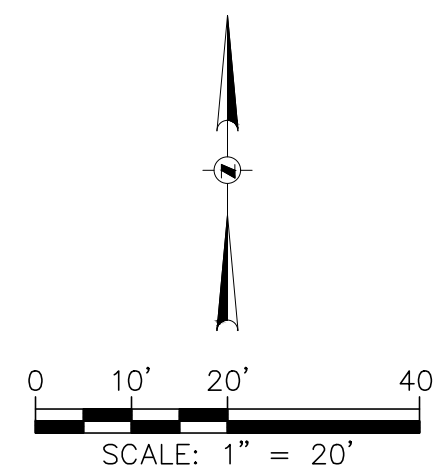
- 100--- -EXISTING CONTOUR
- 100— -PROPOSED CONTOUR
- === -PROPOSED CONCRETE CURB AND GUTTER
- ==== -PROPOSED FLUSH CONCRETE CURB AND GUTTER
- -PROPOSED MANHOLE
- (830.42)
(830.00) — -TOP OF CURB ELEVATION
-CURB FLANGE ELEVATION
- (829.80) — -SPOT GRADE
- (R) -CURB RAMP

GENERAL NOTES

1. THE BASE SURVEY WAS PREPARED BY GRAEF IN OCTOBER 2013. UNDERGROUND UTILITIES AND STRUCTURES HAVE SHOWN TO A REASONABLE DEGREE OF ACCURACY BASED ON SURVEY DATA AND IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THEIR EXACT LOCATION AND TO AVOID DAMAGE THERETO.
2. REFER TO SHEET C000 FOR BENCHMARKS, DATUM AND TOPOGRAPHIC ELEMENTS.
3. CONTRACTOR SHALL VERIFY LOCATION OF PROPOSED WORK AND REPORT ANY DISCREPANCIES TO THE ENGINEER PRIOR TO COMMENCING WORK.

GRADING NOTES

1. EXISTING POND WAS DESIGNED TO HANDLE FUTURE EXPANSION FLOW. NO ADDITIONAL VOLUME IS REQUIRED.
2. EXISTING POND OUTLET CONTROL STRUCTURE IS SUFFICIENT TO HANDLE FUTURE EXPANSION. EXISTING OUTLET CONTROL STRUCTURE TO REMAIN IN PLACE.



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SHEET INFORMATION

PROJECT MANAGER SJF
PROJECT NUMBER 2018-0215.00

GRADING PLAN

C400

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Village of Mukwonago GIS

Pro Health Aerial

DISCLAIMER: The Village of AssetAlly does not guarantee the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.



SCALE: 1" = 200'

VILLAGE OF ASSETALLY

123 Fake Street

PO Box 206

AssetAlly, WI 53149

262-555-5555

Print Date: 2/4/2020

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(1911-1979)

WILLIAM F. REILLY
(1932-2007)

December 3, 2019

Vial Email ONLY

Mr. Tim Rutenbeck
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Mr. Bob Harley
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Ms. Diana Dykstra
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Re: Ordinance Amending Section 100-14

Tim, Bob & Diana:

Enclosed is a proposed amendment to Section 100-14 of the Village Code relating to the method of application for building permits. This amendment would strike the language referring to the submission of the application in duplicate on forms furnished by the Building Inspector and instead, would provide for the forms to be prepared electronically by accessing them from the Village's website.

I also want to make you aware that the Governor signed a bill, 2019 Wisconsin Act 38, which states that we can only require permits be applied for in paper or electronic form, but not both. A copy of Act 38 is attached for your review.

Please look this over and advise as to whether this amendment is acceptable. Thank you for your consideration of this matter.

Sincerely,

HIPPENMEYER, REILLY, BLUM,
SCHMITZER, FABIAN & ENGLISH, S.C.


Mark G. Blum
Village Attorney

MGB/jb
Enc.

State of Wisconsin



2019 Assembly Bill 117

Date of enactment: November 21, 2019
Date of publication*: November 22, 2019

2019 WISCONSIN ACT 38

AN ACT to renumber and amend 101.65 (3); and to create 101.65 (3) (a) and (b) of the statutes; relating to: submission of building permit applications for one-family and two-family dwellings.

The people of the state of Wisconsin, represented in senate and assembly, do enact as follows:

SECTION 1. 101.65 (3) of the statutes is renumbered 101.65 (3) (intro.) and amended to read:

101.65 (3) (intro.) Shall Except as provided in par. (a), shall use the standard building permit form prescribed and furnished by the department, or, if approved by the department under s. 101.63 (7m), a different building permit form. A city, village, town, or county may require an applicant to submit the form in paper or electronic form, but may not require that an applicant submit the form in both paper and electronic forms. If a city, village, town, or county requires submission of the form in paper form, both of the following apply:

SECTION 2. 101.65 (3) (a) and (b) of the statutes are created to read:

101.65 (3) (a) The applicant may submit any of the following:

1. A printed copy of the form that the city, village, town, or county makes available electronically.
2. A printed copy of the form that the department makes available electronically.
3. The form that the department makes available to the public in paper form.

(b) The city, village, town, or county shall submit electronically to the department the information on the form submitted by the applicant under par. (a).

* Section 991.11, WISCONSIN STATUTES: Effective date of acts. "Every act and every portion of an act enacted by the legislature over the governor's partial veto which does not expressly prescribe the time when it takes effect shall take effect on the day after its date of publication."

**VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES**

ORDINANCE NO. ____

**ORDINANCE TO AMEND SECTION 100-14
OF THE VILLAGE OF MUKWONAGO MUNICIPAL CODE
REGARDING SUBMISSION OF BUILDING PERMIT REQUESTS**

The Village Board of the Village of Mukwonago do ordain as follows:

SECTION I

The introductory paragraph to Section 100-14 of the Municipal Code of the Village of Mukwonago is hereby repealed and recreated to read as follows:

No structure or development shall hereafter be located, erected, moved, reconstructed, extended, enlarged or structurally altered until after the owner or his/her agent has secured a building permit from the building inspector, unless otherwise exempted pursuant to section 100-16 of this chapter. Applications for a building permit shall be made in electronic form, which form may be accessed and filed on the Village's website. Individuals with disabilities who are not able to submit the application in digital form may be reasonably accommodated by contacting the Village Clerk or the Village Building Inspector. The Application shall include the following information to the extent applicable:

SECTION II

All Ordinances or parts of Ordinances contravening the terms and conditions of this Ordinance are hereby to that extent repealed.

SECTION III

The several sections of this Ordinance shall be considered severable. If any section shall be considered by a court of competent jurisdiction to be invalid, such decision shall not affect the validity of the other portions of the Ordinance.

SECTION IV

This Ordinance shall take effect upon passage and publication as approved by law, and the Village Clerk shall so amend the Code of Ordinances of the Village of Mukwonago, and shall indicate the date and number of this amending ordinance therein.

PASSED AND ADOPTED by the Village Board this _____ day of _____, 2019.

APPROVED:

Fred Winchowky, Village President

Countersigned:

Diana Dykstra, Village Clerk/Treasurer