HOWELL TOWNSHIP PLANNING COMMISSION REGULAR MEETING

3525 Byron Road Howell, MI 48855 June 25, 2024 6:30 pm

1.	Call to Order							
2.	Roll Call: () Wayne Williams - Chair () Paul Pominville () Robert Spaulding – Vice Chair () Mike Newstead – Secretary () Chuck Frantjeskos () Matthew Counts – Board Rep.							
3.	Pledge of Allegiance							
4.	Approval of the Agenda: Planning Commission Regular Meeting: June 25, 2024							
5.	Approval of the Minutes: Regular Meeting May 28, 2024							
6.	Zoning Board of Appeals Report							
7.	Township Board Report							
8.	Scheduled Public Hearings							
9.	Other Matters to be Reviewed by the Planning Commission							
10.	Old Business: A. Storage Container Ordinance - Discussion B. ADU Ordinance – Discussion							
11.	New Business: A. Request for temporary use – Fireworks Tent B. Chestnut Self-Storage – Final Site Plan Review							
12.	Call to the Public							
13.	Adjournment							

HOWELL TOWNSHIP PLANNING COMMISSION REGULAR MEETING MINUTES

3525 Byron Road Howell, MI 48855 May 28, 2024 6:30 P.M.

MEMBERS PRESENT: MEMBERS ABSENT:

Wayne Williams Chair
Robert Spaulding Vice Chair
Mike Newstead Secretary
Bob Wilson Board Rep. Alt.

Paul Pominville Commissioner

Tim Boal Commissioner Chuck Frantjeskos Commissioner

Also in Attendance:

Zoning Administrator Jonathan Hohenstein

Chairman Williams called the meeting to order at 6:30 pm. The roll was called. Chairman Williams requested members rise for the Pledge of Allegiance.

APPROVAL OF THE AGENDA:

Motion by Spaulding, Second by Newstead, "To approve the agenda." Motion carried.

APPROVAL OF THE MEETING MINUTES:

April 23, 2023

Motion by Boal, Second by Spaulding, "To approve the minutes as presented." Motion carried.

ZONING BOARD OF APPEALS REPORT:

Chairman Williams reported on the actions before the Zoning Board of Appeals.

TOWNSHIP BOARD REPORT:

Board Representative Alternate Wilson presented the draft Board minutes, presented his opinions on the taking of the Board minutes, and the Pioneer Cemetery project.

SCHEDULED PUBLIC HEARINGS:

None.

OTHER MATTERS TO BE REVIEWED BY THE PLANNING COMMISSION:

A. Education – Discussion

Zoning Administrator Hohenstein summarized the Board's discussion on education for the Planning Commission and the ZBA and sought input into options for the Commissioners. Discussion followed. It was the consensus of the Commission to use the new books with the ability to take the online MSU Extension class in the next year with the possibility to have an expert come in and teach a class.

OLD BUSINESS:

A. Storage Container Ordinance - Discussion

Commissioner's discussed the draft storage container ordinance from Planner Montagno, including:

- Clarification on section 14.07-A, especially, "shall be excluded from the requirements of this section"
- Will they be allowed in all zoning districts or should they be excluded from some districts
- Should storage containers be dealt with in an ordinance separate from Accessory Structures
- Clarity to the screening requirements including the height restrictions on fences
- Painting requirements for storage containers
- Concern on 14.07-F, "Zoning Administrator shall determine the most appropriate location"
- Limit the number of containers allowed per property

B. ADU Ordinance – Discussion

Commissioner's discussed the draft ADU ordinance from Planner Montagno, including:

- Concern with allowing additional residence on single family zoned parcels, changing the feel of the neighborhood, turning it into multi-family
- Section 14.33 already allows for multiple dwellings on a single parcel
- Would section 14.25, temporary use, address the need instead of adopting an ADU ordinance
- Include square foot size requirements in 14.10-E
- Clarification on detached units sharing a 15-foot wall
- Ability to limit the people using the ADU to "family"
- What happens should the primary unit not be owner occupied
- Running all utilities from the primary dwelling would limit the size of the ADU
- Including garbage service with an ADU
- Will an ADU increase the number of cars allowed under the ordinance
- Possibility of allowing attached ADUs and putting a process in place on a case-by-case basis for approval of detached ADUs

NEW BUSINESS:

None.

CALL TO THE PUBLIC:

Shane Fagan, 30 Santa Rosa Dr.: spoke about the draft storage container ordinance provisions, property owner's expectations regarding views across neighbor's property, complaint-based enforcement, desire to eliminate several ordinances, how the zoning of property is changed.

ADJOURMENT:

Motion by Newstead, Second by Boal, '	"To adjourn."	Motion carried.	The meeting was adjourned at 8:55 pm	١.
	Date		Mike Newstead Planning Commission Secretary	

HOWELL TOWNSHIP ZONING BOARD OF APPEALS UNAPPROVED MINUTES: May 21st 2024

3525 BYRON RD. HOWELL TOWNSHIP HALL, HOWELL MI 48855 (517-546-2817)

MEMBERS PRESENT:

MEMBERS ABSENT:

Ken Frenger Chairman
Carol Weaver Vice Chair
Jim McEvoy Secretary
Wayne Williams PC – Rep.
Jeff Smith Board Rep

Jonathan Hohenstein Zoning Administrator

Ken Frenger called the meeting to order at 6:30 p.m. The roll was called.

<u>APPROVAL OF AGENDA:</u> MOTION by Smith seconded by McEvoy, "To approve the May 21,2024 Zoning Board of Appeals Agenda" Motion carried.

<u>APPROVAL OF MINUTES</u>: MOTION by Weaver, seconded by Williams, "To Approve the April 16,2024 Zoning Board of Appeals Minutes as Presented" Motion carried.

TOWNSHIP BOARD REPORT: Synopsis was given by Smith no questions. 2024-2025 budget by approved, Education budget to be discussed as separate item below

PLANNING COMMISSION REPORT: Williams reviewed the minutes from the planning commission meeting. No questions

NEW BUSINESS:

<u>PETITIONER</u>: Kevin Staley, File# PZBA-2024-03, PARCEL #4706-12-400-017, 1920 E Marr Rd., Howell MI, 48855 (full legal description available upon request).

ARTICLE XIV - SUPPLEMENTAL REGULATIONS,

SECTION 14.07 Accessory Building Provisions, Item B.

REQUEST: Applying for a One Hundred (100) foot dimensional variance to allow for an accessory building to be located in front of the rear line of the house.

Jeff Smith asked questions regarding location of septic field, avoidance of power lines, location of propane tank, if the property could be split. Kevin Staley stated, lot heavily wooded, building would not be visible from road, (members agreed), building would have aesthetic match to house with roof pitch, siding and trim match. Ken Frenger asked questions about the why in front of house, answer was only level area after discussion of elevation (886-910 approximate 24ft). All questions were answered in a satisfactory manner as this was the only location viable for the detached garage on parcel.

Motion to approve File# PZBA-2024-03, PARCEL #4706-12-400-017, 1920 E Marr Rd., Howell MI, 48855 Roll was called, Williams – Yes, Frenger – Yes, Weaver – Yes, McEvoy – Yes, Smith-Yes: Motion carried.

OLD BUSINESS:

Howell Township Zoning Board of Appeals Unapproved Minutes: 5.21.2024

OTHER BUSINESS: Discussion on education opportunities for ZBA members. The budget is \$1000. The time frame is July 1 through June 30th. Consensus was that MSU modules and potentially MSU books would be sufficient

and fit within the existing budget.

CALL TO THE PUBLIC: No Response.	
<u>ADJOURNMENT</u> : Meeting adjourned at 7:30 P.M.	
Approved:	
As Presented:	Jim McEvoy, Secretary
As Amended:	
As Corrected:	
Dated:	

DRAFT

HOWELL TOWNSHIP REGULAR BOARD MEETING MINUTES

3525 Byron Road Howell, MI 48855 June 10, 2024 6:30 P.M.

<u>MEMBERS PRESENT:</u> <u>MEMBERS ABSENT:</u>

Mike Coddington Supervisor
Sue Daus Clerk
Jonathan Hohenstein Treasurer

Matthew Counts Trustee

Jeff Smith Trustee
Harold Melton Trustee
Bob Wilson Trustee

Also in Attendance:

Eleven people were in attendance.

Supervisor Coddington called the meeting to order at 6:30 p.m. The roll was called. Supervisor Coddington requested members rise for the Pledge of Allegiance.

CALL TO THE BOARD:

None

APPROVAL OF THE AGENDA:

June 10, 2024

Motion by Melton, **Second** by Smith, "**To approve the agenda as presented.**" Motion carried.

APPROVAL OF BOARD MEETING MINUTES:

May 13, 2024

BUDGET MEETING MINUTES

Motion by Hohenstein, Second by Melton, "To accept the budget meeting minutes from May 13th as presented." Motion carried.

REGULAR BOARD MEETING MINUTES

Motion by Hohenstein, Second by Melton, "To accept the regular Board meeting minutes from May 13th as presented." Motion carried.

CALL TO THE PUBLIC:

Lorena Ermacora, 1807 Oak Squire Ln.: Spoke in opposition to marijuana dispensaries.

Ken Schmenk, 508 Hightree Ct.: Spoke in opposition to marijuana dispensaries, issues with regulating dispensaries in municipalities.

Terri Moore, 3763 Crystal Valley Dr.: Spoke in opposition to marijuana dispensaries.

Mike Panczyk, 9484 Wendover Ct.: Spoke in opposition to marijuana dispensaries, lawsuits over municipalities' methods (Ypsilanti in particular) for choosing which dispensary to grant a permit.

Doug Moore, 3763 Crystal Valley Dr.: Spoke in opposition to marijuana dispensaries.

Teresa Panczyk, 9484 Wendover Ct.: Spoke in opposition to marijuana dispensaries.

Toni Michaels, 2849 Amberwood Trail: Spoke about starting a clean-up group for the Shiawassee River, the current state of the Shiawassee River, contamination and activity from property 2440 W. Highland Road.

Curt Hamilton, 1367 Crestwood Rd.: Spoke about the Shiawassee River, the PCB contamination, remediation efforts, EPA reports on the river, current activity at 2440 W. Highland Road.

UNFINISHED BUSINESS:

A. Hold Harmless Agreement

Trustee Wilson reported on the hold harmless agreement he provided to the Board. Supervisor Coddington explained that the Township is waiting on the Township Attorney's review of the agreement and Mr. Wilson's insurance coverage. Discussion followed.

NEW BUSINESS:

A. Leppek Rezoning Request from NSC to IFZ for parcel 4706-20-100-027

Treasurer Hohenstein reported on the rezoning request, the recommendation from the Planning Commission was to approve the request, the recommendation from the County Planning Department was to approve the request. Discussion followed.

Motion by Smith, Second by Hohenstein, "To approve the rezoning for parcel 4706-20-100-027 from the current of NSC to the proposed of IFZ based on the conditions as presented." Motion carried, 1 dissent.

B. Ballot Proposal Request for Dispensaries to be Allowed/Disallowed in Howell Township for November 2024

Trustee Wilson spoke on allowing a marijuana dispensary in the Township, putting the matter on the November ballot. Discussion followed. **Motion** by Wilson, "**To put it on the ballot.**" Clarity was requested. "**To approve a dispensary in Howell Township, on the ballot. People get tired of living in a dictatorship.**" No support for the motion was received. Motion failed due to lack of support.

- C. South Branch Shiawassee River Clean-Up Project, Guest Speakers Attending
 Trustee Wilson reported on the Shiawassee River in Howell Township, would like to start a committee
 to work on cleaning the river up. Discussion followed. Supervisor Coddington agreed to reach out to
 the County Drain Commission and be the contact with the public on this issue.
- D. Social Media

Trustee Wilson spoke about getting the Township to use social media, would like the Township to post polls for community input. Discussion followed.

CALL TO THE PUBLIC:

Lorena Ermacora, 1807 Oak Squire Ln.: Invited everyone to the substance abuse disorder fair being put on by the Livingston County Health Department.

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John Mills, 1750 Oak Grove Rd.: Spoke on the Shiawassee River clean-up and the process to petition the County Drain Commission to perform work on a drain.

Michkaya Gauci, 2446 Amberwood Trail: Spoke on the use of social media and getting younger people involved.

REPORTS:

A. SUPERVISOR:

No report

B. TREASURER:

Treasurer Hohenstein reported that the Treasury Department is working on preparing the summer tax bills

C. CLERK:

Clerk Daus reported that the permanent absentee ballot applications have been sent out.

D. ZONING:

See Zoning Administrator Hohenstein's report

E. ASSESSING:

See Assessor Kilpela's report

F. FIRE AUTHORITY:

Supervisor Coddington reported on the Fire Authority

G. MHOG:

Supervisor Coddington reported on MHOG

H. PLANNING COMMISSION:

Trustee Wilson reported on the Planning Commission. See draft minutes.

I. ZONING BOARD OF APPEALS (ZBA):

Trustee Smith reported on the ZBA. See draft minutes.

J. WWTP:

Treasurer Hohenstein reported on the wastewater treatment plant and the need for a new aeration pump. Discussion followed. **Motion** by Hohenstein, **Second** by Melton, "**To approve the replacement of the aeration pump from Detroit Pump as presented on an emergency basis**. Motion carried.

K. HAPRA:

Clerk Daus reported on HAPRA's survey.

L. PROPERTY COMMITTEE:

No report

M. PARK & RECREATION COMMITTEE:

No report

DISBURSEMENTS: REGULAR PAYMENTS AND CHECK REGISTER:

Motion by Hohenstein, Second by Melton, "To accept the disbursements as presented and any normal and customary payments for the month." Motion carried.

<u>ADJOURNMENT:</u> Motion by Counts, **Second** by Smith, "To adjourn at this time." Motion carried. The meeting was adjourned at 7:48 pm.

Sue Daus, Howell Township Clerk
Mike Coddington, Howell Township Supervisor
Tanya Davidson, Recording Secretary

MODIFY SECTION 2.02 TO INCLUDE PORTABLE STORAGE CONTAINERS AND CARGO CONTAINERS IN DEFINITIONS

Portable Storage Containers. Portable, weather-resistant receptable designed and used for the temporary storage and/or shipment of household goods or building materials (i.e. PODS or MODS), which are typically leased on a short-term basis.

Cargo Containers.

A primarily metal weather-resistant container designed to store or ship goods or building materials. Such containers include reusable steel boxes, freight and bulk shipping containers, and those with similar qualities which are intended for use as an accessory structure.

MODIFY SECTION 14.07 TO INCLUDE CARGO CONTAINER PROVISIONS

Section 14.07 ACCESSORY BUILDING PROVISIONS.

Accessory buildings, except as otherwise permitted in this Ordinance, shall be subject to the following regulations:

A. Any structure having two-hundred (200) square feet or less of internal floor area, which is used for any purpose other than the housing of humans, but is primarily to be use for the housing of non human purpose such as pets, yard equipment, yard maintenance supplies, tools, toys, including motorized or non motorized bicycles and types of household equipment, and which buildings do not have to meet the requirements of the Livingston County Construction Code and will not be built on a structural foundation as required in the Construction Code for other types of buildings, shall be excluded from the requirements of this Section and any required still adhere to the requirements of this section including the need for a zoning permits and payment of fees required under other provisions of this Ordinance except for placement requirements in subsection B. below.

- B. Detached accessory buildings shall be located entirely in the rear yard outside of the side and rear setback with the following exceptions:
- 1. Said building is being constructed pursuant to a Special Use Permit, and in that case, the Township Board after receiving the recommendation of the Planning Commission may authorize the location of the accessory building in any required yard.
- 2. For accessory structures to a residential use, if the primary residence is situated in the rear portion of a parcel over 2 acres, an accessory structure may be in the front yard if it is:
- a. Setback at least 100 feet from the front property line.
- b. Designed to be architecturally compatible with the principal structure, or screening that provides 80% opacity is provided between the structure and immediately adjacent neighbor properties.

- d. In no instance shall an accessory building be located within a dedicated easement right-of-way.
- C. Accessory buildings located on lots and parcels in all Zoning Districts shall be subject to the following regulations:

LOT OR PARCEL AREA	REGULATION	MAXIMUM SQUARE
REGULATION		FOOTAGE*
12,000 sq. ft. to 0.9 acre	4% of lot area	800 sq. ft.
1 acre to 1.9 acres	4% of lot area	2000 sq. ft.
2 acre to under 19.9 acres	4% of lot area, except that	3000 sq ft.
	commercial agricultural farm	
	operations shall be excluded	
	from this regulation	
20 acres and above	Subject to Max lot coverage	No limit

- D. No detached accessory building shall be located closer than ten (10) feet to any main building.
- E. No detached accessory building in AR, SFR, MFR, NSC, OS Districts shall exceed one (1) story or twenty (20) feet in height. Accessory buildings in all other districts may be constructed to equal the permitted maximum height of structures in said districts. Height shall be measured in accordance with Article II Definition 24.
- F. When accessory buildings or structures are located on a corner lot, they shall not be located in any front yard or side yard, but if it is determined by the Zoning Administrator that there is insufficient rear yard in which to locate them, the Zoning Administrator shall may determine the most appropriate location for them in the side yard with minimum encroachment upon the required side yard setback area.
- G. In no instance shall an accessory building be allowed until there is a principal building or structure located on the lot or parcel of land.
- H. No accessory building or structure shall be used as a dwelling, lodging or sleeping quarters for human beings, except as otherwise permitted in this Ordinance.
- I. Additional standards for Cargo Containers
 - 1. Containers shall not be stacked above the height of a single container.
 - 2. The exterior appearance of all cargo containers shall be well maintained and absent of unwarranted rust, holes, and other evidence of aging.
 - 3. No writing, advertising, or graphics are permitted on the exterior of the container.
 - 4. Portable storage Cargo containers shall be completely screened from view of abutting properties and/or rights-of-ways by a fence or vegetative screening that meets the requirements of Section 14.26 Fences and 28.03 Specific Landscaping Requirements for Zoning Districts.

- 5. <u>Portable storage cargo</u> containers shall be located upon an approved foundation that will support the weight of the structure and prevents rodent infestation.
- 6. No plumbing may be connected to a cargo container.
- 7. No livestock or pets may be stored in a cargo container.
- 8. Cargo containers shall be painted in colors which blend into the surrounding area.
- 9. Cargo containers shall not be used to store hazardous materials, as defined by the Michigan Fire Prevention Code, 1941 PA 107, MCL 29.1 *et seq*.

MODIFY SECTION 14.20 TO INCLUDE PORTABLE STORAGE CONTAINER PROVISIONS

Temporary buildings and structures are permitted during the period of construction, and sales involving change of ownership or rental occupancy. Such buildings, and structures shall be removed upon completion or abandonment of construction, sale or rental activities and prior to occupancy and use of the building or structure for permitted uses.

Also refer to Sections 14.28 and 16.09 for permits to park or use mobile homes on a temporary basis.

A. Portable Storage Containers may be permitted as a temporary structure subject to the following conditions:

- 1. No portable storage container may be stacked on top of another or any other object.
- 2. No electricity or plumbing may be connected to a portable storage container.
- 3. Portable storage containers must be placed on a driveway, gravel or paved area.
- 4. No portable storage container shall be used for living quarters.
- 5. No livestock or pets may be stored in a portable storage container.
- 6. Portable storage containers may be placed on a vacant lot only if that lot is associated with an approved building construction project.
- 7. Portable storage containers shall not be used to store hazardous materials, as defined by the Michigan Fire Prevention Code, 1941 PA 107, MCL 29.1 *et seq*.
- 8. No portion of a portable storage container shall be placed in a location which may cause hazardous conditions or constitute a threat to public safety.
- Portable storage containers in non-residential districts or which are associated with a non-residential use shall not occupy required off-street parking, loading or landscaping areas.

MODIFY SECTION 4.04 TO INCLUDE CARGO CONTAINERS AS PERMITTED ACCESSORY USES WITHIN THE AGRICULTURAL RESIDENTIAL DISTRICT

SECTION 4.04 PERMITTED ACCESSORY USES.

- A. Buildings and structures customarily incidental to the operation of an agricultural enterprise.
- B. Accessory buildings and structures customarily incidental to single family residential.
- C. Signs related to the permitted agricultural enterprise, provided that all such signs shall conform to the requirements of this Ordinance.
- D. House Hold Pets
- E. Cargo Containers, subject to Section 14.07

MODIFY SECTION 5.04 TO INCLUDE CARGO CONTAINERS AS PERMITTED ACCESSORY USES WITHIN THE RESEARCH AND TECHNOLOGY DISTRICT

Section 5.04 PERMITTED ACCESSORY USES

- A. Normal accessory uses to all permitted uses in Sections 5.02 and 5.03 above.
- B. Cargo Containers, see Section 14.07

MODIFY SECTION 8.04 TO INCLUDE CARGO CONTAINERS AS PERMITTED ACCESSORY USES WITHIN THE OFFICE SERVICE DISTRICT

Section 8.04 PERMITTED ACCESSORY USES.

- A. Normal accessory uses to "Permitted Principal Uses."
- B. Normal accessory uses to approved "Permitted Principal Special Uses."
- C. Incidental commercial services that serve only the occupants of the offices and have access only from inside the building in which the occupants are located.
- D. See Section 14.34.
- E. Cargo Containers, subject to Section 14.07

MODIFY SECTION 10.04 TO INCLUDE CARGO CONTAINERS AS PERMITTED ACCESSORY USES WITHIN THE REGIONAL SERVICE COMMERCIAL DISTRICT

Section 10.04 PERMITTED ACCESSORY USES.

- A. Normal accessory uses to all "Permitted Principal Uses."
- B. Normal accessory uses to all "Permitted Principal Special Uses." See Section 14.34. 14.
- C. Cargo Containers, subject to Section 14.07

MODIFY SECTION 11.04 TO INCLUDE CARGO CONTAINERS AS PERMITTED ACCESSORY USES WITHIN THE HIGHWAY SERVICE COMMERCIAL DISTRICT

Section 11.04 PERMITTED ACCESSORY USES.

- A. Normal accessory uses to all "Permitted Principal Uses."
- B. Normal accessory uses to all "Permitted Principal Special Uses."
- C. Cargo Containers, subject to Section 14.07

MODIFY SECTION 12.04 TO INCLUDE CARGO CONTAINERS AS PERMITTED ACCESSORY USES WITHIN THE INDUSTRIAL FLEX ZONE

Section 12.04 PERMITTED ACCESSORY USES.

A. All normal accessory uses to all "Permitted Principal Uses" and "Permitted Principal Special Uses" including:

- 1. Restaurants.
- 2. Cafeterias.
- 3. Medical and health care facilities.
- 4. Office facilities.
- 5. Warehouse and storage facilities.
- 6. Physical fitness facilities.
- 7. Work clothing sales and service facilities.
- 8. Banking facilities.
- 9. Education, library and training facilities.
- 10. Research and experimentation facilities.
- 11.Truck or other vehicular and equipment service maintenance, repair and storage facilities conducted completely within a building, or structure.

- 12.Indoor sales display areas.
- 13.See Section 14.34.
- 14. Cargo Containers, subject to Section 14.07

MODIFY SECTION 13.04 TO INCLUDE CARGO CONTAINERS AS PERMITTED ACCESSORY USES WITHIN THE INDUSTRIAL DISTRICT

Section 13.04 PERMITTED ACCESSORY USES.

- A. Normal accessory uses to all Permitted Principal Uses.
- B. Normal accessory uses to all Permitted Principal Special Uses.
- C. See Section 14.34
- D. Cargo Containers, see Section 14.07

Draft date: 6/20/24

SECTION 1 MODIFY SECTION 2.02 TO INCLUDE DWELLING, ACCESSORY TO DEFINITIONS

Dwelling, Accessory (ADU): A supplemental, smaller dwelling unit either developed within an existing single-family house (such as a basement, attic or addition) or as a smaller detached accessory building in which at least a 15 foot wall is shared with the Principal Dwelling Unit.

SECTION 3 MODIFY SECTION 14.10 ACCESSORY BUILDING AS DWELLING TO INCLUDE BASEMENT AS DWELLING AND ADDITIONAL REGULATIONS

No building or structure on the same lot with a principal building shall be used for dwelling purposes, except as follows: specifically permitted in this Ordinance.

Accessory dwelling units (ADU's), except as otherwise permitted in this Ordinance, shall be subject to Section 14.07 and the following regulations:

- A. **Authorization**: No ADU shall be established prior to the issuance of a land use permit for the ADU. The applicant shall submit the following information for review to the Zoning Administrator:
 - 1. A plot plan showing the location of the proposed accessory dwelling unit, lot identification (address and property number), size of lot, dimension of lot lines, existing improvements on the lot, location of structures on adjacent lots, abutting streets, driveways, and parking areas.
 - 2. Sufficient architectural drawings or clear photographs to show the exterior building alterations proposed.
 - 3. Interior floor plans showing the floor area of the proposed accessory dwelling unit and the primary dwelling.
- B. **Dimensions & Setbacks:** ADU's must meet lot dimensions and setbacks of the corresponding zoning district.
- <u>C.</u> **Lot Coverage:** ADU's shall adhere to the lot coverage requirements of the corresponding zoning district.
- C.D. Floor Area: The floor area of an ADU shall be no more than 25% of the floor area of the principle residence.
- D.E. Amount of ADUs per Parcel: No more than 1 ADU per parcel shall be constructed. ADUs are only permitted on lots with a single-family dwelling. ADUs are not permitted on parcels with existing duplexes/apartments.
- —F. Occupancy/Bedroom Requirements: An ADU shall have no more than four (4) individuals including those less than 18 years of age residing and no more than two (2) bedrooms within the ADU.

F.G. Access:

1. Attached ADUs are permitted to have up to two access points where one is located in a common entrance foyer and the other is an exterior entrance located on the side or rear of the ADU.

Howell Township Zoning Ordinance Proposed Text Amendment

Accessory Dwelling Units

Draft date: 6/20/24

- 2. Detached ADUs are permitted to have a main entrance located on the front of the dwelling and an additional side/rear yard entrance.
- G.H. Design Characteristics: The ADU shall be designated so that the appearance of the building will remain that of a single-family dwelling. The ADU shall not detract from the appearance of the lot as a place of one (1) residence and shall be aesthetically compatible in appearance with other single-family dwellings in the immediate area based on architectural design and exterior materials.
- H.I. Driveway and Parking: Shall provide a combined off-street parking for a minimum of four (4) automobiles for the parcel. An ADU shall not be permitted to have a separate driveway.
- **I.J. Renting an ADU:** Leasing or renting an ADU for shorter than thirty (30) days is prohibited. The ADU shall not otherwise be made available to any one (1) person for periods less than thirty (30) days.

J.K. Utilities:

- 1. An ADU shall be connected to potable water and sanitary facilities in compliance with the Livingston County Health Department.
- 2. Utility service to an ADU shall rely on the same metering and service panel as those that serve the Primary Dwelling Unit except as otherwise required by the building inspector.
- **K.L. Garage:** A garage may be erected to serve an ADU subject to the following requirements:
 - 1. An ADU garage shall be part of the same structure as the ADU
 - 2. An ADU garage shall be no greater than 450 square feet in gross floor area.
 - 3. An ADU garage shall be no higher than seventeen (17) feet as measured to the highest point of the roof. Shall be a maximum of one (1) story and at no time taller than the L. Principal Dwelling Unit.
 - 4. An ADU garage shall comply with the same setback standards as required for an ADU in the corresponding zoning district.
 - 5. No more than one (1) ADU garage shall be erected on a lot.
 - 6. At no time shall the garage be used as a dwelling.

L.M. Principal Dwelling Unit:

- 1. Must be owner occupied.
- 2. The Principal Dwelling Unit and the ADU must share common water, septic, and electric facilities, in compliance with state and county codes.
- 3. No basement structure shall be used for an ADU, unless a completed story is situated immediately above the basement structure and is used as an owner-occupied dwelling, apart from underground homes designed and built in accordance with the Construction Code in effect in the Township.

M.N. Detached ADU:

1. Shall only be located in the rear yard, outside of rear and side setbacks with a minimum of 10 feet behind the Principal Dwelling Unit.adhere to the locational requirements for an accessory structure.



117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: June 20, 2024

For Howell Township, Michigan

GENERAL INFORMATION

Applicant: Galaxy Fireworks

Ali Yahya 6 Ashby

Dearborn, Michigan 48120

Application Date: June 11, 2024

Location: 1475 N Burkhart Road

Zoning: RSC – Regional Service Commercial

Action Requested: Temporary Site Plan approval

Required Information: Deficiencies are noted in the following sections of this review.

PROJECT AND SITE DESCRIPTION

The applicant is seeking a temporary use permit to install a temporary building and exterior canopies/tents to sell fireworks as outlined in Section 14.25 of the Ordinance. The proposal is to use a portion of the parking lot in front of the Adidas Outlet store, which is located on N Burkhart in the Tanger Outlets, located north of W I-96.

The proposed tent structure is twenty (20) feet by forty (40) feet in size and is to be located within the parking lot near the center of the parking. A temporary storage structure is also proposed, but no dimensional information is provided. The blue dot in the aerial image provided in figure 1. below indicates the proposed location for the tent.



Figure 1. Aerial Image of Subject Site and Vicinity

The temporary fireworks sales building and exterior tents are proposed to be set up June 20, 2024, and torn down by July 7th. The proposed days of operation are June 20, 2024, through July 4, 2024. The applicant has not specified their proposed daily hours of operation. The existing commercial facilities will remain open during the firework sales.

The sale of "Consumer Fireworks" is permitted through State Act 256 of 2011 "Consumer Fireworks" in the Act is defined as "fireworks devices that are designed to produce visible effects by combustion..." The applicant has applied for a permit from the State of Michigan.

Items to be Addressed: None.

FIRE SAFETY REVIEW

As required by the Act, the site and the structure housing the firework sales is required to meet certain fire safety conditions as required by National Fire Protection Association (NFPA) 101 and NFPA 1124. Specifically, due to the nature of the product being sold the Fire Marshal must review the site plan in regard to fire safety and provide communication to the Township.

Items to be Addressed: Consider Fire Marshal's comments

PARKING AND CIRCULATION

The proposed temporary sales structure will be within the Tanger Outlets parking lot. It appears to be located within the centermost area of the lot. This use will also generate additional parking needs. Based on parking requirements for retail uses, the existing outlet has sufficient spaces, and the temporary sales trailer would require about five (5) spaces during its brief stay. Because the temporary building is located at the center of the site it is not expected to create circulation issues.

Items to be Addressed: None.

SIGNS

The applicant has not indicated that any exterior signs are proposed for the site. Per the Michigan Fireworks Safety Act 256 of 2011 Section 28.462 requires signage stating the smoking prohibition satisfies the requirements of NFPA 1124.

While the applicant has not given any indication of signage in their application, they should bear in mind that all signage must comply with Article 19, Sign Regulations, of the Zoning Ordinance. If any other signs are proposed for advertisement, a separate sign permit must be obtained from the Township.

Items to be Addressed: 1) Planning Commission to determine if additional exterior safety signs are to be required. 2) Applicant provides signage that complies with the Michigan Fireworks Safety Act and that satisfies the requirements of NFPA 1124. 3) If any other signs are proposed for advertisement purposes, a separate sign permit must be obtained from the Township.

TEMPORARY USE

The applicant is seeking a temporary use permit as outlined in Section 14.25 of the Ordinance. Temporary uses are permitted in any district, provided that the Planning Commission determines the following to be true:

• The location of such uses and their related activities will not adversely affect public health, safety, morals, and general welfare in the district in which it is to be temporarily located.

The proposed use should not impact public health.

All temporary uses shall have a reasonable time limit placed upon their use based upon the
normal periods of time such uses need to exist for their expressed purpose. The time limit
shall be expressed in calendar dates for the number of days authorized by the Planning
Commission.

Galaxy Fireworks – Temporary SPR 6/20/24

The applicant has proposed the time period for this use, but has not included proposed hours of operation. Once provided, if the Planning Commission believes these times are reasonable, they should place a condition upon the application that if the temporary use permit is approved, such approval expires on July 7, 2024.

• Temporary uses may be granted on the basis of compliance with the criteria stated in Section 20.08 (Criteria for Site Plan Review).

Items to Be Addressed: Planning Commission should review the above criteria with the applicant and determine if there will be adverse impacts with this facility.

RECOMMENDATIONS

The following items should be addressed by the applicant:

- 1. Comply with any conditions imposed by the Fire Marshal.
- 2. Provide exterior safety signage that complies with the Michigan Fireworks Safety Act and that satisfies the requirements of NFPA 1124.
- 3. Apply for a temporary sign permit if any exterior advertising signage is proposed.
- 4. Comply with conditions imposed by Planning Commission.
- 5. Provide documentation of final approval from State of Michigan.

We look forward to discussing this with you at the next Planning Commission meeting.

CARLISLE/WORTMAN ASSOC., INC.

Paul Montagno, AICP

Principal

CARLISLE/WORTMAN ASSOC., INC.

Grayson Moore Community Planner

HOWELL TOWNSHIP

Application for Special Meeting 3525 Byron Road Howell, MI 48855

Phone: 517-546-2817 ext. 108 Email: inspector@howelltownshipmi.org

Fee: \$900.00 File No.: PC 2024-08

	THE IVO.
Parcel ID #: 4706- 29 - 400 - 608	Date06/11/2024
Applicant Name Ali Yahya	Applicant Address 6 Ashby In Dearborn Mi 48120
Phone 313-266-0143 Fax	Email Aliyahya68@icloud.com
Property Owner Name Tanger Outlets	
Phone 517-237-3798 Fax	Email Kristy.Carr@tanger.com
Township Board Meeting Requested Meeting Date:06/15/2024	Township Planning Commission Meeting Location of Property: 1475 N Burkhart Rd Howell Mi 4885
Project:	
	irework Display tent at 1475 N Burkhart Rd between June Oth to July 5th of 2024 year

Meeting will be posted once payment is received

Final date will be determined by availability of hall and board members

HOWELL TOWNSHIP

Application for Site Plan Review

3525 Byron Road Howell, MI 48855 Phone: 517-546-2817 ext. 108 Email: inspector@howelltownshipmi.org

File #_____

Parcel ID #: 4706-29 - 400 - 008	Date 06/11/2024	
Applicant NameAli Yahya	Applicant Address 6 Ashby In Dearborn Mi 48120	3
Phone 313-266-0143 Fax	Email Aliyahya68@icloud.com	
Property Owner Name	ts	
Phone 517-237-3798 Fax	EmailKristy.Carr@tanger.com	
Please list all recipients to receive informat	ion and/or reports:	
Name:	Email	
Name:	Email	
Name:	Email	
Location of Property1475 N Burkhart Ro	d Howell Mi 48855	
Location of Property		
Existing Use	Proposed Use Firework Dispaly Tent	
Check One:		
Preliminary Site Plan Review (20.06)	Final Site Plan Review (20.07)	
X Temporary Use (14.34)	Commercial/Industrial Development	
Subdivision/Site Plan Condo	Multi-Family/Condo	
Planned Unit Development (PUD) Type:	1 2 3 4 5	

Applicant needs to provide the following site plan drawings: four (4) full size copies, eight (8) - 11" x 17" copies, and an electronic set (either on an USB drive or provide an online link) for the preliminary site plan drawings. Drawings shall be submitted with an application for site plan review (20.06 a) thirty (30) days prior to the meeting.

The site plan is to contain the following information or the drawing submitted under the Land Use Permit can be utilized if it also contains the following information and is accurately drawn to scale:

- a. The date, north arrow and scale. The scale shall be not less than 1'' = 20' for property under three (3) acres and at least 1'' = 100' for those (3) acres or more.
- b. Statistical data including number of dwelling units, size of dwelling units, if any, and total gross acreage involved. In the case of a mobile home park, the size and location of each mobile home site shall be shown.
- c. The location and height of all existing and proposed structures on and within 100' of the subject property's boundary.
- d. All lot and/or property lines are to be shown and dimensioned, including building setback lines on corner lots.
- e. The location and dimensions of all existing and proposed drives, sidewalks, curb openings, signs, exterior lighting, curbing, parking areas (show dimensions of a typical parking space), unloading areas and recreation areas.
- f. Vehicular traffic and pedestrian circulation features within and without the site.
- g. The location of all proposed landscaping, fences, or walls.
- h. Size and location of existing and proposed utilities, including proposed connection to public sewer or water supply system.
- i. A location map indicating the relationship of the site to the surrounding land uses.
- j. The location and pavement width and right-of-way width of all abutting roads, streets, alleys, or easements.
- k. Show properties and respective zoning abutting the subject property.
- I. The location and size of all surface water drainage facilities.
- m. Contour intervals shall be shown at a maximum of 2' intervals, with 1' intervals preferred for topographic features of the site.

By signing below the applicant understands and acknowledges the following statements:

- a. The Planning Commission has sixty (60) days from filing date to approve or deny site plan.
- b. Approval of preliminary site plan is valid for a period of one (1) year from date of approval.
- c. A one (1) year extension may be granted upon written request of the applicant and approval by the Planning Commission.
- d. Approval of preliminary site plan shall expire one year after approval of final site plan unless zoning permit has been obtained.
- e. Approval of the final site plan expires six (6) months after approval unless a land use permit application is applied for and granted.

- f. The final site plan approval shall expire one (1) year following the date of approval unless construction has begun on the property in accordance with the plan.
- g. Applicant may appeal the Planning Commission's ruling of the final site plan to the Board of Appeals within ten (10) days of the Planning Commission's decision on all matters except use of the land, use of buildings, or structures.
- h. The Planning Commission has sixty (60) days from the date of the Planning Commission meeting at which the final site plan was received to approve or deny the final site plan.
- i. Improvements not in conformance with the final site plan shall be deemed a violation of the ordinance and be subject to the penalties of the ordinance.
- j. Sewer system and water system tap in fees, if applicable, must be paid prior to issuance of a land use permit.

Applicant herby deposes and says that all the above statements and information contained in this application and any statements submitted herewith or on the site plan are true and accurate.

(PE)	Yousif Hassan
Owner Signature	Print Name
06/11/2024	
Date	
Subscribed and sworn to before me this _	June day of 11 , 20 24 .
	wayneCounty, Michigan
Notary Public	
My Commission Expires:, 20	·

Michigan Department of Licensing and Regulatory Affairs BUREAU OF FIRE SERVICES 611 W. OTTAWA ST., 4TH FLOOR LANSING, MI 48933

Yousif Hassan Galaxy Fireworks

COMPLAINT INFORMATION:

THE ISSUANCE OF THIS LICENSE SHOULD NOT BE CONSTRUED AS A WAIVER, DISMISSAL OR ACQUIESCENSE TO ANY COMPLAINTS OR VIOLATIONS PENDING AGAINST THE LICENSEE, ITS AGENTS OR EMPLOYEES.

FUTURE CONTACTS:

YOU SHOULD DIRECT INQUIRIES REGARDING THIS LICENSE OR ADDRESS CHANGES TO THE DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS BY CALLING (517) 241-8847

YOUR LICENSE MUST BE DISPLAYED IN A PROMINENT PLACE.

GRETCHEN WHITMER

STATE OF MICHIGAN

Governor

Michigan Department of Licensing and Regulatory Affairs

TYPE OF CONSUMER FIREWORKS RETAIL FACILITY: TEMPORARY ISSUED TO THIS CONSUMER FIREWORKS RETAIL FACILITY PURSUANT TO THE MICHIGAN FIREWORKS SAFETY ACT, P.A. 256 OF 2011.

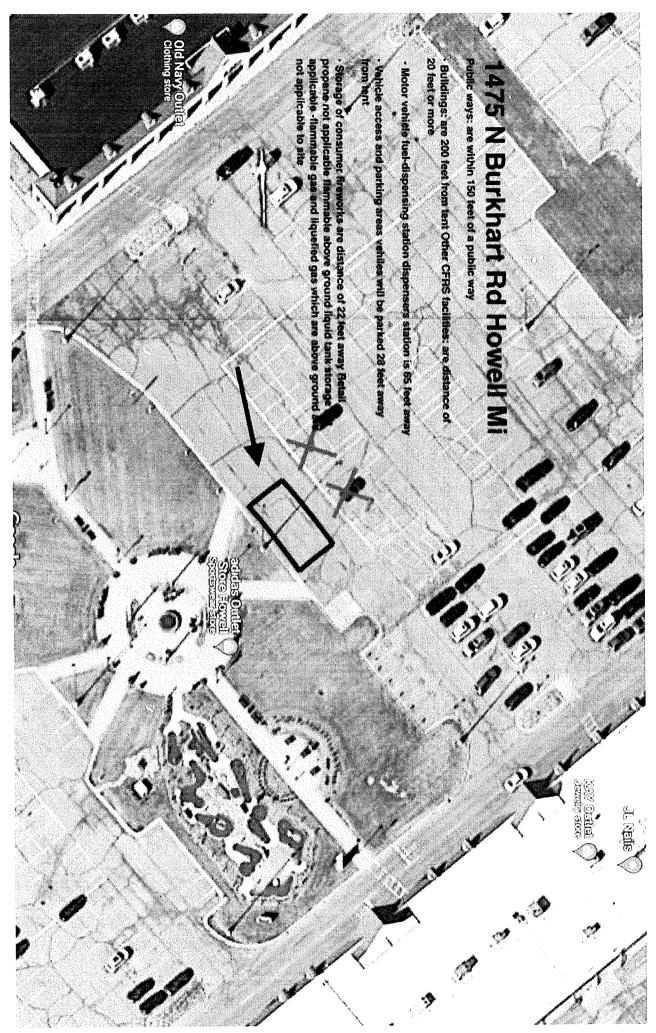
THIS CERTIFICATE REMAINS THE PROPERTY OF THE MICHIGAN DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS (LARA), AND IS TRANSFERABALE UNDER CONDITIONS SPECIFIED IN MCL 28.454(L), MICHIGAN FIREWORKS SAFETY ACT. THIS CERTIFICATE IS SUBJECT TO PAYMENT OF CERTIFICATE FEES FOR INITIAL AND ANNUAL APPLICATION OR TRANSFER FEES.

Yousif Hassan Galaxy Fireworks 1475 N BURKHART RD HOWELL MI 48855

Certificate Number CT02024

Expiration Date: 04/30/2025

This document is duly issued under the laws of the State of Michigan



June 20th - July 5th



CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 04/29/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	- 110		Total House House	CONTAC		1.			
NAME						72 0007	FAY	202	CEA 2612
BIBERK P.O. Box 113247				PHONE (A/C, No, Ext): PHONE (A/C, No, Ext): 203-654-3613					
Stamford, CT 06911 E-MAIL ADDRESS: customerservice@biBERK.com									
	5335(4) 51 55511						DING COVERAGE		NAIC#
					RA: Berkshire	Hathaway Direc	ct Insurance Company		10391
INSURED Wow Cakes LLC				INSURE	RB:				
Work Cures LLC			Į	INSURE	RC:				
10365 Haggerty Street				INSURE	RD:				
Dearborn, MI 48126				INSURE	RE:				
				INSURE	RF:				
COVERAGES CER	TIFIC	CATE	NUMBER:				REVISION NUMBER:		
THIS IS TO CERTIFY THAT THE POLICIES									
INDICATED. NOTWITHSTANDING ANY RE CERTIFICATE MAY BE ISSUED OR MAY EXCLUSIONS AND CONDITIONS OF SUCH	PERT	AIN,	THE INSURANCE AFFORDS	ED BY	THE POLICIES	S DESCRIBED	D HEREIN IS SUBJECT TO		
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DED RETENTION \$								\$	
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AND EMPLOYERS' LIABILITY ANYPROPRIETOR/PARTNER/EXECUTIVE							E.L. EACH ACCIDENT	\$	
OFFICER/MEMBER EXCLUDED? (Mandatory in NH)	N/A						E.L. DISEASE - EA EMPLOYEE		
If yes, describe under DESCRIPTION OF OPERATIONS below								\$	
	 	 					E.L. DISEASE - POLICY LIMIT	٥	
Professional Liability (Errors & Omissions): Claims-Made							Per Occurrence/ Aggregate		
		<u> </u>							
DESCRIPTION OF OPERATIONS / LOCATIONS / VEHIC	LES (A	ACORE	O 101, Additional Remarks Schedu	le, may be	e attached if mor	e space is requir	ed)		
Hired And Non-Owned Auto is included in the general liability policy limits (see endorsement attached).									
Tanan Managaran III O to Part					hillib. / n =	laua aua - :- 1 . 11	a ab a d\		
Tanger Management LLC is listed as additional insured as it pertains to general liability (see endorsement attached).									
CERTIFICATE HOLDER CANCELLATION						·			
	CENTIFICATE HOLDER CANCELLATION								
SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.									
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					@ 40	00 204E A C	ORD CORPORATION	Λ II »i ~	hte recented

ON-SITE AGREEMENT

THIS AGREEMENT is entered into this May 17, 2024 by and between Tanger Services, Inc., with an address of 3200 Northline Ave., Suite 360, Greensboro, North Carolina 27408 ("Tanger"), and Wow Cakes LLC (DBA Galaxy Fireworks) with an address of 10365 Haggerty Street, Dearborn, MI 48126 ("Client"); Tanger and Client may hereinafter be referred to as a "Party" or "Parties."

WHEREAS, Tanger is the property manager for the Tanger Outlet Centers located throughout the United States and Canada.

1. <u>Scope of Agreement</u>. The Client will receive the deliverables for the scope and term of the agreement as detailed in the below chart:

Fireworks Tent Sale – 20 day contract, \$3,500 base rent with \$500 Security Deposit.

SET-UP ALLOWED June 17 - June 19

STATE INSPECTION - June 20

SALES PERIOD June 20 – July 4

TEAR DOWN AND CLEAN-UP July 5 - 7

WowCakes (DBA Galaxy Fireworks) shall use and occupy the area marked on site map for the retail sale and display of state-approved Class C, 1.4G Consumer Fireworks. WowCakes (DBA Galaxy Fireworks) will secure all necessary permits and approvals from local jurisdiction, state licensing and ensures compliance is met. WowCakes (DBA Galaxy Fireworks) to secure all product during activation period in a locked storage unit or stored off-site. Hours of operation will align with center hours daily depending on dates.

Tent - will be safely secured to the parking lot area without damaging the parking surface. during activation. WowCakes (DBA Galaxy Fireworks) is responsible for the tents and storage, including preparation for any weather issues including rain and wind.

At the conclusion of activation WowCakes (DBA Galaxy Fireworks) will ensure the area is cleaned and returned to previous condition.

Licensee shall use and occupy the Licensed area for the retail sale and display of state-approved Class C, 1.4G Consumer Fireworks. This license is contingent upon Licensee securing any local and state permits or licenses that may be required by law as well as meeting all terms and conditions of certificate.

Security deposit will be returned within 60 days of end of contract, pending no damage fees are applied.

Scope

Property	Product	Start Date	End Date	Qty
Howell Outlet Center	Parking Lot Activation	06/17/2024	07/07/2024	1
			Total	\$3,500.00

2. <u>Fees & Payment</u>. Client will pay Tanger the sums outlined in the below chart plus taxes imposed or payable with respect to the fees on or before the dates as detailed in the chart. Payment obligations are not triggered or contingent upon Client's receipt of invoice. Client's payment will reference the contract ID number **M-0006613**. Client will remit payment to Tanger at the following address:

Tanger Services, Inc.

Attn: AR Marketing Partnerships M-0006613

P.O. Box 411546

Boston, MA 02241-1546

To Pay By Credit Card: Call the Tanger Accounts Receivable Department at (336) 834-6850 or (336) 856-6075, Mon – Fri 8:00am – 5:00pm (Eastern).

By Electronic Transfer:

Bank Name: Bank of America, NA

City/State: Charlotte, NC

Bank Routing # : Wire 026009593

Bank Routing # : ACH 053000196

Bank Account # : 237025468050

If Client fails to make any payment as outlined herein, Tanger will have no duty to fulfill Tanger's obligations hereunder.

Fees

Due Date	Amount (\$)
06/14/2024	\$3,500.00
Total	\$3,500.00

3. <u>Governing Law</u>. This Agreement shall be governed by and construed under the laws of the state of which the Premises is located without regard to conflicts of laws principles.

4. General Requirements.

- a) Client, its employees, agents, representatives and vendors, will comply with and act in accordance with all applicable federal, state and local laws, regulations, ordinances, codes and directives at all times throughout the Term, including but not limited to those rules and regulations applicable to the Shopping Center. Client will obtain and maintain, at its sole cost and expense, any and all permits, authorizations, and licenses necessary for it to operate under this Agreement and at the Premises, and upon request, shall make the same available to Tanger for inspection. Client shall comply with and enforce all federal, state, and local laws and regulations at all times. In the event any fine, penalty, sanction, action or fee ("Claim") is assessed against either Client or Tanger for failure to comply with any provision of this section, Tanger shall have no liability therefore, and Client shall promptly notify Tanger of, pay, satisfy and resolve such Claim, and where appropriate, indemnify Tanger in full.
- b) Client will comply with Tanger's communicated Security Protocol and reasonable requests related to safety and security communicated by Tanger's Security personnel.
- c) Client will dress and act appropriately and so as not to likely cause harm to the reputation, goodwill, or business of Tanger or its tenants. If Client fails to comply with this section, in Tanger's sole discretion, Tanger may immediately terminate this Agreement and cause Client to be removed from the Premises without liability and in addition to any other remedies available at law or in equity.
- d) Following the completion of Client's performance at an Event, Client will remove all materials and equipment, shall clean up the area in which it was performing, and shall dispose of any trash in the proper receptacles.
- e) Client will not cause or undertake any action which may reasonably interfere with, disrupt, or hamper the ingress or egress of customers, patrons, invitees or other on or about the Premises. Client will not harass, pursue, solicit or inconvenience customers, patrons, invitees or others on or about the Premises, and will not interfere with, impede or otherwise disrupt Tanger's business operations.
- 5. <u>Delivery Conditions</u>. Client agrees to accept the Premises in its "as is" condition at the time of entry and occupancy. Tanger shall not be responsible for supplying any items or materials to the Premises, other than as may otherwise be agreed to under this Agreement. Client agrees that, upon expiration of the Term of this Agreement, Premises shall be returned to Tanger in the same condition as it was in at the commencement of the Term of this Agreement, ordinary wear and tear excepted.
- 6. <u>Insurance.</u> Client agrees to maintain the below listed insurance coverage at all times during the term of the Agreement and/or any extensions or modifications thereof. The entities listed below shall be named as additional insureds on all such liability insurance policies. A copy of the Certificate of Insurance evidencing the required coverage hereunder shall be delivered to Tanger no less that seventy-two (72) hours prior to the Event recited hereunder.

Contract ID: M-0006613

GENERAL LIABILITY Each Occurrence \$1,000,000.00

General Aggregate \$2,000,000.00

Property \$ 1,000,000.00

AUTOMOBILE \$ 1,000,000.00 Combined Single Limit

WORKERS COMPENSATION \$ 100,000 Employers Liability- Each Accident

\$ 100,000 Employers Liability-Disease Each Employee \$ 500,000 Employers Liability- Disease Policy Limit

ADDITIONAL INSURED Tanger Services, Inc, and all related and affiliated entities are included as Additional Insureds.

CERTIFICATE HOLDER Tanger Services, Inc.

1475 N. Burkhart Road Howell, MI 48855

- 7. <u>Hazardous Materials</u>. Client is expressly prohibited from using the contracted areas to store, keep, hold or maintain any materials, items, substances or products which are prohibited by law or which otherwise might be considered dangerous or hazardous, or which may become dangerous or hazardous when exposed to the elements, including but not limited to, chemicals, bio-hazard materials, flammable or combustible materials or substances, or other products that might potentially compromise the health, safety and well-being of others.
- 8. <u>Right To Enter</u>. Client expressly understands and agrees that Tanger shall have free access to enter the contracted areas from time to time and as is reasonably necessary to inspect said contracted areas and for any repairs or maintenance as Tanger may deem is necessary. Nothing herein shall be construed as limiting or modifying in any way Client's primary duty to keep the contracted areas in good repair and condition pursuant to this Agreement.
- 9. No Hold Over. Upon termination of this Agreement, Client shall vacate the contracted areas and remove all property, including but not limited to equipment and merchandise, in a reasonably expeditious manner. Client expressly agrees that under no circumstances shall Client hold over under this Agreement. Any property, merchandise, or equipment remaining on or in the contracted areas more than five (5) working days following the termination of this Agreement, shall be deemed abandoned, and Client expressly agrees that in such circumstance Tanger may dispose of or remove said property, without notice to Client, in Tanger's sole discretion and by Tanger's sole choice of method.

10. Right to Terminate.

- a) Tanger may terminate this Agreement at any time, without cause and in its sole discretion, upon seventy-two (72) hours' prior written notice to Client.
- b) Either party shall have the right to terminate this Agreement by providing written notice if the other party is in breach of a material term of this Agreement, and the breaching party has failed to promptly cure such breach after written notice thereof from the non-breaching party;

- provided that the foregoing cure right shall not apply to any breach by Client involving violation of any law, rule, regulation, license or permit applicable to Client.
- c) Either party shall have the right to terminate this Agreement with immediate effect if the other party becomes insolvent, makes a general assignment for the benefit of creditors, files a voluntary petition for bankruptcy, suffers or permits the appointment of a receiver for its business or assets, or becomes subject to any proceeding under any bankruptcy or insolvency law. In the event that any of the foregoing events occurs, the party so affected shall immediately notify the other party of such occurrence.
- 11. Force Majeure. With the exception of payment obligations, each Party shall be excused from performing its obligations under this Agreement if its performance is delayed or prevented by any event beyond such Party's reasonable control and without its fault or negligence, including, but not limited to, acts of God, acts of the public enemy, insurrections, riots, embargoes, labor disputes, including strikes, lockouts, job actions or boycotts, fires, explosions or floods, provided that such performance shall be excused only to the extent of, and during the reasonably unavoidable continuance of, such disability that cannot be mitigated by the reasonable actions of the delayed Party.
- 12. <u>Default</u>. The occurrence of any of the following constitutes a breach by Client for which Tanger may seek remedy:
 - a) Client fails to make a payment when due within ten (10) days of receiving written notice of such non-payment from Tanger;
 - b) Client is in default under a valid Lease Agreement or License Agreement entered into with an affiliate entity of Tanger, or any other agreement entered into with Tanger;
 - c) Client fails to observe or perform any of the express or implied covenants, promises, agreements, obligations, or provisions of this Agreement;
 - d) Client commits an act of negligence or willful misconduct with respect to its obligations outlined herein; or
 - e) Client institutes any proceedings under the Bankruptcy Reform Act of 1978 (11 USC § 101 1330) as now or hereafter amended or recodified, or any similar or superseding statute, law or code, whether in such proceeding. Client seeks to be adjudicated a bankrupt or be discharged of its debts or to affect a plan of liquidation, composition or reorganization; or should any involuntary proceeding be filed against Client under any applicable bankruptcy laws; or should Client become insolvent or be adjudicated a bankrupt in any court of competent jurisdiction, or should a receiver or trustee be appointed over Client's property, or should Client make an assignment for the benefit of creditors.
- 13. <u>Notices</u>: Any notice required hereunder shall be delivered to a Party in writing at the address stated herein via a nationally recognized courier, with a signature required upon receipt. Each Party is responsible for promptly notifying the other Party of any change in address.
- 14. <u>Remedies</u>. In the event of Client's breach under this Agreement in addition to any other rights or remedies available at law or in equity Tanger may (1) immediately terminate this Agreement upon written notification to Client; (2) exercise self-help and remove or cease to display all advertising of Client; and (3) declare any outstanding amounts owed to Tanger to be immediately due and payable.
- 15. <u>Business Ethics Standards</u>. Client shall maintain business ethics standards to avoid any impropriety or conflict of interest, or the appearance of any impropriety or conflict of interest, which could be construed to have an adverse impact on Tanger. Client shall take reasonable actions to prevent any

actions or conditions which could result in a conflict with Tanger's stated interests under this Agreement. Kickbacks, cash payments, commissions, gifts, entertainment substantially discounted work, or other consideration as between Client and its representatives, agents or employees or their relatives or material suppliers or contractors or their employees or representatives which would be illegal, reasonably considered to be unethical, or done for the purposes of giving preferential treatment, is prohibited. By its execution of this Agreement, Client hereby certifies that it is generally familiar with the Tanger Factory Outlet Centers, Inc. Code of Business Conduct and Ethics adopted March 12, 2004, and as amended, and available at www.tangeroutlet.com by clicking on the links to Investor Relations/Corporate Overview/ Governance Documents/Code of Business Conduct and Ethics ("Tanger Ethics Code.") Client shall, and shall cause all of its employees, agents and contractors to, comply with all policies, requirements, and guidelines set forth in the Tanger Ethics Code in all respects pertinent to its dealings with Tanger and/or any affiliate thereof during the Term.

- 16. <u>Condemnation</u>. If, during the Term, the Premises where Client's advertisement or signage, vehicles and/or pods are located is taken by eminent domain or otherwise by any governmental authority to any material extent such that the Premises can no longer reasonably be effectively utilized and there is no other similarly situated space which may be substituted, then Tanger or Client may terminate this Agreement on five (5) days' prior written notice to the other Party. Any award for the taking of all or any part of the Premises will belong to Tanger, without any participation by Client.
- 17. Warranties and Representations. Client warrants and represents, and shall indemnify and hold harmless Tanger from any claims, liabilities, damages, causes of action, losses, lawsuits or expenses arising out of or resulting from Client's violation or breach of these warranties or representations, that (1) Client is duly authorized and permitted to enter into this Agreement and that said Agreement shall be binding on Client; (2) Client's actions and performance pursuant to this Agreement shall not violate any other agreements with or rights of third parties; and (3) Client is vested with the legal right to use or possess the name, logo, image, or other design or content included within Client's advertisement.
- 18. <u>Indemnification</u>. To the fullest extent permitted by law, Client agrees to defend, indemnify and hold harmless Tanger and its affiliated and associated corporate entities, employees, officers, directors, and representatives from any and all liability, claims, lawsuits, causes of action, judgments, costs or damages (including reasonable attorneys' fees and court costs), whether for personal injury, death, property damage, monetary damages or other loss, resulting from or arising out of (a) use and/or occupancy of the Premises, or engagement in the Scope hereunder, including but not limited to personal injury, loss of life or limb, and/or property damage, destruction, or theft, whether caused by Client, its employees, agents, representatives or vendors or (b) any violation or beach of any term of this Agreement.
- 19. <u>Liability</u>. To the fullest extent permitted by law, Tanger shall not be liable for any loss, damage, theft, destruction, claim, injury or death, whether to person or property or alleged by a third party, arising out of or related to Client's performance under this Agreement, and Client hereby releases and discharges Tanger its agents, assigns, affiliates, managers, employees and representatives ("Released Parties"), from any and all liability hereunder. Neither Party shall be liable to the other for consequential, special or incidental damages.
- 20. <u>Prevailing Party</u>. If there is any legal action or proceeding to enforce or interpret any provision of this Agreement or to protect or establish any right or remedy of any Party hereto, the unsuccessful party to such action or proceeding shall pay to the prevailing party as finally determined, all costs and expenses, including, without limitation, reasonable attorneys' fees and costs, incurred by such

- prevailing party in such action or proceeding, in enforcing such judgment, and in connection with any appeal from such judgment.
- 21. <u>Assignment</u>. Client may not assign this Agreement without the prior written consent of Tanger. Tanger may, without the consent of Client, assign the Agreement to an affiliate or subsidiary entity or a purchaser of all or substantially all of that party's assets, and may additionally assign this Agreement to a lender, purchaser, or transferee of any interest in the real property upon which the advertising or applicable Collateral, vehicles or pods is placed. In the event of any such transfer, Tanger will automatically be released from all liability under this Agreement accruing thereafter and Client agrees to look solely to such transferee for the performance of Tanger's obligations hereunder on or after the date of transfer, and such transferee will be deemed to have fully assumed and be liable for all obligations of this Agreement and Client will attorn to such transferee.
- 22. No Waiver. Cumulative Remedies. No failure or delay in exercising any right hereunder will operate as a waiver thereof, nor will any single or partial exercise thereof preclude any other or further exercise thereof or the exercise of any other right. No waiver shall be effective unless agreed upon in writing by the Parties. The acceptance of any Fees or any other amount due hereunder by Tanger following the occurrence of any Client default, will not be deemed a waiver of any such default. Remedies available to any Party shall be deemed cumulative and not exclusive, even if such available remedies are set forth or specified within this Agreement.
- 23. No Partnership or Agency. None of the terms or provisions of this Agreement shall be deemed to create a partnership between or among the Parties in their respective businesses or otherwise, nor shall it cause them to be considered joint venturers or members of any joint enterprise. No Party shall have the right or authority to act as an agent for or to bind the other Party. The Parties acknowledge and agree that nothing in this Agreement shall be construed as creating a landlord/tenant relationship between Client and Tanger.
- 24. Severability. Should any provision of this Agreement be held by a court of competent jurisdiction to be void, invalid, unenforceable or inoperative, the remaining provisions of this Agreement shall not be affected and shall continue in force and effect and the invalid provision shall be deemed modified to the least degree necessary to remedy such invalidity. If the invalid provision cannot be modified to remedy the invalidity, and the absence of the provision adversely affects the substantive rights of a party, the parties agree to replace the provision with a new provision that closely approximates the economic and proprietary results intended by the parties.
- 25. <u>Entire Agreement</u>. This Agreement represents the final and complete agreement between the parties, and all prior discussions and agreements are merged herein. Modification. No portion of this Agreement may be amended, in whole or in part, unless in writing and signed by both parties.
- 26. <u>Counterparts</u>. This Agreement may be executed in counterpart copies, each of which shall be deemed an original and all of which together shall be deemed one and the same instrument. Electronically delivered signatures or shall have the same force and effect as originals.

Signatures to appear on the following page

IN WITNESS WHEREOF, each party hereto warrants and represents that this Agreement has been duly authorized by all necessary corporate action and that this Agreement has been duly executed by and constitutes a valid and binding agreement of that party.

TANGER Tanger Services Inc. By: Name: Jessica Roberts Title: VP, Marketing Partnerships

CLIENT

Wow Cakes LLC (DBA Galaxy Fireworks)

Ву:	gen
Name:	Ali Yahya
Titles	Owner

Michigan Department of Licensing and Regulatory Affairs BUREAU OF FIRE SERVICES 611 W. OTTAWA ST., 4TH FLOOR LANSING, MI 48933

Yousif Hassan Galaxy Fireworks

COMPLAINT INFORMATION:

THE ISSUANCE OF THIS LICENSE SHOULD NOT BE CONSTRUED AS A WAIVER, DISMISSAL OR ACQUIESCENSE TO ANY COMPLAINTS OR VIOLATIONS PENDING AGAINST THE LICENSEE, ITS AGENTS OR EMPLOYEES.

FUTURE CONTACTS:

YOU SHOULD DIRECT INQUIRIES REGARDING THIS LICENSE OR ADDRESS CHANGES TO THE DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS BY CALLING (517) 241-8847

YOUR LICENSE MUST BE DISPLAYED IN A PROMINENT PLACE.

GRETCHEN WHITMER

STATE OF MICHIGAN

Governor

Michigan Department of Licensing and Regulatory Affairs

TYPE OF CONSUMER FIREWORKS RETAIL FACILITY: TEMPORARY ISSUED TO THIS CONSUMER FIREWORKS RETAIL FACILITY PURSUANT TO THE MICHIGAN FIREWORKS SAFETY ACT, P.A. 256 OF 2011.

THIS CERTIFICATE REMAINS THE PROPERTY OF THE MICHIGAN DEPARTMENT OF LICENSING AND REGULATORY AFFAIRS (LARA), AND IS TRANSFERABALE UNDER CONDITIONS SPECIFIED IN MCL 28.454(L), MICHIGAN FIREWORKS SAFETY ACT. THIS CERTIFICATE IS SUBJECT TO PAYMENT OF CERTIFICATE FEES FOR INITIAL AND ANNUAL APPLICATION OR TRANSFER FEES.

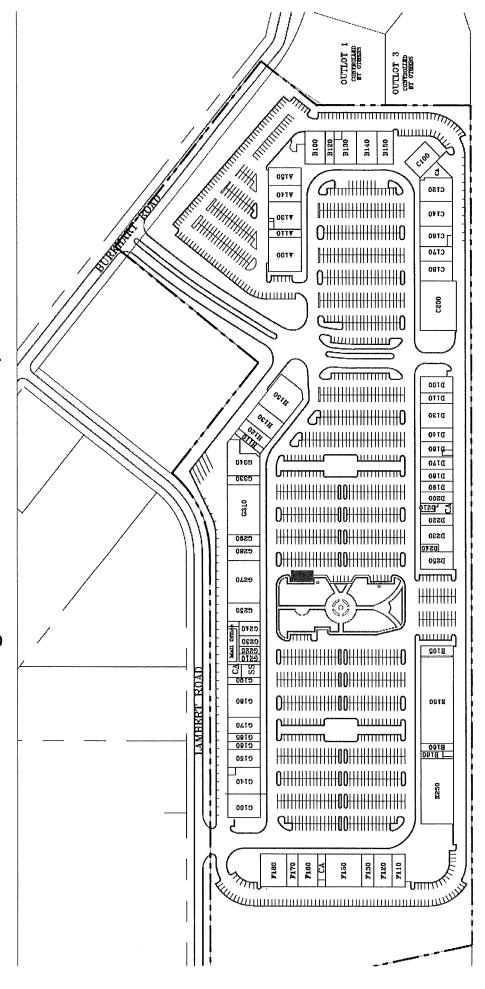
Yousif Hassan Galaxy Fireworks 1475 N BURKHART RD HOWELL MI 48855

Certificate Number CT02024

Expiration Date: 04/30/2025

This document is duly issued under the laws of the State of Michigan

Tanger Outlet Center – Howell, MI



Proposed location for WowCakes (DBA Galaxy Fireworks) for one 20' x 40' Tent and one Storage unit. All use will be on parking lot.

INTERSTATE 96



PRODUCER

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY) 04/29/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

1		PHON	PHONE (A/C, No, Ext): 844-472-0967 (A/C, No, Ext): 203-654-3613					
P.O. Box 113247 Stamford, CT 06011			Ė-MA	E-MAIL ADDRESS: customerservice@biBERK.com				
Stamford, CT 06911			7.00.	INSURER(S) AFFORDING COVERAGE				
			INSUI			t Insurance Company	NAIC# 10391	
INSUR					INSURER B:			
WOW	Cakes LLC				RER C:			
1036	55 Haggerty Street				RER D :			
	born, MI 48126				INSURER E :			
					RER F :			
cov	ERAGES CERT	TFIC	ATE	NUMBER:			REVISION NUMBER:	
INE CEI EX	S IS TO CERTIFY THAT THE POLICIES ICATED. NOTWITHSTANDING ANY RECRIFICATE MAY BE ISSUED OR MAY POLUSIONS AND CONDITIONS OF SUCH P	QUIR ERTA POLIC	EMEI AIN, CIES	NT, TERM OR CONDITION OF A THE INSURANCE AFFORDED B' LIMITS SHOWN MAY HAVE BEEN	NY CONTRACT / THE POLICIE REDUCED BY	OR OTHER D S DESCRIBED PAID CLAIMS.	DOCUMENT WITH RESPECT TO	WHICH THIS
INSR LTR	TYPE OF INSURANCE	NSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
	X COMMERCIAL GENERAL LIABILITY						EACH OCCURRENCE \$	1,000,000
	CLAIMS-MADE X OCCUR						DAMAGE TO RENTED PREMISES (Ea occurrence) \$	50,000
Α	X Hired & Non-Owned Auto Only	Х		N9BP255458	04/24/2024	04/24/2025	MED EXP (Any one person) \$	5,000
							PERSONAL & ADV INJURY \$	Included
	GEN'L AGGREGATE LIMIT APPLIES PER:						GENERAL AGGREGATE \$	2,000,000
	POLICY PRO- JECT LOC						PRODUCTS - COMP/OP AGG \$	2,000,000
	X OTHER:						\$	
	AUTOMOBILE LIABILITY						COMBINED SINGLE LIMIT (Ea accident)	
	ANY AUTO						BODILY INJURY (Per person) \$	
	OWNED SCHEDULED AUTOS						BODILY INJURY (Per accident) \$	
	HIRED NON-OWNED AUTOS ONLY						PROPERTY DAMAGE (Per accident) \$	
							\$	
	UMBRELLA LIAB OCCUR						EACH OCCURRENCE \$	
	EXCESS LIAB CLAIMS-MADE						AGGREGATE \$	
	DED RETENTION \$						\$	
	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY						PER OTH- STATUTE ER	
	ANYPROPRIETOR/PARTNER/EXECUTIVE						E.L. EACH ACCIDENT \$	
	DFFICER/MEMBEREXCLUDED? Mandatory in NH)	N/A					E.L. DISEASE - EA EMPLOYEE \$	
	f yes, describe under DESCRIPTION OF OPERATIONS below						E.L. DISEASE - POLICY LIMIT \$	
	Professional Liability (Errors &						Per Occurrence/	
	Omissions): Claims-Made						Aggregate	
DESC	RIPTION OF OPERATIONS / LOCATIONS / VEHICL	ES (A	CORD	0 101, Additional Remarks Schedule, may	be attached if mor	e space is require	ed)	
Hir	ed And Non-Owned Auto is included in	the g	ener	al liability policy limits (see endo	rsement attach	ed).		
	Tanger Management LLC is listed as additional insured as it pertains to general liability (see endorsement attached).							
CER	CERTIFICATE HOLDER CANCELLATION							
Tanger Management LLC 1475 N Burkhart Rd			SI TI	HOULD ANY OF HE EXPIRATION	N DATE THE	ESCRIBED POLICIES BE CANCEI EREOF, NOTICE WILL BE D BY PROVISIONS.		
Howell, MI 48855				АИТИ	HORIZED REPRESE	NTATIVE (lated Gubb	



CERTIFICATE OF PROPERTY INSURANCE

DATE (MM/DD/YYYY) 04/29/2024

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

REI RECEIVIATIVE ORT ROBOT	OER, AND THE OERTH TOATE HOLDER.		
PRODUCER		CONTACT NAME:	
		PHONE (A/C, No, Ext): (844) 472-0967 FAX (A/C, No): (203)	654-3613
BIBERK		E-MAIL ADDRESS: salessupport@biberk.com	
P.O. Box 113247		PRODUCER CUSTOMER ID:	
Stamford, CT 06911		INSURER(S) AFFORDING COVERAGE	NAIC#
INSURED		INSURER A : Berkshire Hathaway Direct Insurance Compai	722320
		INSURER B:	
Wow Cakes LLC		INSURER C:	
10365 Haggerty Street Dearborn, MI 48126		INSURER D:	
		INSURER E:	
		INSURER F:	
COVEDACES	CEDTIFICATE MUMBED.	DEVACION NUMBER.	

LOCATION OF PREMISES / DESCRIPTION OF PROPERTY (Attach ACORD 101, Additional Remarks Schedule, if more space is required)

Location: 10365 Haggerty StreetDearborn, MI 48126

Bldg #001: Catering Services - 1103901

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES, LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

	SURANCE	POLICY NUMBER	POLICY EFFECTIVE DATE (MM/DD/YYYY)	POLICY EXPIRATION DATE (MM/DD/YYYY)	COVERED PROPERTY LIMITS		LIMITS		
(PROPERTY						BUILDING	\$		
CAUSES OF LOSS	DEDUCTIBLES					PERSONAL PROPERTY	\$		0
BASIC	BUILDING	N9BP255458	04/24/2024	04/24/2025		BUSINESS INCOME	\$		
BROAD	1	_				EXTRA EXPENSE	\$		
SPECIAL	CONTENTO					RENTAL VALUE	\$		
EARTHQUAKE						BLANKET BUILDING	\$	n/a	
MND						BLANKET PERS PROP	\$	n/a	
FLOOD						BLANKET BLDG & PP	\$		
							s		
		_							
INLAND MARINE	<u> </u>	TYPE OF POLICY							
CAUSES OF LOSS									
NAMED PERILS		POLICY NUMBER							***************************************
					-				
CRIME					-				
					<u> </u>				
TIPE OF POLICE									
BOILER & MACH	IINERY /								
						-			
Self-self-self-self-self-self-self-self-s							<u> </u>		
						-	<u> </u>		
	CAUSES OF LOSS BASIC BROAD X SPECIAL EARTHQUAKE WIND FLOOD INLAND MARINE CAUSES OF LOSS NAMED PERILS CRIME TYPE OF POLICY BOILER & MACH	CAUSES OF LOSS BASIC BROAD K SPECIAL EARTHQUAKE WIND FLOOD INLAND MARINE CAUSES OF LOSS NAMED PERILS DEDUCTIBLES BUILDING 250 CONTENTS INLAND MARINE CAUSES OF LOSS NAMED PERILS	CAUSES OF LOSS BASIC BROAD CONTENTS X SPECIAL EARTHQUAKE WND FLOOD INLAND MARINE CAUSES OF LOSS NAMED PERILS POLICY NUMBER TYPE OF POLICY BOILER & MACHINERY /	CAUSES OF LOSS BASIC BROAD CONTENTS N9BP255458 04/24/2024 04/24/2024 04/24/2024 04/24/2024 04/24/2024 04/24/2024 04/24/2024 04/24/2024 04/24/2024 04/24/2024	CAUSES OF LOSS BASIC BASIC BROAD CONTENTS N9BP255458 04/24/2024 04/24/2025 04/24/2024 04/24/2025 04/24/2024 04/24/2025 04/24/2024 04/24/2025 04/24/2024 04/24/2025 04/24/2025 04/24/2024 04/24/2025 04/24/2025 04/24/2024 04/24/2025 04/24/2025 04/24/2024 04/24/2025 04/24/2025 04/24/2024 04/24/2025 04/24/2024 04/24/2025 04/24/2025	CAUSES OF LOSS BASIC BASIC BROAD CONTENTS N9BP255458 N9BP255458 04/24/2024 04/24/2025 04/24/2024 04/24/2025 04/24/2025 04/24/2024 04/24/2025 04/24/2025 04/24/2025 04/24/2025 04/24/2024 04/24/2024 04/24/2025 04/24/2024 04/24/2024 04/24/2025 04/24/2025 04/24/2024 04/24/2024 04/24/2025 04/24/2024	CAUSES OF LOSS DEDUCTIBLES BASIC BUILDING 250 CONTENTS WIND BLANKET BLDG & PP INLAND MARINE TYPE OF POLICY CAUSES OF LOSS NAMED PERILS N9BP255458 N4/24/2024 O4/24/2025 BUSINESS INCOME EXTRA EXPENSE RENTAL VALUE BLANKET BLDG & PP BLANKET BLDG & PP TYPE OF POLICY CRIME TYPE OF POLICY BOILER & MACHINERY/	DEDUCTIBLES DEDUCTIBLES	DEDUCTIBLES DEDUCTIBLES BASIC BUILDING 250 CONTENTS CONTENTS

SPECIAL CONDITIONS / OTHER COVERAGES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

* ALS up to 12 months.

CERTIFICATE HOLDER	CANCELLATION
Tanger Management LLC 1475 N Burkhart Rd	SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
Howell, MI 48855	AUTHORIZED REPRESENTATIVE Replease 64

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

HIRED AUTO AND NON-OWNED AUTO LIABILITY

This endorsement modifies insurance provided under the following:

BUSINESSOWNERS COVERAGE FORM

SCHEDULE

Coverage	Additional Premium
A. Hired Auto Liability	\$51.00
B. Non-owned Auto Liability	\$89.00
Information required to complete this Schedule, if not s	shown above, will be shown in the Declarations.

- A. Insurance is provided only for those coverages for which a specific premium charge is shown in the Declarations or in the Schedule.
 - 1. Hired Auto Liability

The insurance provided under Paragraph A.1. Business Liability in Section II – Liability applies to "bodily injury" or "property damage" arising out of the maintenance or use of a "hired auto" by you or your "employees" in the course of your business.

2. Non-owned Auto Liability

The insurance provided under Paragraph A.1. Business Liability in Section II – Liability applies to "bodily injury" or "property damage" arising out of the use of any "non-owned auto" in your business by any person.

- **B.** For insurance provided by this endorsement only:
 - The exclusions under Paragraph B.1. Applicable To Business Liability Coverage in Section II Liability, other than Exclusions a., b., d., f. and i. and the Nuclear Energy Liability Exclusion, are deleted and replaced by the following:
 - a. "Bodily injury" to:
 - (1) An "employee" of the insured arising out of and in the course of:
 - (a) Employment by the insured; or
 - **(b)** Performing duties related to the conduct of the insured's business; or

(2) The spouse, child, parent, brother or sister of that "employee" as a consequence of Paragraph (1) above.

This exclusion applies:

- (1) Whether the insured may be liable as an employer or in any other capacity; and
- (2) To any obligation to share damages with or repay someone else who must pay damages because of injury.

This exclusion does not apply to:

- (1) Liability assumed by the insured under an "insured contract"; or
- (2) "Bodily injury" arising out of and in the course of domestic employment by the insured unless benefits for such injury are in whole or in part either payable or required to be provided under any workers' compensation law.
- b. "Property damage" to:
 - Property owned or being transported by, or rented or loaned to the insured; or
 - (2) Property in the care, custody or control of the insured.

- Paragraph C. Who Is An Insured in Section II

 Liability is replaced by the following:
 - Each of the following is an insured under this endorsement to the extent set forth below:
 - a. You:
 - Any other person using a "hired auto" with your permission;
 - **c.** For a "non-owned auto":
 - Any partner or "executive officer" of yours; or
 - (2) Any "employee" of yours; but only while such "non-owned auto" is being used in your business; and
 - d. Any other person or organization, but only for their liability because of acts or omissions of an insured under a., b. or c. above.
 - 2. None of the following is an insured:
 - a. Any person engaged in the business of his or her employer for "bodily injury" to any co-"employee" of such person injured in the course of employment, or to the spouse, child, parent, brother or sister of that co-"employee" as a consequence of such "bodily injury", or for any obligation to share damages with or repay someone else who must pay damages because of the injury;
 - Any partner or "executive officer" for any "auto" owned by such partner or officer or a member of his or her household;

- c. Any person while employed in or otherwise engaged in duties in connection with an "auto business", other than an "auto business" you operate;
- d. The owner or lessee (of whom you are a sublessee) of a "hired auto" or the owner of a "non-owned auto" or any agent or "employee" of any such owner or lessee; or
- e. Any person or organization for the conduct of any current or past partnership or joint venture that is not shown as a Named Insured in the Declarations.
- C. For the purposes of this endorsement only, Paragraph H. Other Insurance in Section III Common Policy Conditions is replaced by the following:

This insurance is excess over any primary insurance covering the "hired auto" or "non-owned auto".

- **D.** The following additional definitions apply:
 - "Auto business" means the business or occupation of selling, repairing, servicing, storing or parking "autos".
 - "Hired auto" means any "auto" you lease, hire, rent or borrow. This does not include any "auto" you lease, hire, rent or borrow from any of your "employees", your partners or your "executive officers" or members of their households.
 - 3. "Non-owned auto" means any "auto" you do not own, lease, hire, rent or borrow which is used in connection with your business. This includes "autos" owned by your "employees", your partners or your "executive officers", or members of their households, but only while used in your business or your personal affairs.

THIS ENDORSEMENT CHANGES THE POLICY. PLEASE READ IT CAREFULLY.

ADDITIONAL INSURED – DESIGNATED PERSON OR ORGANIZATION

This endorsement modifies insurance provided under the following:

BUSINESSOWNERS COVERAGE FORM

SCHEDULE

Name Of Additional Insured Person(s) Or Organization(s):				
Tanger Management LLC				
Information required to complete this Schedule, if not shown above, will be shown in the Declarations.				

The following is added to Paragraph C. Who Is An Insured in Section II – Liability:

3. Any person(s) or organization(s) shown in the Schedule is also an additional insured, but only with respect to liability for "bodily injury", "property damage" or "personal and advertising injury" caused, in whole or in part, by your acts or omissions or the acts or omissions of those acting on your behalf in the performance of your ongoing operations or in connection with your premises owned by or rented to you.

Certificate Of Completion

Envelope Id: 9609DDD9784C40AD8A57719FD907F730

Subject: Tanger HOWELL M-0006613 Wow Cakes On-Site Agreement

Source Envelope:

Document Pages: 15 Certificate Pages: 5

Signatures: 1 Initials: 0

AutoNav: Enabled

Envelopeld Stamping: Disabled

Time Zone: (UTC-05:00) Eastern Time (US & Canada)

Status: Sent

Envelope Originator: Kathryn Reisterer 3200 Northline Av. Suite 360

Greensboro, NC 27408 Katy.Reisterer@tanger.com IP Address: 13.110.74.8

Record Tracking

Status: Original

5/17/2024 11:58:53 AM

Holder: Kathryn Reisterer

Katy.Reisterer@tanger.com

Signature Adoption: Drawn on Device

Using IP Address: 174.211.32.187

Signed using mobile

Location: DocuSign

Signer Events

Ali Yahya

aliyahya68@icloud.com

Owner

Security Level: Email, Account Authentication

(None)

Signature

Timestamp

Sent: 5/20/2024 10:57:12 AM Viewed: 5/20/2024 10:57:52 AM Signed: 5/20/2024 11:11:48 AM

Electronic Record and Signature Disclosure:

Accepted: 5/20/2024 10:57:52 AM

ID: 95be9dd9-bfc6-4a94-afc3-76cdb168b30d

Jessica Roberts

jessica.roberts@tanger.com

VP, Marketing Partnerships

Tanger Management, LLC

Security Level: Email, Account Authentication

(None)

Electronic Record and Signature Disclosure:

Not Offered via DocuSign

Sent: 5/20/2024 11:11:50 AM

In Person Signer Events

Editor Delivery Events

Agent Delivery Events

Intermediary Delivery Events

Certified Delivery Events

Kevin De Ceuninck

kevin.deceuninck@tanger.com

Security Level: Email, Account Authentication

(None)

Signature

Status

Status

Status

Status

VIEWED

Using IP Address: 66.193.69.12

Timestamp

Timestamp

Timestamp

Timestamp

Timestamp

Sent: 5/17/2024 11:59:25 AM Viewed: 5/20/2024 6:57:21 AM

Electronic Record and Signature Disclosure: Not Offered via DocuSign

Certified Delivery Events

Oliver Runco

oliver.runco@tanger.com

Regional Manager of Marketing Partnerships

Tri Star Southern Hills

Security Level: Email, Account Authentication

(None)

Electronic Record and Signature Disclosure:

Not Offered via DocuSign

sarah rasheid

sarah.rasheid@tanger.com

Marketing Partnerships, Regional Manager, North

Tanger Management, LLC

Security Level: Email, Account Authentication

(None)

Electronic Record and Signature Disclosure:

Accepted: 5/25/2022 12:57:49 PM

ID: 581b579d-e058-4977-b3f2-2faf19fa3d13

Status

VIEWED

Using IP Address: 66.193.69.12

Timestamp

Sent: 5/20/2024 6:57:21 AM

Viewed: 5/20/2024 9:20:28 AM

VIEWED

Using IP Address: 66.193.69.12

Sent: 5/20/2024 9:20:28 AM Viewed: 5/20/2024 10:57:11 AM

Carbon Copy Events

Status

Timestamp

Ali Yahya aliyahya68@icloud.com

Security Level: Email, Account Authentication (None)

Electronic Record and Signature Disclosure:

Accepted: 5/20/2024 10:57:52 AM

ID: 95be9dd9-bfc6-4a94-afc3-76cdb168b30d

how

tanger howell management @ tanger.com

Security Level: Email, Account Authentication

(None)

Electronic Record and Signature Disclosure:

Not Offered via DocuSign

Witness Events Signature Times	stamp
Notary Events Signature Times	stamp
Envelope Summary Events Status Times	stamps

Envelope Sent Hashed/Encrypted 5/17/2024 11:59:25 AM

Payment Events Status Timestamps

Electronic Record and Signature Disclosure

ELECTRONIC RECORD AND SIGNATURE DISCLOSURE

From time to time, Tanger Management, LLC (we, us or Company) may be required by law to provide to you certain written notices or disclosures. Described below are the terms and conditions for providing to you such notices and disclosures electronically through the DocuSign system. Please read the information below carefully and thoroughly, and if you can access this information electronically to your satisfaction and agree to this Electronic Record and Signature Disclosure (ERSD), please confirm your agreement by selecting the check-box next to 'I agree to use electronic records and signatures' before clicking 'CONTINUE' within the DocuSign system.

Getting paper copies

At any time, you may request from us a paper copy of any record provided or made available electronically to you by us. You will have the ability to download and print documents we send to you through the DocuSign system during and immediately after the signing session and, if you elect to create a DocuSign account, you may access the documents for a limited period of time (usually 30 days) after such documents are first sent to you. After such time, if you wish for us to send you paper copies of any such documents from our office to you, you will be charged a \$0.00 per-page fee. You may request delivery of such paper copies from us by following the procedure described below.

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If you decide to receive notices and disclosures from us electronically, you may at any time change your mind and tell us that thereafter you want to receive required notices and disclosures only in paper format. How you must inform us of your decision to receive future notices and disclosure in paper format and withdraw your consent to receive notices and disclosures electronically is described below.

Consequences of changing your mind

If you elect to receive required notices and disclosures only in paper format, it will slow the speed at which we can complete certain steps in transactions with you and delivering services to you because we will need first to send the required notices or disclosures to you in paper format, and then wait until we receive back from you your acknowledgment of your receipt of such paper notices or disclosures. Further, you will no longer be able to use the DocuSign system to receive required notices and consents electronically from us or to sign electronically documents from us.

All notices and disclosures will be sent to you electronically

Unless you tell us otherwise in accordance with the procedures described herein, we will provide electronically to you through the DocuSign system all required notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you during the course of our relationship with you. To reduce the chance of you inadvertently not receiving any notice or disclosure, we prefer to provide all of the required notices and disclosures to you by the same method and to the same address that you have given us. Thus, you can receive all the disclosures and notices electronically or in paper format through the paper mail delivery system. If you do not agree with this process, please let us know as described below. Please also see the paragraph immediately above that describes the consequences of your electing not to receive delivery of the notices and disclosures electronically from us.

How to contact Tanger Management, LLC:

You may contact us to let us know of your changes as to how we may contact you electronically, to request paper copies of certain information from us, and to withdraw your prior consent to receive notices and disclosures electronically as follows:

To advise Tanger Management, LLC of your new email address

To let us know of a change in your email address where we should send notices and disclosures electronically to you, you must send an email message to us at and in the body of such request you must state: your previous email address, your new email address. We do not require any other information from you to change your email address.

If you created a DocuSign account, you may update it with your new email address through your account preferences.

To request paper copies from Tanger Management, LLC

To request delivery from us of paper copies of the notices and disclosures previously provided by us to you electronically, you must send us an email to and in the body of such request you must state your email address, full name, mailing address, and telephone number. We will bill you for any fees at that time, if any.

To withdraw your consent with Tanger Management, LLC

To inform us that you no longer wish to receive future notices and disclosures in electronic format you may:

i. decline to sign a document from within your signing session, and on the subsequent page, select the check-box indicating you wish to withdraw your consent, or you may;

ii. send us an email to Matt.Clepper@tangeroutlets.com and in the body of such request you must state your email, full name, mailing address, and telephone number. We do not need any other information from you to withdraw consent.. The consequences of your withdrawing consent for online documents will be that transactions may take a longer time to process..

Required hardware and software

The minimum system requirements for using the DocuSign system may change over time. The current system requirements are found here: https://support.docusign.com/guides/signer-guide-signing-system-requirements.

Acknowledging your access and consent to receive and sign documents electronically

To confirm to us that you can access this information electronically, which will be similar to other electronic notices and disclosures that we will provide to you, please confirm that you have read this ERSD, and (i) that you are able to print on paper or electronically save this ERSD for your future reference and access; or (ii) that you are able to email this ERSD to an email address where you will be able to print on paper or save it for your future reference and access. Further, if you consent to receiving notices and disclosures exclusively in electronic format as described herein, then select the check-box next to 'I agree to use electronic records and signatures' before clicking 'CONTINUE' within the DocuSign system.

By selecting the check-box next to 'I agree to use electronic records and signatures', you confirm that:

- You can access and read this Electronic Record and Signature Disclosure; and
- You can print on paper this Electronic Record and Signature Disclosure, or save or send this Electronic Record and Disclosure to a location where you can print it, for future reference and access; and
- Until or unless you notify Tanger Management, LLC as described above, you consent to receive exclusively through electronic means all notices, disclosures, authorizations, acknowledgements, and other documents that are required to be provided or made available to you by Tanger Management, LLC during the course of your relationship with Tanger Management, LLC.



117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: June 19, 2024

Site Plan Review For Howell Township, Michigan

Applicant: Chestnut Development, LLC

Project Name: Chestnut Self Storage

Plan Date: May 30, 2024

Location: South of W Grand River Ave & N Burkhart Intersection

Zoning: Industrial Flex Zone (IFZ)

Action Requested: Preliminary Site Plan Approval

PROJECT AND SITE DESCRIPTION

The applicant has submitted a preliminary site plan dated May 30, 2024, that proposes the construction of a self-storage facility located at the vacant parcel #06-29-200-029. Proposed construction of fifty-four (54) storage structures includes thirty-eight (38) 40'x60' storage structures, nine (9) 40'x160' storage structures, six (6) 40'x140' storage structures and one (1) 40'x130' storage structure.

All structures are proposed to be connected to utilities and include a restroom. The site is proposed to be enclosed by a 3,848 lineal foot chain link fence that is eight (8) feet in height.

The proposed mini-warehousing facility is a permitted principal use in the Industrial Flex Zone. However, we question the need to have bathrooms in each unit. We have concerns that this could lead to uses with the units that are not permitted in the district. The Planning Commission

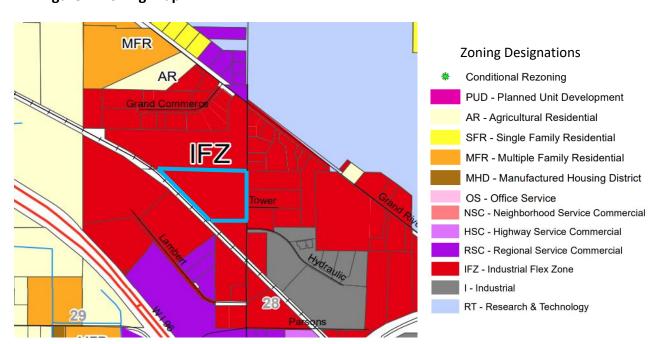
may want to discuss with the applicant the need for individual bathrooms vs. one common facility for customers. Figure 1 provides an arial image of the current site outlined in blue.

Figure 1. Aerial Image of Subject Site and Vicinity



Source: NearMap

Figure 2. Zoning Map



Chestnut Self Storage - Preliminary Site Plan Review June 19, 2024

Items to be Addressed: The Planning Commission may want to discuss with the applicant the need for individual bathrooms in each unit.

NEIGHBORING ZONING, LAND USE AND MASTER PLAN

Neighboring zoning designations are summarized in Table 1.

Table 1. Zoning, Land Use and Master Plan Designations

	Zoning		
Subject Site	IFZ- Industrial Flex Zone		
North IFZ- Industrial Flex Zone			
South IFZ= Industrial Flex Zone			
East	IFZ= Industrial Flex Zone		
West C & O Railway / IFZ= Industrial Flex Zone			

Items to be Addressed: None.

AREA, WIDTH, HEIGHT, SETBACKS

The following table summarizes the Density, Placement, and Height Regulations for the site plan associated with the use. The proposed structures appear to meet all dimensional regulations of the zoning ordinance.

Table 2. Density, Placement, and Height Regulations

	Required	Provided
Lot Area	2 Acres	19.75 Acres
Lot Width	200 Feet	>200 Feet
Front Setback	35 Feet	35 Feet
Side Setback	10 Feet Minimum (Minimum Total of Both Sides=25 Feet)	>25 Feet
Rear Setback	10 Feet Minimum or 50 Feet Minimum Abutting AR, SFR, MFR	10 Feet
Lot Coverage	75 % Max	52.9%
Building Height	70 Feet Max	15 Feet

Items to be Addressed: None.

BUILDING LOCATION AND SITE ARRANGEMENT

The facility will be accessible from Burkhart Road. The proposed layout allows proper vehicular circulation and continued access to an existing Enbridge easement that crosses the site. The plan includes the creation of a sedimentation basin and a detention basin on the Southwest corner of the parcel abutting the railway.

Items to be Addressed: None.

PARKING, LOADING

The applicant is not proposing any parking at this site. Per section 18.02.G.30, which sets requirements for Mini Warehoused, five (5) parking spaces shall be provided adjacent to the office, in addition to any parking which may be required for other permitted uses on the same site (Sec. 18.02.G.30 – Mini Warehouses). No office is being proposed. However, it is unclear if any employee will be on site. Parking should be provided for all employees at a maximum shift.

Typically, users of self-storage facilities park immediately outside their unit. Because units are accessed infrequently and the drive isles in the proposed development appear to be wide enough, we don't foresee issues with this approach.

Items to be Addressed: Demonstrate adequate parking is available for the number of employees at maximum employment.

FENCING

The applicant is proposing 3848 lineal feet of perimeter fencing at eight (8) feet high. This is in compliance with the Industrial Districts fencing requirements of a maximum of twelve (12) feet in height.

Items to be Addressed: None.

SITE ACCESS AND CIRCULATION

The applicant provides a refuse vehicle circulation and emergency vehicle circulation plan which demonstrate proper vehicular traffic flow.

We defer to Engineering and the Fire Chief for further consideration.

Items to be Addressed: None.

NATURAL FEATURES

The site plan calls out that the National Wetland Inventory notes no wetlands on the subject parcel and that wetland flagging was not observed during the field survey. The site plan also

Chestnut Self Storage - Preliminary Site Plan Review June 19, 2024

details that the subject property appears to be entirely in zone (X) area with minimal flood hazard according to the flood insurance rate map for the County of Livingston Community Panel NO. (26093C0188D), effective date 9/17/2008.

Approval from EGLE will not be required for construction as it is evident that there are no wetlands shown for the property through the EGLE wetland database.

Items to be Addressed: None.

LANDSCAPING

The applicant has provided a landscape plan, as shown in the following table.

Table 3. Landscaping Requirements RSC District

Landscaped Area	Requirement	Factor	Required	Provided
Road Frontages	1 deciduous or evergreen tree per 40 linear feet		21	21
Burkhart	1 ornamental tree per 100 linear feet	838	8	8
Durkilart	Min. of 8 shrubs per every 40 linear feet		168	168
Stormwater Detention/	1 deciduous or evergreen tree per 50 feet of perimeter	1293	26	26
Retention Areas	10 shrubs per 50 feet of perimeter		259	259
Open Space Landscaping	1 canopy tree per 3000 square feet	167320	56	56

Items to be Addressed: 1) Provide the location of all trees with a diameter at breast height of six (6) inches or more 2) Provide boundaries of woodlots and shrub masses if applicable.

LIGHTING

A sufficient lighting plan has been provided. A photometric plan indicates that the light levels at property lines are acceptable. Planned lighting includes floodlights spaced throughout the lot, area luminaire lighting along vehicular traffic ways, and wall packs along the storage structures. There are 25 wall mounted flood lights that the angle of the light appears to be adjustable. These should be replaced with a permanent horizontal fixture.

Items to be Addressed: Replace fixtures RSXF1 LED 40K with a permanent horizontal fixture.

SIGNS

Site plan does not indicate any signage proposed on the site.

Chestnut Self Storage - Preliminary Site Plan Review June 19, 2024

If added, signs will require a separate permit from the Zoning Administrator. A sign application must be filed with the Zoning Administrator, at which time the zoning administrator will determine if the signs meet the requirements of the ordinance.

Items to be Addressed: None.

FLOOR PLAN AND ELEVATIONS

Floor plan and elevation sheets have been included in the site plan on sheets A-1.0.

Items to be Addressed: None.

TRASH ENCLOSURE

The applicant has indicated that a garbage receptacle will be placed near the entrance off of Burkhart on the East side of the property.

Items to be Addressed: Provide trash enclosure details.

RECOMMENDATIONS

We recommend the following items be addressed before the Planning Commission takes action on the preliminary site plan:

- The Planning Commission may want to discuss with the applicant the need for individual bathrooms in each unit
- 2. Demonstrate adequate parking is available for the number of employees at maximum employment.
- 3. Provide the location of all trees with a diameter at breast height of six (6) inches or more.
- 4. Provide boundaries of woodlots and shrub masses where applicable.
- 5. Replace fixtures RSXF1 LED 40K with a permanent horizontal fixture.
- Provide trash enclosure details.

CARLISLE/WORTMAN ASSOC., INC.

Paul Montagno, AICP

Principal

CARLISLE/WORTMAN ASSOC., INC.

Grayson Moore

Community Planner

HOWELL TOWNSHIP

Application for Site Plan Review

3525 Byron Road Howell, MI 48855 Phone: 517-546-2817 ext. 108 Email: inspector@howelltownshipmi.org

File #_ PC2024-07

Parcel ID #: 4706-29 _ 200 _ 029		Date		
Applicant Name MEGA/Mark Melchi	Applicant Address	Dr. Fowlerville, MI 48836		
Phone o: (517)223-3512 Fax	_{Email} mmelchi@monum	entengineering.com		
Property Owner Name Chestnut Develo				
Phone (888) 425-1820 Fax				
Please list all recipients to receive information a	nd/or reports:			
Name: Al Pruss	Email apruss@monumenteng	ineering.com		
Name: Britney Shea				
Kelly Ralko permits@chestnutdev.com				
Location of PropertyBurkhart Road btw. G.	. River & Lambert Dr.	ng Classification IFZ		
Existing Use vacant				
LAISTING USE	Froposed Ose			
Charle Out a				
Check One: Preliminary Site Plan Review (20.06)	Final Site Plan Review (20.07)	Note; Submitting for combined preliminary and final SPA per ordinance Article XX Section 20.09		
Temporary Use (14.34)	Commercial/Industrial Development	Pre-Conference was held on 4/9/24		
Subdivision/Site Plan Condo Multi-Family/Condo				
Planned Unit Development (PUD) Type: 1 2 3 4 5				

Applicant needs to provide the following site plan drawings: four (4) full size copies, eight (8) - $11'' \times 17''$ copies, and an electronic set (either on an USB drive or provide an online link) for the preliminary site plan drawings. Drawings shall be submitted with an application for site plan review (20.06 a) thirty (30) days prior to the meeting.

The site plan is to contain the following information or the drawing submitted under the Land Use Permit can be utilized if it also contains the following information and is accurately drawn to scale:

- a. The date, north arrow and scale. The scale shall be not less than 1'' = 20' for property under three (3) acres and at least 1'' = 100' for those (3) acres or more.
- b. Statistical data including number of dwelling units, size of dwelling units, if any, and total gross acreage involved. In the case of a mobile home park, the size and location of each mobile home site shall be shown.
- c. The location and height of all existing and proposed structures on and within 100' of the subject property's boundary.
- d. All lot and/or property lines are to be shown and dimensioned, including building setback lines on corner lots.
- e. The location and dimensions of all existing and proposed drives, sidewalks, curb openings, signs, exterior lighting, curbing, parking areas (show dimensions of a typical parking space), unloading areas and recreation areas.
- f. Vehicular traffic and pedestrian circulation features within and without the site.
- g. The location of all proposed landscaping, fences, or walls.
- h. Size and location of existing and proposed utilities, including proposed connection to public sewer or water supply system.
- i. A location map indicating the relationship of the site to the surrounding land uses.
- j. The location and pavement width and right-of-way width of all abutting roads, streets, alleys, or easements.
- k. Show properties and respective zoning abutting the subject property.
- 1. The location and size of all surface water drainage facilities.
- m. Contour intervals shall be shown at a maximum of 2' intervals, with 1' intervals preferred for topographic features of the site.

By signing below the applicant understands and acknowledges the following statements:

- a. The Planning Commission has sixty (60) days from filing date to approve or deny site plan.
- b. Approval of preliminary site plan is valid for a period of one (1) year from date of approval.
- c. A one (1) year extension may be granted upon written request of the applicant and approval by the Planning Commission.
- d. Approval of preliminary site plan shall expire one year after approval of final site plan unless zoning permit has been obtained.
- e. Approval of the final site plan expires six (6) months after approval unless a land use permit application is applied for and granted.

- f. The final site plan approval shall expire one (1) year following the date of approval unless construction has begun on the property in accordance with the plan.
- g. Applicant may appeal the Planning Commission's ruling of the final site plan to the Board of Appeals within ten (10) days of the Planning Commission's decision on all matters except use of the land, use of buildings, or structures.
- h. The Planning Commission has sixty (60) days from the date of the Planning Commission meeting at which the final site plan was received to approve or deny the final site plan.
- i. Improvements not in conformance with the final site plan shall be deemed a violation of the ordinance and be subject to the penalties of the ordinance.

COUNTY OF LIVINGSTON
My Commission Expires July 4, 2030
Acting in the County of Living Story

j. Sewer system and water system tap in fees, if applicable, must be paid prior to issuance of a land use permit.

Applicant herby deposes and says that all the above statements and information contained in this application and any statements submitted herewith or on the site plan are true and accurate.

Ja Jan	STEVE GRONDL
Owner Signature	Print Name
5/24/24 Date	
au.	. (
Subscribed and sworn to before me this 24 day of	of <u>May</u> , 20 <u>24</u> .
Notary Public Livingstor	County, Michigan
My Commission Expires: July 4 20 30.	MELISSA BOWMAN ARY PUBLIC - STATE OF MICHIGAN

Howell Township Reimbursement Agreement

The applicant accepts responsibility for all expenses at actual cost for professional services related to the application required by the Township for the issuance of any permits, approvals, reviews and attendance at meetings by the Township's Planner, Landscape Architects, Legal Counsel, Engineering and Administrative Staff, over and above the fees listed in the Howell Township fee schedule.

Information for Additional Billing:	
Name Kelly Ralko, Agent of Chestnut	AddressAddress
Phone (888) 425-1820	_ _{Email_} permits@chestnutdev.com
I have read and agree to the reimbursement Township.	agreement as presented between myself/my company and Howel
Applicant Signature W WWW SIMMWW	-agent of Date 3/25/24 Chestnut
Notary Public Ounty, Michigan My Commission Expires: 6.22.25	Gina Marie Wessel Notary Public of Michigan Livingston County Expires 06/22/2025 Acting in the County of Livingston
Owner Signature	Date
Notary Public	
County, Michigan My Commission Expires:	

LEGAL DESCRIPTION (AS PROVIDED)

(PER CISLO TITLE COMPANY, PRELIMINARY TITLE COMMITMENT NO. 24-91731-5, DATED JANUARY 18, 2024)

PARCEL TAX NUMBER: 06-29-200-029

the following parcel of land situated in the Township of Howell, County of Livingston, State of Michigan, described as follows:

Part of the Northeast 1/4 of Section 29, Town 3 North, Range 4 East, Howell Township, Livingston County, Michigan, more particularly described as follows: Beginning at the Northeast corner of Section 29; thence along the East line of Section 29 and the centerline of Burkhart Road, South 00 degrees 54 minutes 50 seconds East 638.41 feet; thence South 89 degrees 05 minutes 10 seconds West, 797.11 feet; thence along the Northeasterly Right of Way of the Chesapeake & Ohio Railroad on the following two (2) courses; 1) North 45 degrees 24 minutes 50 seconds West, 572.57 feet, 2) Northwesterly on an arc left, having a length of 361.97 feet, a radius of 3149.50 feet, a central angle of 06 minutes 35 minutes 06 seconds, and a long chord which bears North 48 degrees 42 minutes 23 seconds West, 361.78 feet; thence along the North line of Section 29, North 89 degrees 35 minutes 42 seconds East (recorded as North 89 degrees 35 minutes 04 seconds East), 1466.47 feet to the Point of Beginning.

Part of the Northeast 1/4 of Section 29, Town 3 North, Range 4 East, Township of Howell, Livingston County, Michigan, described as follows: Commencing at the Northeast corner of Section 29; thence along the East line of Section 29 and the centerline of Burkhart Road, South 0 degrees 54 minutes 50 seconds East 638.41 feet to the point of beginning of the parcel to be described; thence continuing along the East line of Section 29 and the centerline of Burkhart Road, South 00 degrees 54 minutes 50 seconds East 200.00 feet; thence South 89 degrees 05 minutes 10 seconds West 600.58 feet (recorded as West 600.30 feet); thence along the Northeasterly right of way of the Chesapeake and Ohio Railroad, North 45 degrees 24 minutes 50 seconds West 280.41 feet; thence North 89 degrees 05 minutes 10 seconds East 797.11 feet to the point of beginning.

BEARING REFERENCE

BEARINGS ARE BASED ON PROJECT COORDINATE SYSTEM:
MICHIGAN STATE PLANE COORDINATE SYSTEM, NAD83 (CONUS) (MOL) (GRS80), SOUTH ZONE 2113, INTERNATIONAL FEET, GROUND.

DESIGN ENGINEER/SURVEYOR



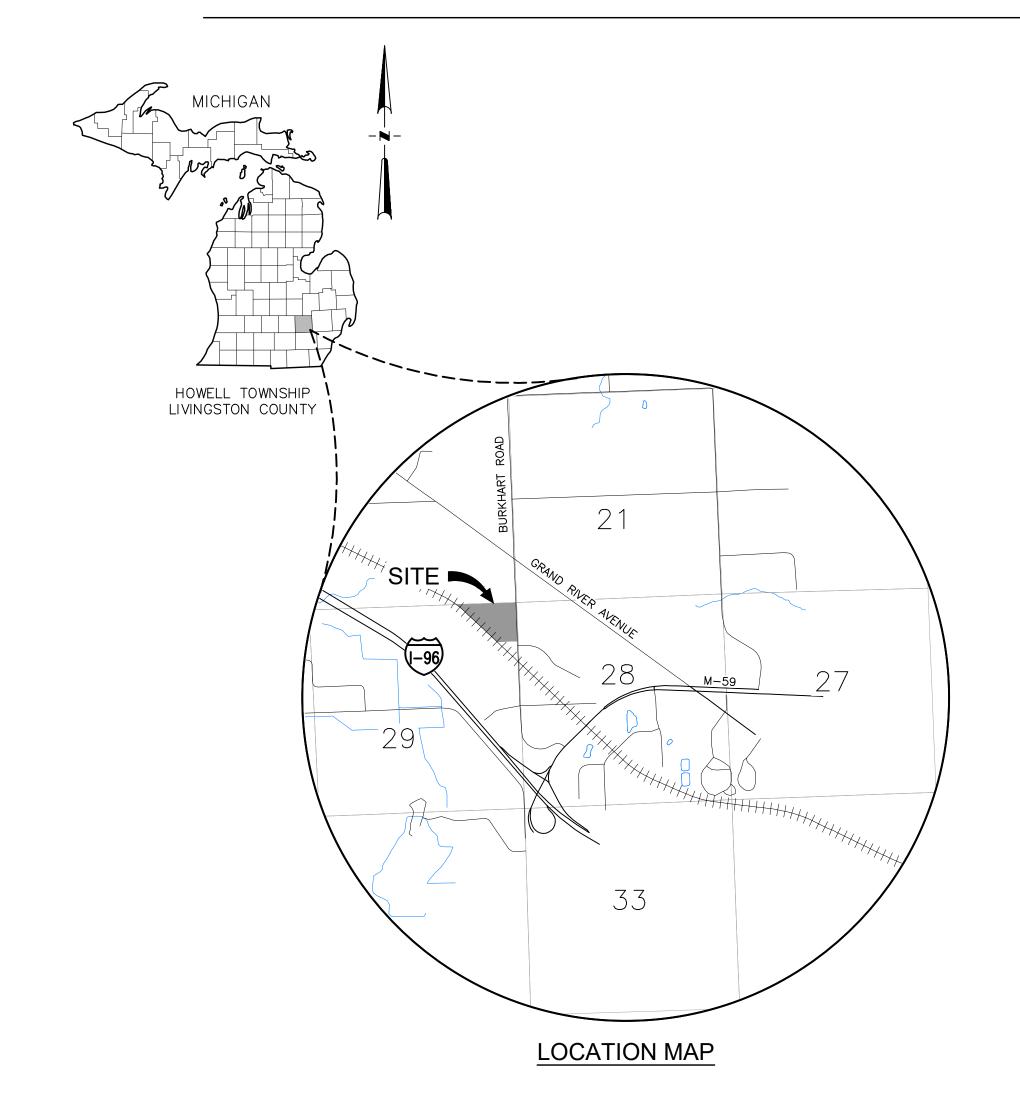
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298 VETERANS DRIVE, FOWLERVILLE, MI 48836 PHONE: 517-223-3512

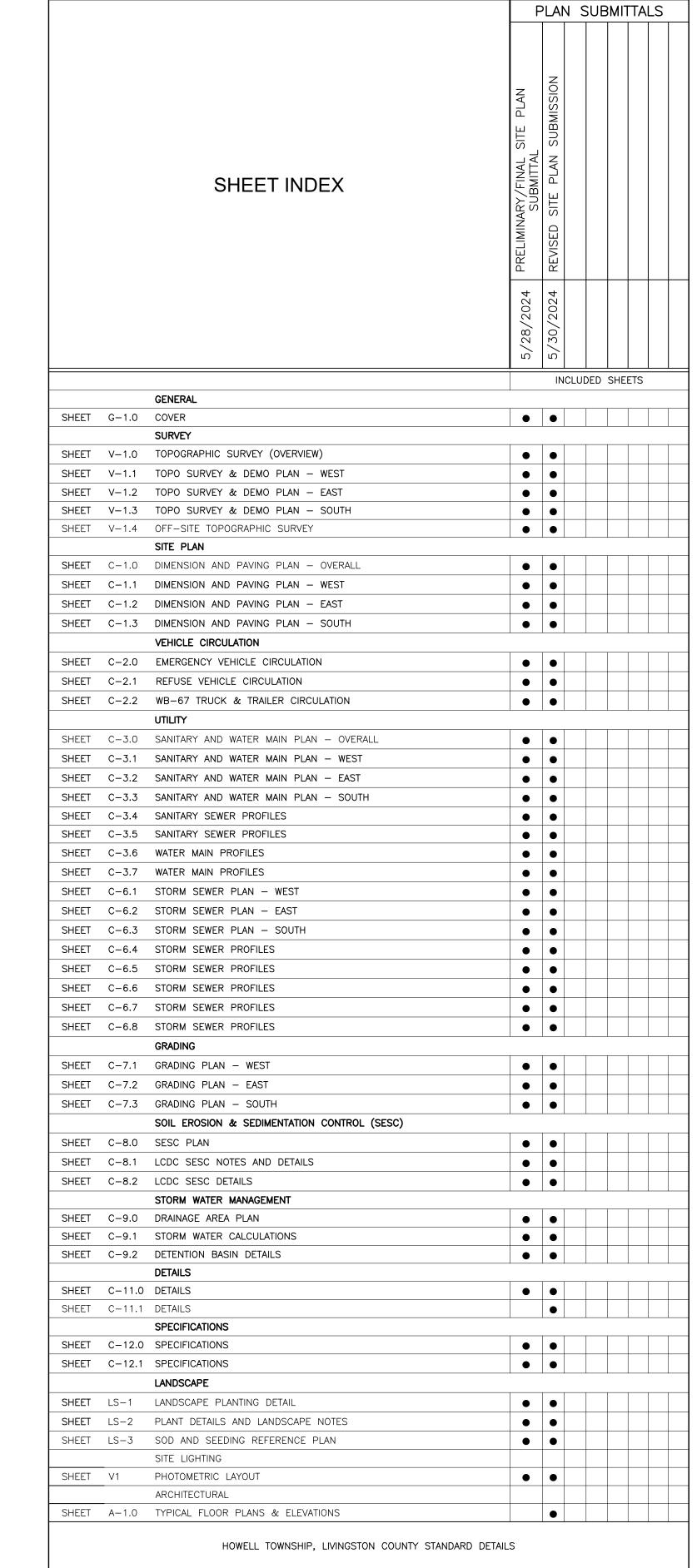
COMBINED PRELIMINARY & FINAL SITE PLAN DRAWINGS FOR

CHESTNUT SELF STORAGE



CLIENT

CHESTNUT DEVELOPMENT, LLC 3800 CHILSON ROAD HOWELL, MICHIGAN 48843 POC: STEVE GRONOW PHONE: 517-552-2489



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MICHIGAN 48836

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CLIENT :

CHESTNUT DEVELOPMENT, LLC

3800 CHILSON ROAD HOWELL, MI 48843 POC: STEVE GRONOW

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STNUT SELF STORA ID# 06-29-200-(

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PLAN SUBMITTAL 5/28/2024
MISSION 5/30/2024

PLAN SUBMITTALS/REVISIONS
PRELIMINARY/FINAL SITE PLAN SUBMITTAL
REVISED SITE PLAN SUBMISSION

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: N/A

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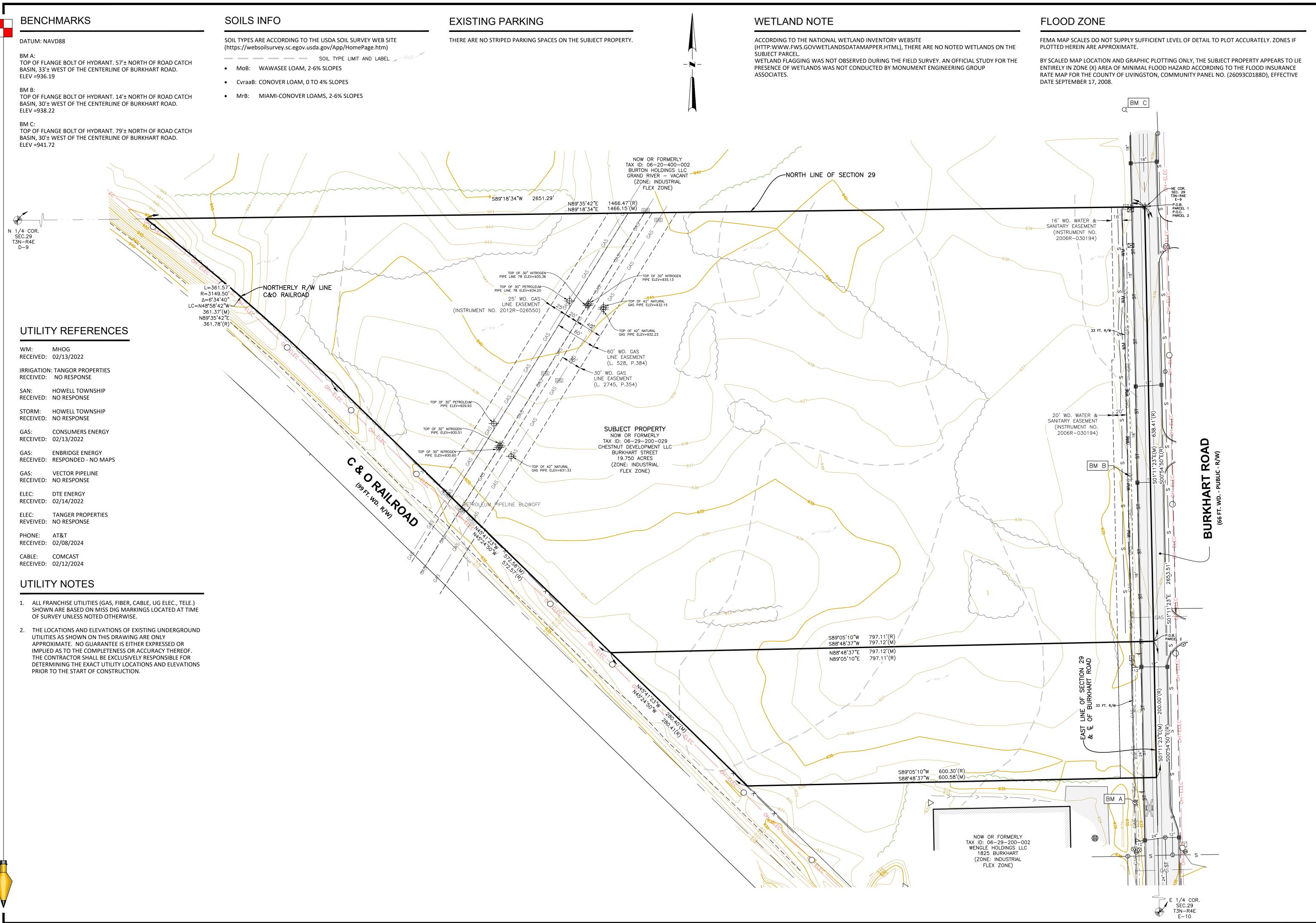
DRAWN BY: CD

DESIGN BY: BS

CHECK BY: AP

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DETERMINING THE EXACT UTILITY LOCATION
AND ELEVATIONS PRIOR TO THE START (
C O N S T R U C T I O N

One-Call Notificat

CLIENT :

Michigan's

CHESTNUT DEVELOPMENT, LLC

> 3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

(OVERVIEW)

RAGE

0-029

2. 29, T3N-R4E,

V CO., MICHIGAN

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TAX ID#
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HOWFILL TOWNSHIP

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ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: 1" = 60'

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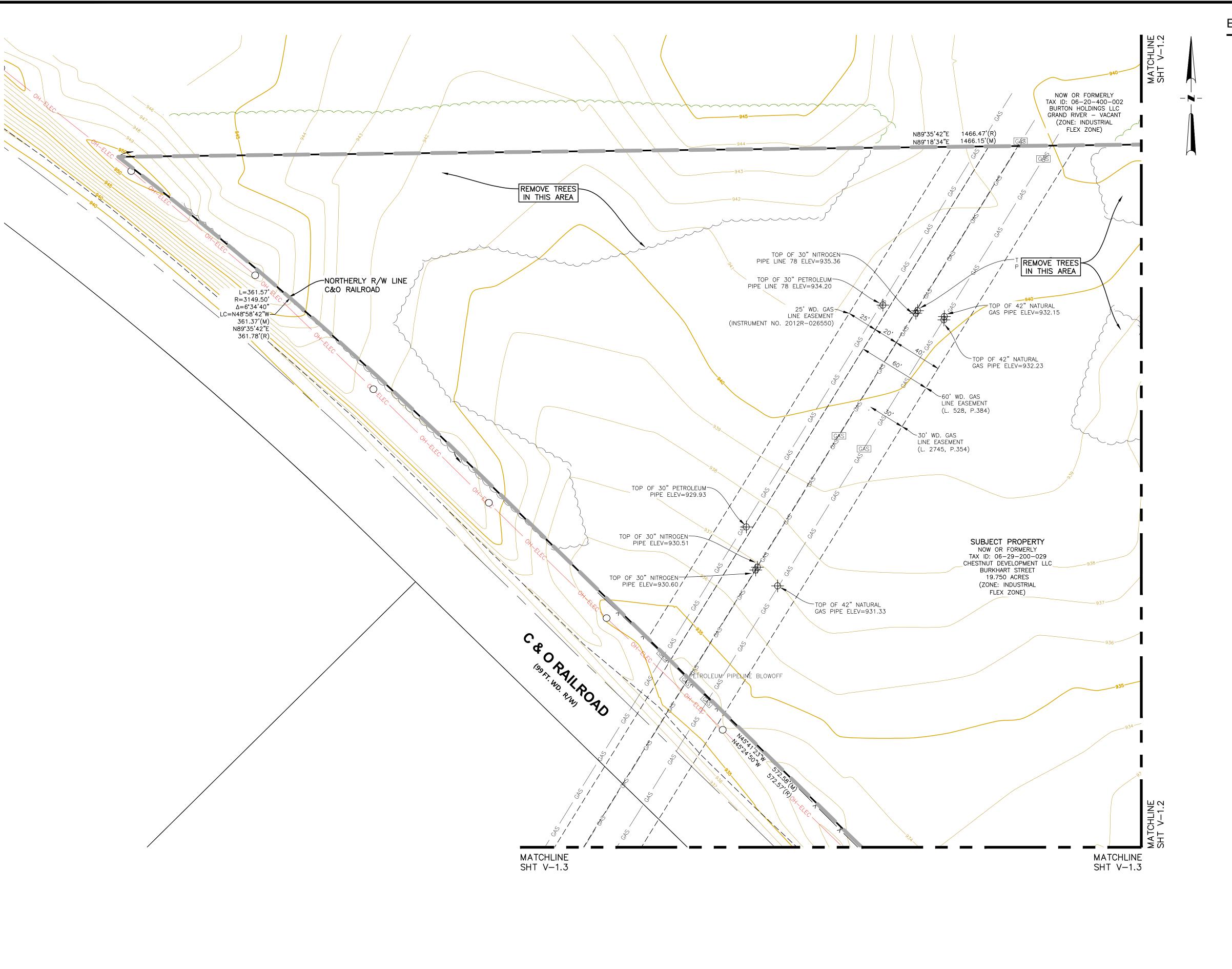
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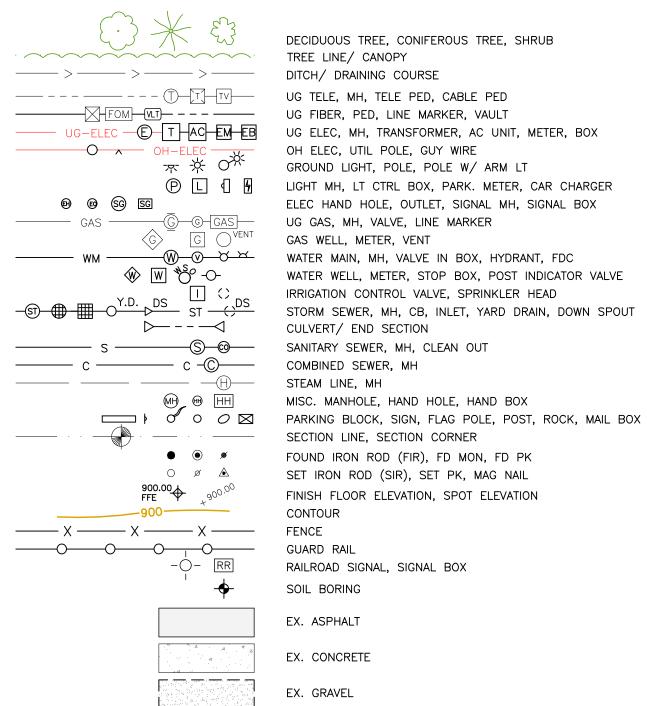
DESIGN BY: BS

CHECK BY: AP

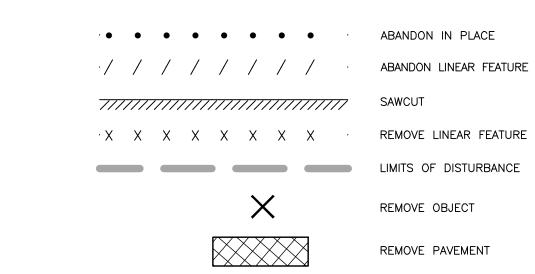
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EXISTING LEGEND



DEMOLITION LEGEND



DEMOLITION NOTES

- UTILITY OBJECTS SUCH AS GAS METER, TRANSFORMER, TELEPHONE PEDESTAL, UTILITY POLE & WIRES ARE TO BE REMOVED BY OTHERS IF APPLICABLE.
- ANY TREES NOT MARKED PER PLAN ARE TO BE PROTECTED & PRESERVED DURING CONSTRUCTION.

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REPORT OF THE STATE OF THE STATE

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CLIENT :

CHESTNUT DEVELOPMENT, LLC

3800 CHILSON ROAD HOWELL, MI 48843 POC: STEVE GRONOW

517-552-2489

GE 129 19, T3N-R4E, 0., MICHIGAN

UT SELF STORAGE 06-29-200-029 1/4 OF SEC. 29, 9, LIVINGSTON CO.,

CHESTNUT TAX ID# 00 ART OF THE NE 1/ OWELL TOWNSHIP, 1

PLAN SUBMITTALS/REVISIONS DATE
LIMINARY/FINAL SITE PLAN SUBMITTAL 5/28/202
SED SITE PLAN SUBMISSION 5/30/202

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ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286SCALE: 1" = 40'

DESIGN BY: BS

0 1/2" 1"

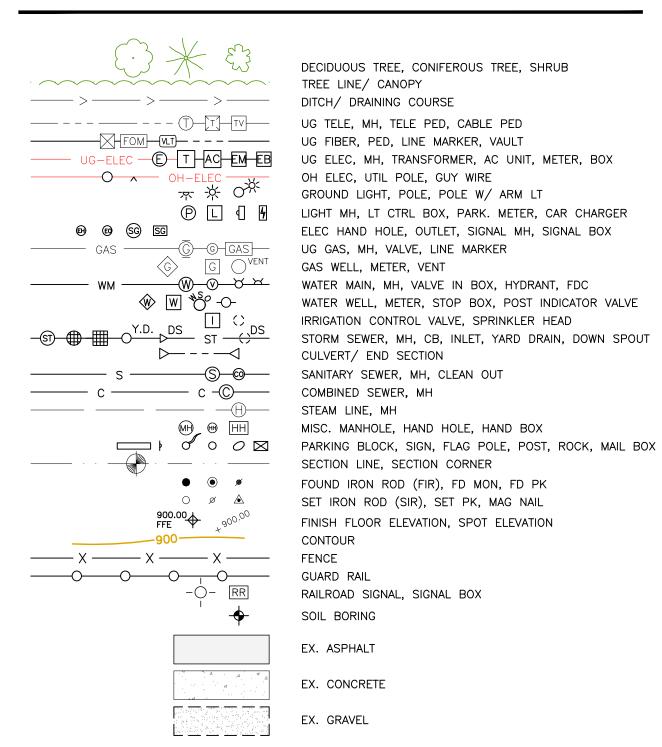
FIELD:

DRAWN BY: CD

CHECK BY: AP

V-1.1

EXISTING LEGEND



DEMOLITION LEGEND

• •	• •	• • •	• .	ABANDON IN PLACE
./ /	/ /	/ / /	/ .	ABANDON LINEAR FEATURE
7/////	//////	///////////////////////////////////////	7777777	SAWCUT
·XXX	X X	x x x	Χ .	REMOVE LINEAR FEATURE
		-		LIMITS OF DISTURBANCE
		X		REMOVE OBJECT
			\exists	REMOVE PAVEMENT

DEMOLITION NOTES

- 1. UTILITY OBJECTS SUCH AS GAS METER, TRANSFORMER, TELEPHONE PEDESTAL, UTILITY POLE & WIRES ARE TO BE REMOVED BY OTHERS IF APPLICABLE.
- 2. ANY TREES NOT MARKED PER PLAN ARE TO BE PROTECTED & PRESERVED DURING CONSTRUCTION.

STRUCTURE SCHEDULE

EX.	SANITARY	SEWER
STRUCTURE	RIM ELEV.	PIPES
(25303) SMH	934.28	12" E IE= 922.78 12" W IE= 920.08 12" S IE= 920.08
(25318) SMH	935.31	12" W IE= 922.51 12" E IE= 922.61 10" N IE= 922.71
(25428) SMH	935.71	10" S IE= 921.91 10" N IE= 921.91 10" E IE= 922.31
(25578) SMH	937.09	10" S IE= 922.71 10" N IE= 924.79
(25683) SMH	939.44	10" N IE= 926.24 10" S IE= 926.14

SHT V-1.3

EX. STORM SEWER				
STRUCT	ΓURE	RIM ELEV.	PIPES	
(25313)	CBS	935.27	24" E IE= 930.38 24" N IE= 930.37 12" W IE= 931.57	
(25317)	STMH	935.57	12" E IE= 930.47 24" W IE= 929.57 24" S IE= 929.57	
(25402)	CBS	935.39	24" S IE= 930.60 18" N IE= 930.80 12" E IE= 931.40 12" W IE= 932.00	
(25410)	CBS	935.26	12" W IE= 931.66	
(25496)	CBS	936.51	12" W IE= 931.91	
(25503)	CBS	936.52	18" S IE= 931.32 12" E IE= 931.52 18" N IE= 931.52	
(25530)	CBS	935.10	12" W IE= 930.70	
(25564)	CBS	937.17	18" S IE= 932.27 12" E IE= 932.67 18" N IE= 932.27	
(25579)	CBS	937.08	12" W IE= 932.68	
(25675)	CBS	938.76	18" S IE= 933.46 18" E IE= 933.46 18" N IE= 933.46	
(25682)	CBS	938.74	18" W IE= 933.54	

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AND ELEVATIONS PRIOR TO THE START
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CHESTNUT **DEVELOPMENT, LLC**

3800 CHILSON ROAD HOWELL, MI 48843 POC: STEVE GRONOW

517-552-2489

STORAGE -200-029 SEC. 29, STON CO.,

DEMO

TOPO

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 40'1/2"

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

V-1.2

FILE:P:\Projects\2022\22-286 Chestnut Self Storage\Dwg\Engineering\22-286_V-1.1_Topo-Demo.dwg PLOT DATE:5/30/2024 10:47 AM

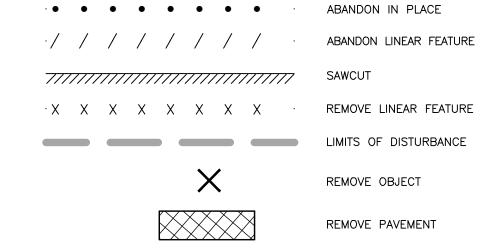
SHT V-1.3

STRUCTURE SCHEDULE

EX. SANITARY SEWER				
RUCTURE	RIM ELEV.	PIPES		
5303) SMH	934.28	12" E IE= 922.78 12" W IE= 920.08 12" S IE= 920.08		
5318) SMH	935.31	12" W IE= 922.51 12" E IE= 922.61 10" N IE= 922.71		
5428) SMH	935.71	10" S IE= 921.91 10" N IE= 921.91 10" E IE= 922.31		
5578) SMH	937.09	10" S IE= 922.71 10" N IE= 924.79		
5683) SMH	939.44	10" N IE= 926.24 10" S IE= 926.14		

E)	X. STORM S	SEWER
STRUCTURE	RIM ELEV.	PIPES
(25313) CBS	935.27	24" E IE= 930.38 24" N IE= 930.37 12" W IE= 931.57
(25317) STMH	935.57	12" E IE= 930.47 24" W IE= 929.57 24" S IE= 929.57
(25402) CBS	935.39	24" S IE= 930.60 18" N IE= 930.80 12" E IE= 931.40 12" W IE= 932.00
(25410) CBS	935.26	12" W IE= 931.66
(25496) CBS	936.51	12" W IE= 931.91
(25503) CBS	936.52	18" S IE= 931.32 12" E IE= 931.52 18" N IE= 931.52
(25530) CBS	935.10	12" W IE= 930.70
(25564) CBS	937.17	18" S IE= 932.27 12" E IE= 932.67 18" N IE= 932.27
(25579) CBS	937.08	12" W IE= 932.68
(25675) CBS	938.76	18" S IE= 933.46 18" E IE= 933.46 18" N IE= 933.46
(25682) CBS	938.74	18" W IE= 933.54

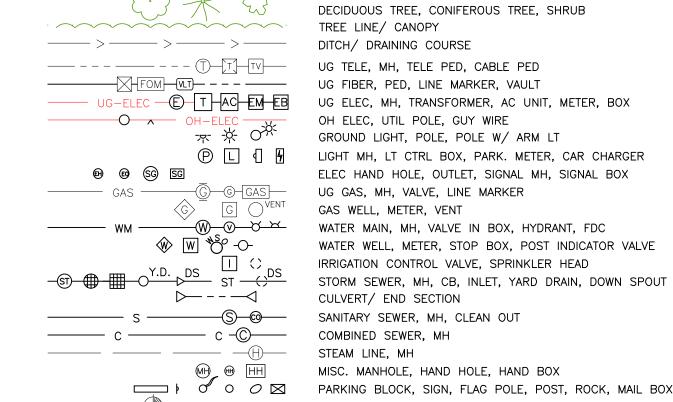
DEMOLITION LEGEND

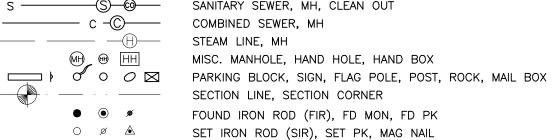


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EXISTING LEGEND





FINISH FLOOR ELEVATION, SPOT ELEVATION

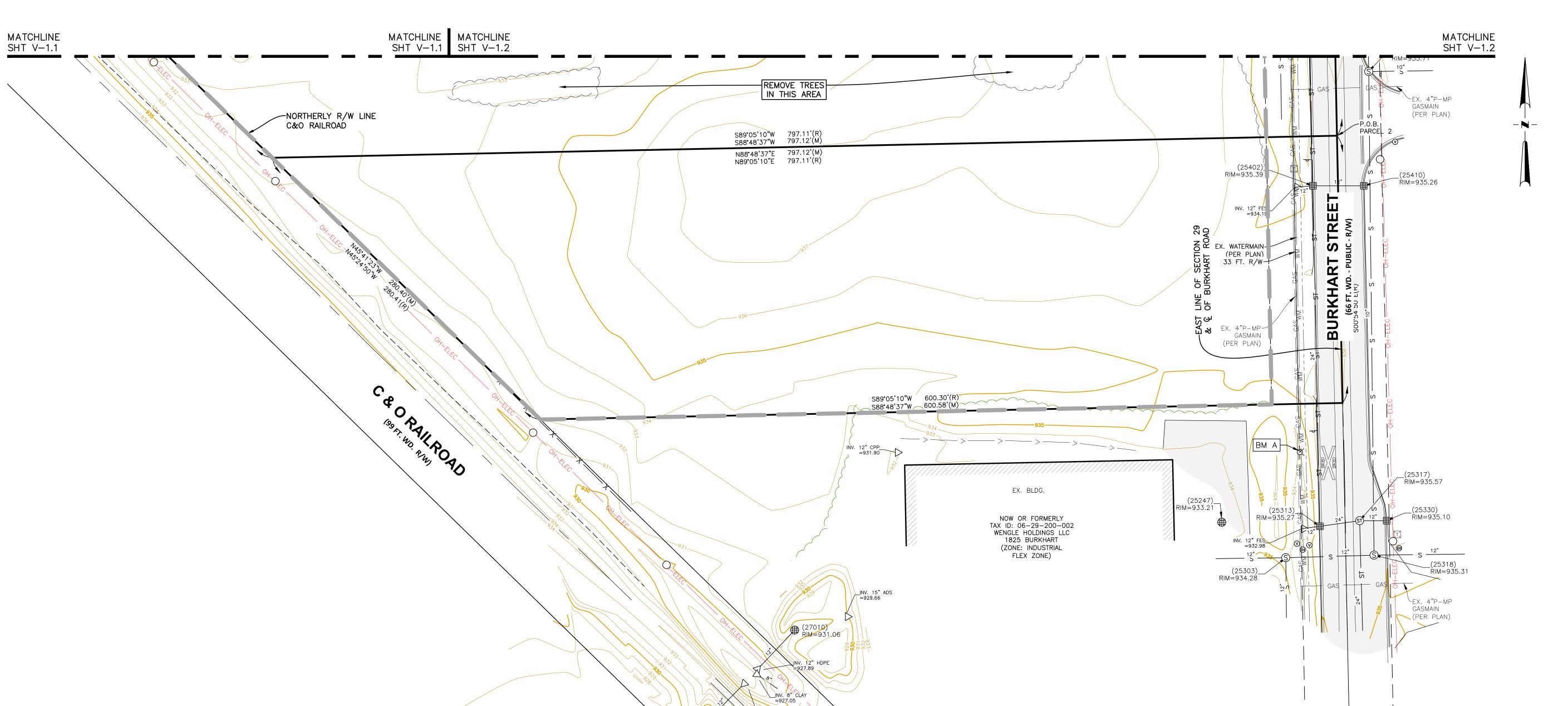
CONTOUR GUARD RAIL RAILROAD SIGNAL, SIGNAL BOX

SOIL BORING

EX. ASPHALT

EX. CONCRETE

EX. GRAVEL



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ENGINEER 6201043168

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C O N S T R U C T I O N

CLIENT :

CHESTNUT **DEVELOPMENT, LLC** 3800 CHILSON ROAD

HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

SOUTH

TOPO

ORIGINAL ISSUE DATE: 02/29/2024

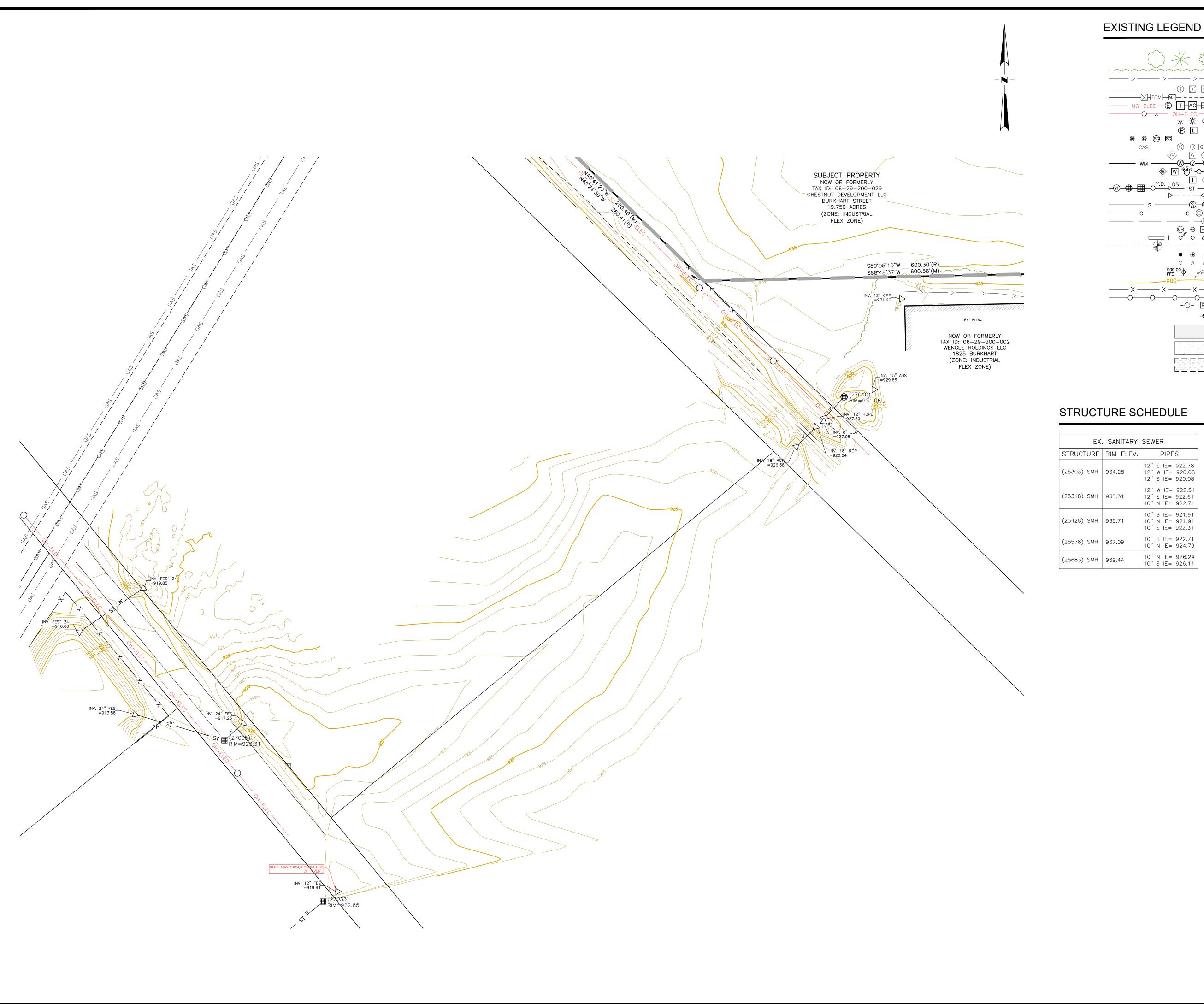
PROJECT NO: 22-286

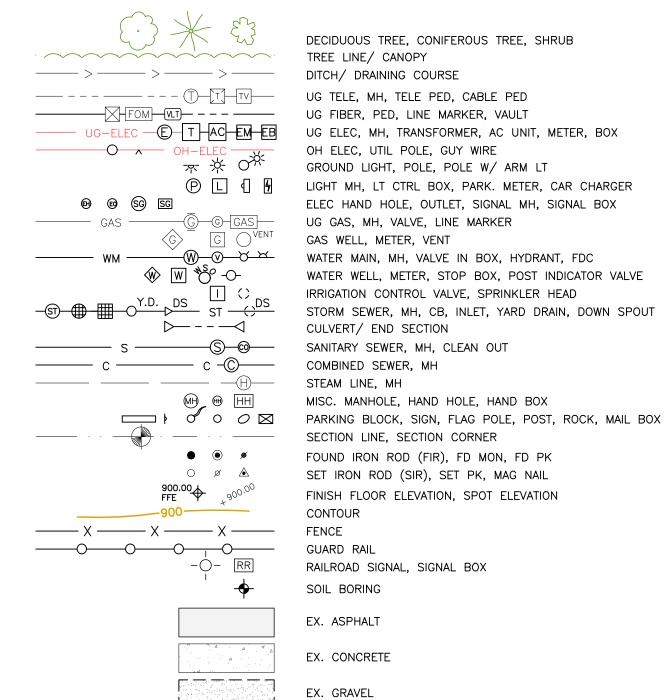
SCALE: 1" = 40'0 1/2" 1

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

V-1.3

FILE:P:\Projects\2022\22-286 Chestnut Self Storage\Dwg\Engineering\22-286_V-1.1_Topo-Demo.dwg PLOT DATE:5/30/2024 10:47 AM





EX.	SANITARY	SEWER
STRUCTURE	RIM ELEV.	PIPES
(25303) SMH	934.28	12" E IE= 922.78 12" W IE= 920.08 12" S IE= 920.08
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(25682)	CBS	938.74	18" W IE= 933.54

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517-552-2489

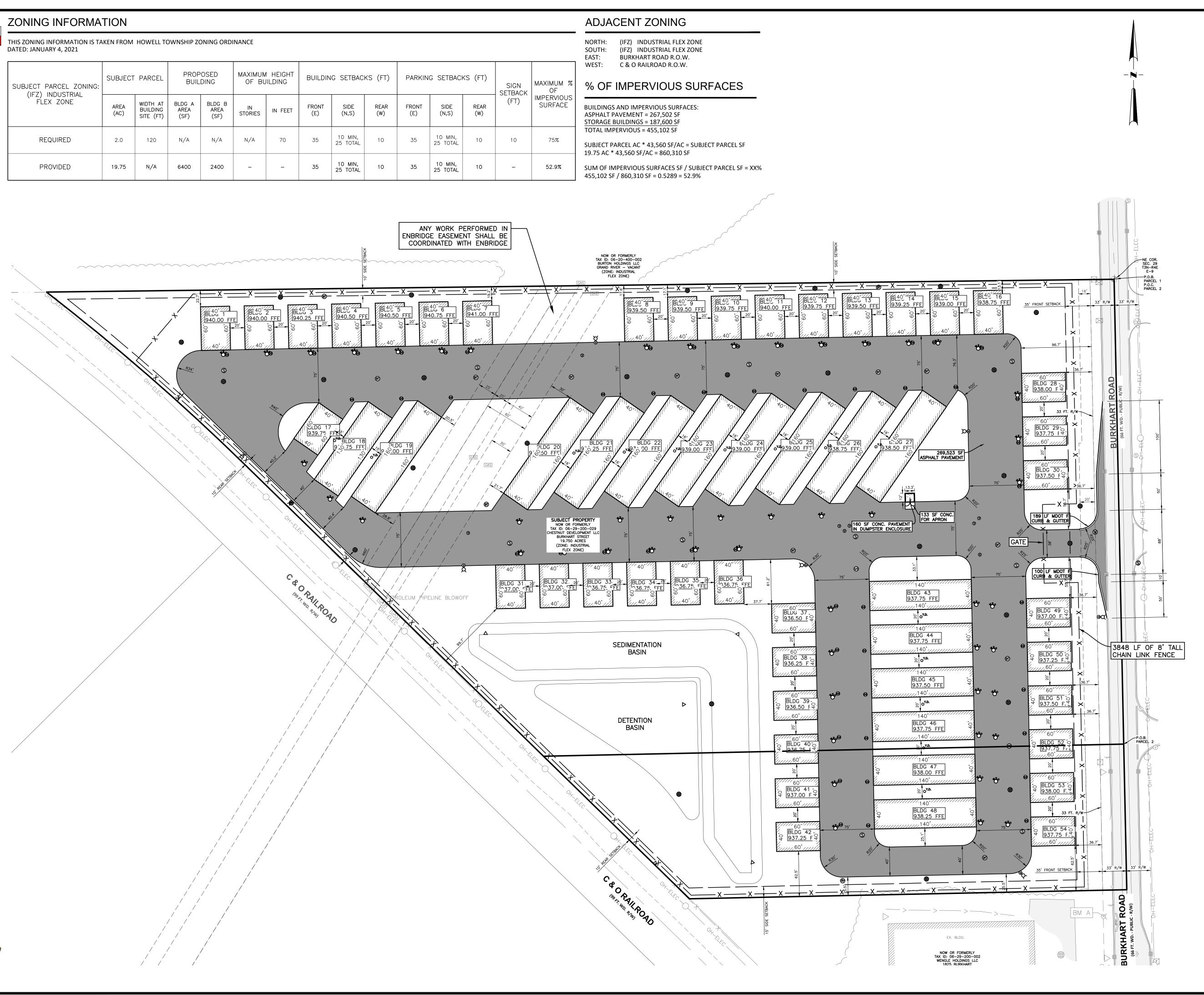
ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

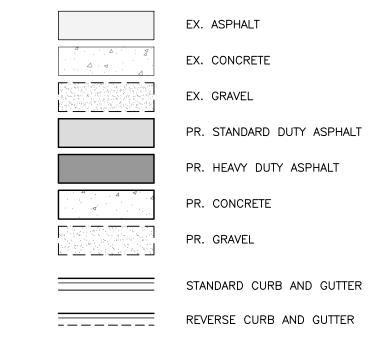
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DESIGN BY: BS CHECK BY: AP

V-1.4



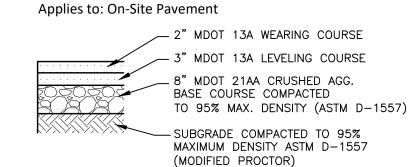
PAVEMENT LEGEND



NOTE

- DUMPSTER ENCLOSURES SHALL BE CONSTRUCTED OF THE SAME BRICK MATERIAL AS THE ADJACENT BUILDINGS.
- 2. SCREENING SHALL BE PROVIDED FOR ALL MECHANICAL EQUIPMENT.

HEAVY DUTY HMA PAVEMENT SECTION



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HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

OVERALL

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-9 , T3N-R4E, ., MICHIGAN

| SELF STORAG | SELF STORAG | SEC |

CHESTNUT SE TAX ID# 06—3 THE NE 1/4 TOWNSHIP, LIVI

5/28/2024 5/30/2024

PLAN SUBMITTALS/REVISIONS
MINARY/FINAL SITE PLAN SUBMITTAL
ED SITE PLAN SUBMISSION

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: 1" = 60'

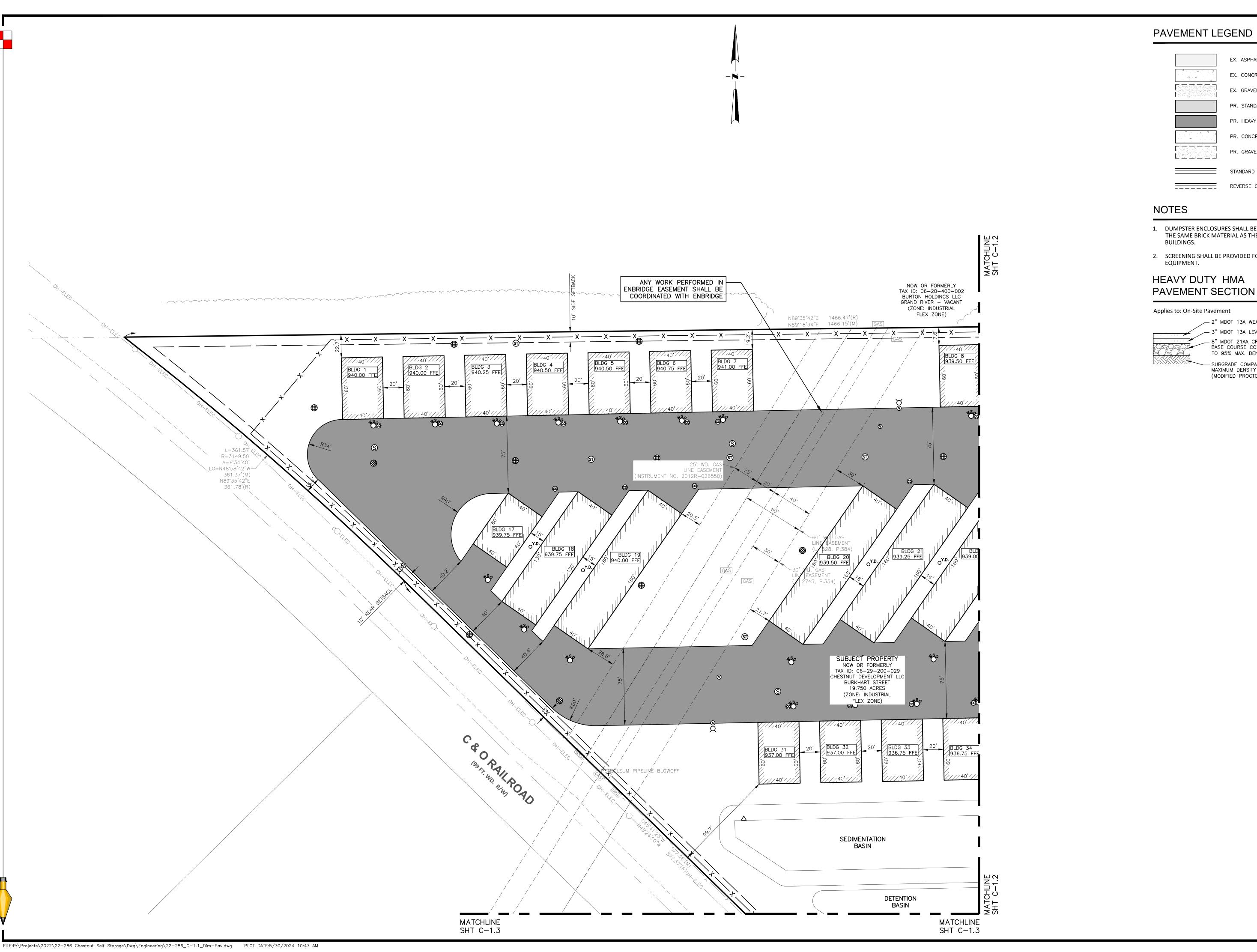
0 1/2" 1"

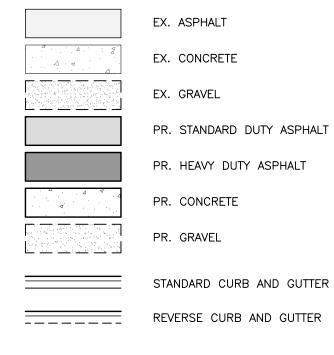
FIELD:

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- 1. DUMPSTER ENCLOSURES SHALL BE CONSTRUCTED OF THE SAME BRICK MATERIAL AS THE ADJACENT
- 2. SCREENING SHALL BE PROVIDED FOR ALL MECHANICAL

— 2" MDOT 13A WEARING COURSE - 3" MDOT 13A LEVELING COURSE _ 8" MDOT 21AA CRUSHED AGG. BASE COURSE COMPACTED TO 95% MAX. DENSITY (ASTM D-1557)

SUBGRADE COMPACTED TO 95%MAXIMUM DENSITY ASTM D-1557 (MODIFIED PROCTOR)

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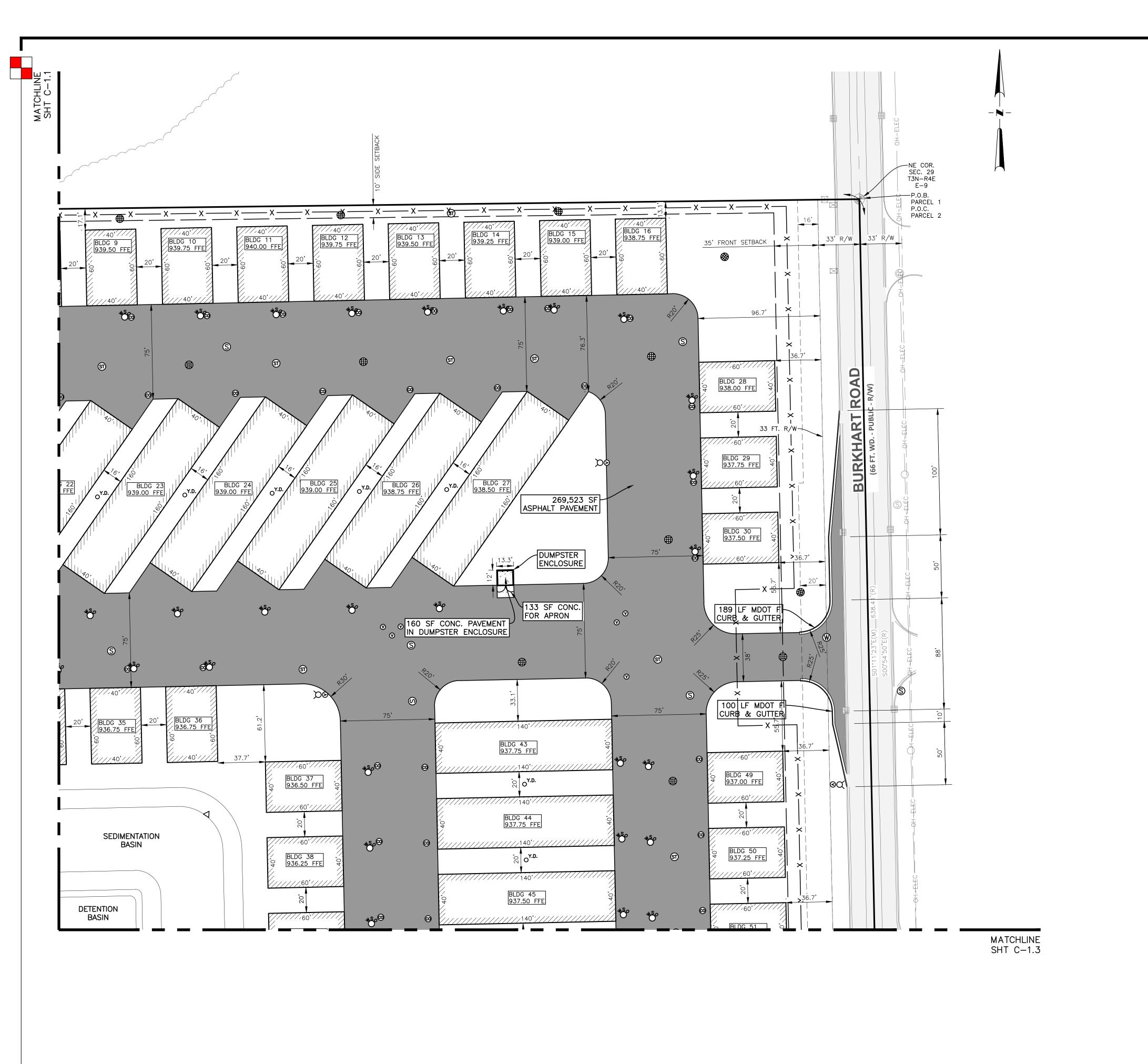
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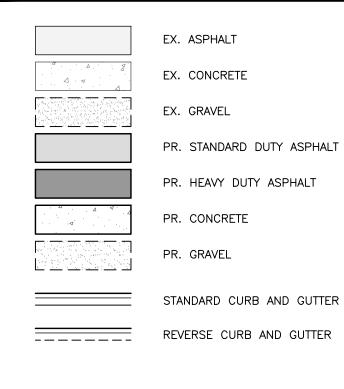
PROJECT NO: 22-286

SCALE: 1" = 40'FIELD:

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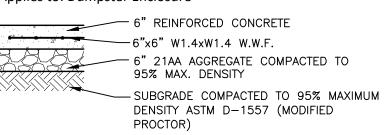


PAVEMENT LEGEND



DUMPSTER PAVEMENT SECTION

Applies to: Dumpster Enclosure



HEAVY DUTY CONCRETE PAVEMENT SECTION

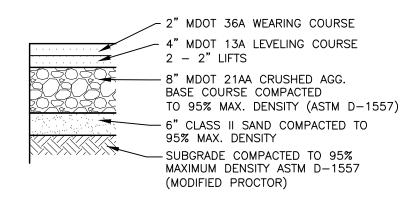
Applies to: 10' APRON AT DUMPSTER PAD

	8" REINFORCED CONCRETE
2 2 4	6"x6" W1.4xW1.4 W.W.F.
	SUBGRADE COMPACTED TO 95% MAXIM DENSITY ASTM D-1557 (MODIFIED

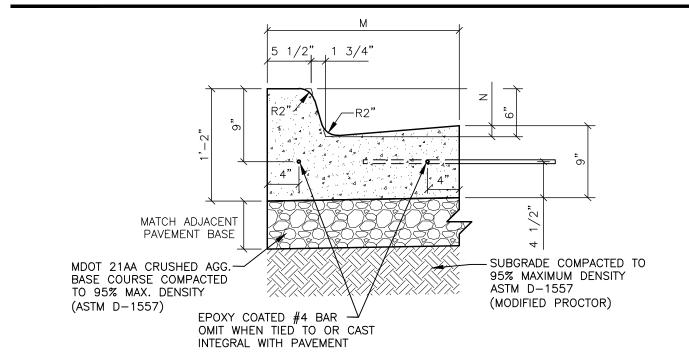
PROCTOR)

STANDARD DUTY HMA PAVEMENT SECTION

Applies to: Burkhart Rd ROW



CURB AND GUTTER DETAIL - MDOT - FX - WITH TABLE



DETAIL -	DIMENSION		LANE TIES	CONCRETE	
	М	N	LANE HES	CYD / LFT	
F1	1'-6"	7/8"	AS SHOWN	0.0484	
F2	1'-6"	7/8"	OMITTED	0.0484	
F3	2'-0"	1 3/8"	AS SHOWN	0.0610	
F4	2'-0"	1 3/8"	OMITTED	0.0610	
F5	2'-6"	1 7/8"	AS SHOWN	0.0737	
F6	2'-6"	1 7/8"	OMITTED	0.0737	

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ALLAN W. ENGINEER 6201043168

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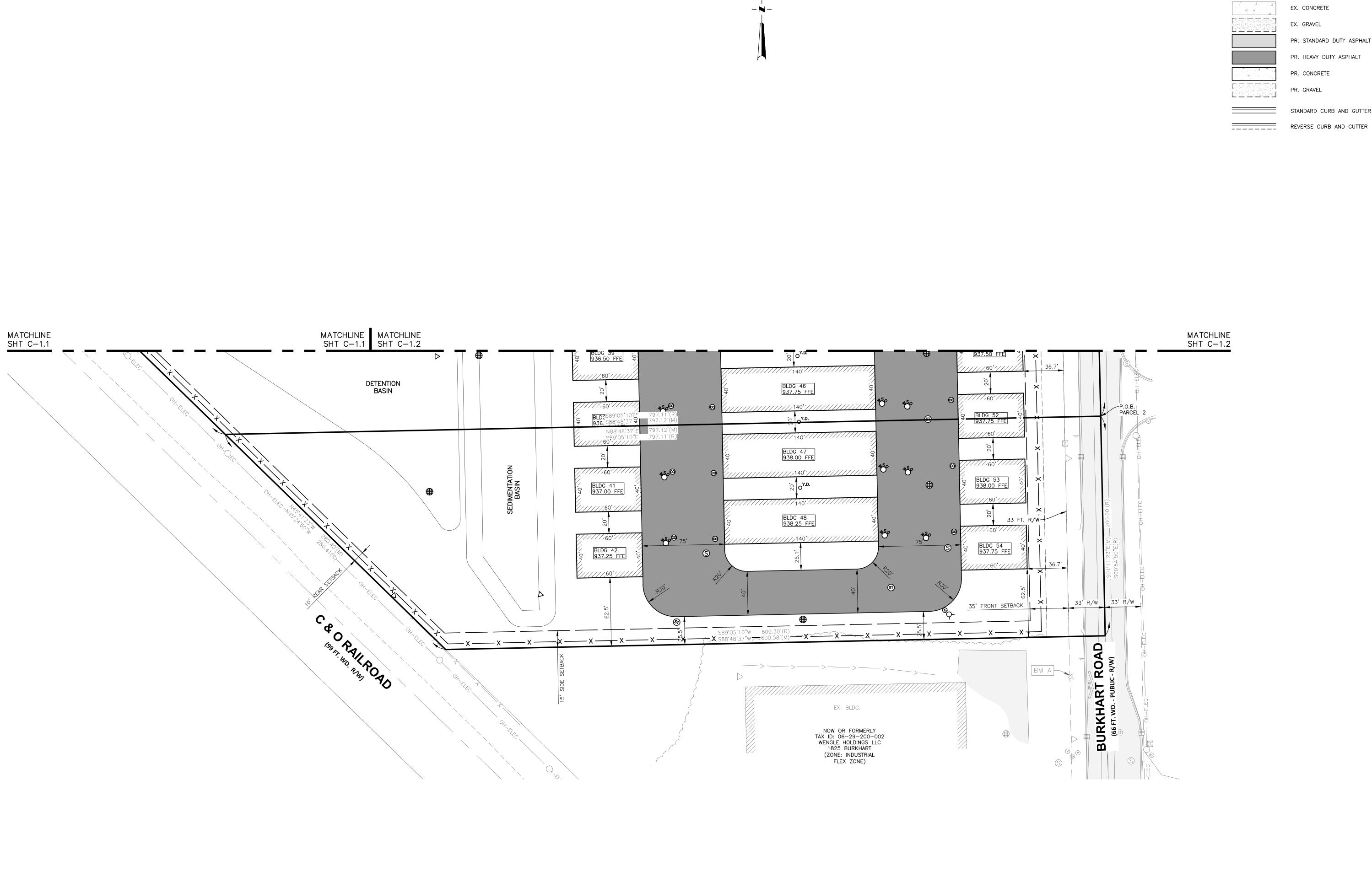
3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 40'

1/2" FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP



PAVEMENT LEGEND

EX. CONCRETE

EX. ASPHALT

EX. GRAVEL

PR. STANDARD DUTY ASPHALT PR. HEAVY DUTY ASPHALT

PR. CONCRETE

STANDARD CURB AND GUTTER

ALLAN W. PRUSS ENGINEER NO. 6201043168

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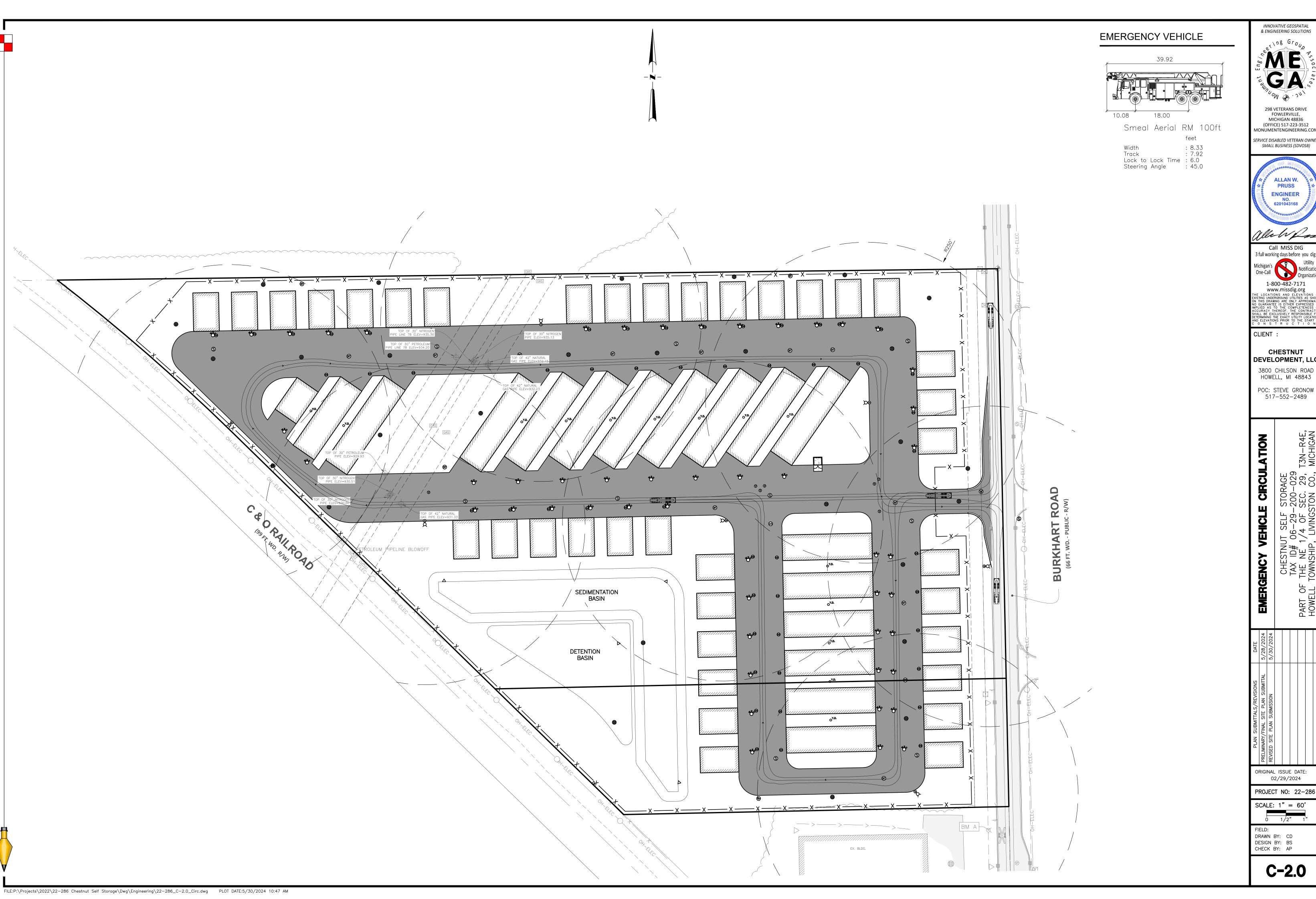
SOUTH

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 40

0 1/2" 1" FIELD: DRAWN BY: CD

DESIGN BY: BS CHECK BY: AP



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AND ELEVATIONS PRIOR TO THE START C
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CHESTNUT DEVELOPMENT, LLC

3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

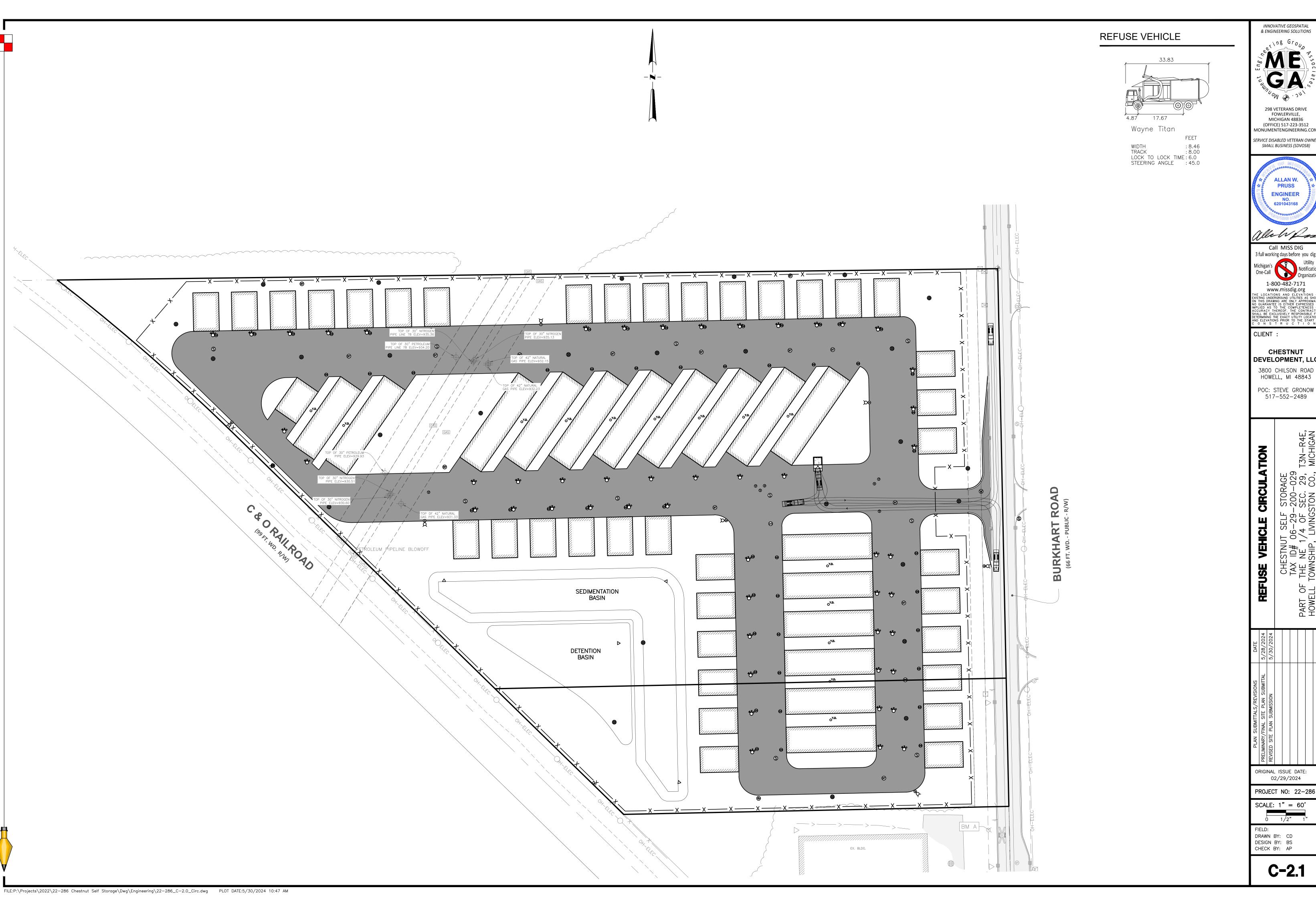
ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: 1" = 60'0 1/2" 1"

DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

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AND ELEVATIONS PRIOR TO THE START OF
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3800 CHILSON ROAD HOWELL, MI 48843

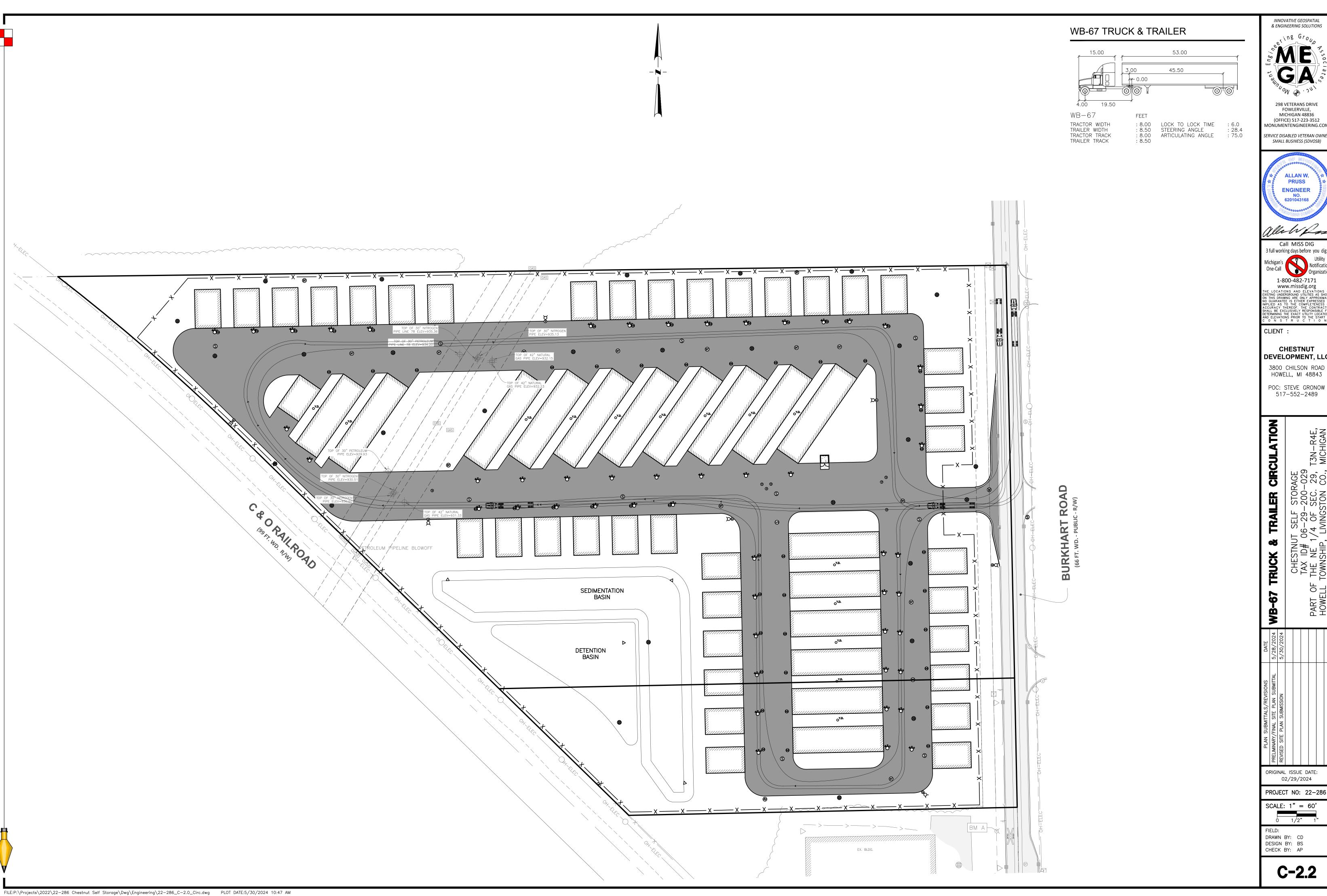
POC: STEVE GRONOW 517-552-2489

ORIGINAL ISSUE DATE: 02/29/2024

SCALE: 1" = 60'0 1/2" 1"

DRAWN BY: CD
DESIGN BY: BS
CHECK BY: AP

C-2.1



& ENGINEERING SOLUTIONS ering Group

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ALLAN W. PRUSS ENGINEER NO. 6201043168

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SHALL BE EXCLUSIVELY RESPONSIBLE FOR
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AND ELEVATIONS PRIOR TO THE START OF

CHESTNUT DEVELOPMENT, LLC

HOWELL, MI 48843 POC: STEVE GRONOW 517-552-2489

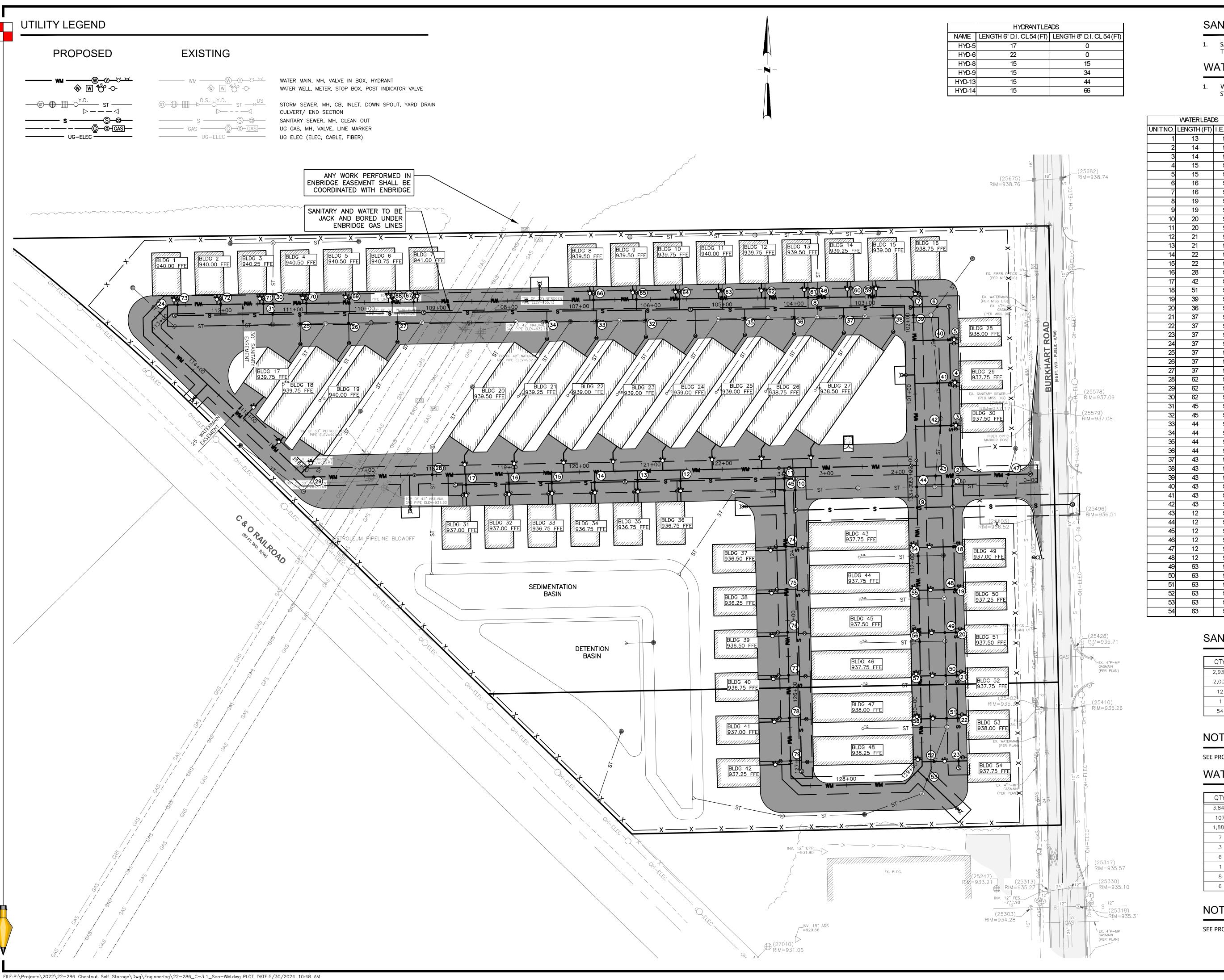
ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 60'

0 1/2" 1"

DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

C-2.2



SANITARY SEWER NOTES

1. SANITARY "MH" SHALL HAVE EJIW 1020 FRAME WITH

WATER NOTES

1. WATER MAIN TO BE MIN 5.5' DEEP PER MHOG DESIGN STANDARDS.

	WATERLEAD	ns a		SANITAR	YLEADS	
UNITNO.	LENGTH (FT)	I.E. AT BLDG	UNIT NO.	LENGTH (FT)	SLOPE	I.E. AT BLDG
1	13	936.00	1	28	1.00%	936.00
2	14	936.00	2	29	1.00%	936.00
3	14	936.25	3	29	1.00%	936.25
4	15	936.50	4	30	1.00%	936.50
5	15	936.50	5	30	1.00%	936.50
6	16	936.75	6	31	1.00%	936.75
7	16	937.00	7	31	1.00%	937.00
8	19	935.50	8	34	1.00%	935.50
9	19	935.50	9	34	1.00%	935.50
10	20	935.75	10	35	1.00%	935.75
11	20	936.00	11	35	1.00%	936.00
12	21	935.75	12	36	1.00%	935.75
13	21	935.50	13	36	1.00%	935.50
14	22	935.25	14	37	1.00%	935.25
15	22	935.00	15	37	1.00%	935.00
16	28	934.75	16	38	1.00%	934.75
17	42	932.75	17	71	1.00%	932.75
18	<u></u> 51	932.25	18	70	1.00%	932.25
19	39	932.00	19	70	1.00%	932.00
20	36	932.00	20	68	1.00%	932.00
21	37	932.25	21	67	1.00%	932.25
22	37	932.00	22	66	1.00%	932.00
23	37	935.00	23	65	1.00%	935.00
24	37	932.00	24	65	1.00%	932.00
25	37	932.00	25	65	1.00%	932.00
26	37	931.75	26	64	1.00%	931.75
27	37	931.50	27	63	1.00%	931.50
28	62	934.00	28	13	1.00%	934.00
29	62	933.75	29	13	1.00%	933.75
30		933.50	30	13	1.00%	933.50
31	45	933.00	31	30	1.00%	933.00
32	45	933.00	32	29	1.00%	933.00
33	44	932.75	33	29	1.00%	932.75
34	44	932.75	34	29	1.00%	932.75
35	44	932.75	35	29	1.00%	932.75
36	44	932.75	36		1.00%	932.75
37	43	933.50	37	58	1.00%	933.50
38	43	933.25	38	58	1.00%	933.25
39	43	933.50	39	58	1.00%	933.50
40	43	933.75	40	58	1.00%	933.75
41	43	934.00	41	58	1.00%	934.00
42	43	934.25	42	58	1.00%	934.25
43	12	933.75	43	17	1.00%	933.75
44	12	933.75	44	17	1.00%	933.75
45	12	933.50	45	17	1.00%	933.50
46	12	933.75	46	17	1.00%	933.75
47	12	934.00	47	17	1.00%	934.00
48	12	934.25	48	17	1.00%	934.25
49	63	933.00	49	13	1.00%	933.00
50	<u> </u>	933.25	50	12	1.00%	933.25
51	<u>ස</u> ස	933.50	51	12	1.00%	933.50
52	<u>ස</u> ස	933.75	52	12	1.00%	933.75
52	<u>හ</u> ස	933.75	53	12	1.00%	933.75
		934.00	53		1.00%	
54	63	ಶು./၁	54	12	1.00%	933.75

SANITARY SEWER QUANTITIES

QTY	UNIT	ITEM
2,934	LF	8" PVC SDR 26
2,001	LF	6" PVC SDR 23.5
12	EA	4' MANHOLE
1	EA	4' MANHOLE TAP
54	EA	CLEANOUT

NOTE

SEE PROFILES ON SHEETS C-3.4 TO C-3.5 FOR QUANTITY DETAILS

WATER MAIN QUANTITIES

QTY	UNIT	ITEM
3,840	LF	8" DI CL 54 WATER MAIN
107	LF	6" DI CL 54 WATER MAIN
1,882	LF	1" TYPE K, COPPER WATER SERVICE
7	EA	8"x8"x8" TEE
3	EA	8"x8"x6" TEE
6	EA	8" 45° BEND
1	EA	12"x8" TSV&W
8	EA	8" GVB
6	EA	STANDARD HYDRANT ASSEMBLY

NOTE

SEE PROFILES ON SHEETS C-3.6 TO C-3.7 FOR QUANTITY DETAILS

& ENGINEERING SOLUTIONS ing Group P

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CLIENT:

CHESTNUT **DEVELOPMENT, LLC** 3800 CHILSON ROAD HOWELL, MI 48843 POC: STEVE GRONOW

517-552-2489

PART OF HOWELL

ORIGINAL ISSUE DATE: 02/29/2024 PROJECT NO: 22-286

SCALE: 1" = 40'0 1/2" 1

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

 $FILE: P: \end{align*} Projects \end{align*} 22-286 Chestnut Self Storage \end{align*} Dwg \end{align*} Engineering \end{align*} 22-286 C-3.1_San-WM. dwg PLOT DATE: 5/30/2024 10:48 AM AM AM PLOT DATE: 5/30/2024 10:48 AM AM PLOT DATE: 5/30/2024 10:48 AM AM PLOT DATE: 5/30/2024 10:48 AM PLOT DATE: 5/30/202$

SANITARY SEWER NOTES

1. SANITARY "MH" SHALL HAVE EJIW 1020 FRAME WITH TYPE A COVER.

WATER NOTES

1. WATER MAIN TO BE MIN 5.5' DEEP PER MHOG DESIGN STANDARDS.

English English Sociates

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ALLAN W.
PRUSS
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CLIENT :

CHESTNUT DEVELOPMENT, LLC

3800 CHILSON ROAD HOWELL, MI 48843 POC: STEVE GRONOW

517-552-2489

T3N-R4E, MICHIGAN

F STORAGE 9-200-029 F SEC. 29, TS GSTON CO., M

HESTNUT SELF XX ID# 06—29-E NE 1/4 OF WNSHIP, LIVINGS

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SANITARY

SUBMITTALS/REVISIONS

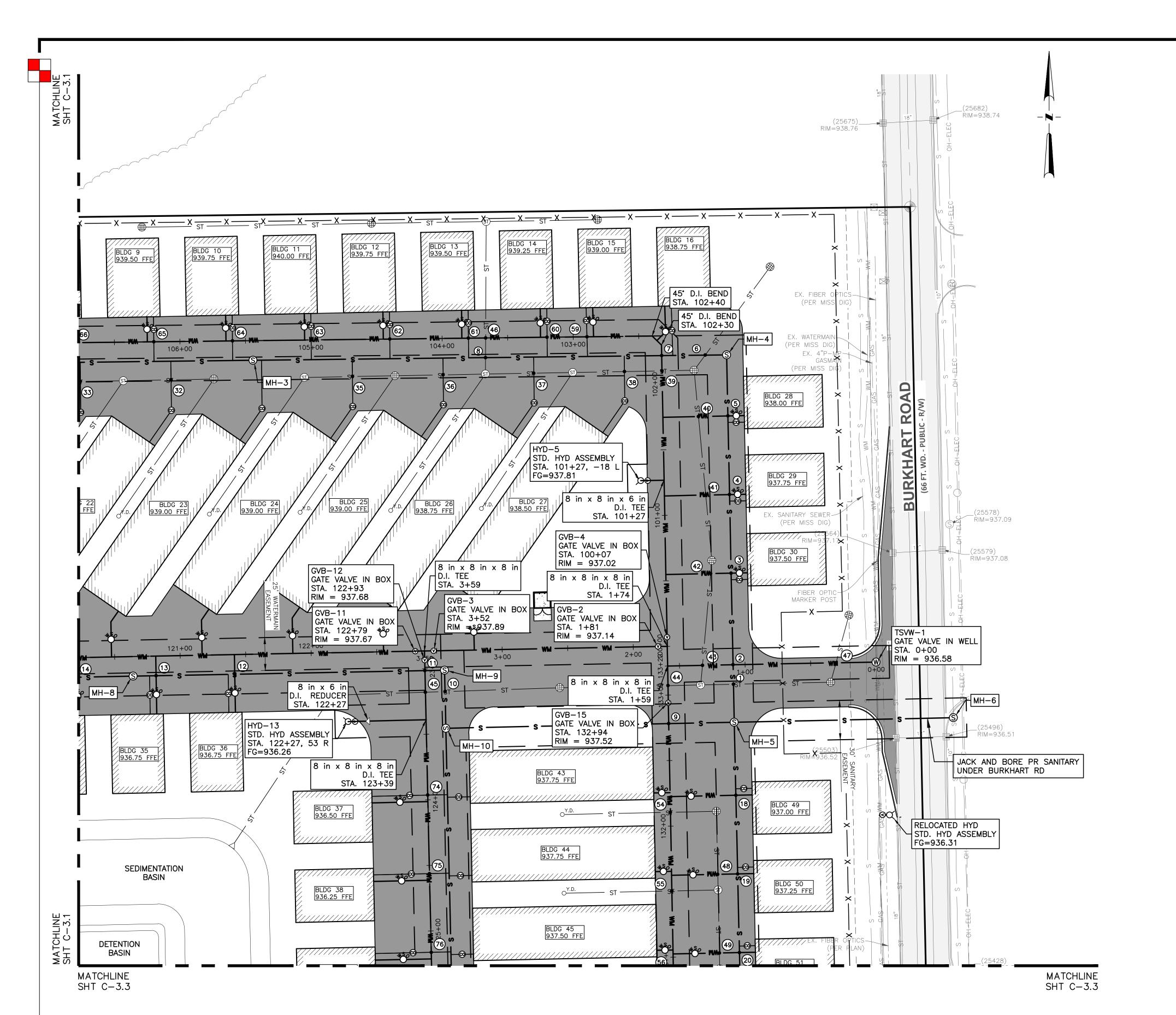
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5/28/20
E PLAN SUBMISSION
5/30/20

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: 1" = 40'0 1/2" 1"

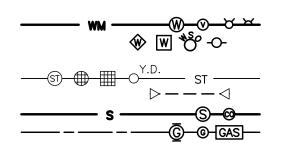
FIELD:
DRAWN BY: CD
DESIGN BY: BS
CHECK BY: AP



UTILITY LEGEND

PROPOSED

EXISTING



WATER WELL, METER, STOP BOX, POST INDICATOR VALVE

STORM SEWER, MH, CB, INLET, DOWN SPOUT, YARD DRAIN CULVERT/ END SECTION SANITARY SEWER, MH, CLEAN OUT UG ELEC (ELEC, CABLE, FIBER)

WATER MAIN, MH, VALVE IN BOX, HYDRANT

ering Group

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AND ELEVATIONS PRIOR TO THE START (
C O N S T R U C T I O N

CLIENT:

CHESTNUT **DEVELOPMENT, LLC**

3800 CHILSON ROAD HOWELL, MI 48843

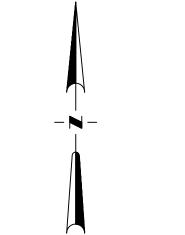
POC: STEVE GRONOW 517-552-2489

SANITARY

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 40'

1/2" FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP



UTILITY LEGEND

PROPOSED

EXISTING

WATER MAIN, MH, VALVE IN BOX, HYDRANT WATER WELL, METER, STOP BOX, POST INDICATOR VALVE

STORM SEWER, MH, CB, INLET, DOWN SPOUT, YARD DRAIN CULVERT/ END SECTION SANITARY SEWER, MH, CLEAN OUT UG-ELEC UG ELEC (ELEC, CABLE, FIBER)

SMALL BUSINESS (SDVOSB) **ALLAN W. ENGINEER** NO. 6201043168

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CLIENT :

SOUTH

CHESTNUT DEVELOPMENT, LLC 3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

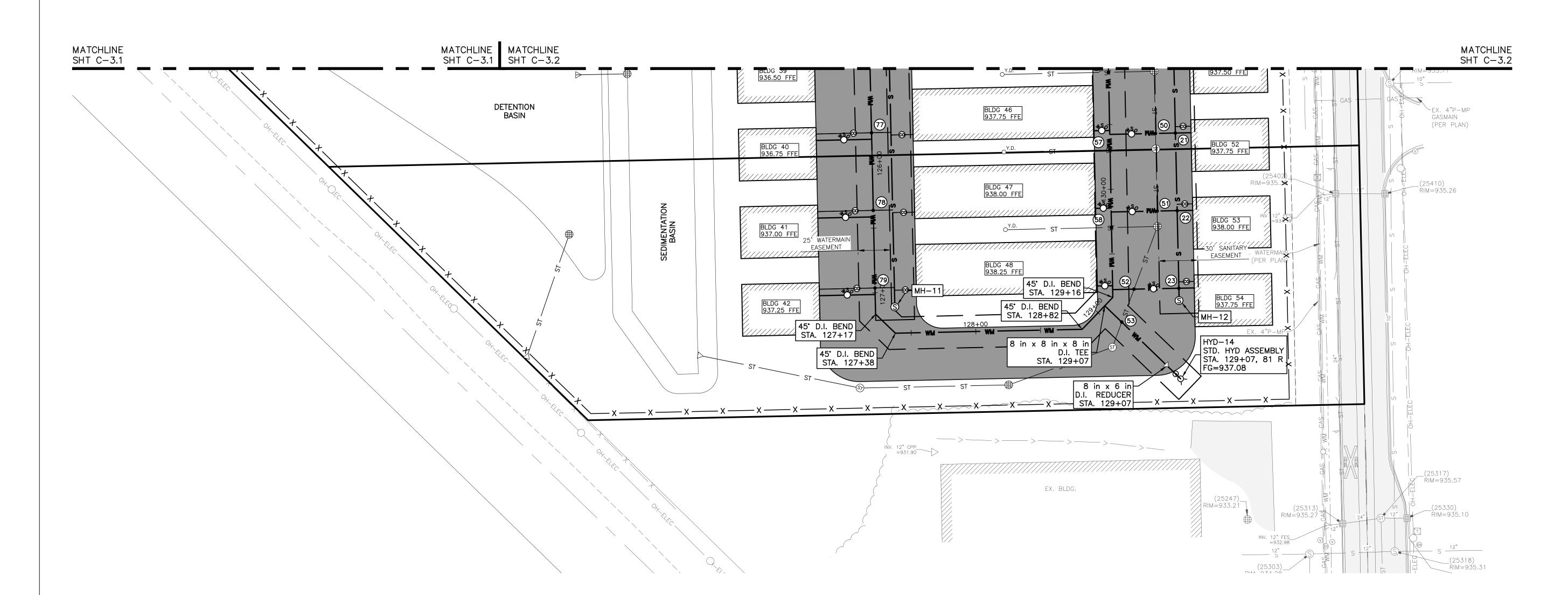
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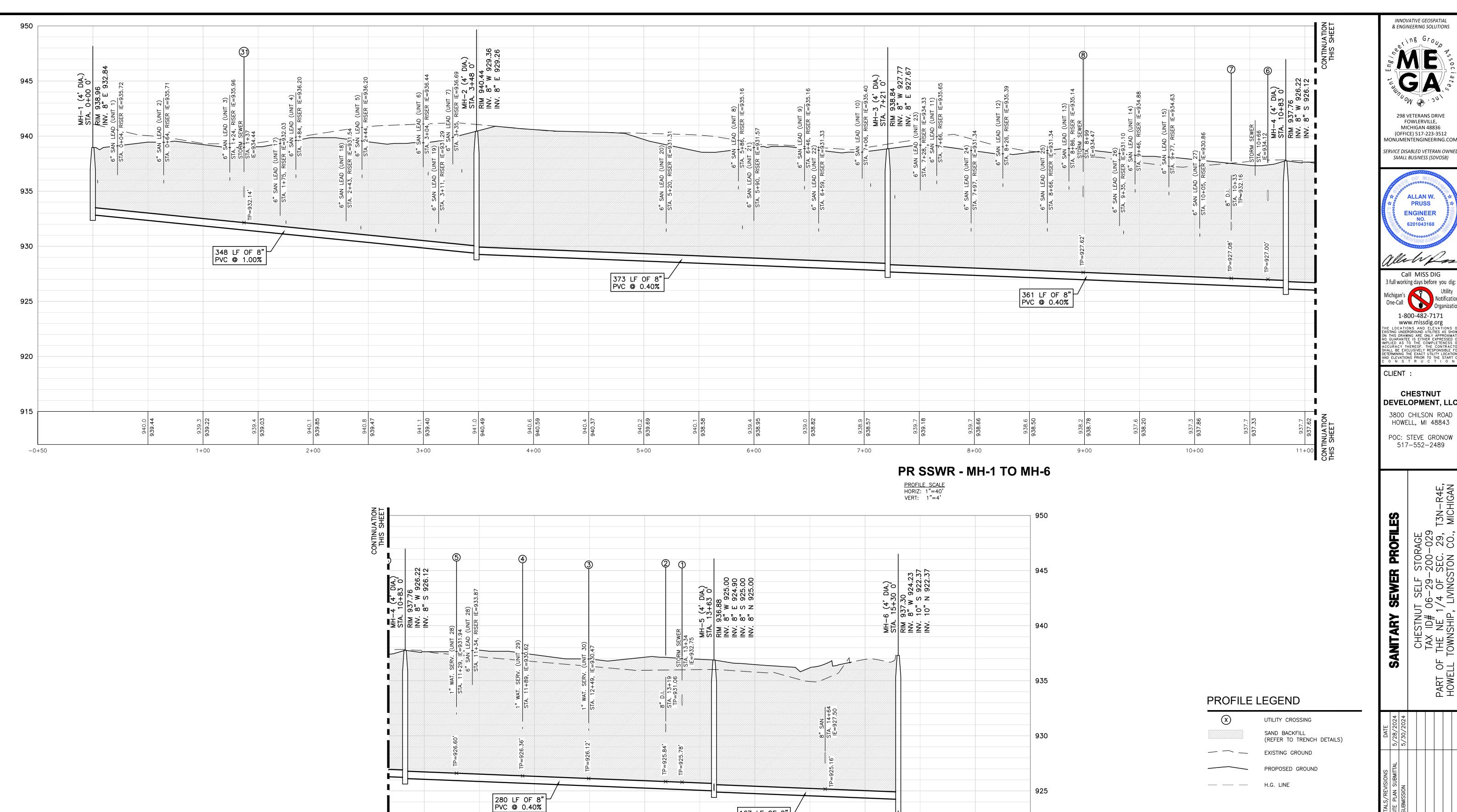
ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 40

0 1/2" 1' FIELD: DRAWN BY: CD

DESIGN BY: BS CHECK BY: AP





167 LF OF 8" PVC @ 0.40%

935.8 936.46

14+00

15+00

EX GROUND 7 PR GROUND

NOTES

920

16+50

16+00

- 1. SAND BACKFILL AND BEDDING TO BE MDOT CL II.
- 2. MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

ORIGINAL ISSUE DATE: 02/29/2024 PROJECT NO: 22-286 SCALE: 1" = 400 1/2" 1"

ALLAN W. PRUSS

ENGINEER NO. 6201043168

T3N-R4E, MICHIGAN

PART OF HOWELL

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

C-3.4

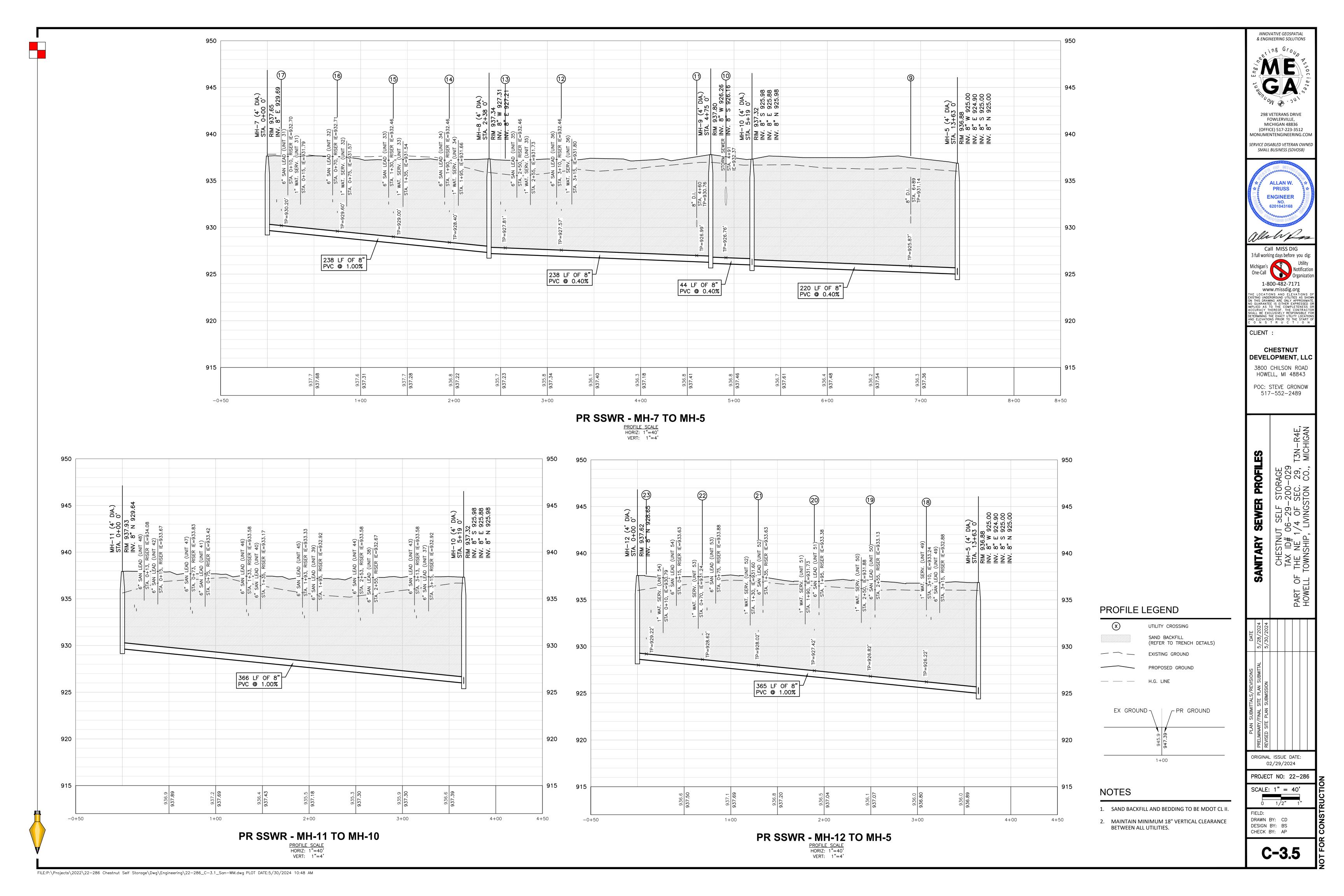
937.7

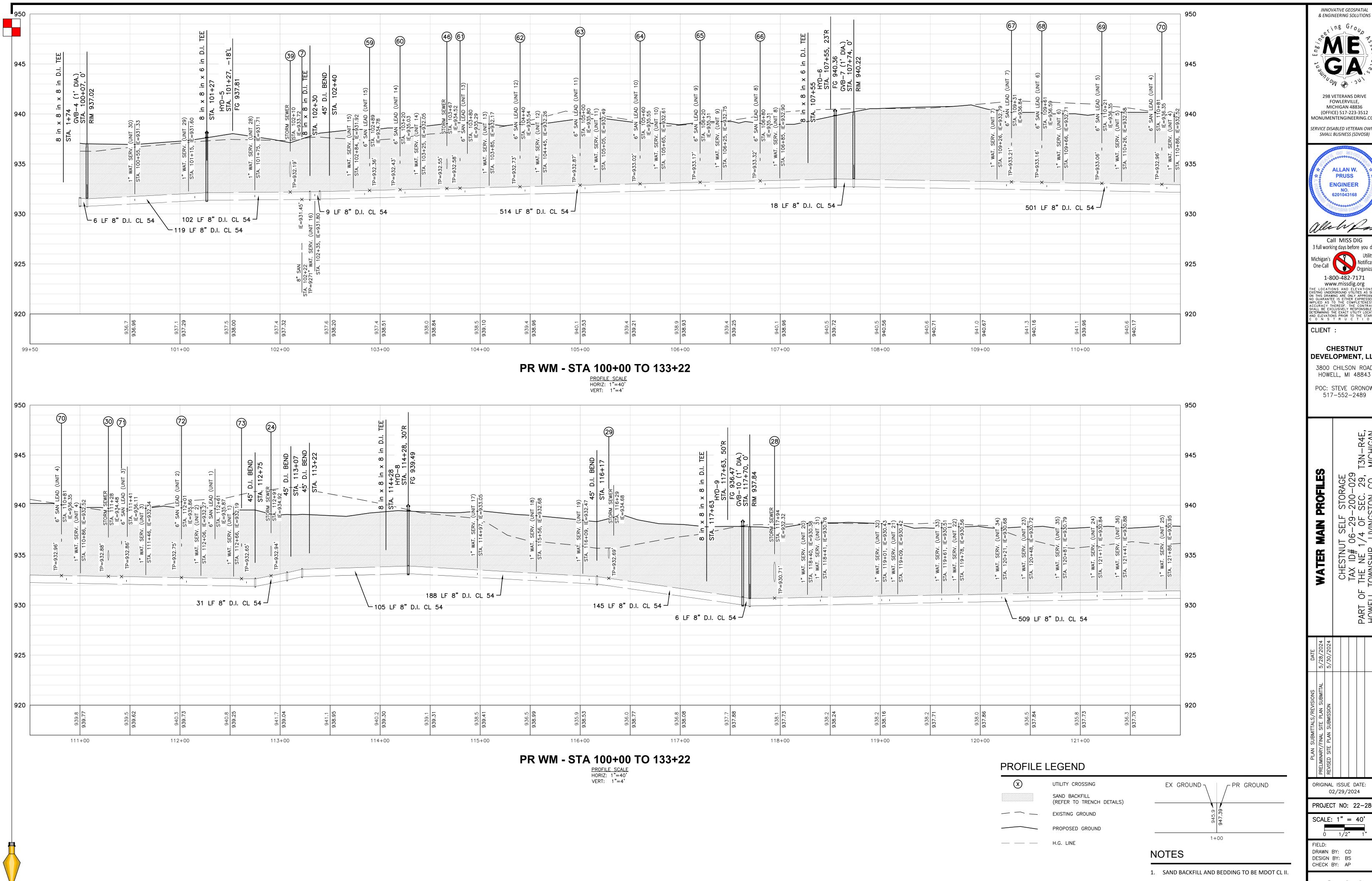
11+00

12+00

13+00

PROFILE SCALE
HORIZ: 1"=40'
VERT: 1"=4'





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ALLAN W. PRUSS ENGINEER NO. 6201043168

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POC: STEVE GRONOW 517-552-2489

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ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 40

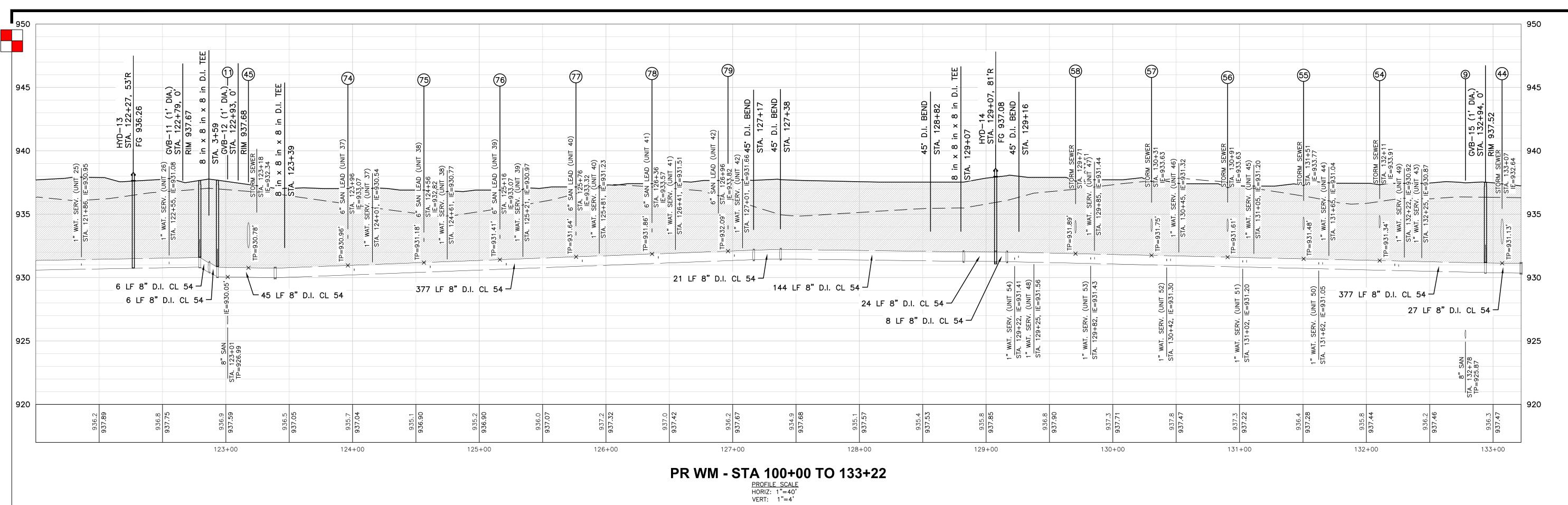
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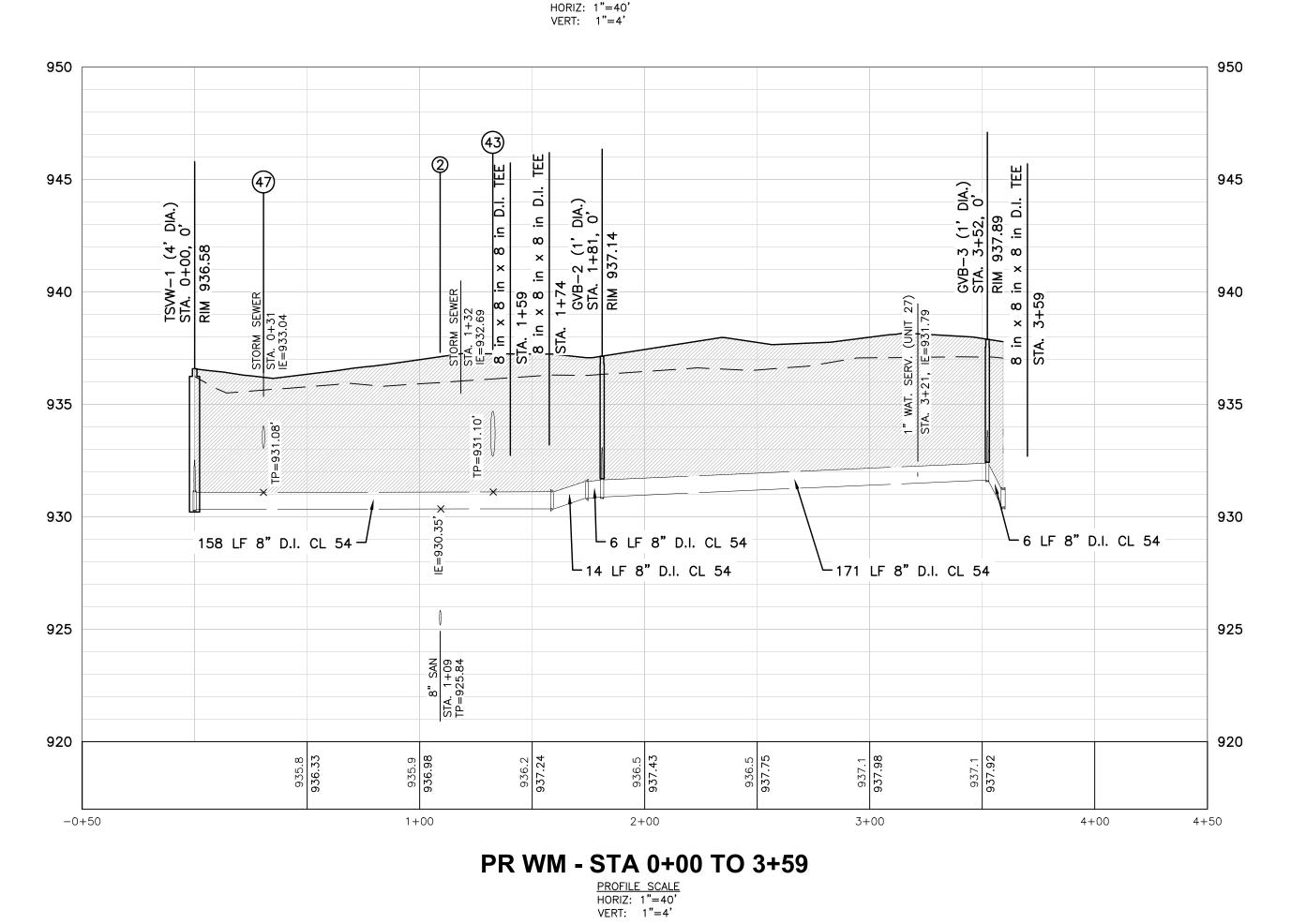
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C-3.6

2. MAINTAIN MINIMUM 18" VERTICAL CLEARANCE

BETWEEN ALL UTILITIES.





PROFILE LEGEND

UTILITY CROSSING SAND BACKFILL (REFER TO TRENCH DETAILS) ____ EXISTING GROUND PROPOSED GROUND — — H.G. LINE

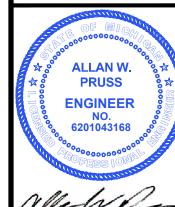
EX GROUND 7 PR GROUND

NOTES

- 1. SAND BACKFILL AND BEDDING TO BE MDOT CL II.
- 2. MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

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CLIENT:

CHESTNUT DEVELOPMENT, LLO 3800 CHILSON ROAD

HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

T3N-R4E, MICHIGAN

ORIGINAL ISSUE DATE:

02/29/2024

PROJECT NO: 22-286

SCALE: 1" = 400 1/2" 1"

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

ANY WORK PREFORMED IN ENBRIDGE EASEMENT SHALL BE COORDINATED WITH ENBRIDGE

/ IN-16 N:411603.40

940.75 FFE

E:13222787.49

941.00 FFE

N:411490.17

- MH−15

N:411601.43

BLDG 4

MH-4

YD-18 N:411380.63 E:13222732.90

N:411488.61

E:13222740.90

940.50 FFE

BLDG 3 940.25 FFE

CB-3 N:411487.29

E:13222667.04

N:411403.46 E:13222681.80

MATCHLINE SHT C-6.3

IN-11 N:411317.91 E:13222622.42

E:13222667.75

BLDG 5 940.50 FFE

CB-5

N:411489.80

E:13222804.78

BLDG 19 940.00 FFE

N:411253.58 E:13222710.03

STORM SEWER NOTES

- 1. "IN" & "CB" STRUCTURES SHALL HAVE EJIW 1020 FRAME WITH TYPE M1 GRATE.
- 2. CURB "IN" & "CB" STRUCTURES SHALL HAVE EJIW 7010 FRAME WITH TYPE M1 GRATE.
- 3. STORM "MH" STRUCTURES SHALL HAVE EJIW 1040 FRAME WITH A TYPE A PERFORATED COVER.
- 4. END SECTIONS 18" AND LARGER SHALL HAVE ANIMAL GRATES.

MICHIGAN 48836 (OFFICE) 517-223-3512 MONUMENTENGINEERING.COM SERVICE DISABLED VETERAN OWNE SMALL BUSINESS (SDVOSB)

298 VETERANS DRIVE FOWLERVILLE,

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C O N S T R U C T I O N

CLIENT :

CHESTNUT **DEVELOPMENT, LLC**

3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

STORM SEWER QUANTITIES

QTY	UNIT	ITEM
3,509	LF	12" HDPE
535	LF	15" HDPE
862	LF	18" HDPE
1,035	LF	24" HDPE
138	LF	36" HDPE
14	EA	YARD DRAIN
8	EA	2'INLET
35	EA	4' MANHOLE
1	EA	12" FLARED END SECTION
1	EA	18" FLARED END SECTION
2	EA	24" FLARED END SECTION
1	EA	36" FLARED END SECTION

BLDG 8

CB-21

N:411491.25

E:13223083.35

YD-24 N:411386.40 E:13223010.57 YD-23

N:411387.83 E:13223079.74

BLDG 33 936.75 FFE

DETENTION BASIN

BLDG 34 936.75 FFE

MATCHLINE

SHT C-6.3

MH-7 N:411490.85

BLDG 20 939.50 FFE

CB-8 N:411399.89 E:13222946.49

BLDG 32 937.00 FFE

SEDIMENTATION

BASIN

E:13222875.88 E:13223007.25

CB-9 N:411315.87 E:13222890.36

BLDG 31 937.00 FFE

ES-10

N:411137.32

E:13222889.27

939.50 FF

SEE PROFILES ON SHEETS C-6.4 TO C-6.8 FOR QUANTITY DETAILS

QTY	UNIT	ITEM			
3,509	LF	12" HDPE			
535	LF	15" HDPE			
862	LF	18" HDPE			
1,035	LF	24" HDPE			
138	LF	36" HDPE			
14	EA	YARD DRAIN			
8	EA	2' INLET			
35	EA	4' MANHOLE			
1	EA	12" FLARED END SECTION			
1	EA	18" FLARED END SECTION			
2	EA	24" FLARED END SECTION			
1	EA	36" FLARED END SECTION			

NOTE	=
	_

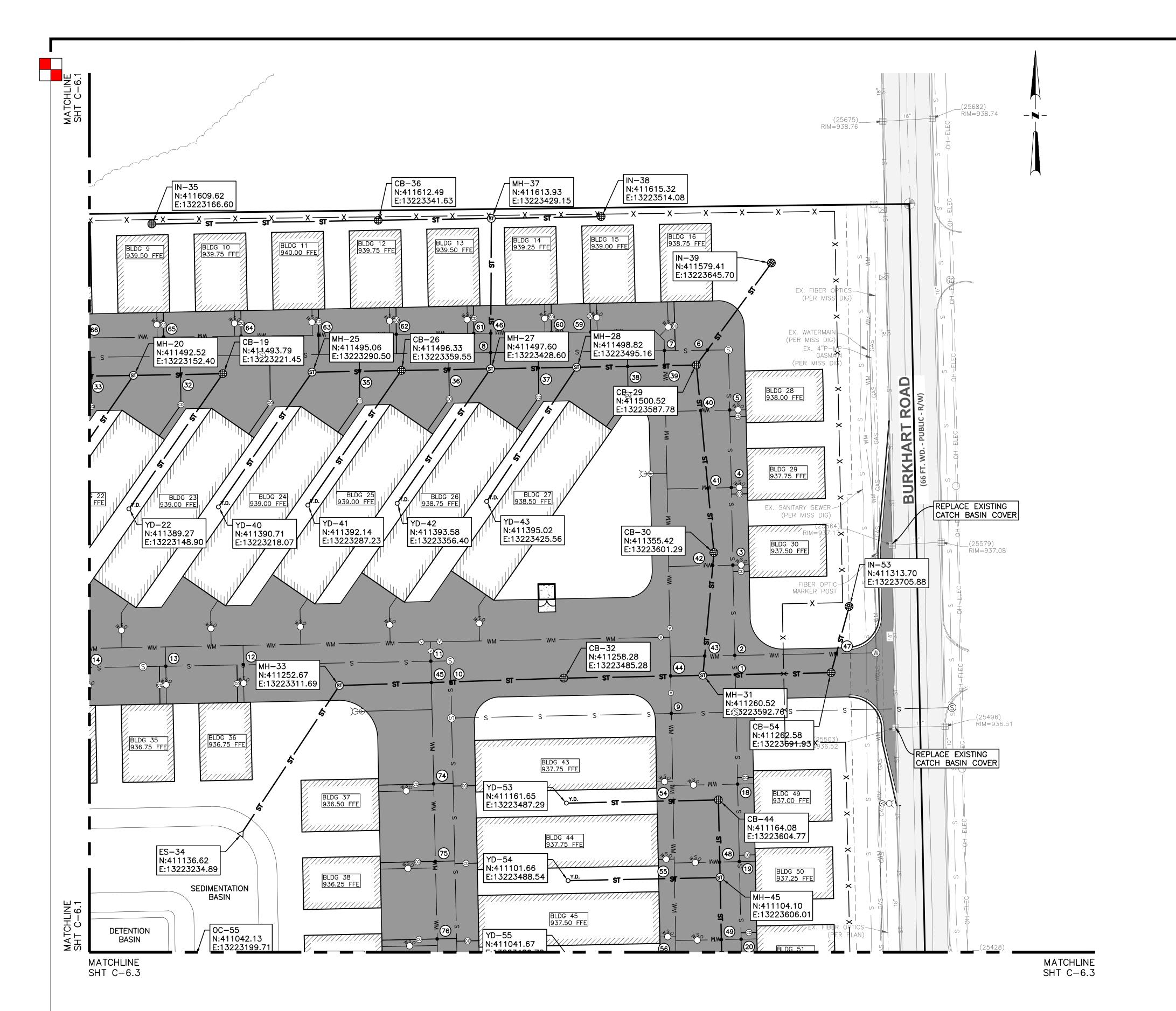
ORIGINAL ISSUE DATE:

STORM

02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 40'0 1/2" 1"

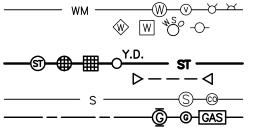
FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP



UTILITY LEGEND

PROPOSED

NSO O



EXISTING

WATER MAIN, MH, VALVE IN BOX, HYDRANT
WATER WELL, METER, STOP BOX, POST INDICATOR VALVE

STORM SEWER, MH, CB, INLET, DOWN SPOUT, YARD DRAIN CULVERT/ END SECTION

SANITARY SEWER, MH, CLEAN OUT

UG GAS UG-ELEC UG GAS, MH, VALVE, LINE MARKER

UG-ELEC UG ELEC, CABLE, FIBER)

SMALL BUSINESS (SDVOSB)

ALLAN W.
PRUSS
ENGINEER
NO.
6201043168

INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS

e ME

298 VETERANS DRIVE FOWLERVILLE,

MICHIGAN 48836

(OFFICE) 517-223-3512

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AND ELEVATIONS PRIOR TO THE START OF
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CHESTNUT DEVELOPMENT, LLC

3800 CHILSON ROAD

HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

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JT SELF STORAGE 06-29-200-029 1/4 OF SEC. 29, 1 IVINGSTON CO.

CHESTNUT STATE TAX ID# 06 THE NE 1/4

NN SUBMITTAL 5/28/2024 SION 5/30/2024

PLAN SUBMITTALS/REVISIONS
LIMINARY/FINAL SITE PLAN SUBMITTAL
ISED SITE PLAN SUBMISSION

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286SCALE: 1" = 40'

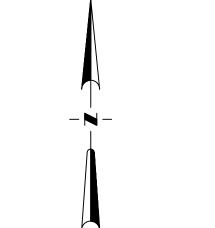
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UTILITY LEGEND

PROPOSED

EXISTING

UG-ELEC UG ELEC (ELEC, CABLE, FIBER)

WATER MAIN, MH, VALVE IN BOX, HYDRANT WATER WELL, METER, STOP BOX, POST INDICATOR VALVE

STORM SEWER, MH, CB, INLET, DOWN SPOUT, YARD DRAIN CULVERT/ END SECTION SANITARY SEWER, MH, CLEAN OUT

> **ALLAN W. PRUSS ENGINEER** NO. 6201043168

INNOVATIVE GEOSPATIAL & ENGINEERING SOLUTIONS

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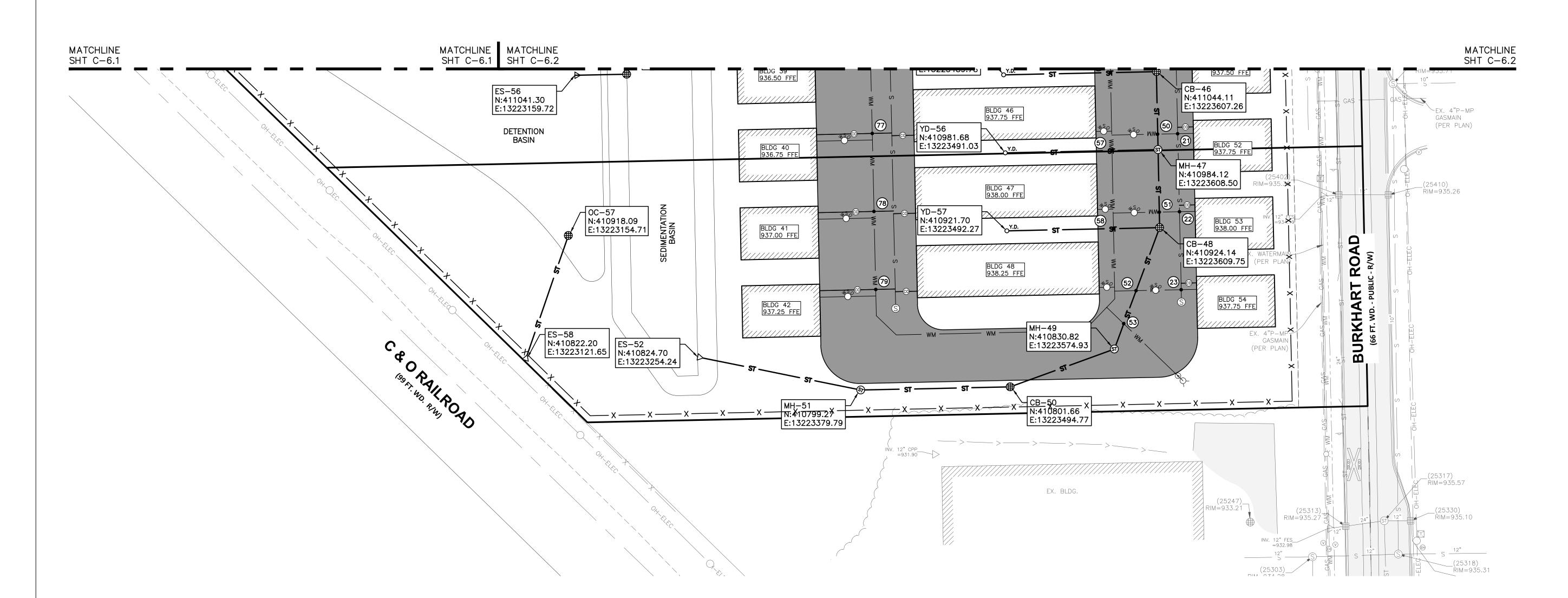
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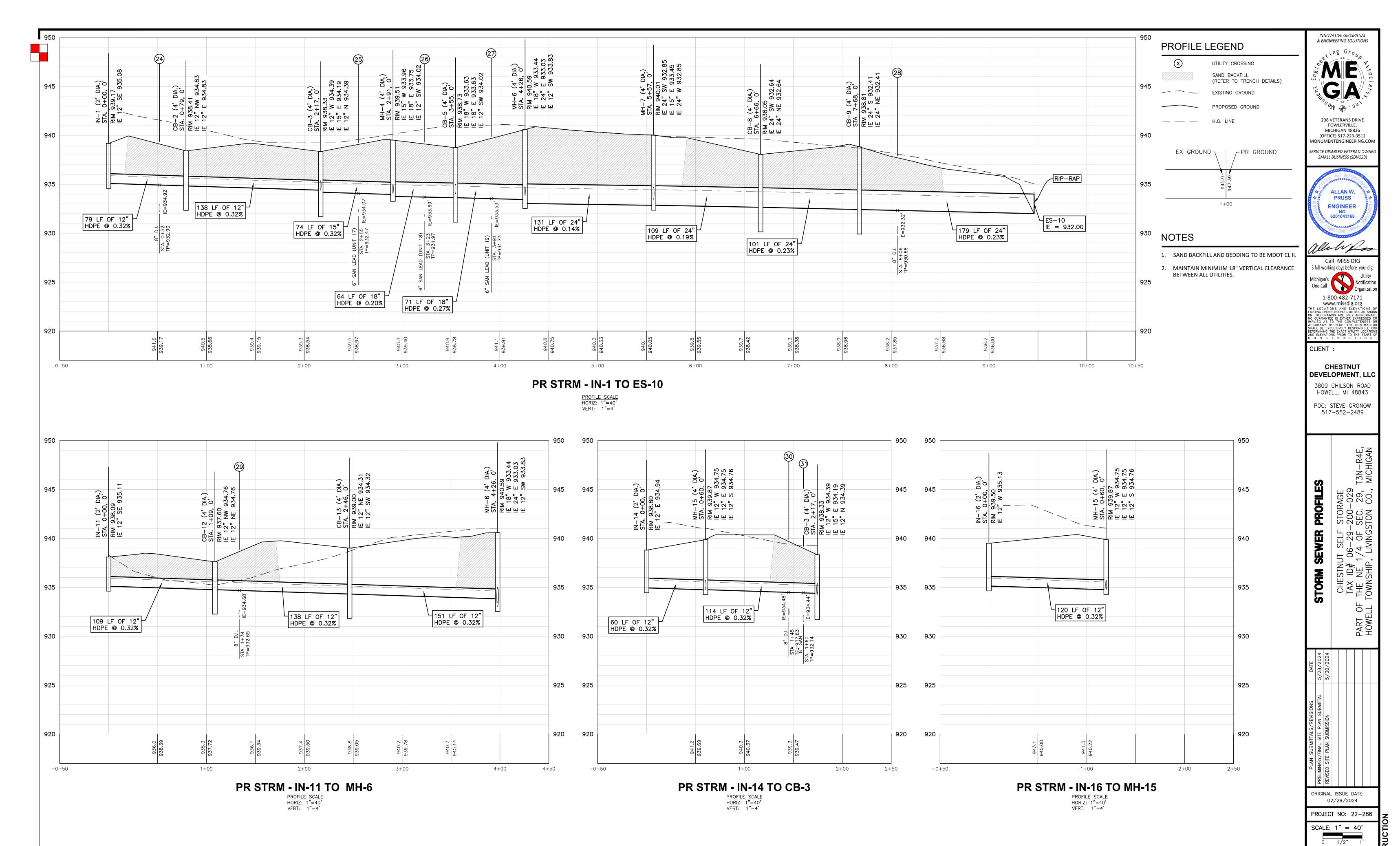
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PROJECT NO: 22-286 SCALE: 1" = 40'

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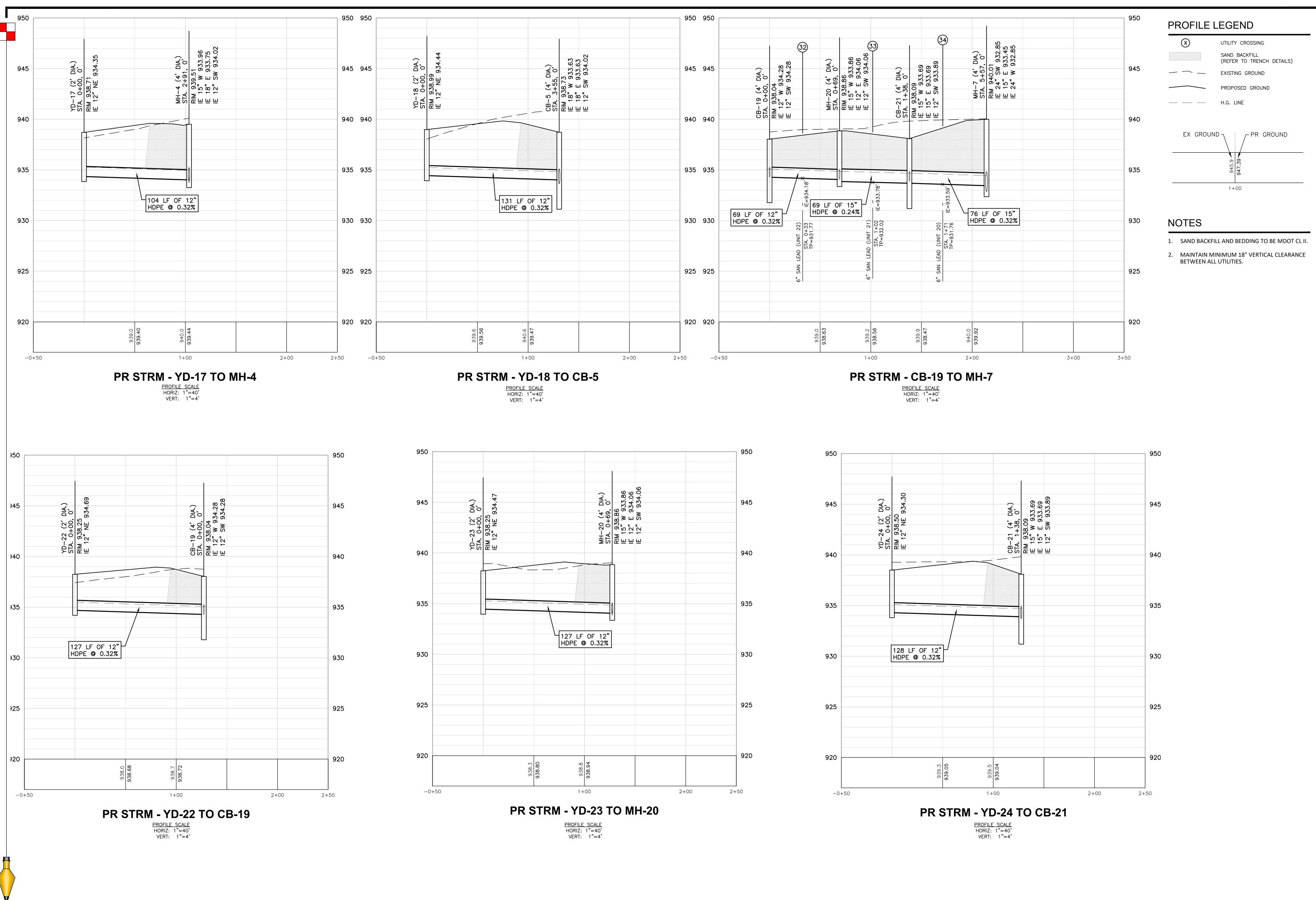




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HOWELL, MI 48843

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PRELIMINARY/FINAL SITE PLAN SUBMITTAL
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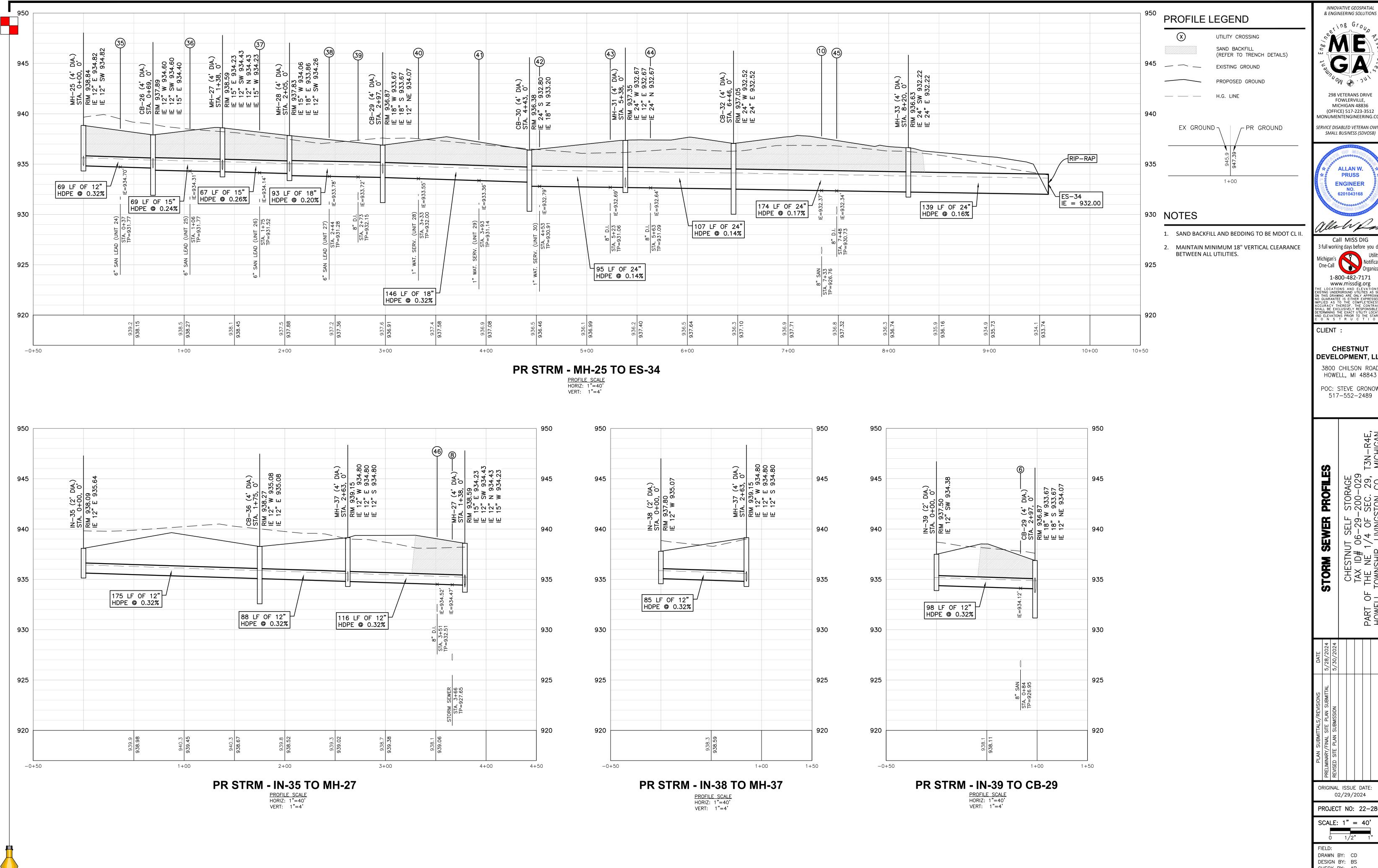
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PROJECT NO: 22-286

SCALE: 1" = 40'

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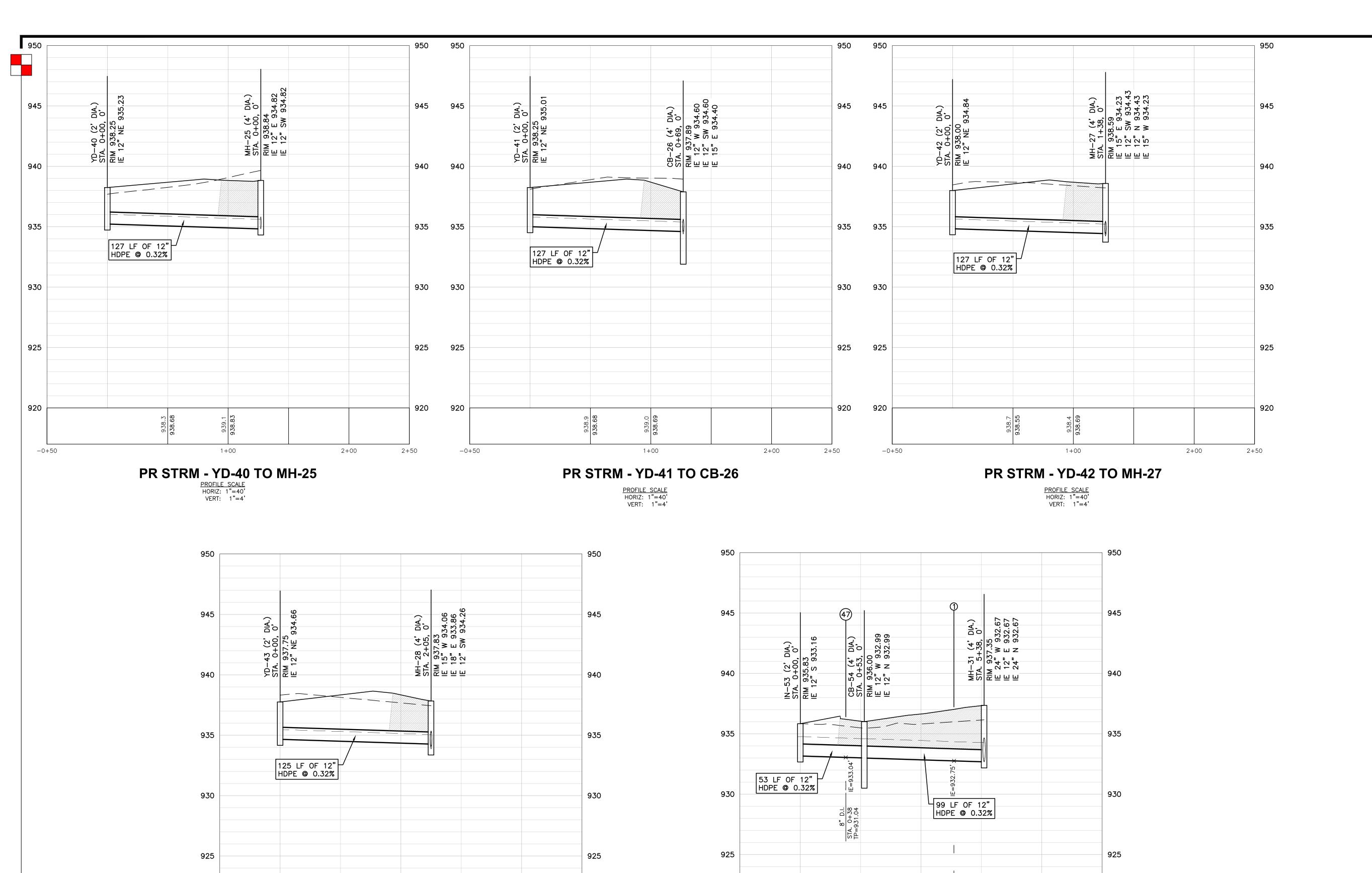
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ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: 1" = 40'0 1/2" 1"

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP



920

-0+50

920

2+50

2+00

920

2+50

2+00

PR STRM - IN-53 TO MH-31

PROFILE SCALE
HORIZ: 1"=40'
VERT: 1"=4'

PROFILE LEGEND

 \otimes UTILITY CROSSING

SAND BACKFILL (REFER TO TRENCH DETAILS) EXISTING GROUND

PROPOSED GROUND

— — H.G. LINE

PR GROUND EX GROUND 7

NOTES

- 1. SAND BACKFILL AND BEDDING TO BE MDOT CL II.
- 2. MAINTAIN MINIMUM 18" VERTICAL CLEARANCE BETWEEN ALL UTILITIES.

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STORM

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ORIGINAL ISSUE DATE: 02/29/2024 PROJECT NO: 22-286

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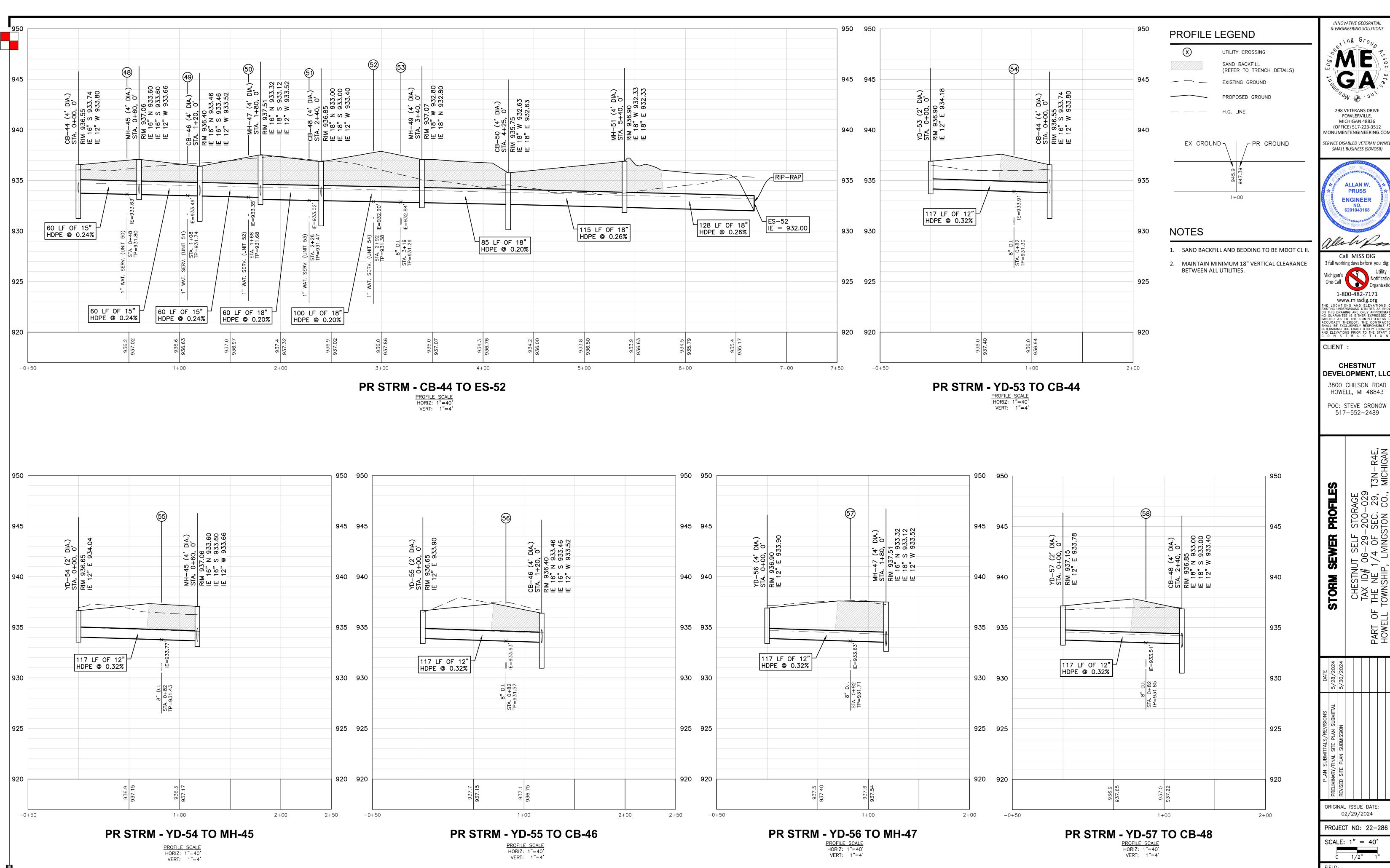
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PR STRM - YD-43 TO MH-28

PROFILE SCALE
HORIZ: 1"=40'
VERT: 1"=4'



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CHESTNUT SELF STORAGE TAX ID# 06-29-200-029 F THE NE 1/4 OF SEC. 29, 1 TOWNSHIP, LIVINGSTON CO.,

PART OF HOWELL

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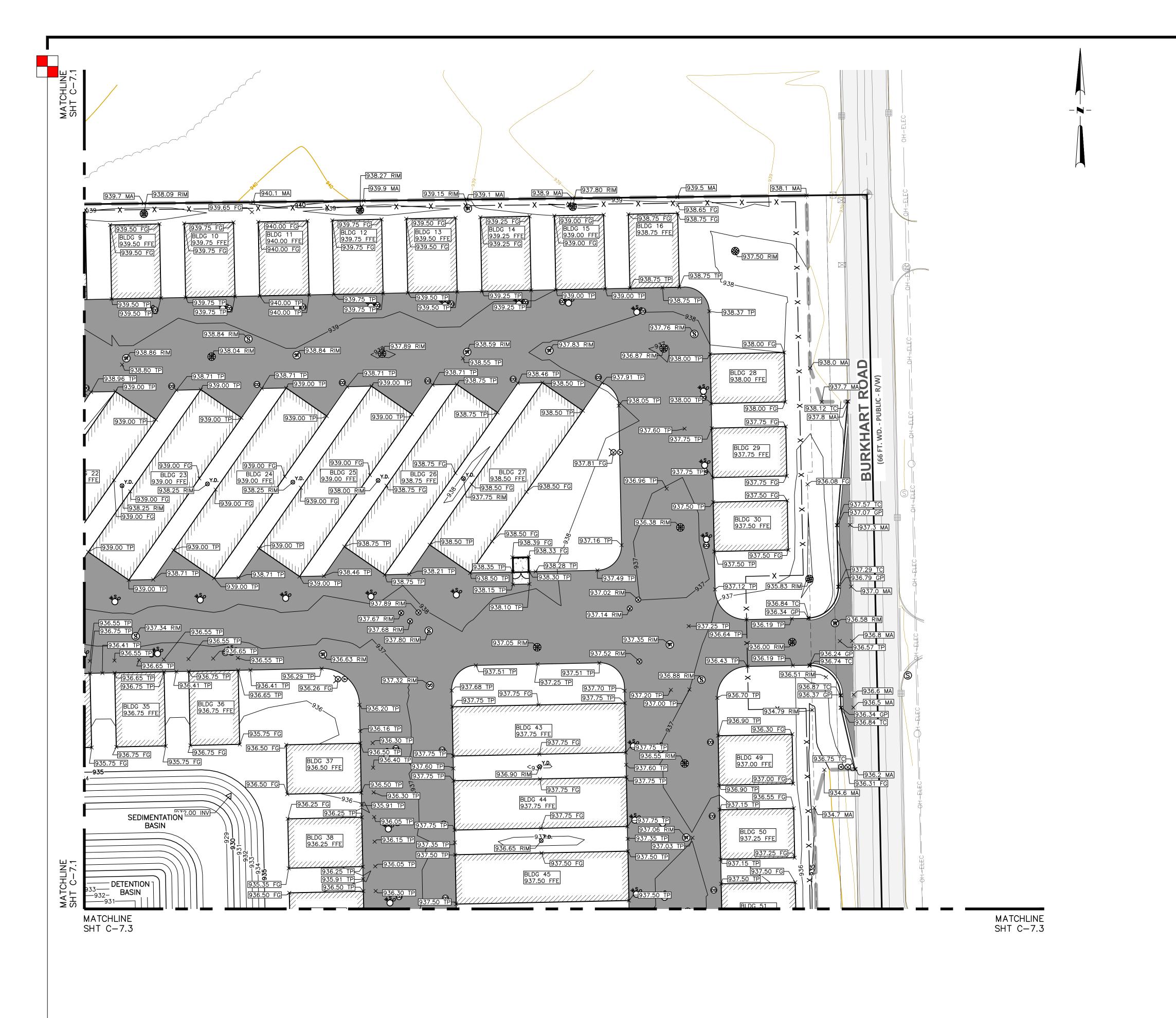
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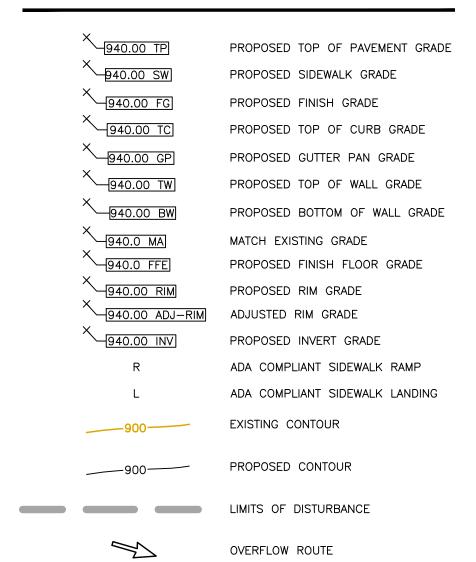
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GRADING LEGEND



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SITE PLAN SUBMISSION 5/30/2

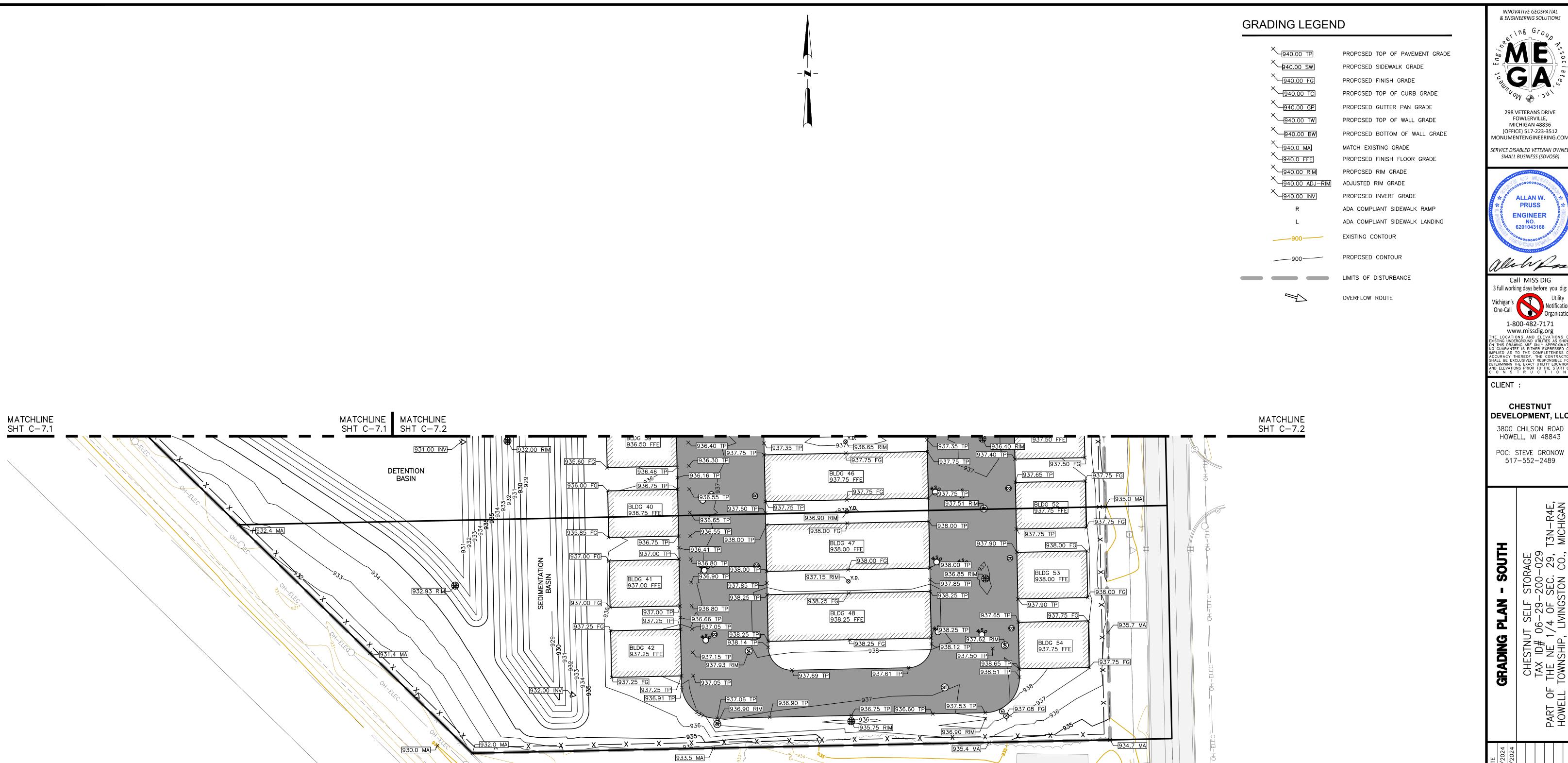
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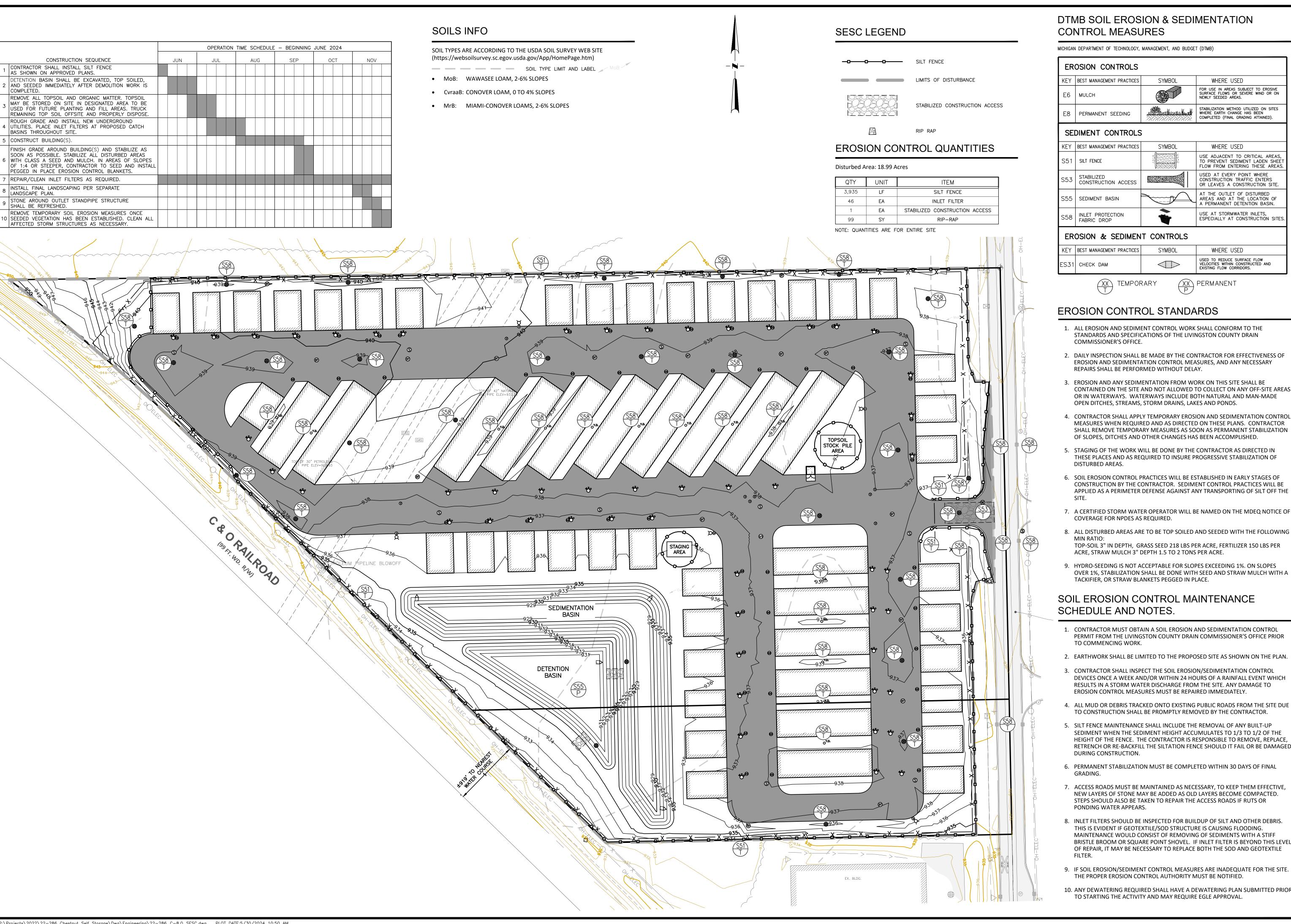
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PROJECT NO: 22-286 SCALE: 1" = 40'

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DTMB SOIL EROSION & SEDIMENTATION **CONTROL MEASURES**

MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT, AND BUDGET (DTMB)

ER	OSION CONTROLS						
KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED				
E6	MULCH		FOR USE IN AREAS SUBJECT TO EROSIVE SURFACE FLOWS OR SEVERE WIND OR ON NEWLY SEEDED AREAS.				
E8	PERMANENT SEEDING	ANTE TO THE STATE OF THE STATE	STABILIZATION METHOD UTILIZED ON SITES WHERE EARTH CHANGE HAS BEEN COMPLETED (FINAL GRADING ATTAINED).				
C _C	SEDIMENT CONTROLS						

SE	DIMENT CONTROLS		
KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
S51	SILT FENCE		USE ADJACENT TO CRITICAL AREAS, TO PREVENT SEDIMENT LADEN SHEE FLOW FROM ENTERING THESE AREAS
S53	STABILIZED CONSTRUCTION ACCESS		USED AT EVERY POINT WHERE CONSTRUCTION TRAFFIC ENTERS OR LEAVES A CONSTRUCTION SITE.
S55	SEDIMENT BASIN		AT THE OUTLET OF DISTURBED AREAS AND AT THE LOCATION OF A PERMANENT DETENTION BASIN.
S58	INLET PROTECTION		USE AT STORMWATER INLETS, ESPECIALLY AT CONSTRUCTION SITE

ER	OSION & SEDIMEN	T CONTROLS	
KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
ES31	CHECK DAM		USED TO REDUCE SURFACE FLOW VELOCITIES WITHIN CONSTRUCTED AN EXISTING FLOW CORRIDORS.

XX PERMANENT (XX) TEMPORARY

EROSION CONTROL STANDARDS

- 1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE.
- 2. DAILY INSPECTION SHALL BE MADE BY THE CONTRACTOR FOR EFFECTIVENESS OF EROSION AND SEDIMENTATION CONTROL MEASURES, AND ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY.
- 3. EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE
- OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS. 4. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED AND AS DIRECTED ON THESE PLANS. CONTRACTOR
- STAGING OF THE WORK WILL BE DONE BY THE CONTRACTOR AS DIRECTED IN THESE PLACES AND AS REQUIRED TO INSURE PROGRESSIVE STABILIZATION OF DISTURBED AREAS.
- 6. SOIL EROSION CONTROL PRACTICES WILL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE
- 7. A CERTIFIED STORM WATER OPERATOR WILL BE NAMED ON THE MDEQ NOTICE OF COVERAGE FOR NPDES AS REQUIRED.
- 8. ALL DISTURBED AREAS ARE TO BE TOP SOILED AND SEEDED WITH THE FOLLOWING TOP-SOIL 3" IN DEPTH, GRASS SEED 218 LBS PER ACRE, FERTILIZER 150 LBS PER ACRE, STRAW MULCH 3" DEPTH 1.5 TO 2 TONS PER ACRE.
- 9. HYDRO-SEEDING IS NOT ACCEPTABLE FOR SLOPES EXCEEDING 1%. ON SLOPES OVER 1%, STABILIZATION SHALL BE DONE WITH SEED AND STRAW MULCH WITH A TACKIFIER, OR STRAW BLANKETS PEGGED IN PLACE.

SOIL EROSION CONTROL MAINTENANCE SCHEDULE AND NOTES.

- 1. CONTRACTOR MUST OBTAIN A SOIL EROSION AND SEDIMENTATION CONTROL PERMIT FROM THE LIVINGSTON COUNTY DRAIN COMMISSIONER'S OFFICE PRIOR TO COMMENCING WORK.
- 2. EARTHWORK SHALL BE LIMITED TO THE PROPOSED SITE AS SHOWN ON THE PLAN.
- 3. CONTRACTOR SHALL INSPECT THE SOIL EROSION/SEDIMENTATION CONTROL DEVICES ONCE A WEEK AND/OR WITHIN 24 HOURS OF A RAINFALL EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. ANY DAMAGE TO EROSION CONTROL MEASURES MUST BE REPAIRED IMMEDIATELY.
- 4. ALL MUD OR DEBRIS TRACKED ONTO EXISTING PUBLIC ROADS FROM THE SITE DUE TO CONSTRUCTION SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR.
- 5. SILT FENCE MAINTENANCE SHALL INCLUDE THE REMOVAL OF ANY BUILT-UP SEDIMENT WHEN THE SEDIMENT HEIGHT ACCUMULATES TO 1/3 TO 1/2 OF THE HEIGHT OF THE FENCE. THE CONTRACTOR IS RESPONSIBLE TO REMOVE, REPLACE, RETRENCH OR RE-BACKFILL THE SILTATION FENCE SHOULD IT FAIL OR BE DAMAGED DURING CONSTRUCTION.
- 6. PERMANENT STABILIZATION MUST BE COMPLETED WITHIN 30 DAYS OF FINAL
- 7. ACCESS ROADS MUST BE MAINTAINED AS NECESSARY, TO KEEP THEM EFFECTIVE, NEW LAYERS OF STONE MAY BE ADDED AS OLD LAYERS BECOME COMPACTED. STEPS SHOULD ALSO BE TAKEN TO REPAIR THE ACCESS ROADS IF RUTS OR PONDING WATER APPEARS.
- 8. INLET FILTERS SHOULD BE INSPECTED FOR BUILDUP OF SILT AND OTHER DEBRIS. THIS IS EVIDENT IF GEOTEXTILE/SOD STRUCTURE IS CAUSING FLOODING. MAINTENANCE WOULD CONSIST OF REMOVING OF SEDIMENTS WITH A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTER IS BEYOND THIS LEVEL OF REPAIR, IT MAY BE NECESSARY TO REPLACE BOTH THE SOD AND GEOTEXTILE FILTER.
- 9. IF SOIL EROSION/SEDIMENT CONTROL MEASURES ARE INADEQUATE FOR THE SITE. THE PROPER EROSION CONTROL AUTHORITY MUST BE NOTIFIED.
- 10. ANY DEWATERING REQUIRED SHALL HAVE A DEWATERING PLAN SUBMITTED PRIOR TO STARTING THE ACTIVITY AND MAY REQUIRE EGLE APPROVAL.

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3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

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ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: 1" = 601/2"

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

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LCDC NOTES

Top Soil & Soil Storage Areas:

• Top soil or soil storage areas shall be seeded and mulched, or matted with straw, immediately after the stripping process is completed, to prevent wind and water erosion.

Slopes and Ditches:

- On—site ditches shall be of the flat bottom type, minimum width of 2' with a minimum of 3' horizontal to 1' vertical side slopes, 3:1.
- Side slopes in excess of 3' horizontal to 1' vertical shall not be used except with a mechanical device such as a retaining wall, or terracing.
- Ditches with steep grades will need "stone flow checks" to prevent scouring of the ditch bottoms. They may be used as a temporary measure and removed once sufficient stabilization has been established. These shall be depicted on plans by the engineer. Indicate flow checks on all slopes 3.00% and greater.

Detention/Retention, Sedimentation Ponds:

- New land developments within Livingston County shall be equipped with detention/retention facilities for storm water in accordance with the Drainage Policies of the Livingston County Drain Commissioner.
- Inlets into detention ponds must not discharge at the same location as the outlet structure.
- Detention Pond Stand Pipe Outlet Detail must be the Livingston County Drain Commisioner's standard Detention Pond outlet, e.g. orifice outlets without sedimentation control devices are prohibited.
- Stand pipe structure must have a 2 ft. sump.
 Detention Pond stand pipe structure shall show staggering of outlet holes at different elevations. This will minimize plugging and provide for more effective filtering.
- The stone around the stand pipe structure shall be refreshed with clean stone prior to completion of the project.
- Detention/Retention, Sedimentation Ponds shall be excavated, top soiled, seeded, mulched and tacked prior to the start of massive earth disruption.
- Inlets into Detention/Retention Ponds must be located within two feet of the bottom floor of the pond.

Detention Pond Spillway:

• Rip—rap proposed in the construction of the emergency spillway must be placed over keyed—in geo—fabric blanket.

Silt Fence:

 All commercial projects constructed in Livingston County shall install 36" high silt fence.

Inlet Protection:

- Sedimentation protection for catch—basin inlets. Silt sacks are the preferred choice in the winter months, because they are less likely to be disturbed by the process of snow plowing.
- Open-Pipe, inlet protection must be provided with straw bales, stone or geo-fabric.

Outlet Protection:

- All storm drains 15" in diameter or larger shall have animal guards installed to prevent entrance to the system
- installed to prevent entrance to the system.All rip—rap must be placed over keyed in geo—fabric.
- Storm drain outlets that do not empty into the retention/detention pond shall have a temporary 5'x10'x3' sump installed at the termination of the storm sewer. Upon completion of the stabilization work the sump area shall be filled and rip—rapped with cobble stone over keyed in filter fabric. Silt traps shall be inspected after each storm.
- Splash blocks may be required depending on the outley flow rate or velocity.

Tracking onto public roadway:

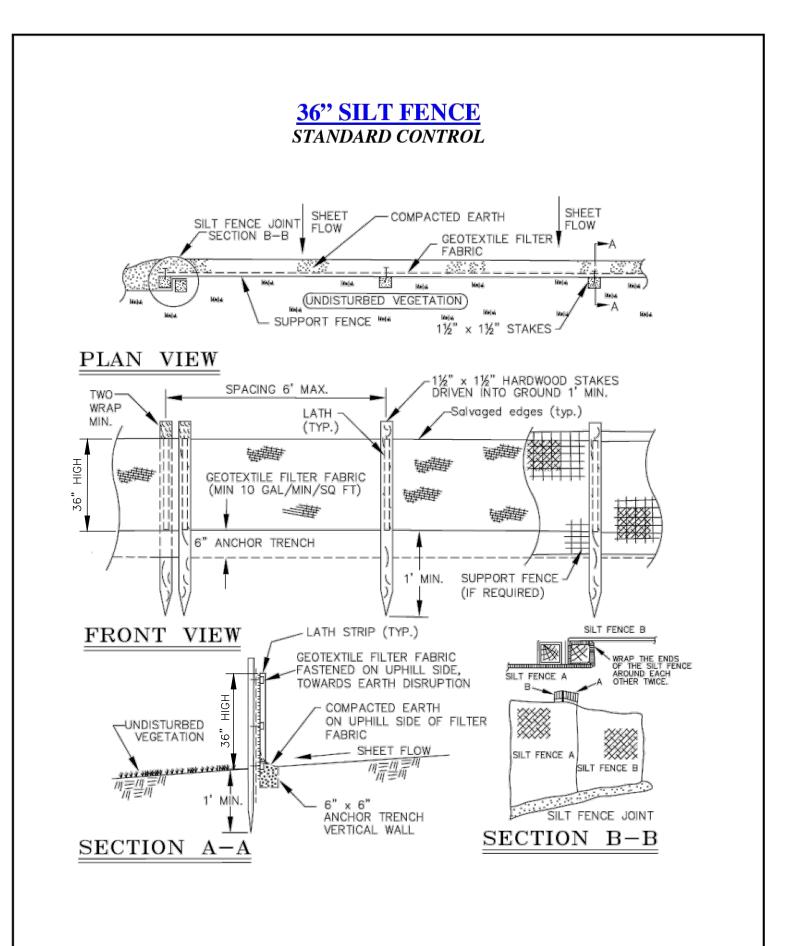
• It is required that each development have an ingress/egress of crushed stone to restrict tracking of material onto the Public Roadway. All commercial construction sites require a minimum 75—foot tracking mat shown at ingress/egress.

Stabilization Standards:

- For subdivision and site condominium developments: As of May 01, 2000, it is required that temporary stabilization of the entire site be completed and approval from the Livingston County Drain Commissioner"s Office obtained prior to the issuance of single family dwelling permits.
- For commercial or industrial sites, common areas shall be called out on plans, in accordance with Part 17, prescribed by R 323.1709 and R 323.1710, pursuant to PART 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act (Previously known as P.A. 347 of 1972) of Act 347, Public Acts OF 1972, as amended) indicating areas to be stabilized after 15 days of grade work. Areas to be outlined are as follows: detention/retention, drainage easements, utility easements, boulevards, etc.

Seeding, Fertilizer and Mulch Bare Ground Ratio:

- This information shall be detailed on the construction plans.
- Top Soil
 Grass Seed
 217.84 lbs no
- Grass SeedFertilizer217.84 lbs per acre150 lbs per acre
- Fertilizer
 Straw Mulch
 3" in depth (All mulching must have a tie down)
- Hydroseeding is not acceptable for slopes exceeding 1%, in such cases stabilization shall be done with seed and and straw mulch with a tackifier.



36" SILT FENCE

WINTER FROZEN GROUND INSTALLATION

STANDARD CONTROL

(UNDISTURBED VEGETATION)

GEOTEXTILE FILTER FABRIC FASTENED ON UPHILL SIDE.

FLAP AS SHOWN

SHEET FLOW

TOWARDS EARTH DISRUPTION

PLACE FILTER FABRIC FLAP ON THE GROUND AND PLACE 6" HIGH PEASTONE ON

- SUPPORT FENCE

(TYP.)

► PEASTONE

SPACING 6' MAX.

植

GEOTEXTILE FILTER FABRIC (MIN 10 GAL/MIN/SQ FT)

PLAN VIEW

FRONT VIEW

-UNDISTURBED VEGETATION

SECTION A-A

WRAP

GEOTEXTILE FILTER

1½" x 1½" STAKES-

-11/2" x 11/2" HARDWOOD STAKES

DRIVEN INTO GROUND 1' MIN.

SUPPORT FENCE / (IF REQUIRED)

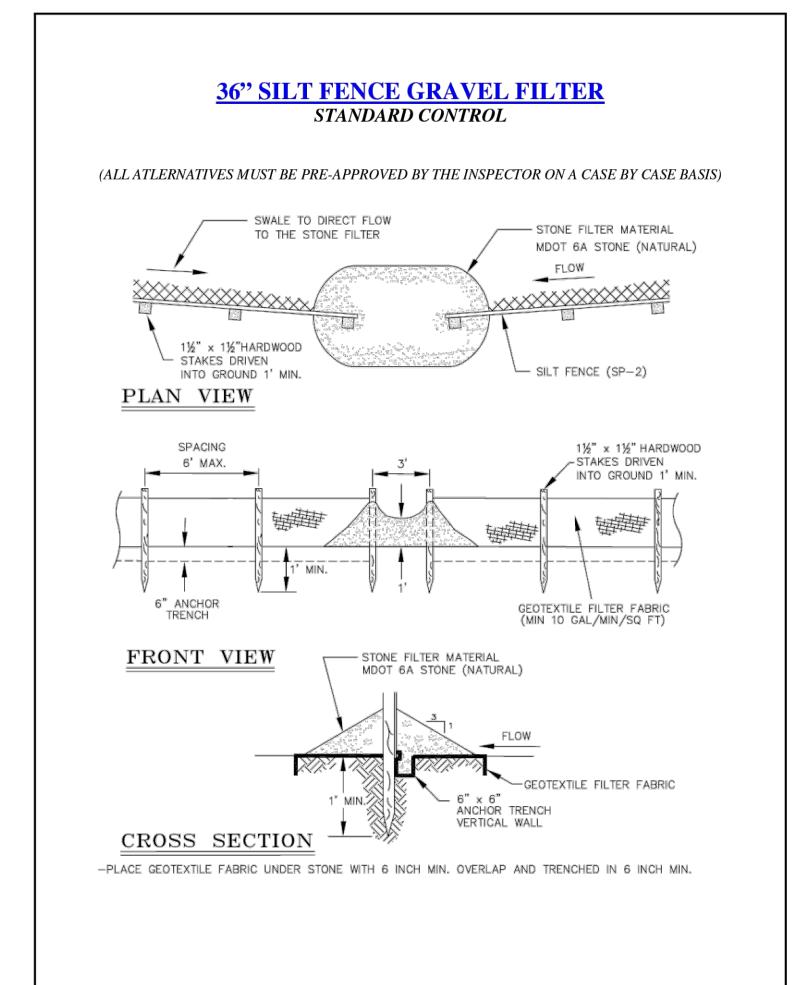
SILT FENCE A

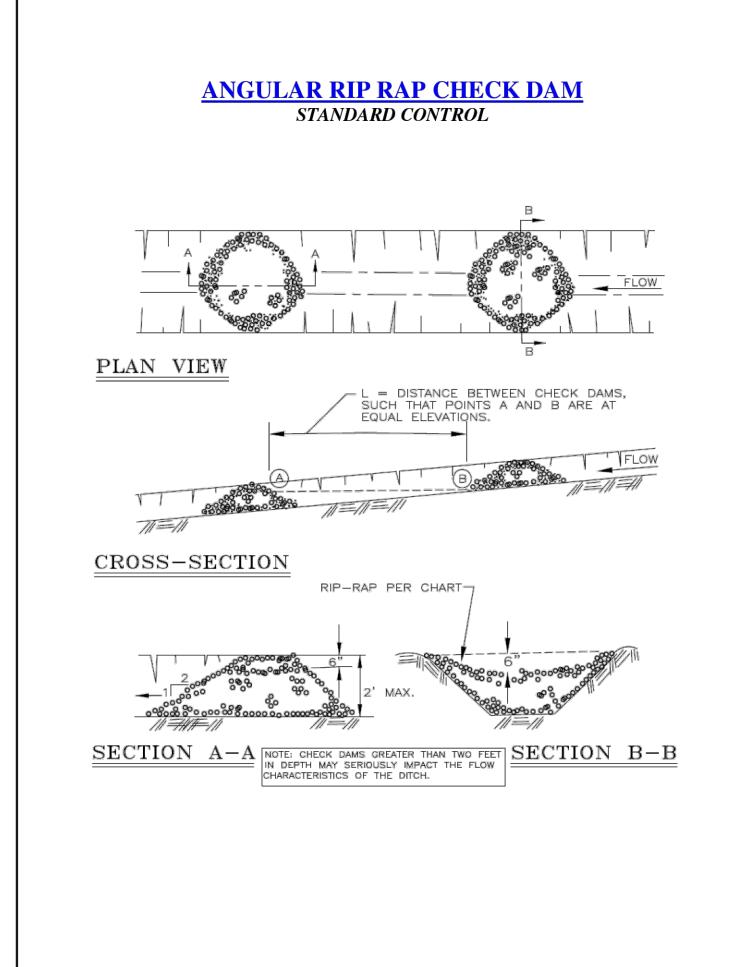
ILT FENCE A

SILT FENCE B

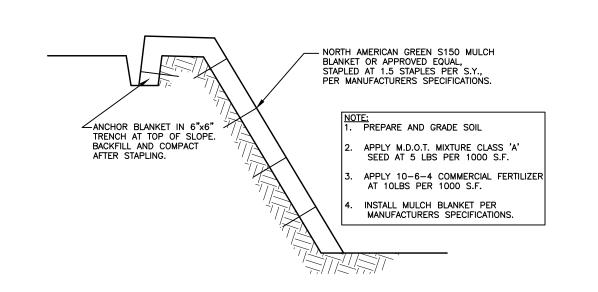
SILT FENCE JOINT

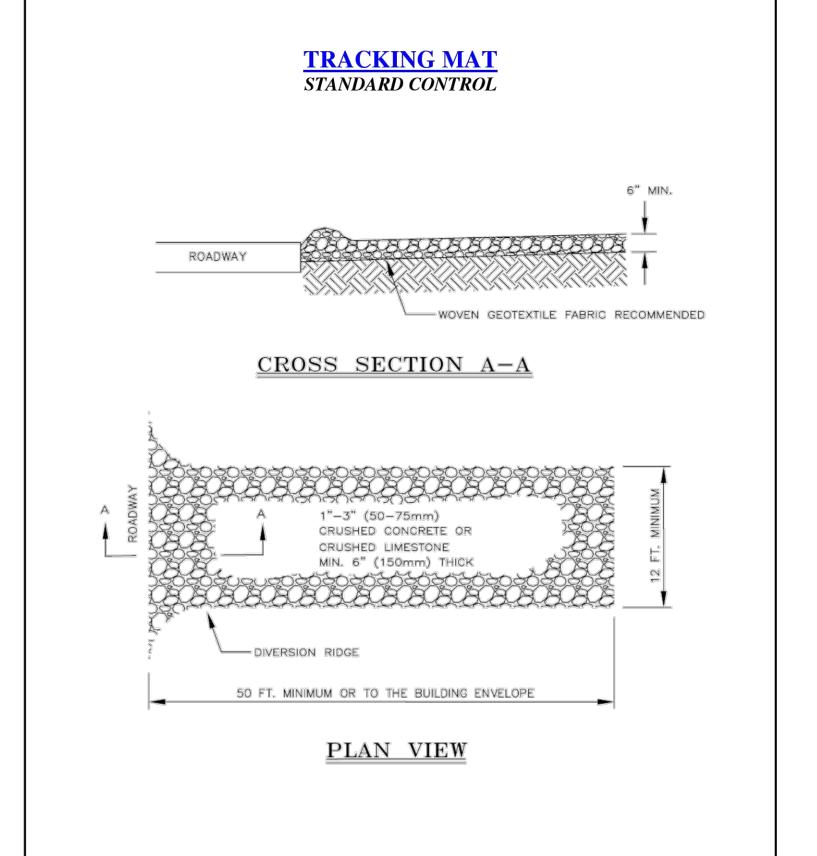
SECTION B-B

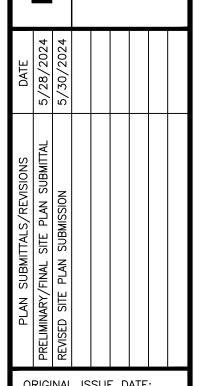




EROSION CONTROL BLANKET DETAIL







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CCURACY THEREOF. THE CONTRACT
HALL BE EXCLUSIVELY RESPONSIBLE IS
TERMINING THE EXACT UTILITY LOCATION
D ELEVATIONS PRIOR TO THE START
O N S T R U C T I O N

CHESTNUT

DEVELOPMENT, LLC

3800 CHILSON ROAD

HOWELL, MI 48843

POC: STEVE GRONOW

517-552-2489

∕lichigan's

One-Call

CLIENT:

ORIGINAL ISSUE DATE: 02/29/2024

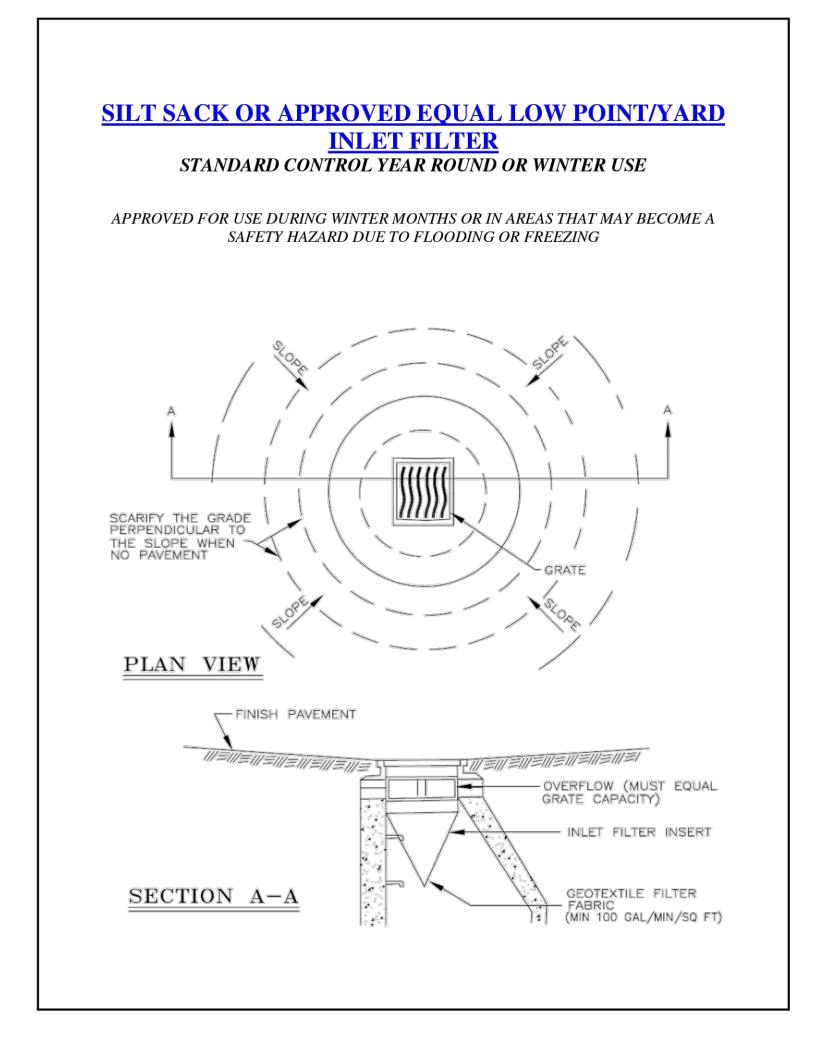
PROJECT NO: 22–286

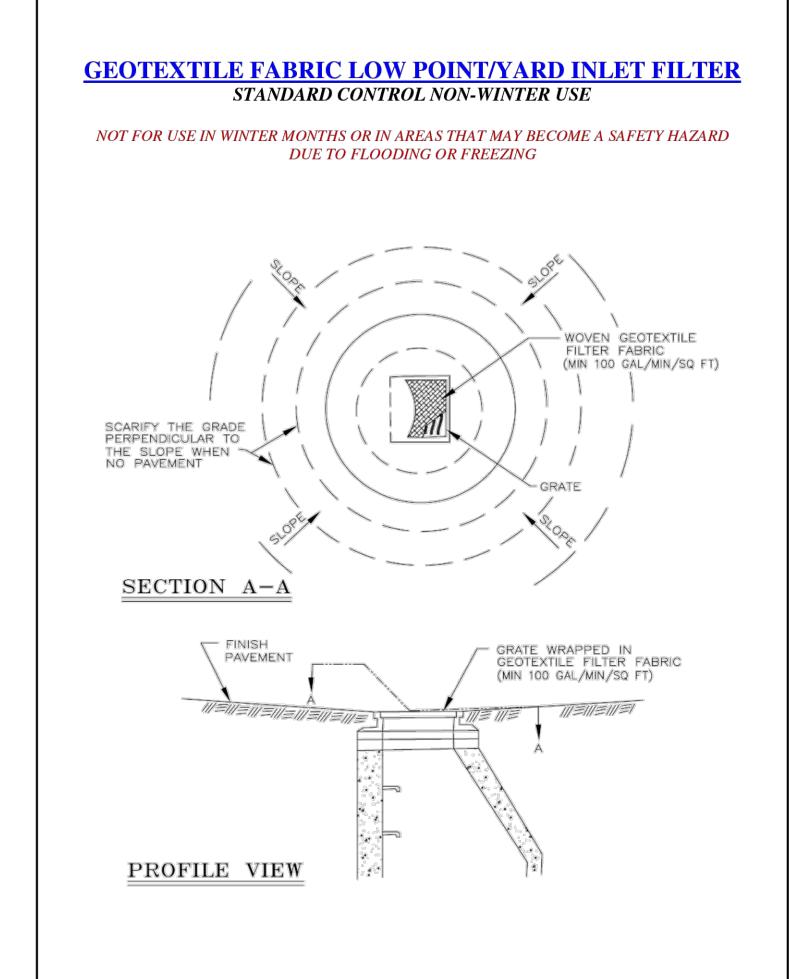
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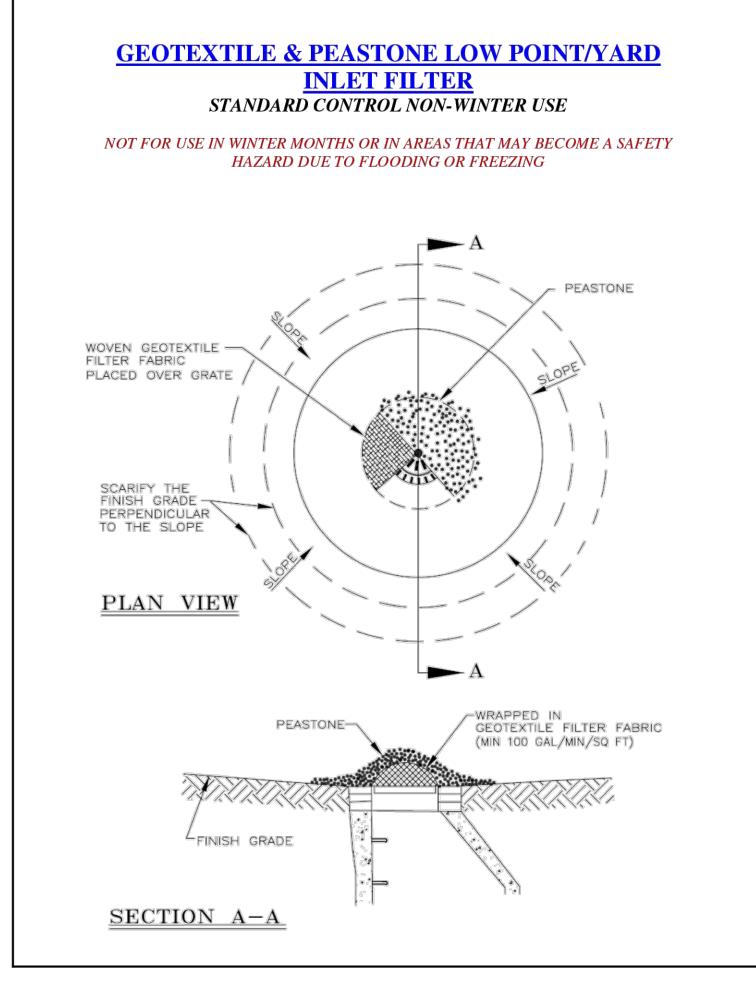
0 1/2" 1"

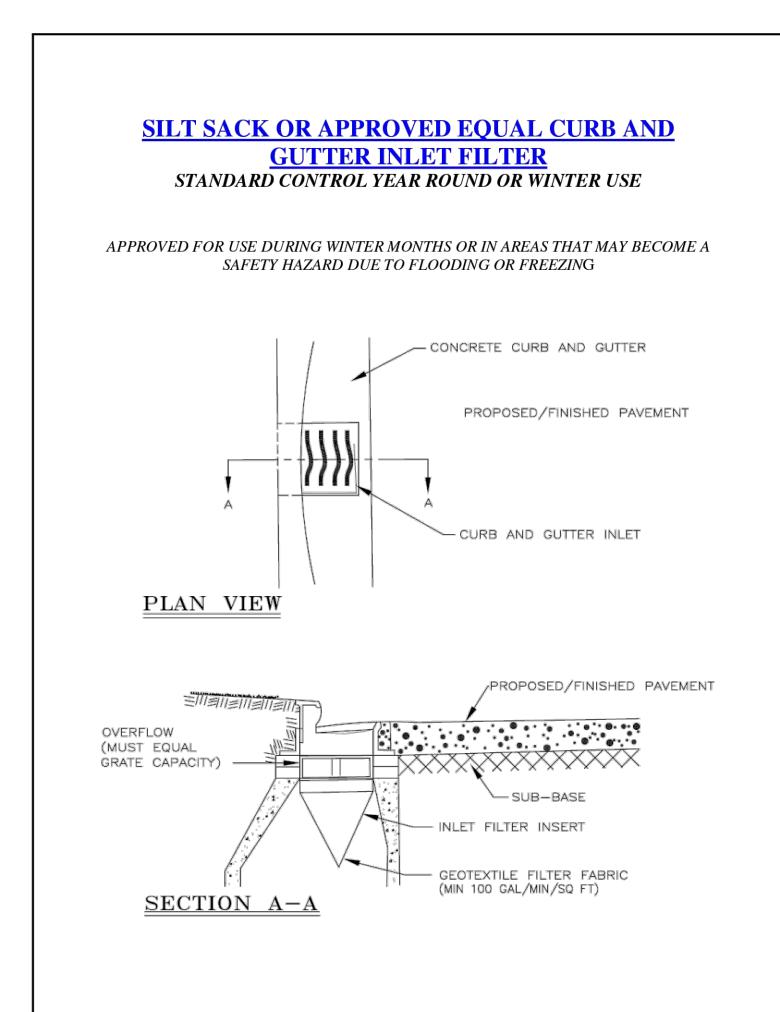
FIELD:
DRAWN BY: CD
DESIGN BY: BS
CHECK BY: AP

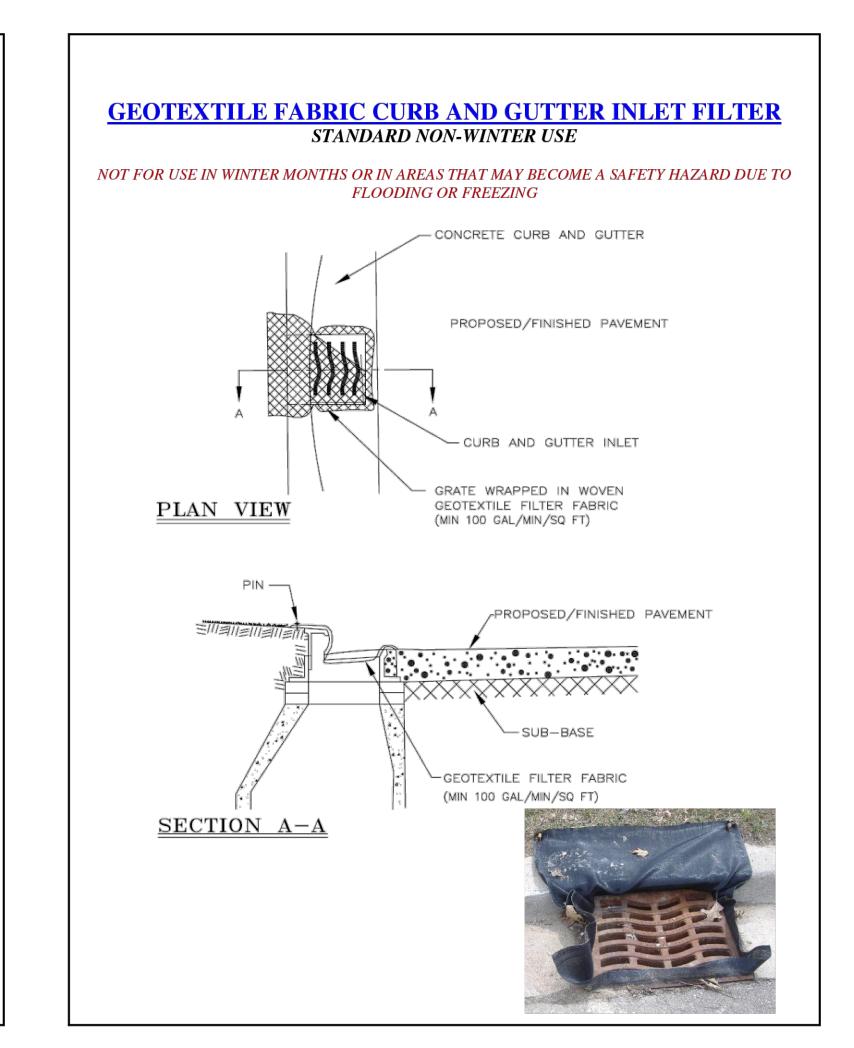
C-8.1

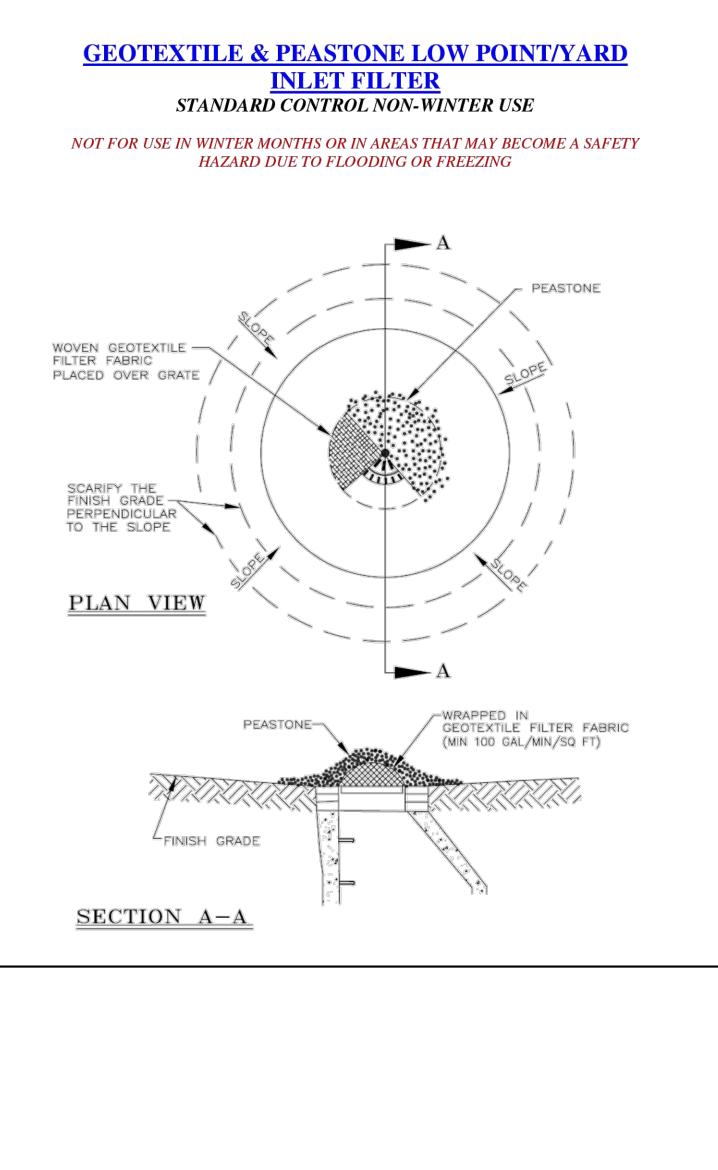












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CHESTNUT **DEVELOPMENT, LLC**

3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW

517-552-2489

One-Call

CLIENT:

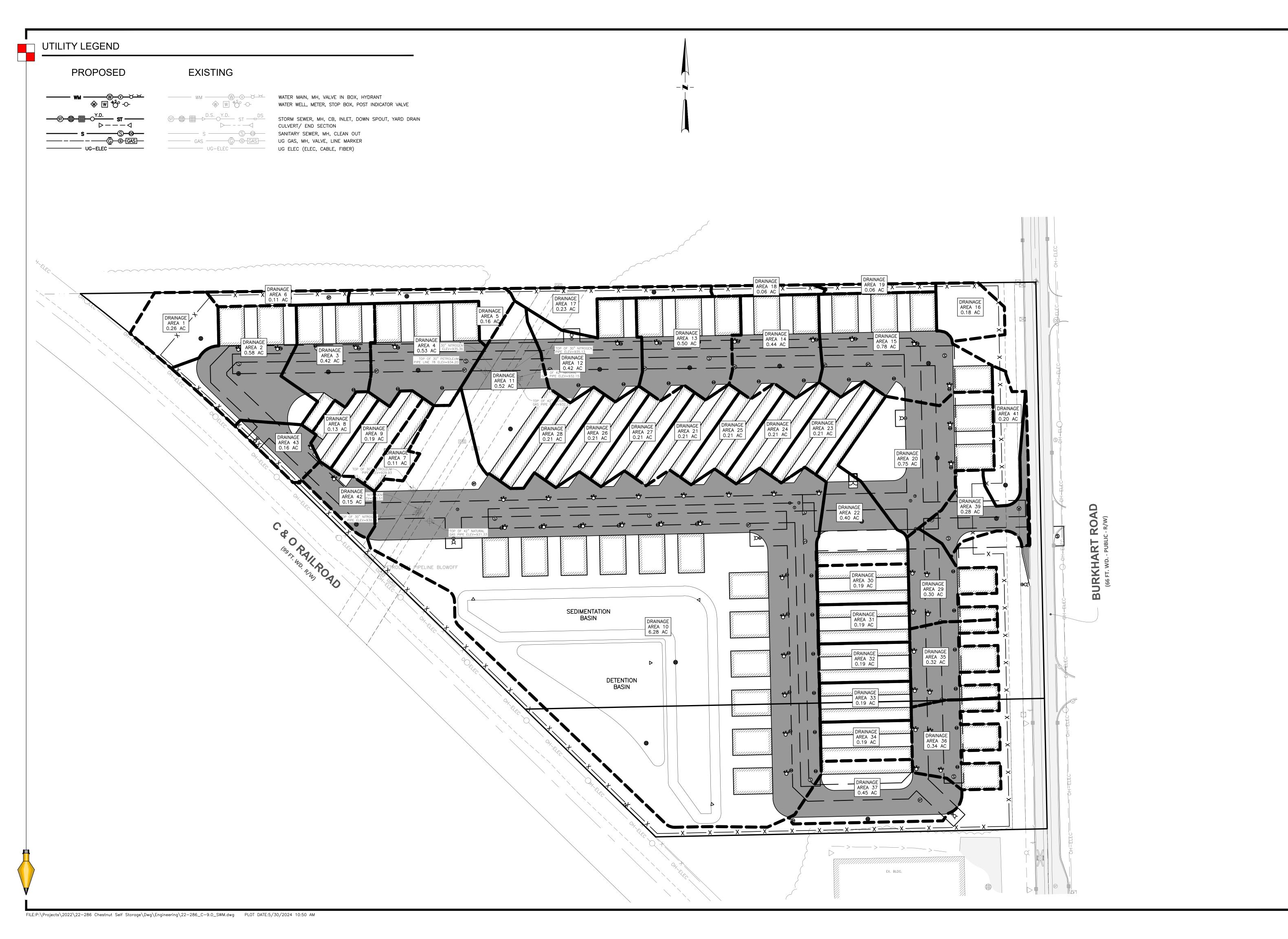
ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: N/A o 1/2"

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

C-8.2



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THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE OUT APPROXIMATE IS EITHER EXPRESSED OF IMPLIED AS TO THE COMPLETENESS OF ACCURACY THEREOF, THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATION AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTIONS OF THE START OF THE START

CLIENT :

CHESTNUT DEVELOPMENT, LLC

3800 CHILSON ROAD HOWELL, MI 48843 POC: STEVE GRONOW

POC: STEVE GRONOV 517-552-2489

> T3N-R4E, MICHIGAN

F STORAGE 9-200-029 F SEC. 29, T3N

CHESTNUT SELF S
TAX ID# 06-29-2
THE NE 1/4 OF S
TOWNSHIP, I IVINGST

PART OF HOWELL

AN SUBMITTALS/REVISIONS DA ARY/FINAL SITE PLAN SUBMITTAL 5/28, SITE PLAN SUBMISSION 5/30,

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: 1" = 60' 0 1/2" 1"

FIELD:
DRAWN BY: CD
DESIGN BY: BS
CHECK BY: AP

C-9.0

COMPOUND RUNOFF COEFFICIENT			VOLUME SUM	MARY									
AREA (SF) AREA (AC) OVERALL 817,285 18.76			FOREBAY VOL	LUME	V_f	=	40,005 CF						
CONTRIBUTING 778,025 17. FLOWING OFF 39,260 0.		$A \times C$	EXTENDED DE	TENTION VC	OLUME V_{ED}	=	76,010 CF						
EX BUILDING 0 EX PAVEMENT 0 PR BUILDING 192,400 PR PAVEMENT 271,112 GRASS 314,513	0.90 0.90 0.90 0.90 0.20	0 0 173,160 244,001 62,903	100-YEAR VOL	UME	V_{100}	=	78,969 CF						
TOTALS 778,025	3.23	480,063	STORAGE ELE	VATIONS									
$COMPOUND C = \frac{TOTAL A \times C}{CONTRIBUTING AREA}$	480,063 778,025	0.62	FOREBAY ELEVATION ELEVATION	= =	933.00 934.00		VOLUME 1 VOLUME 2 Vf	34,090 75,001 40,005					
SITE INFO			F ELEVATION	ON (Zf)	=	933.14	VI	40,000					
OVERALL AREA CONTRIBUTING AREA (A) ALLOWABLE DISCHARGE (Qa) COMPOUND C	= 18.76 = 17.86 = 0.20 = 0.62		EXTENDED DE ELEVATION ELEVATION ED ELEVATIO	=	933.00 934.00 =		VOLUME 1 VOLUME 2 Ved	24,025 40,613 36,005					
REQUIRED WATER QUALITY VOLUME			100-YEAR										
$V_{wq} = \frac{1"}{12"} \times 43560 \times A \times C$	= 40005	CF	ELEVATION ELEVATION	=	933.00 934.00		VOLUME 1 VOLUME 2 V100	24,025 40,613 38,964					
REQUIRED CHANNEL PROTECTION VOLUME			100 ELEVATIO	N (Z100)	=	933.90							
	= 52007	6 5	PROPOSED SE	DIMENTATI	ION BASIN \	OLUME		P	ROPOSED	DETENTION	BASIN VOL	JME	
$V_{cp} = \frac{1.3"}{12"} \times 43560 \times A \times C$	= 52007		ELEVATION AI	REA (FT) A'	VG AREA (FT)	INC VOLUME (CF)	VOLUME (CF)	E	ELEVATION	AREA (FT)	AVG AREA (FT)	INC VOLUME (CF)	TTL VOLUME (CF)
REQUIRED FOREBAY VOLUME			932	30,719	(1 1)	(01)	(6)		931	9,262	(' ' /	(31)	(0,)
WITH DOWNSTREAM INFILTRATION Vf = Vwq			933	37,461	34,090	34,090	34,090		932	11,922	10,592	10,592	10,592
V_f	= 40005	CF	934	44,360	40,911	40,911	75,001		933	14,944	13,433	13, 433	24,025
REQUIRED EXTENDED DETENTION VOLUME			935	51,416	47,888	47,888	122,889		934	18,231	16,588	16,588	40,613
$V_{ED} = \frac{1.9"}{12"} \times 43560 \times A \times C$	= 76010	CF			25,708				935	21,681	19,956	19,956	60,569
EXTENDED DETENTION DISCHARGE RATE			OUTLET CONT	ROL STRUC	TURE ORIF	ICE CALCUI	ATIONS						
$Q_{ED} = \frac{V_{ED}}{172800}$	= 0.44	CFS	CHANNEL PRO	OTECTION R	RATE CONT	ROL (EXTEI	NDED DETENTION	ON)					
100 YR STORM INLET RATE			Q_{ED}	$= \frac{V_{ED}}{T_{48}} = \frac{1}{48}$	<i>V_{ED}</i> 3 × 3600	=	0.440 CFS						
$Q_{100in} = C \times A \times \frac{30.2033 \times 100^{0.2203}}{(T_c + 9.1747)^{0.8069}}$	= 58.74	CFS	OPENINGS AT	10			N						
100 YR STORM ALLOWABLE OUTLET RATE					Z_{bttm}	=	932.00						
$Q_{100all} = A \times Q_a \label{eq:Q100all}$ STORAGE CURVE FACTOR	= 3.57	CFS	H_{avg}	$=\frac{2}{3}\times(Z_{ED}$		=	1.148 FT						

100 YR STORM INLET RATE			$Q_{ED} = \frac{V_{ED}}{T_{A8}} = \frac{V_{ED}}{48 \times 3600}$ = 0.440 CFS
$Q_{100in} = C \times A \times \frac{30.2033 \times 100^{0.2203}}{(T_c + 9.1747)^{0.8069}}$	=	58.74 CFS	OPENINGS AT BOTTOM OF STORAGE ELEVATION
100 YR STORM ALLOWABLE OUTLET RATE			Z_{bttm} = 932.00
$Q_{100all} = A \times Q_a$	=	3.57 CFS	$H_{avg} = \frac{2}{3} \times (Z_{ED} - Z_{bttm}) \qquad = \qquad 1.148 \text{ FT}$
STORAGE CURVE FACTOR			
$R = 0.206 - 0.15 \times ln \left(\frac{Q_{100all}}{Q_{100in}} \right)$	=	0.63	$A_{ED} = \frac{Q_{ED}}{0.62\sqrt{2 \times g \times H_{avg}}} = 0.083 \text{ SF}$
100 YR STORM VOLUME IN			
			1" DIA HOLE HAS AN AREA OF
$V_{100in} = 18985 \times C \times A$	=	209229 CF	1 0.083 = 0.0055 SF
100 YR STORM STORAGE VOLUME			DETENTION TIME FOR FIFTEEN (15) 1" DIA HOLE
$V_{100det} = V_{100in} \times R - V_{cp}$	=	78969 CF	
			$Q_{ED}(ACTUAL) = A_{1.25''} \times 0.62\sqrt{2 \times g \times h} = 0.4362 \text{ CFS}$
REQUIRED DETENTION VOLUME	=	78969 CF	7
100 YR STORM STORAGE VOLUME CONTRO	DLS		$T_{ED} = \frac{V_{ED}}{Q_{ED} \times 3600} = 48.41 \text{ HRS}$

100 YEAR VOLUME CO	ONTROL

FLOW THROUGH ED CONTROLS AT 100 YEAR S	STORM

$H_{EDavg} = \frac{2}{3} \times (Z_{100} - Z_{bttm}) =$	1.27 FT
$Q_{ED(100yr)} = A_{1.25"} \times 0.62\sqrt{2 \times g \times h} =$	0.0305 CFS
$Q_{rem} = Q_a - Q_{ED(100yr)} =$	3.5417 CFS
$H_{100} = \frac{2}{3} \times (Z_{100} - Z_{ED}) =$	0.1189 FT
$A_{100} = \frac{Q_{rem}}{0.62\sqrt{2 \times g \times H_{100}}} =$	2.0642 SF
3" DIA HOLE HAS AN AREA OF	
3 INCH = 0.250 FT =	0.0491 SF
41 HOLES =	2.0126 SF
ACTUAL FLOW THROUGH ALL RESTRICTORS	
$Q_{100(ACTUAL)} = A_{2"X4} \times 0.62\sqrt{2 \times g \times h} =$	3.4532 CFS
$Q_{100(TOTAL)} = Q_{100(ACTUAL)} + Q_{ED(100yr)} =$	3.4837 CFS

<u> </u>	, and the same of			1						ONUMENT ENGINEERING GROUP ASSOCIATES, LLC														
	0-014				*_	od									-	298 VETE								-,
0 - 4 -	Q = C A	0.440			t =	20		V/O				-					VILLE, MI	48836						
Q = A X	1.486/n x R^2/3	3 X 5"1/Z			n1 =		HDPE & P' CONC.	VC				-				517-223-3	0012							_
	I = 175/(t+25)				n2 =	0.013	CONC.												H.G. ELE	V	INVERT EL	E\/	RIM ELEV.	RIM ELEV.
	FROM STR	AREA	COEFF.		AREA	TOTAL	ПМЕ	INT.	FLOW	PIPE	PIPE	PIPE	PIPE	PIPE	MIN PIPE	H.G.	VEL.	TIME	UP	DOWN	UP	DOWN	UP	DOWN
	TOSTR	A	C C	AxC	TOTAL	CXA	t	1	Q	CAP.	AREA	LENGTH	DIA.	SLOPE	SLOPE	SLOPE	FULL	FLOW	STREAM			STREAM	STREAM	STREAM
	100110	- 1			At	O A A			•	CALL.	AINEA	ELIVOIII	DIA.	OLOI L	OLOI L	OLOI L	TOLL	LOW	OTIVEZNI	OTIVEAM	OTINEAN	OTIVEAM	OTIVEAN	OTIVEAM
		ac.			ac.		min.	in/hr	c.f.s.	c.f.s.	sq. ft.	ft.	in.	%		%	ft/sec	min.						
MAIN RUN	IN1-CB2	0.26	0.62	0.161	0.260	0.161	20.00	3.89	0.63	2.01	0.79	79	12	0.32	0.30	0.32	2.56	0.51	935.88	935.63	935.08	934.83	939.17	938.41
	CB2-CB3	0.58	0.62	0.360	0.840	0.521	20.51	3.85	2.00	2.01	0.79	138	12	0.32	0.30	0.32	2.56	0.90	935.63	935.19	934.83	934.39	938.41	938.33
	CB3-MH4	0.42	0.62	0.260	1.530	0.949	21.52	3.76	3.57	3.65	1.23	74	15	0.32	0.23	0.32	2.98	0.41	935.19	934.95	934.19	933.95	938.33	939.51
	MH4-CB5	0.00	0.62	0.000	1.660	1.029	21.93	3.73	3.84	4.69	1.77	68	18	0.20	0.18	0.20	2.66	0.43	934.95	934.82	933.75	933.62	939.51	938.73
	CB5-MH6	0.53	0.62	0.329	2.380	1.476	22.36	3.69	5.45	5.45	1.77	67	18	0.27	0.18	0.27	3.09	0.36	934.82	934.63	933.62	933.43	938.73	940.59
	MH6-MH7	0.00	0.62	0.000	2.800	1.736	22.72	3.67	6.37	8.46	3.14	131	24	0.14	0.12	0.14	2.69	0.81	934.63	934.45	933.03	932.85	940.59	940.01
	MH7-CB8	0.00	0.62	0.000	4.350	2.697	23.53	3.61	9.72	9.85	3.14	109	24	0.19	0.12	0.19	3.14	0.58	934.45	934.24	932.85	932.64	940.01	938.05
	CB8-MH9	0.52	0.62	0.322	4.870	3.019	24.11	3.56	10.76	10.84	3.14	101	24	0.23	0.12	0.23	3.45	0.49	934.24	934.01	932.64	932.41	938.05	938.81
	MH9-ES10	0.00	0.62	0.000	4.870	3.019	24.60	3.53	10.65	10.84	3.14	179	24	0.23	0.12	0.23	3.45	0.86	934.01	933.60	932.41	932.00	938.81	932.00
LATERAL	IN11-CB12	0.16	0.62	0.099	0.160	0.099	20.00	3.89	0.39	2.01	0.79	109	12	0.32	0.30	0.32	2.56	0.71	935.91	935.56	935.11	934.76	938.09	937.60
	CB12-CB13	0.15	0.62	0.093	0.310	0.192	20.71	3.83	0.74	2.01	0.79	138	12	0.32	0.30	0.32	2.56	0.90	935.56	935.12	934.76	934.32	937.60	939.00
	CB13-MH6	0.11	0.62	0.068	0.420	0.260	21.60	3.75	0.98	2.01	0.79	151	12	0.32	0.30	0.32	2.56	0.98	935.12	934.63	934.32	933.83	939.00	940.59
LATERAL	IN14-MH15	0.11	0.62	0.068	0.110	0.068	20.00	3.89	0.27	2.01	0.79	60	12	0.32	0.30	0.32	2.56	0.39	935.75	935.55	934.95	934.75	938.80	939.87
	MH15-CB3	0.00	0.62	0.000	0.270	0.167	20.78	3.82	0.64	2.01	0.79	114	12	0.32	0.30	0.32	2.56	0.74	935.55	935.19	934.75	934.39	939.87	938.33
LATERAL	IN16-MH15	0.16	0.62	0.099	0.160	0.099	20.00	3.89	0.39	2.01	0.79	120	12	0.32	0.30	0.32	2.56	0.78	935.94	935.55	935.14	934.75	939.50	939.87
LATERAL	YD17-MH4	0.13	0.62	0.081	0.130	0.081	20.00	3.89	0.31	2.01	0.79	104	12	0.32	0.30	0.32	2.56	0.68	935.28	934.95	934.35	934.02	938.77	939.51
LATERAL	CB19-MH20	0.50	0.62	0.310	0.710	0.440	20.00	3.89	1.71	2.01	0.79	69	12	0.32	0.30	0.32	2.56	0.45	935.08	934.86	934.28	934.06	938.04	938.86
	MH20-CB21	0.00	0.62	0.000	0.920	0.570	20.83	3.82	2.18	3.16	1.23	69	15	0.24	0.23	0.24	2.58	0.45	934.86	934.69	933.86	933.69	938.86	938.09
	CB21-MH7	0.42	0.62	0.260	1.550	0.961	21.27	3.78	3.63	3.65	1,23	76	15	0.32	0.23	0.32	2.98	0.43	934.69	934.45	933.69	933.45	938.09	940.01
LATERAL	YD22-CB19	0.21	0.62	0.130	0.210	0.130	20.00	3.89	0.51	2.01	0.79	127	12	0.32	0.30	0.32	2.56	0.83	935.49	935.08	934.69	934.28	938.25	938.04
LATERAL	YD23-MH20	0.21	0.62	0.130	0.210	0.130	20.00	3.89	0.51	2.01	0.79	127	12	0.32	0.30	0.32	2.56	0.83	935.27	934.86	934.47	934.06	938.25	938.86
LATERAL	YD24-CB21	0.21	0.62	0.130	0.210	0.130	20.00	3.89	0.51	2.01	0.79	128	12	0.32	0.30	0.32	2.56	0.83	935.10	934.69	934.30	933.89	938.50	938.09
LATERAL	YD18-CB5	0.19	0.62	0.118	0.190	0.118	20.00	3.89	0.46	2.01	0.79	133	12	0.32	0.30	0.32	2.56	0.86	935.24	934.82	934.44	934.02	938.99	938.73

		1.5			STORM S	EWER DE	SIGN									MONUME 298 VETE			GROUP AS	SOCIATES	S, LLC)		
	Q=CIA				t =	20	n-									FOWLER								
O = A x	1.486/n x R^2/3	x S^1/2			n1 =		HDPE & P	VC.								517-223-3		40000						
- ,,,,	I = 175/(t+25)	,			n2 =		CONC.									011	J 12							
	1 110 (1.20)					0.010	00110.												H.G. ELE	V	INVERT EL	ΕV	RIM ELEV.	RIM E
	FROM STR	AREA	COEFF.		AREA	TOTAL	ПМЕ	INT.	FLOW	PIPE	PIPE	PIPE	PIPE	PIPE	MIN PIPE	H.G.	VEL	TIME	UP	DOWN	UP	DOWN	UP.	DO
	TOSTR	A	C	AxC	TOTAL	CXA	t	1	Q	CAP.	AREA	LENGTH		SLOPE			FULL	FLOW	STREAM				STREAM	STR
	100110			/ t n U	At	O A / L	ħ.		~		7.11.11	LINOIII	DIV 1.	OLOI L	OLOI L	OLOI L	· VLL	, LOW	O II C./ IIII	O II C I III	O II CD (III	O II CLI IIII	O II CD IIII	O III
		ac.			ac.		min.	in/hr	c.f.s.	c.f.s.	sq. ft.	t.	in.	%		%	ft/sec	min.						-
MAIN RUN	MH25-CB26	0.00	0.62	0.000	0.210	0.130	20.00	3.89	0.51	2.01	0.79	69	12	0.32	0.30	0.32	2.56	0.45	935.62	935.40	934.82	934.60	938.84	937
	CB26-MH27	0.44	0.62	0.273	0.860	0.533	20.83	3.82	2.04	3.16	1.23	69	15	0.24	0.23	0.24	2.58	0.45	935.40	935.23	934.40	934.23	937.89	93
	MH27-MH28	0.00	0.62	0.000	1.420	0.880	22.46	3.69	3.25	3.29	1.23	67	15	0.26	0.23	0.26	2.68	0.42	935.23	935.06	934.23	934.06	938.59	93
	MH28-CB29	0.00	0.62	0.000	1.630	1.011	22.88	3.66	3.69	4.69	1.77	93	18	0.20	0.18	0.20	2.66	0.58	935.06	934.87	933.86	933.67	937.83	93
	CB29-CB30	0.78	0.62	0.484	2.590	1.606	23.46	3.61	5.80	5.94	1.77	146	18	0.32	0.18	0.32	3.36	0.72	934.87	934.40	933.67	933.20	936.87	93
	CB30-MH31	0.75	0.62	0.465	3.340	2.071	24.19	3.56	7.37	8.46	3.14	95	24	0.14	0.12	0.14	2.69	0.59	934.40	934.27	932.80	932.67	936.38	93
	MH31-CB32	0.00	0.62	0.000	3.820	2.368	24.77	3.52	8.33	8.46	3.14	108	24	0.14	0.12	0.14	2.69	0.67	934.27	934.12	932.67	932.52	937.33	93
	CB32-MH33	0.40	0.62	0.248	4.220	2.616	25.44	3.47	9.08	9.32	3.14	174	24	0.17	0.12	0.17	2.97	0.98	934.12	933.82	932.52	932.22	937.05	93
	MH33-ES34	0.00	0.62	0.000	4.220	2.616	26.42	3.40	8.90	9.04	3.14	139	24	0.16	0.12	0.16	2.88	0.80	933.82	933.60	932.22	932.00	936.63	932
ATERAL	IN35-CB36	0.23	0.62	0.143	0.230	0.143	20.00	3.89	0.55	2.01	0.79	175	12	0.32	0.30	0.32	2.56	1.14	936.44	935.88	935.64	935.08	938.09	93
	CB36-MH37	0.06	0.62	0.037	0.290	0.180	21.14	3.79	0.68	2.01	0.79	88	12	0.32	0.30	0.32	2.56	0.57	935.88	935.60	935.08	934.80	938.27	93
	MH37-MH27	0.00	0.62	0.000	0.350	0.217	21.71	3.75	0.81	2.01	0.79	116	12	0.32	0.30	0.32	2.56	0.75	935.60	935.23	934.80	934.43	939.15	93
ATERAL	IN38-MH37	0.06	0.62	0.037	0.060	0.037	20.00	3.89	0.14	2.01	0.79	85	12	0.32	0.30	0.32	2.56	0.55	935.87	935.60	935.07	934.80	937.80	93
ATERAL	IN39-CB29	0.18	0.62	0.112	0.180	0.112	20.00	3.89	0.43	2.01	0.79	98	12	0.32	0.30	0.32	2.56	0.64	935.18	934.87	934.38	934.07	937.50	93
ATERAL	YD40-MH25	0.21	0.62	0.130	0.210	0.130	20.00	3.89	0.51	2.01	0.79	127	12	0.32	0.30	0.32	2.56	0.83	936.02	935.62	935.22	934.82	938.25	93
ATERAL	YD41-CB26	0.21	0.62	0.130	0.210	0.130	20.00	3.89	0.51	2.01	0.79	127	12	0.32	0.30	0.32	2.56	0.83	935.80	935.40	935.00	934.60	938.25	93
ATERAL	YD42-MH27	0.21	0.62	0.130	0.210	0.130	20.00	3.89	0.51	2.01	0.79	127	12	0.32	0.30	0.32	2.56	0.83	935.64	935.23	934.84	934.43	938.00	93
ATERAL	YD43-MH28	0.21	0.62	0.130	0.210	0.130	20.00	3.89	0.51	2.01	0.79	125	12	0.32	0.30	0.32	2.56	0.81	935.46	935.06	934.66	934.26	937.75	93
ATERAL	IN53-CB54	0.20	0.62	0.124	0.200	0.124	20.00	3.89	0.48	2.01	0.79	53	12	0.32	0.30	0.32	2.56	0.34	934.76	934.59	933.16	932.99	935.83	93

																298 VETE								
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	TOSTR	Α	С	AxC	TOTAL	CXA	t	1	Q	CAP.	AREA	LENGTH	DIA.	SLOPE	SLOPE	SLOPE	FULL	FLOW	STREAM	STREAM	STREAM	STREAM	STREAM	STREAM
					At							_	_											
		ac.			ac.		min.	in/hr	c.f.s.	c.f.s.	sq. ft.	f.	in.	%	1	%	f/sec	min.						
MAIN RUN	CB44-MH45	0.30	0.62	0.186	0.490	0.304	20.00	3.89	1.18	3.16	1.23	60	15	0.24	0.23	0.24	2.58	0.39	934.75	934.60	933.75	933.60	936.55	937.04
	MH45-CB46	0.00	0.62	0.000	0.680	0.422	20.77	3.82	1.61	3.16	1.23	60	15	0.24	0.23	0.24	2.58	0.39	934.60	934.46	933.60	933.46	937.04	936.46
	CB46-MH47	0.32	0.62	0.198	1.190	0.738	21.15	3.79	2.80	3.16	1.23	60	15	0.24	0.23	0.24	2.58	0.39	934.46	934.32	933.46	933.32	936.46	937.51
	MH47-CB48	0.00	0.62	0.000	1.380	0.856	21.54	3.76	3.22	4.69	1.77	60	18	0.20	0.18	0.20	2.66	0.38	934.32	934.20	933.12	933.00	937.51	936.85
	CB48-MH49	0.34	0.62	0.211	1.910	1.184	21.92	3.73	4.42	4.69	1.77	100	18	0.20	0.18	0.20	2.66	0.63	934.20	934.00	933.00	932.80	936.85	936.90
	MH49-CB50	0.00	0.62	0.000	1.910	1.184	22.55	3.68	4.36	4.69	1.77	85	18	0.20	0.18	0.20	2.66	0.53	934.00	933.83	932.80	932.63	936.90	935.75
	CB50-MH51	0.45	0.62	0.279	2.360	1.463	23.08	3.64	5.33	5.35	1.77	115	18	0.26	0.18	0.26	3.03	0.63	933.83	933.53	932.63	932.33	935.75	936.90
	MH51-ES52	0.00	0.62	0.000	2.360	1.463	23.71	3.59	5.26	5.35	1.77	126	18	0.26	0.18	0.26	3.03	0.69	933.53	933.20	932.33	932.00	936.90	932.00
LATERAL	YD53-CB44	0.19	0.62	0.118	0.190	0.118	20.00	3.89	0.46	2.01	0.79	118	12	0.32	0.30	0.32	2.56	0.77	935.13	934.75	934.18	933.80	936.90	936.55
	1200 02 11	3.10	0.02	0. 1.10	0.100	0.110		J. J.	J. 13		0.,0		-,-	0.02	0.00	0.02		0.,,	000.10			000.00	000.00	
LATERAL	YD54-MH45	0.19	0.62	0.118	0.190	0.118	20.00	3.89	0.46	2.01	0.79	118	12	0.32	0.30	0.32	2.56	0.77	934.98	934.60	934.04	933.66	936.65	937.04
LATERAL	YD55-CB46	0.19	0.62	0.118	0.190	0.118	20.00	3.89	0.46	2.01	0.79	118	12	0.32	0.30	0.32	2.56	0.77	934.84	934.46	933.89	933.52	936.65	936.46
LATERAL	YD56-MH47	0.19	0.62	0.118	0.190	0.118	20.00	3.89	0.46	2.01	0.79	118	12	0.32	0.30	0.32	2.56	0.77	934.69	934.32	933.89	933.52	936.90	937.51
															-									
LATERAL	YD57-CB48	0.19	0.62	0.118	0.190	0.118	20.00	3.89	0.46	2.01	0.79	118	12	0.32	0.30	0.32	2.56	0.77	934.57	934.20	933.77	933.40	937.15	936.85



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CLIENT :

CHESTNUT DEVELOPMENT, LLC 3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

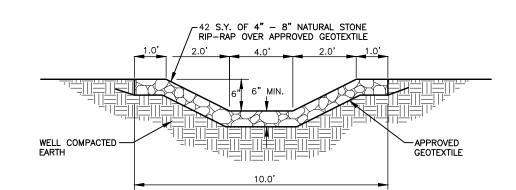
ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286 SCALE: 1" = 60'0 1/2" 1"

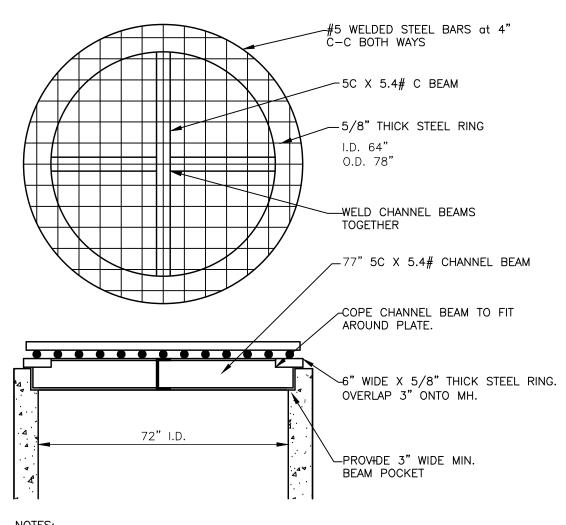
DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

C-9.1

SPILLWAY DETAIL - OVERFLOW - RIP RAP

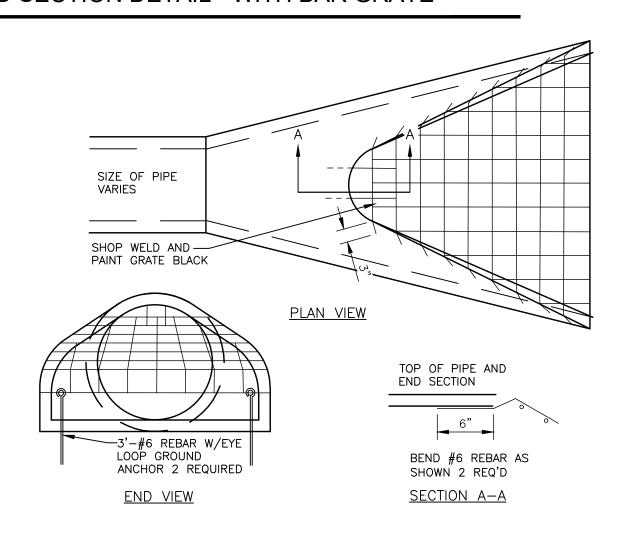


BAR GRATE DETAIL - FOR OVERFLOW STRUCTURE



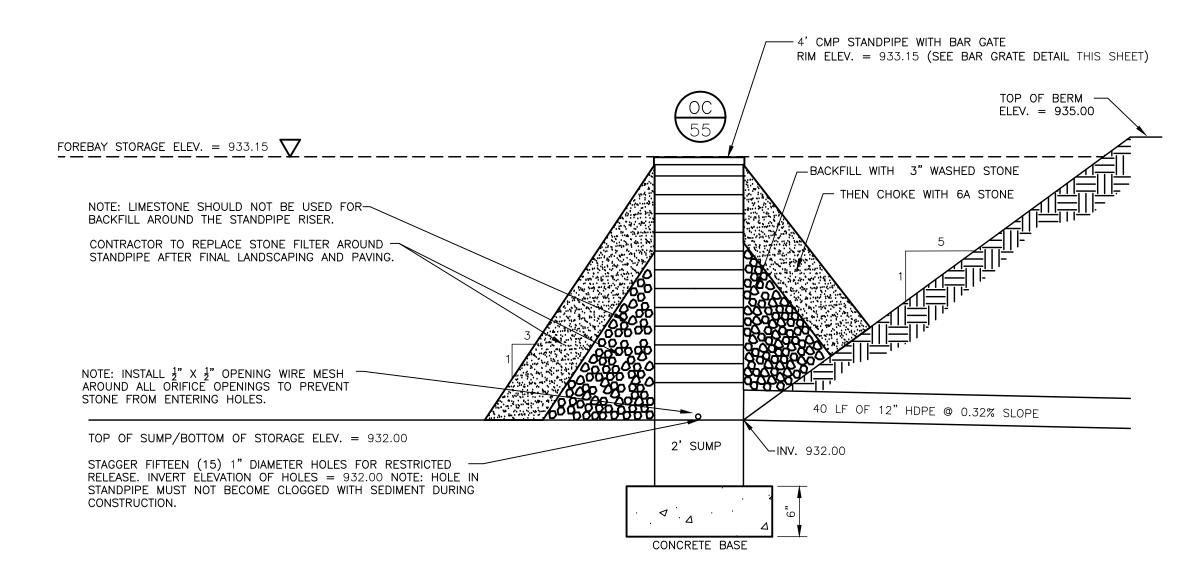
- 1. A MINIMUM OF ‡" WELDS REQUIRED.
- 2. AFTER ASSEMBLY, HOT DIP TO GALVANIZE GRATE AND WELDS.
- 3. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS PRIOR TO CONSTRUCTION.

END SECTION DETAIL - WITH BAR GRATE

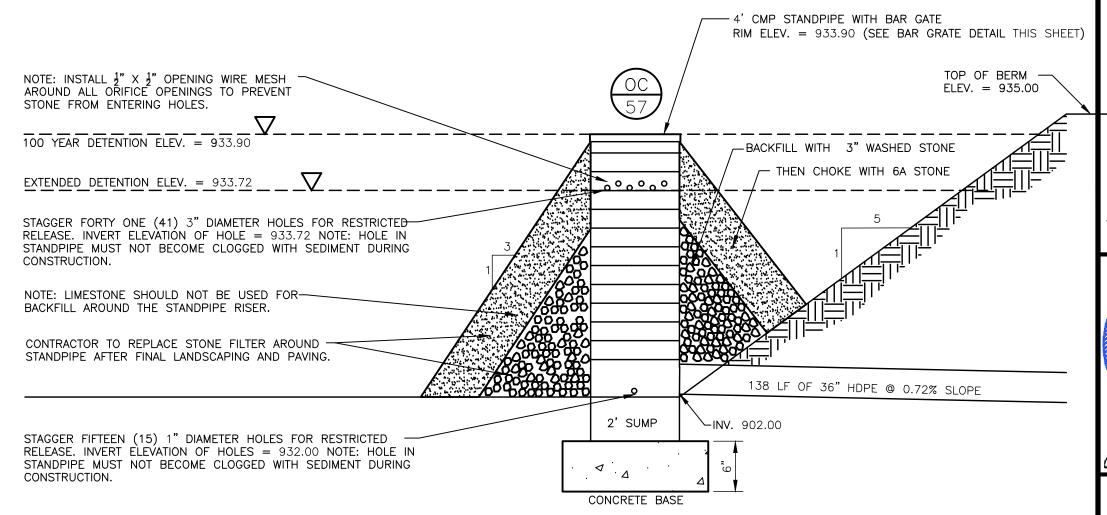


- NOTES:
 1. TO BE INSTALLED ON ALL END SECTIONS 15" AND LARGER.
- 2. #6 REBAR @ 6" O.C. BOTH WAYS, WELDED EXTEND 3" (BOTH SIDES) BEYOND OPENING AND BEND TO FIT SIDES.

FOREBAY OUTLET CONTROL STRUCTURE DETAIL



DETENTION BASIN OUTLET CONTROL STRUCTURE DETAIL



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PRUSS

ENGINEER

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CLIENT :

CHESTNUT
DEVELOPMENT, LLC
3800 CHILSON ROAD
HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

E 9 T3N-R4E,

SELF STORAGE 6-29-200-029 74 OF SEC. 29, T31

CHESTNUT SEI TAX ID# 06-2 ART OF THE NE 1/4 C OWELL TOWNSHIP, LIVIN

ITTALS/REVISIONS DATE
SITE PLAN SUBMITTAL 5/28/2024
SUBMISSION 5/30/2024

RIGINAL ISSUE DATI

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22–286

SCALE: 1" = 60'

1/2"

FIELD:

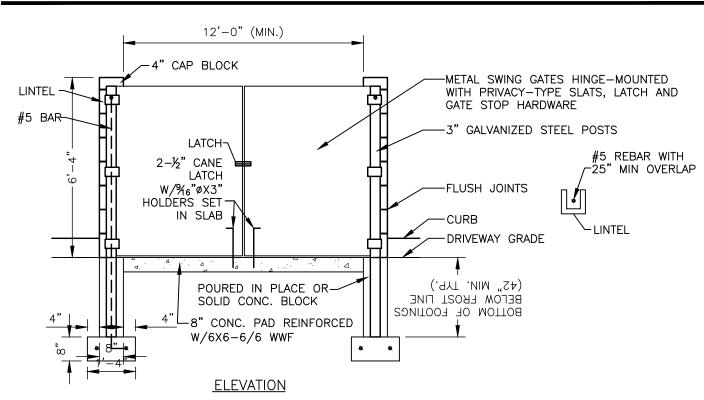
DRAWN BY: CD

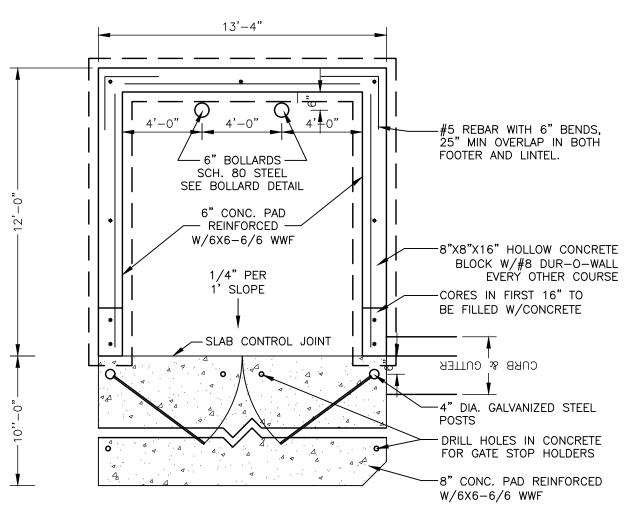
DESIGN BY: BS

CHECK BY: AP

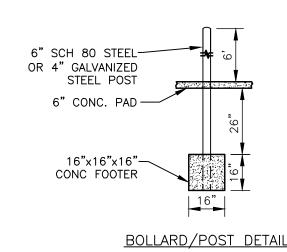
C-9.2

DUMPSTER ENCLOSURE DETAIL - CONCRETE WALL - SINGLE

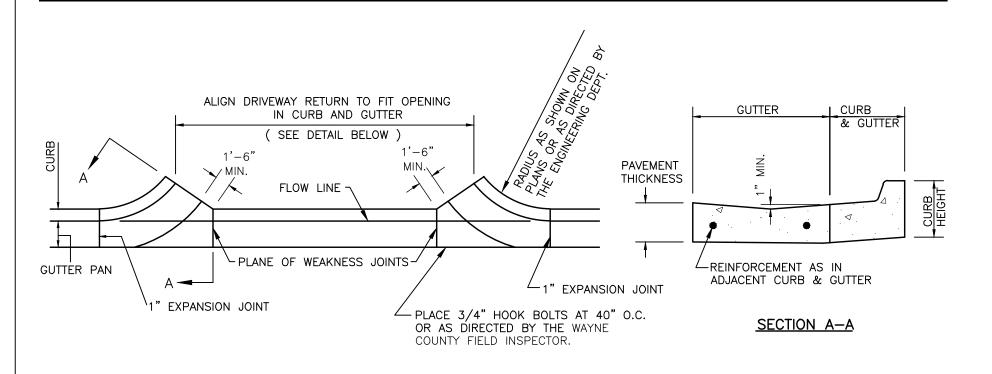




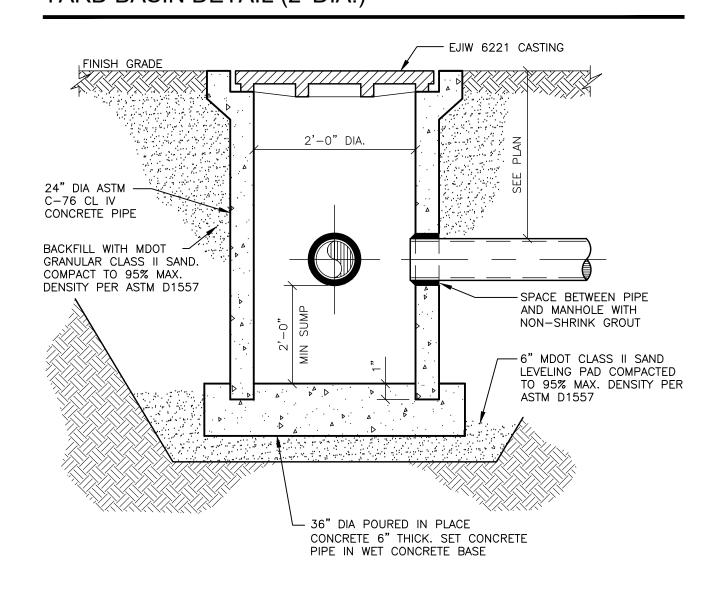
<u>PLAN</u>



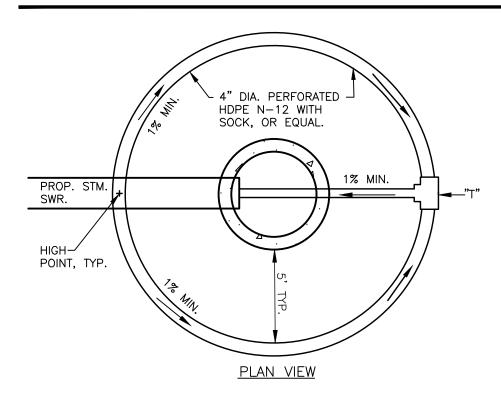
M.D.O.T. DRIVEWAY OPENING DETAIL "M"

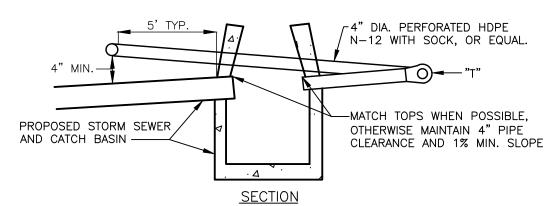


YARD BASIN DETAIL (2' DIA.)

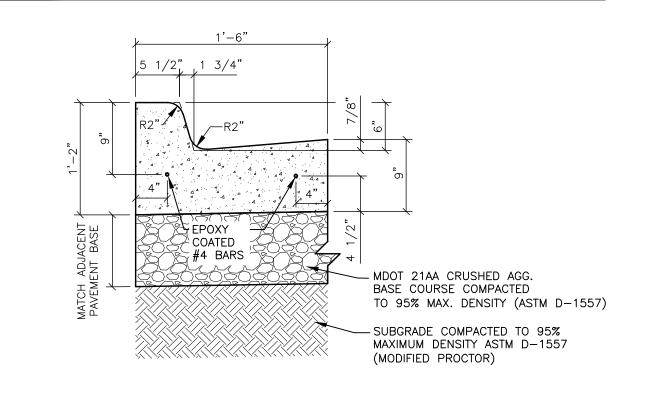


UNDERDRAIN DETAIL - RADIAL

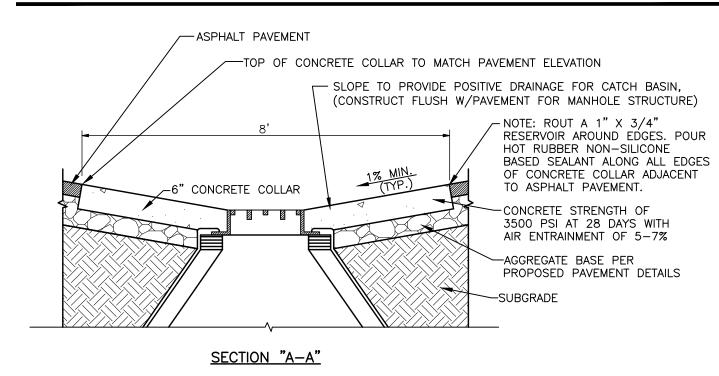


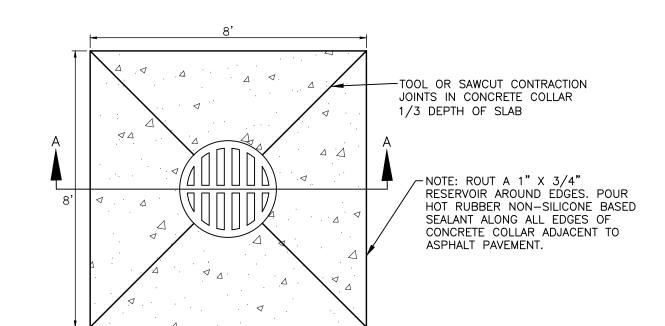


CURB AND GUTTER DETAIL - CONCRETE -STANDARD - 18" W 6" H 14" D

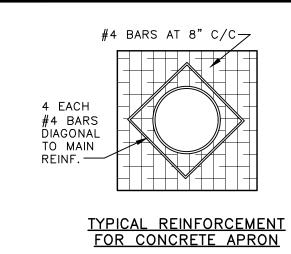


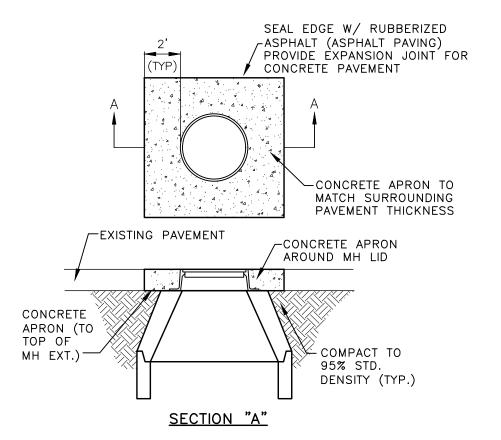
APRON DETAIL - CONCRETE AROUND CATCH BASIN



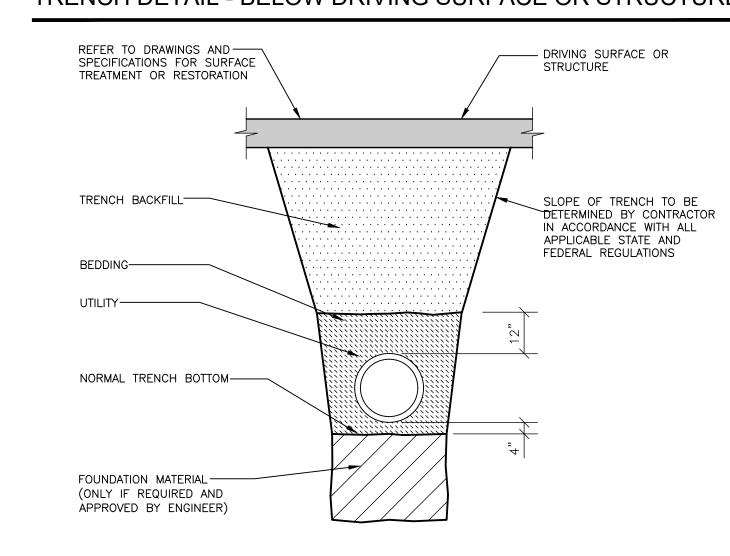


APRON DETAIL - CONCRETE AROUND MANHOLE

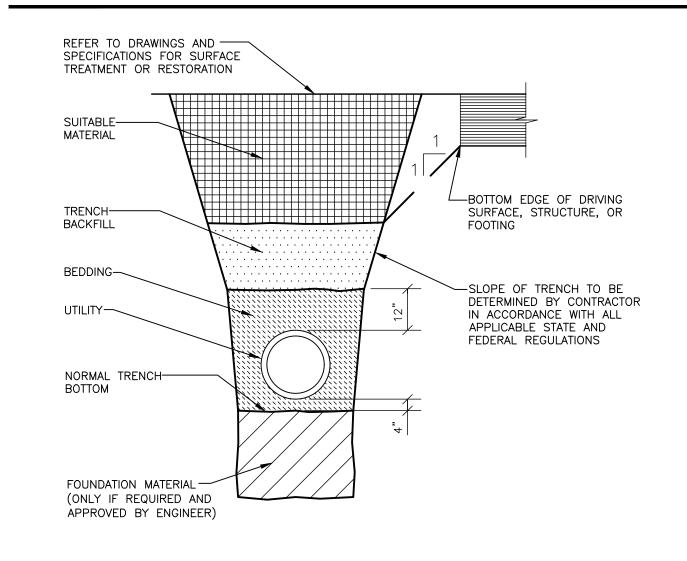




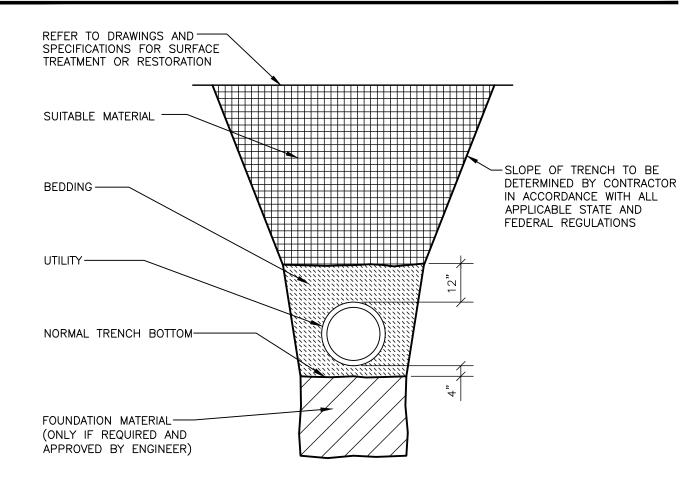
TRENCH DETAIL - BELOW DRIVING SURFACE OR STRUCTURE



TRENCH DETAIL - ADJACENT TO DRIVING SURFACE OR STRUCTURE



TRENCH DETAIL - NOT ADJACENT TO DRIVING SURFACE OR STRUCTURE





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C O N S T R U C T I O N

CLIENT:

Michigan's

CHESTNUT **DEVELOPMENT, LLO** 3800 CHILSON ROAD

HOWELL, MI 48843 POC: STEVE GRONOW 517-552-2489

> R4E, IGAN T3N-

ORIGINAL ISSUE DATE:

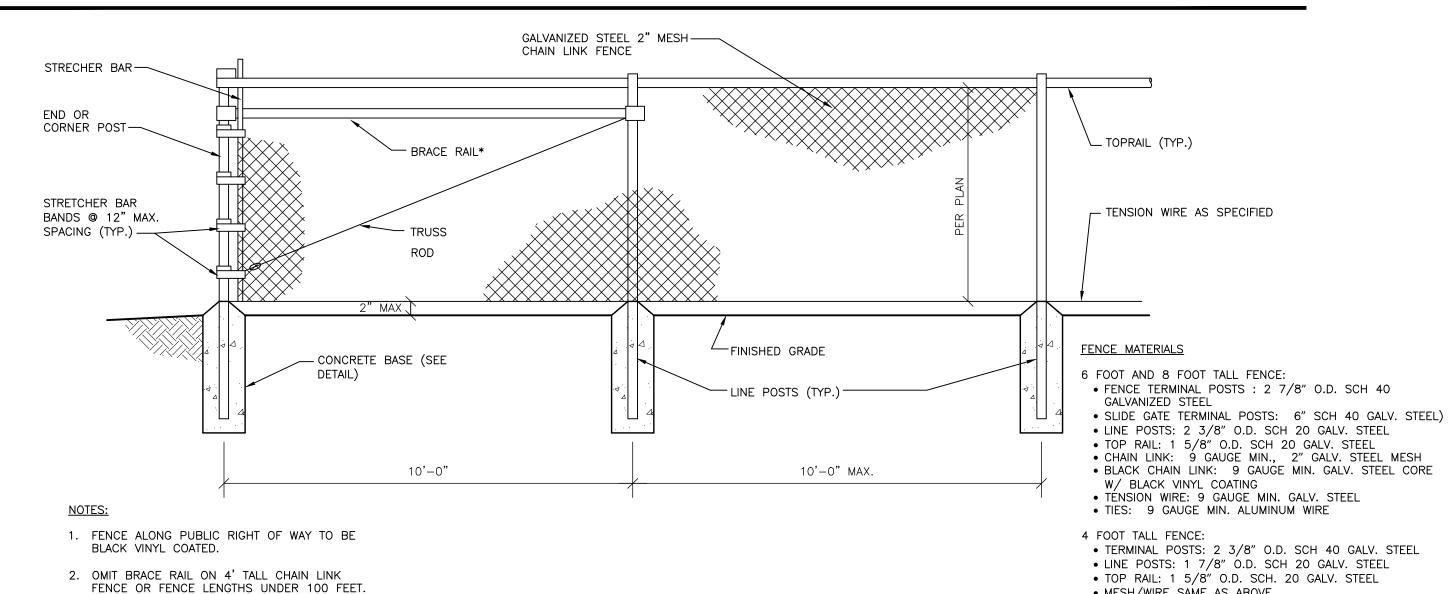
02/29/2024 PROJECT NO: 22-286

SCALE: N/A 1/2" FIELD: DRAWN BY: CD

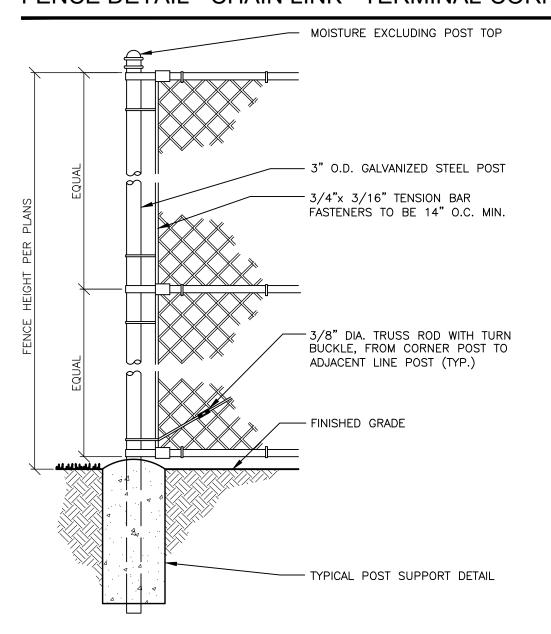
DESIGN BY: BS CHECK BY: AP

C-11.0

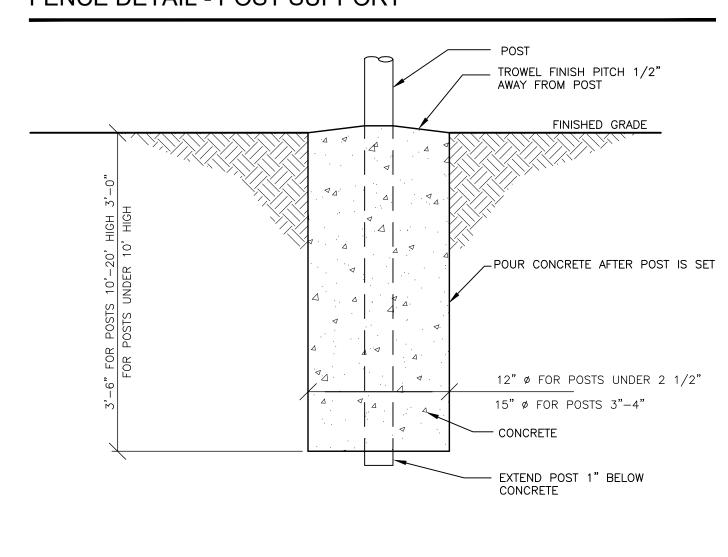
FENCE DETAIL - CHAIN LINK - STRAIGHT SEGMENT WITHOUT BARBED WIRE



FENCE DETAIL - CHAIN LINK - TERMINAL-CORNER POST

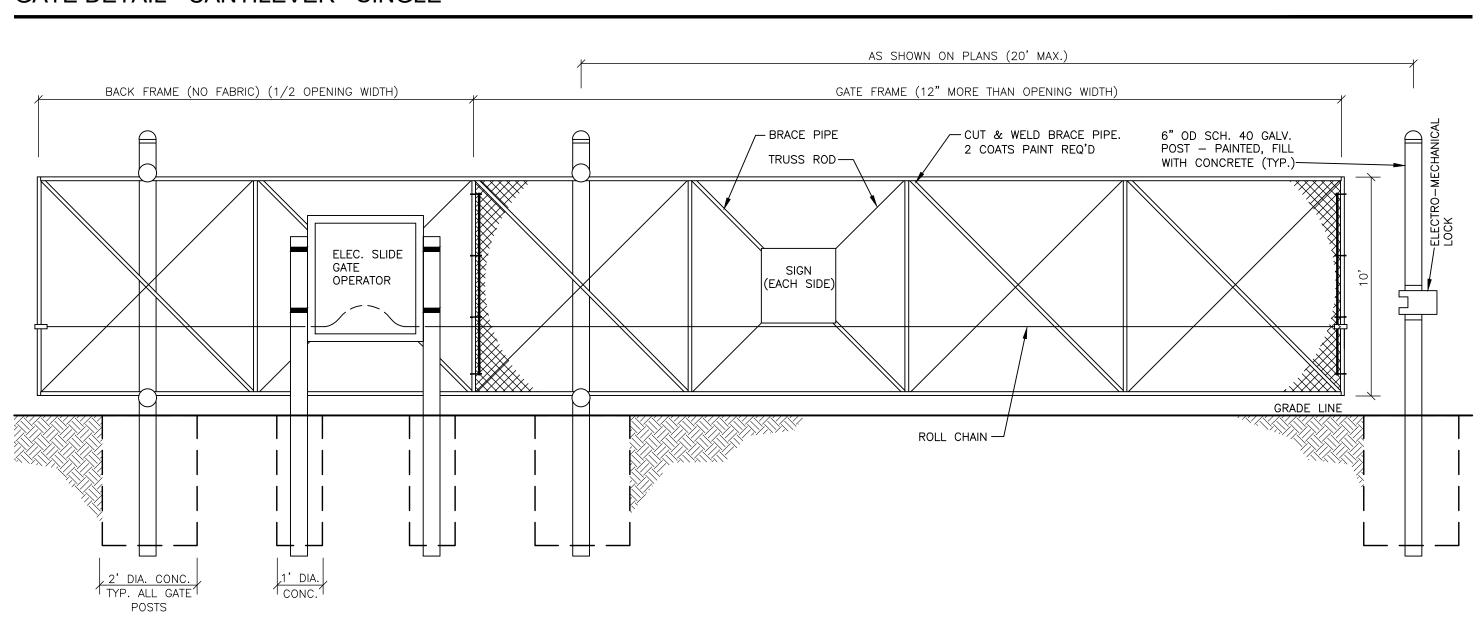


FENCE DETAIL - POST SUPPORT

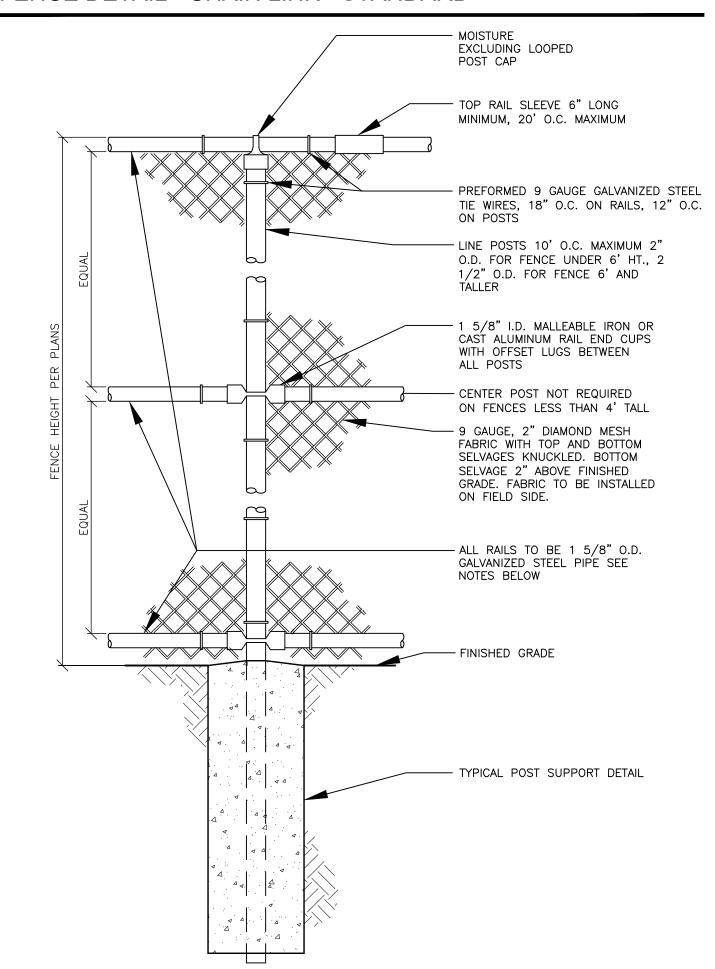


• MESH/WIRE SAME AS ABOVE.

GATE DETAIL - CANTILEVER - SINGLE



FENCE DETAIL - CHAIN LINK - STANDARD



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CLIENT:

CHESTNUT **DEVELOPMENT, LLC** 3800 CHILSON ROAD

POC: STEVE GRONOW 517-552-2489

HOWELL, MI 48843

R4E, IGAN T3N-

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: N/A

FIELD: DRAWN BY: CD DESIGN BY: BS CHECK BY: AP

C-11.1

MICHIGAN, AND THE COUNTY ROAD COMMISSION WHERE APPLICABLE.

- 2. RULES, REGULATIONS OR LAWS OF ANY CONTROLLING GOVERNMENTAL AGENCY SHALL GOVERN, WHEN THEY ARE MORE STRINGENT THAN THE REQUIREMENTS OF THESE SPECIFICATIONS.
- 3. SHOULD THE CONTRACTOR ENCOUNTER A CONFLICT BETWEEN THESE PLANS AND SPECIFICATIONS, EITHER AMONG THEMSELVES OR WITH THE REQUIREMENTS OF ANY AND ALL REVIEWING AND PERMIT—ISSUING AGENCIES, CONTRACTOR SHALL SEEK CLARIFICATION IN WRITING FROM THE ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION. FAILURE TO DO SO SHALL BE AT SOLE EXPENSE TO THE
- 4. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT TO COMPLETE THE TYPE OF WORK WHICH IS BID, IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, DETAILS AND TO THE SATISFACTION OF THE OWNER AND OWNER'S REPRESENTATIVE.
- CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.
- 6. ANY WORK WITHIN STREET OR HIGHWAY RIGHT-OF-WAYS SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL PERMITS HAVE BEEN ISSUED BY THESE GOVERNING AUTHORITIES.
- 7. ALL NECESSARY PERMITS, BONDS, INSURANCES, ETC., SHALL BE PAID FOR BY THE CONTRACTOR.
- 8. ALL ELEVATIONS SHOWN ARE BASED ON BENCHMARKS PROVIDED BY THE LOCAL MUNICIPALITY UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- 9. ALL ITEMS OF WORK NOT SPECIFICALLY INDICATED AS PAY ITEMS ON THE DRAWINGS OR IN THE BID PACKAGE SHALL BE CONSIDERED INCIDENTAL ITEMS.
- 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DUST CONTROL DURING THE

UTILITIES IN THE VICINITY OF THE WORK.

- PERIODS OF CONSTRUCTION.

 11. AT LEAST THREE (3) WORKING DAYS PRIOR TO ANY EXCAVATION, THE CONTRACTOR SHALL CONTACT MISS DIG (1-800-482-7171) TO VERIFY THE LOCATION OF ANY EXISTING UNDERGROUND UTILITIES AND SHALL NOTIFY REPRESENTATIVES OF OTHER
- 12. ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DISTURBED DUE TO CONSTRUCTION, SHALL BE REPLACED AND/OR RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE OWNER.
- 13. MANHOLE, CATCH BASIN, GATE WELL RIMS AND HYDRANT FINISH GRADE ELEVATIONS MUST BE AS-BUILT AND APPROVED BY THE ENGINEER BEFORE THE CONTRACTOR'S WORK IS CONSIDERED COMPLETE. AGENCY REQUIREMENTS FOR RECORD DRAWINGS
- 14. CONTRACTOR SHALL REMOVE AND DISPOSE OF OFF—SITE ANY TREES, BRUSH, STUMPS, TRASH OR OTHER UNWANTED DEBRIS, AT THE OWNER'S DIRECTION, INCLUDING OLD BUILDING FOUNDATIONS AND FLOORS. THE BURNING OR BURYING OF TRASH, STUMPS OR OTHER DEBRIS WILL NOT BE ALLOWED.
- 15. ALL REFERENCES TO M.D.O.T. SPECIFICATIONS REFER TO THE MOST CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- 16. ALL CONTRACTORS BIDDING THIS PROJECT SHALL HAVE VISITED THE SITE TO BECOME THOROUGHLY FAMILIAR WITH THE SITE AND THE CONDITIONS IN WHICH THEY WILL BE CONDUCTING THEIR OPERATIONS. ANY VARIANCE FOUND BETWEEN THE PLANS AND EXISTING CONDITIONS SHALL BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER.
- 17. THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING UNDERGROUND FACILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION PROVIDED BY THE UTILITY COMPANIES AND GOVERNMENTAL AGENCIES WITHOUT UNCOVERING AND MEASURING. THE DESIGN ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN.
- 18. THE OWNER MAY EMPLOY AND PAY FOR THE SERVICES OF AN ENGINEER TO PROVIDE ON—SITE INSPECTION AND VERIFY IN THE FIELD THAT ALL BACKFILL, PAVEMENTS AND CONCRETE CURB AND GUTTER HAVE BEEN PLACED AND COMPACTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. IF, IN THE OPINION OF THE ENGINEER, THE WORK DOES NOT MEET THE TECHNICAL OR DESIGN REQUIREMENTS STIPULATED FOR THE WORK, THE CONTRACTOR SHALL MAKE ALL NECESSARY ADJUSTMENTS AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHALL MAKE NO DEVIATIONS FROM THE CONTRACT DOCUMENTS WITHOUT SPECIFIC WRITTEN APPROVAL OF THE OWNER.
- 19. ALL EXCAVATED MATERIAL REMOVED FROM THE SANITARY SEWER, STORM SEWER AND WATER MAIN TRENCHES UNDER, THROUGH AND WITHIN 3 FEET OF THE 45° ZONE OF INFLUENCE LINE OF EXISTING OR PROPOSED PAVING, SIDEWALK AREAS AND PER PLANS, NOT SUITABLE FOR BACKFILL, SHALL BE REMOVED FROM THESE AREAS AND DISPOSED OF.
- 20. THE CONTRACTOR SHALL RESTORE TO THEIR PRESENT CONDITIONS ANY PAVEMENT OR PUBLIC RIGHTS—OF—WAY THAT IS DISTURBED BY THE OPERATIONS OF THE CONTRACTOR. ALL RESTORATION WORK IN PUBLIC RIGHTS—OF—WAY SHALL BE PERFORMED TO THE SATISFACTION OF THE GOVERNMENT AGENCIES HAVING JURISDICTION.
- 21. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE AND LIGHTS TO PROTECT THE WORK AND SAFELY MAINTAIN TRAFFIC, IN ACCORDANCE WITH LOCAL REQUIREMENTS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION).
- 22. O.S.H.A. SAFETY REQUIREMENTS ALL WORK, WORK PRACTICE, AND MATERIALS SHALL COMPLY WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL SAFETY, OCCUPATIONAL, HEALTH AND ENVIRONMENTAL REGULATIONS AND ALSO NFPA AND ANSI CODES AS APPLICABLE. ALL WORK INSIDE A CONFINED SPACE SUCH AS MANHOLES OR UNDERGROUND STRUCTURES SHALL BE COORDINATED WITH UTILITY OWNER AND ALL WORKER SAFETY REQUIREMENTS STRICTLY ENFORCED. LAND SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 23. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE FOR OR SUPPLY TEMPORARY WATER SERVICE, SANITARY FACILITIES AND ELECTRICITY.
- 24. CONTRACTOR SHALL PROVIDE FOR THE CONTINUOUS OPERATION OF EXISTING FACILITIES WITHOUT INTERRUPTION DURING CONSTRUCTION UNLESS SPECIFICALLY AUTHORIZED OTHERWISE BY THE RESPECTIVE AUTHORITY.
- 25. THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES IN THE PROJECT PLANS. TRENCH BACKFILL FOR EXISTING UTILITIES SHALL BE EXAMINED CRITICALLY. ANY TRENCH WHICH, IN THE OPINION OF THE SOILS ENGINEER ARE FOUND TO BE SOFT, UNSTABLE, OR UNSUITABLE MATERIAL SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL. SAND BACKFILL SHALL BE USED UNDER PAVEMENT OR WITHIN 3 FEET OF THE 45° INFLUENCE LINE OF PAVEMENT OR STRUCTURES.

EROSION CONTROL STANDARDS

- 1. ALL EROSION AND SEDIMENT CONTROL WORK SHALL CONFORM TO STANDARDS AND SPECIFICATIONS OF THE JURISDICTIONAL AGENCY UNDER PART 91 OF ACT 451 OF 1994. AS AMENDED.
- 2. UNDER "MICHIGAN'S PERMIT-BY-RULE FOR CONSTRUCTION ACTIVITIES",
 PROMULGATED UNDER ACT 245, PUBLIC ACTS OF 1929 AS AMENDED, AN NPDES
 STORM WATER DISCHARGE COVERAGE PERMIT IS REQUIRED FOR ANY CONSTRUCTION
 ACTIVITY THAT DISTURBS 1 ACRES OR MORE OF LAND. A CERTIFIED STORM
 WATER OPERATOR IS REQUIRED FOR THE SUPERVISION AND INSPECTION OF THE
 SOIL EROSION CONTROL MEASURES AT THE CONSTRUCTION SITE IN ACCORDANCE
 WITH THE PROVISIONS OF THESE RULES.
- 3. DAILY INSPECTIONS SHALL BE MADE BY CONTRACTOR WHILE WORKING TO DETERMINE THE EFFECTIVENESS OF EROSION AND SEDIMENT CONTROL MEASURES. ANY NECESSARY REPAIRS SHALL BE PERFORMED WITHOUT DELAY. ALL SOIL EROSION CONTROL PROVISIONS SHALL BE PROPERLY MAINTAINED DURING CONSTRUCTION
- 4. EROSION AND ANY SEDIMENTATION FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT ON ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE BOTH NATURAL AND MAN-MADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES, AND PONDS.
- 5. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES WHEN REQUIRED AND AS DIRECTED ON THESE PLANS. CONTRACTOR SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES, AND OTHER EARTH CHANGE AREAS HAVE BEEN COMPLETED.

EROSION CONTROL STANDARDS CONTINUED

- 6. STAGING THE WORK WILL BE DONE BY THE CONTRACTOR AS DIRECTED IN THESE PLANS AND AS REQUIRED TO ENSURE PROGRESSIVE STABILIZATION OF DISTURBED
- 7. SOIL EROSION CONTROL PRACTICES WILL BE ESTABLISHED IN EARLY STAGES OF CONSTRUCTION BY THE CONTRACTOR. SEDIMENT CONTROL PRACTICES WILL BE APPLIED AS A PERIMETER DEFENSE AGAINST ANY TRANSPORTING OF SILT OFF THE
- 8. DUST SHALL BE CONTROLLED BY WATERING OR BY OTHER APPROVED MEANS THROUGHOUT ALL CONSTRUCTION OPERATIONS.
- 9. ALL WATER FROM DEWATERING OR SURFACE DRAINAGE FROM THE CONSTRUCTION SITE SHALL BE CONTROLLED TO ELIMINATE SEDIMENT CONTAMINATION OF OFF—SITE WATERWAYS OR STORM SEWERS. SUCH MEASURES SHALL BE APPROVED BY THE ENGINEER PRIOR TO ANY DEWATERING OR LAND DISTURBANCE.
- 10. PERMANENT SOIL EROSION CONTROL MEASURES FOR SLOPES, CHANNELS, DITCHES OR ANY DISTURBED LAND AREA SHALL BE COMPLETED WITHIN 5 CALENDAR DAYS AFTER FINAL GRADING OR THE FINAL EARTH CHANGE HAS BEEN COMPLETED. WHEN IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA AFTER AN EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE HAS BEEN COMPLETED OR WHERE SIGNIFICANT EARTH CHANGE ACTIVITY CEASES, TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED WITHIN 5 CALENDAR DAYS. ALL TEMPORARY SOIL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL PERMANENT SOIL EROSION CONTROL MEASURES ARE IMPLEMENTED AND ESTABLISHED BEFORE A CERTIFICATE OF COMPLIANCE IS

STORM SEWER SPECIFICATIONS

- . THESE SPECIFICATIONS SHALL BE USED IN CONJUNCTION WITH THE GENERAL SPECIFICATIONS AND THE SPECIFICATIONS AND DETAIL SHEETS OF THE GOVERNING AGENCIES. IF ANY CONFLICT IS FOUND BETWEEN THE SPECIFICATIONS, THE STRICTER SPECIFICATIONS SHALL BE FOLLOWED.
- 2. CONTRACTOR SHALL FURNISH CERTIFIED EVIDENCE THAT ALL MATERIAL TESTS AND INSPECTIONS HAVE BEEN PERFORMED AND THAT THE PRODUCT HAS BEEN MANUFACTURED IN COMPLIANCE WITH THE APPLICABLE SPECIFICATIONS.
- 3. PROPER IMPLEMENTS, TOOLS AND FACILITIES SHALL BE PROVIDED AND USED FOR UNLOADING AND DISTRIBUTING MATERIALS ALONG THE LINE OF WORK. ANY PIPE OR FITTING DAMAGED IN TRANSPORTATION OR HANDLING SHALL BE REJECTED AND IMMEDIATELY REMOVED FROM THE JOB SITE.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFE STORAGE OF ALL MATERIAL INTENDED FOR THE WORK. HE SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO MATERIALS, EQUIPMENT AND WORK.
- 5. PIPE BEDDING, UNLESS OTHERWISE INDICATED, SHALL BE CL. II SAND, CRUSHED STONE OR ROUNDED GRAVEL. BEDDING MATERIAL SHALL HAVE 95% PASSING A 3/4" SIEVE AND AT LEAST 50% RETAINED ON A NO. 4 SIEVE.
- 6. POROUS FILTER MATERIAL FOR PERFORATED SUBSURFACE DRAINS SHALL BE CRUSHED ROCK OR GRAVEL GRADED BETWEEN 1-1/2" AND 3/4" OR PER PLANS
- BACKFILL, UNLESS OTHERWISE NOTED, SHALL BE COARSE SAND, FINE GRAVEL OR EARTH HAVING A LOW PLASTICITY INDEX, FREE OF ROCKS, DEBRIS AND OTHER FOREIGN MATERIALS AND DEFINED AS ALL PASSING THROUGH A 3/8" SIEVE AND NOT MORE THAN 10% BY VOLUME PASSING THROUGH A 200—MESH SIEVE.
- 3.

 ON THE DRAWINGS AND SHALL CONFORM TO THE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL CONFORM TO THE FOLLOWING:
 - A. POLYVINYL CHLORIDE (PVC) AND ACRYLONITRILE BUTADIENE STYRENE (ABS) FOR PIPE UP TO AND INCLUDING 10" IN DIAMETER, SHALL CONFORM TO ASTM D3034, SDR 23.5 FOR PVC PIPE AND ASTM D2751 FOR ABS PIPE WITH ELASTOMETRIC GASKET JOINTS CONFORMING TO ASTM D3212 OR CHEMICALLY WELDED PIPE JOINTS CONFORMING TO ASTM F545.
- B. REINFORCED CONCRETE PIPE, FOR PIPE 12" IN DIAMETER AND UP, SHALL CONFORM TO ASTM C-76, CLASS IV UNLESS MODIFIED BY THE DRAWINGS. JOINTS SHALL BE MODIFIED GROOVED TONGUE WITH RUBBER GASKET CONFORMING TO ASTM C-443.
- C. PERFORATED SUBSURFACE DRAIN PIPE SHALL BE PVC CONFORMING TO ASTM D-2729 OR PERFORATED, CORRUGATED HIGH DENSITY POLYETHYLENE PIPE CONFORMING TO AASHTO M-294. JOINTS FOR PVC AND POLYETHYLENE PIPE SHALL BE PREFABRICATED COUPLING WITH SOLVENT
- MANHOLES, CATCH BASINS, AND INLETS SHALL BE OF THE SIZE AND TYPE
- A. REINFORCED PRE-CAST CONCRETE MANHOLE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C-478-64T.
- B. BRICK SHALL BE SOUND, HARD-BURNED THROUGHOUT AND OF UNIFORM SIZE AND QUALITY AND SHALL BE IN ACCORDANCE WITH AASHTO M 91, GRADE MS
- C. CONCRETE MASONRY SHALL BE SOLID PRE-CAST SEGMENTAL UNITS CONFORMING TO ASTM C-139.
- 10. IRON CASTINGS SHALL CONFORM TO ASTM A-48, CLASS 30. BEARING SURFACES BETWEEN CAST IRON FRAMES, COVERS AND GRATES SHALL BE MACHINED, FITTED TOGETHER AND MATCHED-MARKED TO PREVENT ROCKING. SYSTEM IDENTIFYING LETTERS 2" HIGH SHALL BE STAMPED OR CAST INTO ALL COVERS SO THAT THEY ARE PLAINLY VISIBLE. SEE MUNICIPALITY STANDARDS FOR ACTUAL WORDING.
- 11. CASTINGS SHALL BE MANUFACTURED BY EAST JORDAN IRON WORKS, INC., NEENAH FOUNDRY COMPANY OR EQUAL.
- 12. CONCRETE AND MASONRY MATERIALS FOR CONSTRUCTION OF STORM DRAINAGE STRUCTURES SHALL CONSIST OF THE FOLLOWING:
 - A. PORTLAND CEMENT SHALL BE STANDARD BRAND OF PORTLAND CEMENT CONFORMING TO ASTM C-150, TYPE I OR IA.
 - B. FINE AND COARSE AGGREGATES FOR CONCRETE SHALL BE PER ASTM C-33.C. AGGREGATE FOR CEMENT MORTAR SHALL BE CLEAN, SHARP SAND
 - D. HYDRATED LIME SHALL COMPLY WITH ASTM C-207, TYPE S.

CONFORMING TO ASTM C-144.

- E. WATER SHALL MEET THE REQUIREMENTS OF MDOT SPEC SECTION 911.
- F. REINFORCING STEEL FOR CONCRETE SHALL BE INTERMEDIATE—GRADE NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 40.
- 13. CONCRETE, UNLESS OTHERWISE NOTED, SHALL HAVE COMPRESSIVE STRENGTH AFTER 28 DAYS OF 3000 PSI MINIMUM WITH 3" MAXIMUM SLUMP.
- A. CONCRETE FILL BELOW GRADE MAY BE 2500 PSI AT 28 DAYS.
 - B. CONCRETE WHERE EXPOSED TO THE WEATHER SHALL BE AIR-ENTR
- B. CONCRETE, WHERE EXPOSED TO THE WEATHER, SHALL BE AIR—ENTRAINED. AIR ENTRAINMENT SHALL BE ACCOMPLISHED BY THE USE OF ADDITIVES CONFORMING TO ASTM C-260. AIR CONTENT SHALL BE 6% + 1%. ADDITIVE SHALL BE USED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S PRINTED DIRECTIONS.
- C. READY-MIX CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-94.
- 14. MORTAR SHALL BE SPECIFIED HEREINAFTER. USE METHOD OF MIXING MORTAR AT JOB SO THAT SPECIFIED PROPORTIONS OF MORTAR MATERIALS CAN BE CONTROLLED AND ACCURATELY MAINTAINED DURING WORK PROGRESS. MORTAR SHALL NOT BE MIXED IN GREATER QUANTITIES THAN REQUIRED FOR IMMEDIATE USE, WITH AMOUNT OF WATER CONSISTENT WITH SATISFACTORY WORKABILITY. RE—TAMPERING OF MORTAR IS NOT PERMITTED.
 - A. MORTAR FOR LAYING BRICK OR CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C-270, TYPE M, AVERAGE COMPRESSIVE STRENGTH 2500 PSI MINIMUM AT 28 DAYS. MORTAR MIX SHALL BE PROPORTIONED BY VOLUME.
 - B. MORTAR FOR PLASTERING SHALL CONSIST OF 1 PART PORTLAND CEMENT AND 2-1/2 PARTS SAND.
- C. MORTAR FOR GROUTING OF RIP—RAP SHALL CONSIST OF 1 PART PORTLAND CEMENT AND 3—1/2 PARTS SAND.
- 15. PERFORM ALL EXCAVATING AND TRENCHING TO DIMENSIONS AND ELEVATIONS INDICATED ON DRAWINGS.

STORM SEWER SPECIFICATIONS, CONTINUED

- 16. OPEN NO MORE TRENCH IN ADVANCE OF PIPE LAYING THAN IS NECESSARY TO
- 17. CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED ON DRAWINGS. WHERE EXCESSIVE OR UNAUTHORIZED EXCAVATION TAKES PLACE, THE OVERDEPTH SHALL BE BACKFILLED TO THE PROPER GRADE WITH COMPACTED BEDDING MATERIAL, AT NO EXPENSE TO THE OWNER.
- 18. WHERE UNSTABLE SOIL IS ENCOUNTERED, CONTRACTOR SHALL NOT PLACE PIPE
- 19. EXCAVATION FOR DRAINAGE STRUCTURES SHALL EXTEND A SUFFICIENT DISTANCE FROM THE WALLS AND FOOTINGS TO ALLOWS FOR FORMS, CONSTRUCTION OF WALLS, CONNECTIONS AND FOR INSPECTION.
- 20. PROVIDE REQUIRED TIMBER SHEETING, BRACING AND SHORING TO PROTECT SIDES OF EXCAVATION. DO NOT BRACE SHEETING AGAINST PIPE. PROVIDE SUITABLE LADDERS FOR SAFE ENTRY TO AND EXIT FROM EXCAVATION.
- 21. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE PILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF TRENCHES TO AVOID OVERLOADING, AND TO PREVENT SLIDES OR CAVE—INS.
- 22. WHEN WET EXCAVATION IS ENCOUNTERED, THE TRENCH SHALL BE DE-WATERED UNTIL THE PIPE HAS BEEN LAID AND BACKFILLED TO A POINT AT LEAST 1 FOOT
- MASONRY UNITS OR PRE—CAST CONCRETE WITH CAST IRON FRAMES, COVERS AND MANHOLE STEPS.

 24. THE WALL THICKNESS OF MANHOLES AND CATCH BASINS CONSTRUCTED OF

VARIOUS MATERIALS AND SET AT VARIOUS DEPTHS SHALL MEET THESE MINIMUMS.

ADHERE TO REQUIREMENTS OF THE GOVERNING AGENCY IF THEY EXCEED THESE

23. MANHOLES AND CATCH BASINS SHALL BE CONSTRUCTED OF BRICK, CONCRETE

•	<u>DEPTH</u>	BRICK	CONCRETE BLOCK	PRE-CAST CONCRETE
•	0' - 10'	8" 12"	6" 8"	6" 8"
•	10' – 16' 16' – 25'	12 16"	8 12 "	6 12"

ABOVE TOP OF PIPE.

THICKNESSES:

- 25. WHENEVER EXISTING MANHOLES OR SEWER PIPE ARE TO BE TAPPED, DRILL HOLES 4" CENTER, TO CENTER, AROUND THE PERIPHERY OF OPENINGS TO CREATE A PLANE OF WEAKNESS JOINT BEFORE BREAKING SECTION OUT.
- 26. MANHOLE STEPS SHALL BE BUILT INTO AND THOROUGHLY ANCHORED TO WALLS.
 STEPS SHALL BE FACTORY INSTALLED IN PRE-CAST STRUCTURES.
- 27. ALL PIPING ENTERING OR LEAVING DRAINAGE STRUCTURES SHALL BE ADEQUATELY SUPPORTED BY POURED IN—PLACE CONCRETE FILL FROM PIPE CENTER TO UNDISTURBED GROUND.
- 28. SET FRAMES IN FULL BED OF STIFF MORTAR OR BITUMINOUS MASTIC JOINTING COMPOUND AT FINAL ELEVATION.
- 29. ALL TIMBER SHEETING BELOW A PLANE 12" ABOVE TOP OF PIPE SHALL REMAIN IN PLACE IN ORDER NOT TO DISTURB PIPE GRADING. BEFORE BACKFILLING, REMOVE ALL OTHER SHEETING BRACING AND SHORING.
- 30. BEDDING USED FOR TRENCH BOTTOM SHALL BE EXTENDED UP THE SIDES AND CAREFULLY PLACED AROUND AND OVER PIPE IN 6" MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS PER ASTM D-1557 (MODIFIED PROCTOR) UNTIL 12" OF COVER FXISTS OVER PIPE.
- 31. REMAINDER OF TRENCH SHALL BE BACKFILLED WITH SPECIFIED BACKFILL MATERIAL TO SPECIFIED SUBGRADE ELEVATION. BACKFILLING SHALL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY PER ASTM D-1557.
- 32. WITHIN 3' OF THE 45' INFLUENCE LINE OF THE SUBGRADE OF STREETS, DRIVES, PARKING LOTS AND OTHER AREAS TO HAVE OR HAVING IMPROVED HARD SURFACES, BACKFILL SHALL BE MATERIAL SPECIFIED AND SHALL BE DEPOSITED IN 6" LOOSE LAYERS AT OPTIMUM MOISTURE CONTENT (±2%) COMPACTED TO 95% OF MAXIMUM DRY DENSITY PER ASTM D1557. (MODIFIED PROCTOR) SUITABLE MATERIALS FOUND ON SITE MAY BE USED.
- 33. BEFORE BACKFILLING AROUND DRAINAGE STRUCTURES, ALL FORMS, TRASH AND DEBRIS SHALL BE REMOVED AND CLEARED AWAY. SELECTED EXCAVATED MATERIAL SHALL BE PLACED SYMMETRICALLY ON ALL SIDES IN 8" MAXIMUM LAYERS; EACH LAYER SHALL BE MOISTENED AND COMPACTED WITH MECHANICAL OR HAND TAMPERS.
- 34. AFTER INSTALLATION OF PIPES AND DRAINAGE STRUCTURES, CLEAN THEM, AND ADJUST TOPS TO FINISH GRADE. PIPE SHALL BE STRAIGHT BETWEEN STRUCTURES, WITH THE FULL INSIDE DIAMETER VISIBLE WHEN SIGHTING BETWEEN STRUCTURES.
- SHALL BE FITTED WITH A #4 ROUND MINIMUM WELDED STEEL ROD GRATING. RODS SHALL BE SPACED 6" O.C. MAXIMUM. WELD ROD AT ALL INTERSECTIONS. GRATE SHALL BE REMOVABLE FOR ACCESS AND CLEANING.

 36. RIP—RAP SHALL BE LAID FROM THE BOTTOM UPWARD; STONES SHALL BE LAID BY

35. ENDS OF HEADWALL AND END SECTIONS FOR PIPES LARGER THAN 6 INCHES.

- HAND WITH 8" MINIMUM DIMENSION PERPENDICULAR TO GRADE WITH WELL—BROKEN JOINTS, COMPACTED AS IT GOES, TRUE TO LINE. ALL JOINTS SHALL BE FILLED WITH CEMENT MORTAR. SURFACE STONE TO BE EXPOSED. CLEAN JOINTS WITH WIRE BRUSH.
- 37. THE CONTRACTOR SHALL DO ALL REQUIRED EXCAVATION AND TRENCHING WORK AND THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPLETION OF THE WORK HEREIN REGARDLESS OF THE NATURE OF MATERIALS ENCOUNTERED DURING THE COURSE OF THE WORK. THE OWNER WILL NOT BE LIABLE FOR ANY COSTS WHATSOEVER ASSOCIATED WITH, BUT NOT LIMITED TO, THE PRESENCE OF ROCK, PEAT, SUBTERRANEAN STREAMS, EXCESSIVE WATER OR OTHER DIFFICULT OR UNANTICIPATED SUB-SURFACE PHENOMENA.
- 38. ALL CONNECTIONS TO EXISTING SEWERS SHALL BE PER MUNICIPAL REQUREMENTS, AND ALL COSTS INCLUDING TESTING AND/OR VIDEO OF SEWERS SHALL BE

WATER MAIN SPECIFICATIONS

INCIDENTAL TO THE JOB.

- 1. WATER MAIN SPECIFICATIONS SHALL BE USED IN CONJUNCTION WITH THE GENERAL SPECIFICATIONS, THE WATER MAIN SPECIFICATIONS, AND THE DETAIL SHEETS OF THE GOVERNING AGENCIES. IF ANY CONFLICT IS FOUND BETWEEN THE SPECIFICATIONS, THE STRICTER SPECIFICATIONS SHALL BE FOLLOWED.
- 2. DUCTILE IRON PIPE, 16" DIAMETER AND SMALLER, SHALL CONFORM TO ANSI/AWWA SPECIFICATION C151/A21.51, CLASS 54. DUCTILE IRON FITTINGS SHALL CONFORM TO ANSI/AWWA SPECIFICATION C110/A21.10 FOR STANDARD FITTINGS OR TO ANSI/AWWA SPECIFICATION C153/A21.53 FOR COMPACT FITTINGS. DUCTILE IRON PIPE AND FITTINGS SHALL HAVE A DOUBLE THICKNESS CEMENT MORTAR LINING CONFORMING TO ANSI SPECIFICATION A21.4.
- 3. JOINTS FOR DUCTILE IRON WATER MAIN SHALL BE U.S. PIPE AND FOUNDRY COMPANY "TYTON JOINT" OR APPROVED EQUAL.
- 4. POLYVINYL CHLORIDE (PVC) WATER MAIN SHALL CONFORM TO AWWA C900 FOR PIPE SIZES 4 TO 12 INCHES, AND SHALL CONFORM TO AWWA C905 FOR PIPE SIZES 14 TO 24 INCHES. ALL PIPES SHALL HAVE A MINIMUM DIMENSION RATIO OF (DR) OF 18 CORRESPONDING TO A WORKING PRESSURE OF 235 PSI FOR PVC TYPE 1120 PIPE.
- 4.1. RESTRAINTS FOR PVC PIPE SHALL BE EBA IRON SERIES 200PV, UNIFLANGE SERIES 1350C, 1390C, 1500 OR APPROVED EQUAL.
 4.2. SERVICES SHALL BE INSTALLED WITH ALL STAINLESS STEEL SADDLES SUCH AS SMITH—BLAIR 372, FORD FS303, CASCADE CS22, OR APPROVED EQUAL.
 4.3. ALL PVC PIPE USED FOR POTABLE WATER SHALL BE BLUE IN COLOR,
- MANUFACTURED WITHIN THE LAST 12 MONTHS AS DETERMINED FROM THE DATE STAMP ON THE PIPE, AND FREE FROM DEFECTS.

 4.4. ALL PIPES SHALL BE MARKED WITH THE MANUFACTURER'S NAME, DATE, NOMINAL SIZE, TYPE OF PLASTIC AND PRESSURE RATING. PIPE O.D. SHALL BE EQUIVALENT TO DUCTILE IRON PIPE OF THE SAME NOMINAL SIZE.

4.5. FITTING SHALL CONFORM TO AWWA C907 AND C908, UNLESS OTHERWISE

5. ALL WATER MAIN SHALL BE INSTALLED WITH A MINIMUM COVER OF FIVE FEET, OR AS SPECIFIED BY THE LOCAL GOVERNING MUNICIPALITY, BELOW FINISH GRADE UNLESS OTHERWISE NOTED IN THE PLANS. WHEN WATER MAINS MUST DIP TO PASS UNDER A STORM SEWER OR SANITARY SEWER, THE SECTIONS WHICH ARE DEEPER THAN NORMAL SHALL BE KEPT TO A MINIMUM LENGTH BY THE USE OF VERTICAL 11–1/4 BENDS PROPERLY ANCHORED.

APPROVED BY THE ENGINEER.

- 6. SEE THE WATER MAIN STANDARD DETAIL SHEETS OF THE GOVERNING AGENCY FOR THE SPECIFIC TYPE OF HYDRANTS AND VALVES TO BE USED FOR THIS PROJECT. THESE DETAIL SHEETS ARE INCLUDED AS PART OF THE PLANS.
- PRIOR TO HYDROSTATIC TESTING AND BEFORE PLACING THE WATER MAIN IN SERVICE, ALL NEW WATER PIPELINES SHALL BE CHLORINATED IN ACCORDANCE WITH AWWA C651. VERIFICATION OF DISINFECTION SHALL BE PERFORMED BY A CERTIFIED TESTING LABORATORY.

WATER MAIN SPECIFICATIONS, CONTINUED

MAIN STANDARD DETAIL SHEETS.

- 8. BEFORE ANY WATER MAIN WILL BE ACCEPTED BY THE GOVERNING AGENCY, IT MUST PASS A HYDROSTATIC PRESSURE TEST IN ACCORDANCE WITH AWWA C605 AND COMPLYING WITH THE CURRENT SPECIFICATIONS AND PROCEDURES OF THE AGENCY.
- 9. PRIOR TO BEING PLACED INTO SERVICE, WATER MAIN SHALL BE FLUSHED OF CHLORINATED WATER AND FILLED WITH WATER FROM THE DISTRIBUTION SYSTEM. CHLORINATED WATER SHALL BE PUMPED INTO THE SANITARY SEWER. NO CHLORINATED WATER SHALL BE ALLOWED IN THE STORM SEWER OR DISCHARGED
- TO SURFACE WATERS.

 10. BEFORE ANY WATER MAIN SYSTEM WILL BE ACCEPTED BY THE GOVERNING AGENCY, THE FIRE HYDRANTS MUST BE PAINTED AS INDICATED ON THE WATER
- 11. TWO INCH (2") DIAMETER CORPORATION STOPS SHALL BE PROVIDED IN BOTH THE EXISTING WATER MAIN AND THE NEW WATER MAIN AT ALL NEW CONNECTIONS.
- 12. ALL TEES, BENDS CONNECTIONS, ETC. ARE INCIDENTAL TO THE JOB.
- 13. PHYSICAL CONNECTIONS SHALL NOT BE MADE BETWEEN EXISTING AND NEW WATERMAINS UNTIL TESTING IS SATISFACTORILY COMPLETED.
- 14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFE STORAGE OF ALL MATERIAL INTENDED FOR THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO MATERIALS EQUIPMENT AND WORK.
- 15. PIPE BEDDING, UNLESS OTHERWISE INDICATED, SHALL BE CRUSHED STONE OR ROUNDED GRAVEL. BEDDING MATERIAL SHALL HAVE 95% PASSING A 3/4" SIEVE AND 50% RETAINED ON A NO. 4 SIEVE; LOAD FACTOR SHALL BE 1.9.
- 16. BACKFILL, UNLESS OTHERWISE NOTED, SHALL BE COARSE SAND, FINE GRAVEL OR EARTH HAVING A LOW PLASTICITY INDEX, FREE OF ROCKS, DEBRIS AND OTHER FOREIGN MATERIALS AND DEFINED AS ALL PASSING THROUGH A 3/8" SIEVE AND NOT MORE THAN TEN PERCENT (10%) BY VOLUME PASSING THROUGH A 200 MESH
- 17. GATE WELLS SHALL BE REINFORCED PRE—CAST CONCRETE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C—478.
- 18. THRUST BLOCKS, IF REQUIRED BY THE MUNICIPALITY, SHALL BE MADE OF 3000
- PSI CONCRETE WET MIX

 19. THE MAXIMUM WIDTH OF TRENCH TO TOP OF PIPE SHALL BE AS FOLLOWS:

•	PIPE DIAMETER	TRENCH WIDTH
•	THROUGH 12"	36 "
•	15" THROUGH 36"	O.D. PLUS 24"
•	42" THROUGH 60"	O.D. PLUS 30"
•	66" AND LARGER	O.D. PLUS 36"

- 20. OPEN NO MORE TRENCH IN ADVANCE OF PIPE LAYING THAN IS NECESSARY TO
- 21. CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED ON DRAWINGS. WHERE EXCESSIVE OR UNAUTHORIZED EXCAVATION TAKES PLACE, THE OVERDEPTH SHALL BE BACKFILLED AT THE PROPER GRADE WITH COMPACTED BEDDING MATERIAL. AT NO EXPENSE TO THE OWNER.
- 22. PROVIDE REQUIRED TIMBER SHEETING, BRACING AND SHORING TO PROTECT SIDES OF EXCAVATION. DO NOT BRACE SHEETING AGAINST PIPE. PROVIDE SUITABLE LADDERS FOR SAFE ENTRY TO AND EXIT FROM EXCAVATION.
- 23. WHERE UNSTABLE SOIL IS ENCOUNTERED, CONTRACTOR SHALL NOT PLACE PIPE UNTIL A SOLID BED HAS BEEN PROVIDED.
- 24. EXCAVATION FOR STRUCTURES SHALL EXTEND A SUFFICIENT DISTANCE FROM THE WALLS AND FOOTINGS TO ALLOW FOR FORMS, CONSTRUCTION OF WALLS, CONNECTIONS AND FOR INSPECTION.

25. GATE WELLS SHALL BE CONSTRUCTED OF BRICK, CONCRETE MASONRY UNITS OR

- PRE—CAST CONCRETE WITH CAST IRON FRAMES, COVERS AND MANHOLE STEPS, AS INDICATED ON DRAWINGS AND SPECIFIED HEREIN.

 A. COMPLETELY FILL JOINTS ON PRE—CAST CONCRETE SECTIONS WITH
- BITUMINOUS MASTIC JOINTING COMPOUND OR JOINTS SHALL BE MADE WITH CEMENT MORTAR WITH INSIDE POINTING AND OUTSIDE RUBBER WRAP.

 B. BRICK SHALL BE WET WHEN LAID. LAY BRICK OR CONCRETE MASONRY UNITS IN MORTAR SO AS TO FORM FULL BED, WITH END AND SIDE JOINTS IN ONE OPERATION, WITH JOINTS NOT MORE THAN 3/8" WIDE EXCEPT WHEN BRICKS OR CONCRETE MASONRY UNITS ARE LAID RADIALLY, IN WHICH CASE THE NARROWEST PART OF JOINT SHALL NOT EXCEED 1/4". LAY IN TRUE
- LINE AND, WHENEVER PRACTICAL, JOINTS SHALL BE CAREFULLY STRUCK AND POINTED ON INSIDE.

 C. PROTECT FRESH BRICK WORK FROM FREEZING, FROM DRYING EFFECTS OF SUN AND WIND, AND FOR SUCH TIME AS DIRECTED BY THE GEOTECHNICAL

ENGINEER. IN FREEZING WEATHER, HEAT SUFFICIENTLY TO REMOVE ICE AND

- FROST FROM BRICK WORK.
- 26. GATE WELL STEPS SHALL BE BUILT INTO AND THOROUGHLY ANCHORED TO WALLS.
 27. ALL PIPING ENTERING OR LEAVING GATE WELLS SHALL BE ADEQUATELY SUPPORTED BY POURED—IN—PLACE CONCRETE FILL FROM PIPE CENTER TO UNDISTURBED GROUND.
- 28. THE OUTSIDE SURFACES OF BRICK OR CONCRETE MASONRY PORTION OF GATE WELLS SHALL BE PLASTERED AND TROWELED SMOOTH WITH 1/2" LAYERS OF
- CEMENT MORTAR.

 29. SET FRAMES IN FULL BED OF STIFF MORTAR OR BITUMINOUS MASTIC JOINTING
- COMPOUND AT FINAL ELEVATION.

 30. IF REQUIRED BY THE MUNICIPALITY, PLACE HORIZONTAL AND/OR VERTICAL THRUST BLOCKS AT ALL PLUGS, CAPS, TEES AND FITTINGS. THE COST OF THRUST BLOCKS SHALL BE INCLUDED IN THE PRICE BID PER FOOT FOR WATER MAIN. THRUST BLOCKS SHALL NOT BE BACKFILLED PRIOR TO OBSERVATION BY THE CONTROLLING GOVERNMENTAL AGENCY. IF THRUST BLOCKS ARE NOT
- 31. IN UNSTABLE SOIL CONDITIONS, THRUST BLOCKS SHALL BE SUPPORTED BY PILING DRIVEN TO SOLID FOUNDATIONS OR BY REMOVAL OF THE UNSTABLE SOILS AND REPLACEMENT WITH BALLAST OF SUFFICIENT STABILITY TO RESIST THE THRUSTS. THE COST OF PILING OR BALLAST AT THRUST BLOCKS SHALL BE INCLUDED IN THE PRICE BID FOR WATER MAIN.

UTILIZED, ALL FITTINGS SHALL HAVE RESTRAINED JOINTS PER THE MANUFACTURER

- 32. PLACE ALL CONCRETE ANCHORAGES AND ENCASEMENTS, AS CALLED FOR ON THE DRAWINGS. THE COST OF RESTRAINED JOINTS OR ANCHORAGE AND ENCASEMENTS SHALL BE INCLUDED IN THE PRICE BID FOR WATER MAIN.
- 33. BEDDING USED FOR TRENCH BOTTOM SHALL BE EXTENDED UP THE SIDES AND CAREFULLY PLACED AROUND AND OVER PIPE IN 6" MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS PER ASTM D-1557(MODIFIED PROCTOR) UNTIL 12" OF COVER EXISTS OVER PIPE.
- 34. REMAINDER OF TRENCH SHALL BE BACKFILLED WITH SPECIFIED BACKFILL MATERIAL TO SPECIFIED SUBGRADE ELEVATION. BACKFILLING SHALL BE COMPACTED TO 90% OF MAXIMUM DRY DENSITY PER ASTM D-1557.
- 35. WITHIN 3' OF THE 45' INFLUENCE LINE OF THE SUBGRADE OF STREETS, DRIVES, PARKING LOTS AND OTHER AREAS PAVED, OR AREAS PROPOSED TO BE PAVED, PLACE SAND BACKFILL IN 6" LOOSE LAYERS AT OPTIMUM MOISTURE CONTENT (±2%) AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR).
- 36. BEFORE BACKFILLING AROUND STRUCTURES, ALL FORMS, TRASH AND DEBRIS SHALL BE REMOVED AND CLEARED AWAY. SELECTED EXCAVATED MATERIAL SHALL BE PLACED SYMMETRICALLY ON ALL SIDES IN 8" MAXIMUM LAYERS; EACH LAYER SHALL BE MOISTENED AND COMPACTED WITH MECHANICAL OR HAND TAMPERS

37. THE CONTRACTOR SHALL DO ALL REQUIRED EXCAVATION AND TRENCHING WORK

AND THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPLETION OF THE WORKS HEREIN REGARDLESS OF THE NATURE OF MATERIALS ENCOUNTERED DURING THE COURSE OF THE WORK. THE OWNER WILL NOT BE LIABLE FOR ANY COSTS WHATSOEVER ASSOCIATED WITH, BUT NOT LIMITED TO, THE PRESENCE OF ROCK, PEAT, SUBTERRANEAN STREAMS, EXCESSIVE WATER OR OTHER DIFFICULT OR UNANTICIPATED SUB—SURFACE PHENOMENA.

SANITARY SEWER SPECIFICATIONS

- 1. THESE SPECIFICATIONS SHALL BE USED IN CONJUNCTION WITH THE GENERAL SPECIFICATIONS AND THE SANITARY SEWER SPECIFICATIONS AND DETAIL SHEETS OF THE GOVERNING AGENCIES. IF ANY CONFLICT IS FOUND BETWEEN THE SPECIFICATIONS. THE STRICTER SPECIFICATIONS WILL BE FOLLOWED.
- 2. THE GOVERNING AGENCY WILL INSPECT THE INSTALLATION OF ALL SANITARY SEWER PIPING.
- PROPER IMPLEMENTS, TOOLS AND FACILITIES SHALL BE PROVIDED AND USED FOR UNLOADING AND DISTRIBUTING MATERIALS ALONG THE LINE OF WORK. ANY PIPE OR FITTING DAMAGED IN TRANSPORTATION OR HANDLING SHALL BE REJECTED AND IMMEDIATELY REMOVED FROM THE JOB SITE.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFE STORAGE OF ALL MATERIAL INTENDED FOR THE WORK. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT DAMAGE TO MATERIALS, EQUIPMENT AND
- 5. THE CONTRACTOR SHALL DO ALL REQUIRED EXCAVATION AND TRENCHING WORK AND THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPLETION OF THE WORKS HEREIN REGARDLESS OF THE NATURE OF MATERIALS ENCOUNTERED DURING THE COURSE OF THE WORK. THE OWNER WILL NOT BE LIABLE FOR ANY COSTS WHATSOEVER ASSOCIATED WITH, BUT NOT LIMITED TO, THE PRESENCE OF ROCK, PEAT, SUBTERRANEAN STREAMS, EXCESSIVE WATER OR OTHER DIFFICULT OR UNANTICIPATED SUB—SURFACE
- 6. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE AND SCHEDULE THE SANITARY SEWER INSTALLATION WITH THE GRADING, EXCAVATION AND OTHER SITE UTILITY SUBCONTRACTORS AND THE OWNERS REPRESENTATIVE SO AS TO PROVIDE FOR A SMOOTH AND ORDERLY PROGRESSION OF THE WORK.
- SANITARY SEWER PIPING AND FITTINGS SHALL BE OF THE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL CONFORM TO THE REQUIREMENTS OF THE GOVERNING AGENCY.
- 8. REINFORCED PRE—CAST CONCRETE MANHOLE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C-478 OR AASHTO M-199.
- 9. OPEN NO MORE TRENCH IN ADVANCE OF PIPE LAYING THAN IS NECESSARY TO EXPEDITE THE WORK.
 10. CARE SHALL BE TAKEN NOT TO EXCAVATE BELOW THE DEPTHS INDICATED ON DRAWINGS. WHERE EXCESSIVE OR UNAUTHORIZED EXCAVATION TAKES PLACE,
- COMPACTED BEDDING MATERIAL, AT NO EXPENSE TO THE OWNER.

 11. PROVIDE REQUIRED TIMBER SHEETING, BRACING AND SHORING TO PROTECT SIDES OF EXCAVATION. DO NOT BRACE SHEETING AGAINST PIPE. PROVIDE

THE OVERDEPTH SHALL BE BACKFILLED AT THE PROPER GRADE WITH

- STAGING AND SUITABLE LADDERS WHERE REQUIRED.

 12. DURING EXCAVATION, MATERIAL SUITABLE FOR BACKFILLING SHALL BE PILED IN AN ORDERLY MANNER A SUFFICIENT DISTANCE FROM THE BANKS OF TRENCHES
- TO AVOID OVERLOADING, AND TO PREVENT CAVE—INS.

 13. WHEN WET EXCAVATION IS ENCOUNTERED, THE TRENCH SHALL BE DE—WATERED UNTIL THE PIPE HAS BEEN LAID AND BACKFILLED TO A POINT AT LEAST 1 FOOT ABOVE TOP OF PIPE.
- 14. SANITARY SEWER CROSSINGS SHALL BE MADE WITH 18" OF VERTICAL CLEARANCE FROM ANOTHER UTILITY AND SHALL BE MADE WITHOUT PLACING POINT LOADS ON EITHER PIPE. CONSTRUCT SADDLES, OR PLACE PROTECTIVE CONCRETE CAP TO PREVENT DAMAGE.

15. ALL CONNECTION BRANCHES IN THE SEWER PIPE SHALL BE SECURELY AND

COMPLETELY FASTENED TO, OR FORMED IN, THE WALL OF THE PIPE DURING

THE COURSE OF MANUFACTURE. ALL PIPE CONTAINING SUCH CONNECTION

- BRANCHES SHALL BE INSTALLED WITH THE MAIN SEWER. THE PROPOSED LOCATION OF THE WYE SHALL BE PER PLAN OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- OR AS DIRECTED BY OWNER OR OWNER'S REPRESENTATIVE.

 17. EACH RISER AND/OR SERVICE LEAD SHALL BE MARKED WITH A 2 INCH X 2 INCH X 8 FOOT LONG HARDWOOD MARKER, PLACED VERTICALLY AT THE END

16. SERVICE LEADS SHALL TERMINATE (WITH AN APPROVED STOPPER) PER PLANS

- 18. DOWNSPOUTS, WEEP TILE, FOOTING DRAINS, OR ANY CONDUIT, THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO A
- 19. ANY CONNECTION TO AN EXISTING SANITARY SEWER MANHOLE SHALL BE MADE IN STRICT CONFORMANCE WITH THE PLANS AND SPECIFICATIONS, WITH ALL WORK BEING DONE IN A WORKMANLIKE MANNER. THIS WORK SHALL INCLUDE THE CONSTRUCTION OF A PROPER CHANNEL IN THE EXISTING MANHOLE AT WHICH THE CONNECTION IS TO BE MADE, TO DIRECT THE FLOW OF INCOMING FLUIDS TO THE EXISTING OUTLET IN A MANNER WHICH WILL TEND TO CREATE THE LEAST AMOUNT OF TURBULENCE. ANY PORTION OF THE EXISTING STRUCTURE WHICH WOULD INTERFERE WITH SUCH CONSTRUCTION SHALL BE REMOVED. THE COST OF ALL CONNECTIONS, INCLUDING ALL TESTING AND/OR TELEVISING REQUIRED BY THE LOCAL MUNICIPALITY. SHALL BE INCLUDED IN THE

CONTRACT PRICE FOR THE MAIN SEWER UNLESS OTHERWISE PROVIDED IN THE

- 20. WHEN CONNECTIONS ARE MADE WITH SEWERS OR DRAINS CARRYING FLUIDS, SPECIAL CARE MUST BE TAKEN THAT NO PART OF THE WORK IS BUILT UNDER WATER. A FLUME OR DAM MUST BE INSTALLED AND PUMPING MAINTAINED, IF NECESSARY, AND THE NEW WORK KEPT DRY UNTIL COMPLETED AND ANY
- CONCRETE OR MORTAR HAS SET.

 21. ALL TIMBER SHEETING BELOW A PLANE 12" ABOVE TOP OF PIPE SHALL REMAIN IN PLACE IN ORDER NOT TO DISTURB PIPE GRADING. BEFORE BACKFILLING,
- REMOVE ALL OTHER SHEETING, BRACING AND SHORING.

 22. BEDDING USED FOR TRENCH BOTTOM SHALL BE EXTENDED UP THE SIDES AND CAREFULLY PLACED AROUND AND OVER PIPE IN 6" MAXIMUM LAYERS. EACH LAYER SHALL BE THOROUGHLY AND CAREFULLY COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS PER ASTM D—1557 (MODIFIED PROCTOR) UNTIL 12"
- OF COVER EXISTS OVER PIPE.

 23. REMAINDER OF TRENCH SHALL BE BACKFILLED WITH SPECIFIED BACKFILL MATERIAL AS APPROVED BY THE GEOTECHNICAL ENGINEER TO SPECIFIED SUBGRADE ELEVATION. BACKFILLING SHALL BE COMPACTED TO 90% OF

MAXIMUM DRY DENSITY PER ASTM D-1557.

- 24. WITHIN 3' OF THE 45' INFLUENCE LINE OF THE SUBGRADE OF STREETS, DRIVES, PARKING LOTS AND OTHER AREAS TO HAVE OR HAVING IMPROVED HARD SURFACES, BACKFILL SHALL BE MATERIAL SPECIFIED AND SHALL BE DEPOSITED IN 6" LOOSE LAYERS AT OPTIMUM MOISTURE CONTENT (±2%) AND COMPACTED TO 95% OF MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR). SUITABLE MATERIALS FOUND ON SITE MAY BE USED IF APPROVED BY THE GEOTECHNICAL ENGINEER AND OWNER'S REPRESENTATIVE. WHERE SERVICE OR UTILITY LINES CROSS PAVEMENT OR SIDEWALK, BEDDING SHALL BE CARRIED TO 3 FEET BEHIND THE CURB LINE OR 3 FEET BEHIND THE SIDE
- OF SIDEWALK FARTHEST AWAY FROM THE PROPOSED PAVEMENT.

 25. BEFORE BACKFILLING AROUND MANHOLES, ALL FORMS, TRASH AND DEBRIS SHALL BE REMOVED AND CLEARED AWAY. SELECTED EXCAVATED MATERIAL SHALL BE PLACED SYMMETRICALLY ON ALL SIDES IN 8" MAXIMUM LAYERS; EACH LAYER SHALL BE MOISTENED AND COMPACTED WITH MECHANICAL AND
- 26. SANITARY SEWER MANHOLES MUST BE WATER—TIGHT AND SHALL BE PRECAST SECTIONS WITH MODIFIED GROOVED TONGUE JOINTS WITH RUBBER GASKETS, CONFORMING TO ASTM DESIGNATION C478. CAST IRON STEPS SHALL BE CAST INTO THE MANHOLE SECTIONS AT 16" O.C. DURING MANUFACTURE AND AT 45' FROM THE CENTERLINE OF THE SEWER. MANHOLE STEPS SHALL BE NEENAH

R-1980-E, EAST JORDAN IRON WORKS, 8500 OR APPROVED EQUAL.

- 27. WHEN EXISTING REINFORCED CONCRETE MANHOLES OR SEWER PIPES ARE TO BE TAPPED, A HOLE OF THE APPROPRIATE DIAMETER, SHALL BE CORE DRILLED, THROUGH THE WALL OF THE MANHOLE OR SEWER PIPE, TO ACCEPT A RESILIENT CONNECTOR CONFORMING TO ASTM DESIGNATION C-923. RESILIENT CONNECTORS SHALL BE "KOR-N-SEAL" AS MANUFACTURED BY "THE CORE AND SEAL CO." OR APPROVED EQUAL.
- 28. ALL SEWERS SHALL BE SUBJECTED TO INFILTRATION, AIR OR EXFILTRATION TESTS OR A COMBINATION THEREOF IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS, OR PER THE SEWER AUTHORITY'S STANDARDS, PRIOR TO ACCEPTANCE OF THE SYSTEM AND PRIOR TO REMOVAL OF THE BULKHEADS.
 - TESTS. ALL SEWERS OF 24" DIAMETER OR SMALLER, WHERE GROUND WATER LEVEL ABOVE THE TOP OF SEWER IS OVER SEVEN (7) FEET, SHALL BE SUBJECTED TO AN INFILTRATION TEST.

B. ALL SEWERS OF 24" DIAMETER OF LESS. WHERE THE GROUND WATER

LEVEL ABOVE THE TOP OF THE SEWER IS SEVEN (7) FEET OR LESS,

A. ALL SEWERS OVER 24" DIAMETER SHALL BE SUBJECTED TO INFILTRATION

29. NO SANITARY SEWER INSTALLATION OR PORTION THEREOF SHALL HAVE INFILTRATION EXCEEDING 100 GALLONS PER INCH DIAMETER PER MILE OF PIPE PER 24 HOUR PERIOD.

SHALL BE SUBJECT TO AIR TESTS OR EXFILTRATION TESTS.

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SCALE: N/A

FIELD:

DRAWN BY: CD

DESIGN BY: BS

CHECK BY: AP

1/2"

C-120

GRADING AND EARTHWORK **SPECIFICATIONS**

- ALTHOUGH A SUB-SURFACE INVESTIGATION MAY HAVE BEEN MADE BY THE OWNER, THE BIDDER AND ANY SUB-CONTRACTORS SHALL MAKE A PERSONAL INVESTIGATION OF SITE AND EXISTING SURFACE AND SUB-SURFACE CONDITIONS. THE CONTRACTOR IS RESPONSIBLE TO ACQUAINT HIMSELF WITH CONDITIONS OF THE WORK AREA. THE CONTRACTOR IS ADVISED TO DETERMINE THE SUB-SURFACE SOIL CONDITIONS AND GROUND WATER CONDITIONS TO HIS OWN SATISFACTION PRIOR TO BIDDING. NO MODIFICATIONS TO THE UNIT PRICES BID FOR ANY ITEM WILL BE MADE DUE TO VARIABLE SUB-SURFACE CONDITIONS. DEWATERING, I DETERMINED NECESSARY BY THE CONTRACTOR, BY WELL POINTING OR DEEP WELLS WILL BE INCIDENTAL TO THE INSTALLATION COST OF THE ITEM.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING DETERMINED TO HIS SATISFACTION PRIOR TO THE SUBMISSION OF HIS BID THE CONFIRMATION OF THE GROUND. THE CHARACTER AND QUALITY OF THE SUBSTRATA, THE TYPES AND QUANTITIES OF MATERIALS TO BE ENCOUNTERED. THE NATURE OF THE GROUNDWATER CONDITIONS. THE PROSECUTION OF THE WORK, THE GENERAL AND LOCAL CONDITIONS INCLUDING RECENT CLIMATIC CHANGES. THE TIME OF YEAR IN WHICH CONSTRUCTION WILL TAKE PLACE AND ALL OTHER MATTERS WHICH CAN IN ANY WAY AFFECT THE WORK UNDER THIS CONTRACT.
- PRIOR TO COMMENCING THE EXCAVATION THE CONTRACTOR SHALLSUBMIT A PLAN OF HIS PROPOSED OPERATIONS AND TIME SCHEDULE TO THE OWNER & OWNERS REPRESENTATIVE FOR THEIR APPROVAL.
- THE CONTRACTOR SHALL CONSIDER, AND HIS PLAN FOR EXCAVATION SHALL REFLECT, THE EQUIPMENT AND METHODS TO BE EMPLOYED IN THE EXCAVATION AND WHAT METHODS WILL BE USED WHEN WET CONDITIONS ARE ENCOUNTERED REQUIRING GROUNDWATER CONTROL OR OTHER MOISTURE CONDITIONING. CONTRACTOR SHALL SUBMIT AN OUTLINE OF HIS EARTHWORK METHODS WHICH SHALL TAKE INTO ACCOUNT THE OVERALL CONSTRUCTION SCHEDULE. THE PRICES ESTABLISHED IN THE PROPOSAL FOR THE WORK TO BE DONE SHALL REFLECT ALL COSTS PERTAINING TO THE WORK. NO CLAIMS FOR EXTRAS BASED ON SUBSTRATA OR GROUNDWATER TABLE CONDITIONS OR MOISTURE CONDITIONING
- THE CONTRACTOR SHALL KEEP INFORMED AND THE OWNER'S REPRESENTATIVE INFORMED AT ALL TIMES AS TO A "FILL SURPLUS OR SHORTAGE" SITUATION. SHORTAGE OR SURPLUS OF SUITABLE MATERIAL AT THE CONCLUSION OF TH GRADING AND EARTHWORK OPERATION SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND HE WILL BE REQUIRED TO SUPPLY THE DEFICIENCY OR DISPOSE OF THE SURPLUS WITHOUT ADDITIONAL COST TO THE OWNER.
- THE CONTRACTOR SHALL REMOVE VEGETATION, DEBRIS, UNSATISFACTORY SOIL MATERIALS, OBSTRUCTIONS, AND OTHER DELETERIOUS MATERIALS FROM GROUND SURFACE PRIOR TO CUT OR FILL OPERATIONS. SUCH MATERIAL SHALL BECOME PROPERTY OF THE CONTRACTOR TO BE DISPOSED OF IN A LEGAL MANNER OFF
- MATERIALS FOR FILL OR BACKFILL REQUIRED TO GRADE THE SITE AND ACHIEVE DESIGN ELEVATIONS SHALL BE EITHER ON OR OFF-SITE SOILS WHICH ARE FREE OF ORGANIC MATTER AND DEBRIS. NO TOPSOIL SHALL BE USED AS ENGINEERED
- 8. NO FILL MAY BE PLACED UNTIL THE EXPOSED SURFACES HAVE BEEN APPROVED BY THE GEOTECHNICAL ENGINEER. ALL FILL MATERIALS SHALL BE
- 9. IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, THEY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE AND DESIGN ENGINEER PRIOR TO PROCEEDING.
- 10. ALL FILL MATERIAL SHALL BE PLACED AND COMPACTED AT THE OPTIMUM MOISTURE CONTENT OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- 11. NO FROZEN MATERIAL SHALL BE USED AS FILL NOR WILL ANY FILL BE PLACED ON A FROZEN BASE.
- 12. NO ROCK OR SIMILAR MATERIAL GREATER THAN 6" DIAMETER SHALL BE PLACED IN THE FILL UNLESS RECOMMENDATIONS FOR SUCH PLACEMENT HAVE BEEN SUBMITTED BY THE GEOTECHNICAL ENGINEER IN ADVANCE AND APPROVED BY THE OWNER AND OWNER'S REPRESENTATIVE.
- 13. COMPACT FILL MATERIAL TO AT LEAST THE FOLLOWING PERCENTAGE OF MAXIMUM DRY DENSITY, AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR). NO DEVIATION FROM THESE COMPACTION DENSITIES WILL BE ALLOWED UNLESS SPECIFICALLY RECOMMENDED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE OWNER AND OWNER'S REPRESENTATIVE.
- % OF MAXIMUM DRY DENSITY FILL AREAS
- 5' BEYOND FOOTINGS AT A SLOPE OF 1 ON 1)

FILL UNDER BUILDING (EXTENDING

- FILL UNDER PAVEMENT OR SIDEWALKS FILL PLACED UNDER OR BEHIND
- RETAINING WALLS
- ALL OTHER FILL
- 14. ALL FILL MATERIAL SHALL BE PLACED AND COMPACTED IN LIFTS, THAT WILL NOT EXCEED THE DEPTH IN WHICH THE COMPACTION EQUIPMENT CAN ACHIEVE THE MAXIMUM DENSITY REQUIRED FOR THE ENTIRE DEPTH OF THE MATERIAL PLACED IN
- 15. ALL AREAS WHERE FILL HAS BEEN PLACED OR THE EXISTING SOILS HAVE BEEN DISTURBED SHALL BE SUBJECT TO COMPACTION TESTING BY THE GEOTECHNICAL ENGINEER AND SHALL BE TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER, OWNER AND OWNER'S REPRESENTATIVE.
- 16. FILL MATERIAL UNDER PAVEMENTS OR STRUCTURES SHALL BE FREE OF ORGANIC OR DELETERIOUS MATERIALS. IT SHALL BE SUITABLE FOR SUPPORTING PAVEMENTS AND STRUCTURES WITHOUT ADVERSE SHRINKING OR SWELLING.
- 17. FILL MATERIAL IN BERMS AND LANDSCAPE AREAS SHALL BE SUITABLE TO SUPPORT GROWTH OF THE LANDSCAPING MATERIALS (TYPICAL FOR THE LOCAL CLIMATE) AND AS PROPOSED BY THE LANDSCAPE ARCHITECT.
- 18. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND DISPOSAL OF, IN A LEGAL MANNER, ANY TREES, BRUSH OR DEBRIS THAT ARE WITHIN THE DESIGNATED CUTTING AND FILLING AREAS TO BRING THE SITE TO PROPOSED
- 19. THE CONTRACTOR SHALL STOCKPILE EXCAVATED MATERIAL ONLY IN DESIGNATED AREAS AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
- 20. DURING THE PERFORMANCE OF SITE GRADING OPERATIONS, THE SUBGRADE SHALL BE EXAMINED CRITICALLY, AND ANY AREAS DISCOVERED WHICH, IN THE OPINION OF THE OWNER'S REPRESENTATIVE OR GEOTECHNICAL ENGINEER. ARE SOFT AND LINSTABLE, SHALL BE FXCAVATED TO SUCH DEPTHS AS MAY BE NECESSARY TO INSURE SATISFACTORY SUPPORTING PROPERTIES AS DETERMINED BY THE GEOTECHNICAL ENGINEER. THESE AREAS OF EXCAVATION SHALL BE BACKFILLED IMMEDIATELY AND SHALL BE BROUGHT BACK TO THE ELEVATION OF THE SURROUNDING AREAS WITH APPROVED FILL MATERIAL AND IN ACCORDANCE WITH THE EARTH FILL CONSTRUCTION PROCEDURE.
- 21. NEWLY GRADED AREAS SHALL BE PROTECTED FROM THE ACTION OF THE ELEMENTS. ANY SETTLEMENT, DISPLACEMENT, PONDING OR WASHING OUT THAT MAY OCCUR PRIOR TO COMMENCING THE NEXT PHASE OF CONSTRUCTION SHALL BE REPAIRED, AND GRADES REESTABLISHED TO THE REQUIRED ELEVATIONS AND
- 22. THE FINISHED SUBGRADE SURFACE SHALL BE SHAPED TO INDICATED PROFILES AND SHALL BE REASONABLY SMOOTH AND FREE FROM IRREGULAR SURFACE CHANGES AND SHALL BE NO MORE THAN 1 INCH ABOVE OR BELOW THE INDICATED SUBGRADE ELEVATIONS.
- 23. THE GRADING CONTRACTOR SHALL BACKFILL ALL PARKING LOT PLANTERS AND LAWN AREAS TO WITHIN 2 INCHES OF THE TOP ADJACENT CURB GRADES. THE TOP 4 INCHES MINIMUM SHALL BE TOPSOIL, FREE FROM DEBRIS AND STONES LARGER THAN 1 INCH IN DIAMETER
- 24. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PUMPS, DITCHING, WELL POINT SYSTEMS AND OTHER MEANS FOR REMOVING WATER FROM EXCAVATIONS. TRENCHES, SUBGRADES AND OTHER PARTS OF THE WORK. THE CONTRACTOR SHALL CONTINUE DE-WATERING OPERATIONS UNTIL THE WATER HAS BEEN REMOVED ENTIRELY. UPON COMPLETION OF WATER REMOVAL THE CONTRACTOR SHALL TAKE APPROPRIATE ACTION TO DRY THE SOILS, REGRADE TO PROPOSED ELEVATIONS AND COMPACT SOILS TO THE SATISFACTION OF THE GEOTECHNICAL ENGINEER AND OWNER'S REPRESENTATIVE
- 25. THE CONTRACTOR SHALL DISPOSE OF WATER IN A SAFE AND SANITARY WAY TO PREVENT FLOODING OR INJURY TO PUBLIC OR PRIVATE PROPERTY AND SHALL OBTAIN APPROVAL OF THE LOCAL GOVERNING AUTHORITY BEFORE DISCHARGING RUN-OFF WATER TO THEIR SYSTEM. SEE EROSION CONTROL NOTES FOR ADDITIONAL REQUIREMENTS.
- 26. THE CONTRACTOR SHALL PROVIDE A SMOOTH TRANSITION BETWEEN EXISTING GRADES AND NEW GRADES.

BITUMINOUS PAVING SPECIFICATIONS

- REFERENCE SPECIFICATIONS WHERE APPLICABLE TO WORK UNDER THIS SECTION ARE REFERRED TO BY ABBREVIATION AS FOLLOWS:
 - A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO).
 - B. THE ASPHALT INSTITUTE (TAI)
 - C. MICHIGAN DEPARTMENT OF TRANSPORTATION/ CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION (MDOT)
 - D. AMERICAN SOCIETY FOR TESTING MATERIALS (ASTM)
- AGGREGATE BASE COURSE SHALL MEET THE REQUIREMENTS OF SECTION 902 OF THE MDOT STANDARD SPECIFICATION FOR CONSTRUCTION AND SHALL CONSIST OF 21AA CRUSHED AGGREGATE. THE USE OF SLAG IS PROHIBITED.
- TACK COAT SHALL BE EMULSIFIED ASPHALT MEETING REQUIREMENTS OF MDOT SECTION 904. GRADE CSS-1H.
- 4. AGGREGATE SHALL CONSIST OF CRUSHED STONE, CRUSHED GRAVEL, A MIXTURE OF UNCRUSHED GRAVEL WITH EITHER CRUSHED STONE OR CRUSHED GRAVEL, OF OTHER INERT MATERIAL HAVING SIMILAR CHARACTERISTICS. IT SHALL BE COMPOSED OF CLEAN, TOUGH, DURABLE FRAGMENTS FROM AN EXCESS OF FLAT OR ELONGATED PIECES, AND SHALL BE FREE OF ORGANIC MATTER AND DELETERIOUS SUBSTANCES AND MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATIONS, SECTION 902, 21AA. CONTRACTOR MAY USE CRUSHED HMA AGGREGATE SCREENED TO MEET THE REQUIREMENTS OF MDOT 21AA MATERIAL.
- 5. FINE AGGREGATE SHALL BE WELL GRADED FROM COARSE TO FINE AND CONSIST OF NATURAL SAND, STONE SCREENINGS, OR A BLEND OF NATURAL SAND AND STONE SCREENINGS. IT SHALL BE COMPOSED OF ROUGH SURFACED AND ANGULAR GRAINS OF QUARTZ OR OTHER HARD DURABLE ROCK AND MEET THE REQUIREMENTS OF MDOT STANDARD SPECIFICATIONS, SECTION 902 FOR CLASS II OR CLASS III GRANULAR MATERIAL. CONTRACTOR MAY USE CRUSHED HMA AGGREGATE SCREENED TO MEET THE REQUIREMENTS OF MDOT CLASS II OR CLASS
- ASPHALT CEMENT SHALL COMPLY WITH THE REQUIREMENTS OF MDOT SECTION
- 7. HOT MIXED ASPHALT (HMA) SHALL COMPLY WITH MDOT SECTION 501 OF STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- 8. BITUMINOUS LEVELING COURSE SHALL BE MDOT HMA, 13A, UNLESS OTHERWISE REQUIRED BY THE MUNICIPALITY OR ROAD AGENCY WITH JURISDICTION.
- 9. BITUMINOUS WEARING COURSE SHALL BE MDOT HMA, 36A UNLESS OTHERWISE REQUIRED BY THE MUNICIPALITY OR ROAD AGENCY WITH JURISDICTION. CONTRACTOR MAY SUBSTITUTE 13A WITH THE APPROVAL OF THE OWNER AND
- 10. THE CONTRACTOR SHALL SUBMIT, TO THE OWNER, TWO COPIES OF MATERIALS CERTIFICATES SIGNED BY MATERIAL PRODUCER AND CONTRACTOR. CERTIFICATES SHALL STATE THAT EACH MATERIAL ITEM MEETS SPECIFIED REQUIREMENTS.
- 11. THE CONTRACTOR SHALL SUBMIT TO THE GEOTECHNICAL ENGINEER, JOB-MIX FORMULAS FOR EACH REQUIRED ASPHALT AGGREGATE MIXTURE. MIX DESIGNS SHALL BE WITHIN ALLOWABLE TOLERANCES AS SPECIFIED BY MDOT FOR THE PARTICULAR APPLICATION.
- 12. SUBGRADE PREPARATIONS SHALL CONSIST OF THE FINAL MACHINING OF THE SUBGRADE IMMEDIATELY PRIOR TO PLACING THE BITUMINOUS BASE COURSE. THE SUBGRADE SHALL BE COMPACTED PER PLANS AND DETAILS. THE SUBGRADE SHALL BE TRUE TO LINE AND GRADE.
- 13. CRUSHED AGGREGATE BASE COURSE SHALL BE COMPACTED TO A DENSITY EQUAL TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D-1557 (MODIFIED PROCTOR).
- 14. BITUMINOUS CONCRETE PAVEMENT CONSTRUCTION METHODS SHALL CONFORM TO APPLICABLE PORTIONS OF SECTION 501 OF THE MDOT STANDARD SPECIFICATIONS
- 15. THE CONTRACTOR SHALL NOT PLACE THE AGGREGATE BASE COURSE OR THE BITUMINOUS BASE COURSE PRIOR TO THE APPROVAL OF THE SUBGRADE BY THE
- 16. EACH LIFT AND COURSE OF BITUMINOUS CONCRETE SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER, PRIOR TO THE PLACEMENT OF A SUCCEEDING COURSE
- 17. APPLY BITUMINOUS TACK COATS ONLY WHEN TEMPERATURE HAS NOT BEEN BELOW 35 DEGREES F. FOR 12 HOURS IMMEDIATELY PRIOR TO APPLICATION. CONSTRUCT BITUMINOUS CONCRETE WEARING COURSE ONLY WHEN ATMOSPHERIC OR LIFT IS CLEAN AND DRY. BASE COURSE MAY BE LAID WHEN TEMPERATURE IS ABOVE 35 DEGREES F. AND RISING AND APPROVED BY THE GEOTECHNICAL
- 18. THE BITUMINOUS CONCRETE SHALL BE TRANSPORTED FROM THE MIXING PLANT TO THE POINT OF USE IN VEHICLES CONFORMING TO THE REQUIREMENTS OF SECTION 501 OF THE MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. DELIVERIES SHALL BE SCHEDULED SO THAT SPREADING AND ROLLING OF ALL BITUMINOUS CONCRETE PREPARED FOR ONE DAY'S RUN CAN BE COMPLETED DURING DAYLIGHT. UNLESS ADEQUATE ARTIFICIAL LIGHTING IS PROVIDED. HAULING OVER FRESHLY PLACED BITUMINOUS MAT SHALL NOT BE PERMITTED UNTIL THE BITUMINOUS CONCRETE HAS BEEN COMPACTED, AS SPECIFIED, AND ALLOWED TO COOL TO ATMOSPHERIC TEMPERATURE.
- 19. UPON ARRIVAL, THE BITUMINOUS CONCRETE SHALL BE SPREAD TO A THICKNESS NOT TO EXCEED 3-INCHES AND TO THE FULL WIDTH BY AN APPROVED BITUMINOUS PAVER. IT SHALL BE STRUCK OFF IN A UNIFORM LAYER OF SUCH DEPTH THAT, WHEN THE WORK IS COMPLETED, IT SHALL HAVE THE REQUIRED THICKNESS AND CONFORM TO THE GRADE AND CONTOUR INDICATED. THE SPEED OF THE PAVER SHALL BE REGULATED TO ELIMINATE PULLING AND TEARING OF THE RITUMINOUS MAT. LINESS OTHERWISE DIRECTED, PLACEMENT OF THE BITUMINOUS CONCRETE SHALL BEGIN ALONG THE CENTERLINE OF A CROWNED SECTION OR ON THE HIGH SIDE OF AREAS WITH A ONE—WAY SLOPE. THE BITUMINOUS CONCRETE SHALL BE PLACED IN CONSECUTIVE ADJACENT STRIPS HAVING A MINIMUM WIDTH OF 10 FEET, EXCEPT WHERE EDGE LANES REQUIRE LESS WIDTH TO COMPLETE THE AREA. TRANSVERSE JOINTS IN ADJACENT LANES SHALL BE OFFSET A MINIMUM OF 10 FEET. WHERE POSSIBLE, JOINTS SHALL BE LOCATED AT THE LANE EDGES.
- 20. ON AREAS WHERE IRREGULARITIES OR UNAVOIDABLE OBSTACLES MAKE THE USE OF MECHANICAL SPREADING AND FINISHING EQUIPMENT IMPRACTICAL, THE BITUMINOUS CONCRETE MAY BE SPREAD AND RAKED BY HAND TOOLS.
- 21. THE BITUMINOUS CONCRETE SHALL BE PLACED AT A TEMPERATURE OF NOT LESS THAN 250 NOR HIGHER THEN THE RECOMMENDED TEMPERATURE OF THE BINDER PRODUCER OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- 22. THE BITUMINOUS CONCRETE MIXTURE SHALL BE THOROUGHLY AND UNIFORMLY COMPACTED BY ROLLING. THE SURFACE SHALL BE ROLLED WHEN THE BITUMINOUS MAT HAS ATTAINED SUFFICIENT STABILITY SO THAT THE ROLLING DOES NOT CAUSE UNDUE DISPLACEMENT, CRACKING AND SHOVING. THE SEQUENCE OF ROLLING OPERATIONS SHALL BE AT THE DISCRETION OF THE
- 23. THE SPEED OF THE ROLLER SHALL, AT ALL TIMES, BE SUFFICIENTLY SLOW TO AVOID DISPLACEMENT OF THE HOT BITUMINOUS CONCRETE. ANY DISPLACEMENT OCCURRING AS A RESULT OF REVERSING THE DIRECTION OF THE ROLLER, OR FROM ANY OTHER CAUSE, SHALL BE CORRECTED AT ONCE. 24. SUFFICIENT ROLLERS SHALL BE FURNISHED TO HANDLE THE OUTPUT OF THE
- PLANT. ROLLING SHALL CONTINUE UNTIL ALL ROLLER MARKS ARE ELIMINATED, THE SURFACE IS OF UNIFORM TEXTURE AND TRUE TO GRADE AND CROSS-SECTION, AND THE REQUIRED FIELD DENSITY IS OBTAINED. 25. TACK COAT SHALL BE APPLIED TO THE SURFACE OF PREVIOUS LIFTS AND
- COURSES OF BITUMINOUS CONCRETE AND TO SURFACES ABUTTING OR PROJECTING INTO THE BITUMINOUS CONCRETE. 26. IMMEDIATELY BEFORE PLACING A SUCCEEDING LIFT OR COURSE OF BITUMINOUS
- CONCRETE THE PRECEDING LIFT OR COURSE SHALL BE CLEARED OF ANY DEBRIS OR STANDING WATER BY APPROPRIATE METHODS. 27. TO PREVENT ADHESION OF THE BITUMINOUS CONCRETE TO THE ROLLER, THE
- WHEELS SHALL BE KEPT PROPERLY MOISTENED, BUT EXCESSIVE WATER WILL NOT
- 28. IN AREAS NOT ACCESSIBLE TO THE ROLLER, THE BITUMINOUS CONCRETE SHALL BE THOROUGHLY COMPACTED WITH HOT HAND TAMPERS.
- 29. ANY BITUMINOUS CONCRETE THAT BECOMES LOOSE AND BROKEN, MIXED WITH DIRT, OR IN ANY WAY DEFECTIVE SHALL BE REMOVED AND REPLACED WITH FRESH HOT BITUMINOUS CONCRETE AND IMMEDIATELY COMPACTED TO CONFORM TO THE SURROUNDING AREA. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. SKIN PATCHING SHALL NOT BE ALLOWED.
- 30. THE CONTRACTOR SHALL PROVIDE AT LEAST TWO ROLLERS FOR EACH PAVER OPERATING ON THE WORK. THE CONTRACTOR SHALL USE ADDITIONAL ROLLERS AS REQUIRED TO OBTAIN THE SPECIFIED PAVEMENT DENSITY.

BITUMINOUS PAVING SPECIFICATIONS.

- 31. THE CONTRACTOR SHALL CAREFULLY MAKE JOINTS BETWEEN OLD AND NEW PAVEMENTS, OR BETWEEN SUCCESSIVE DAYS' WORK, TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING WORK. CONSTRUCT JOINTS TO HAVE THE SAME TEXTURE, DENSITY AND SMOOTHNESS AS OTHER SECTIONS OF THE BITUMINOUS CONCRETE COURSE. THE CONTRACTOR SHALL CLEAN CONTACT SURFACES OF SAND, DIRT, OR OTHER OBJECTIONABLE MATERIAL AND APPLY TACK COAT BEFORE
- 32. THE CONTRACTOR SHALL TEST THE FINISHED SURFACE OF EACH BITUMINOUS CONCRETE COURSE FOR SMOOTHNESS, USING A 10 FOOT STRAIGHTEDGE APPLIED PARALLEL WITH AND AT RIGHT ANGLES TO CENTERLINE OF PAVED AREA. SURFACE SHALL NOT BE ACCEPTABLE IF EXCEEDING THE FOLLOWING TOLERANCES FOR SMOOTHNESS.
 - A. LEVELING COURSE SURFACE: 1/4 INCH, PLUS OR MINUS 1/4 INCH.
 - B. SURFACE COURSE: 1/4 INCH
- 33. THE CONTRACTOR SHALL TEST CROWNED SURFACES WITH A CROWN TEMPLATE, CENTERED AND AT RIGHT ANGLES TO THE CROWN. SURFACES WILL NOT BE ACCEPTABLE IF THE FINISHED CROWN SURFACES VARY MORE THAN 1/4 INCH FROM THE CROWN TEMPLATE.
- 34. AFTER FINAL ROLLING, THE CONTRACTOR SHALL NOT PERMIT VEHICULAR TRAFFIC ON THE BITUMINOUS CONCRETE PAVEMENT UNTIL IT HAS COOLED AND HARDENED, AND IN NO CASE SOONER THAN SIX HOURS OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER.
- 35. THE AGGREGATE BASE MUST EXTEND A MINIMUM OF 1' BEHIND THE BACK-OF-CURB OR BEYOND EDGE OF PAVEMENT WHEN NO CURB IS PROPOSED.

CONCRETE CURB, SIDEWALK AND PAVEMENT SPECIFICATIONS

- 1. THESE SPECIFICATIONS SHALL GOVERN THE CONSTRUCTION OF ALL PAVEMENTS, CURB AND GUTTER, SIDEWALKS, SERVICE WALKS, DRIVEWAY APPROACHES, AND LOADING DOCK AREAS, AS INDICATED ON THE DRAWINGS.
- 2. REFERENCE SPECIFICATIONS WHERE APPLICABLE TO WORK UNDER THIS SECTION ARE REFERRED BY ABBREVIATION AS FOLLOWS:
 - A. AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO).
 - B. AMERICAN CONCRETE INSTITUTE (ACI)
 - C. MICHIGAN DEPARTMENT OF TRANSPORTATION/ CURRENT STANDARD SPECIFICATIONS FOR CONSTRUCTION (MDOT)
 - D. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
- THE FINE AGGREGATE SHALL MEET ALL REQUIREMENTS OF SECTION 902 OF OF
- MDOT SPECIFICATION FOR NO. 2NS NATURAL SAND. THE COARSE AGGREGATE SHALL MEET ALL REQUIREMENTS OF SECTION 902 OF
- M.D.O.T. SPECIFICATIONS FOR 6AA COARSE AGGREGATE THE CONTRACTOR SHALL SUBMIT, TO THE OWNER, TWO COPIES OF MATERIALS CERTIFICATES SIGNED BY MATERIAL PRODUCER AND CONTRACTOR. CERTIFICATES
- SHALL STATE THAT EACH MATERIAL ITEM MEETS SPECIFIED REQUIREMENTS. THE CONTRACTOR SHALL SUBMIT. TO THE GEOTECHNICAL ENGINEER. JOB MIX-FORMULAS FOR EACH REQUIRED CEMENT-AGGREGATE MIXTURE. MIX DESIGNS
- SHALL BE WITHIN ALLOWABLE TOLERANCES AS SPECIFIED FOR THE PARTICULAR CONCRETE MIX SHALL BE AIR-ENTRAINED AND PROPORTIONED TO PROVIDE THE
- FOLLOWING: A. COMPRESSIVE STRENGTH AT 28 DAYS: 3500 PSI MIN., OR AS INDICATED
- B. TOTAL AIR CONTENT BY VOLUME: 5% TO 8%.

C. SLUMP 3 INCH MAXIMUM, OR AS INDICATED ON PLANS.

- THE CONTRACTOR SHALL AT HIS EXPENSE FURNISH SAMPLES OF FRESH CONCRETE AND PROVIDE SAFE AND SATISFACTORY FACILITIES FOR OBTAINING THE
- 9. CONSTRUCT CONCRETE CURBING ONLY WHEN GROUND TEMPERATURE IS ABOVE 35 DEGREES F. AND BASE IS DRY.
- 10. ALL CEMENT USED IN CURB CONSTRUCTION SHALL BE PORTLAND CEMENT, TYPE I OR IA ASTM C-150.
- 11. WATER USED IN CONCRETE SHALL MEET THE REQUIREMENTS OF MDOT SECTION
- 12. AIR ENTRAINING ADMIXTURE SHALL BE SELECTED FROM THE MDOT QUALIFIED
- 13. ALL READY-MIXED CONCRETE SUPPLIERS MUST BE APPROVED BY THE OWNER AND MEET THE CURRENT REQUIRMENTS OF THE NATIONAL READY MIX CONCRETE ASSOCIATION (NRMCA). IF REQUESTED BY THE OWNER, SUBMIT A WRITTEN DESCRIPTION OF PROPOSED READY-MIXED CONCRETE MANUFACTURER, GIVING QUALIFICATIONS OF PERSONAL, LOCATION OF BATCHING PLANT, LIST OF PROJECTS SIMILAR IN SCOPE OF SPECIFIED WORK, AND OTHER INFORMATION AS MAY BE REQUESTED BY THE OWNER.
- 14. THE CONTRACTOR SHALL SUBMIT A STATEMENT OF PURCHASE FOR READY-MIXED CONCRETE: PRIOR TO ACTUAL DELIVERY OF CONCRETE, SUBMIT TO THE GEOTECHNICAL ENGINEER FOUR COPIES OF STATEMENT OF PURCHASE, GIVING THE DRY WEIGHTS OF CEMENT AND SATURATED SURFACE DRY WEIGHTS OF FINE AND COARSE AGGREGATES AND QUANTITIES, TYPE AND NAME OF ADMIXTURES (IF ANY) AND OF WATER PER CU.YD., THAT WILL BE USED IN THE MANUFACTURE OF THE CONCRETE. THE CONTRACTOR SHALL ALSO FURNISH EVIDENCE SATISFACTORY TO THE GEOTECHNICAL ENGINEER THAT THE MATERIALS TO BE USED AND PROPORTIONS SELECTED WILL PRODUCE CONCRETE OF THE QUALITY SPECIFIED. WHATEVER STRENGTHS ARE OBTAINED, THE QUANTITY OF CEMENT USED SHALL NOT BE LESS THAN THE MINIMUM SPECIFIED.
- 15. READY-MIXED CONCRETE DELIVERY TICKETS: SUBMIT ONE COPY OF EACH DELIVERY TICKET TO THE GEOTECHNICAL ENGINEER AND CONTRACTOR IN ACCORDANCE WITH SECTION 16 OF ASTM C94.
- 16. READY-MIXED CONCRETE SHALL BE BATCHED, MIXED AND TRANSPORTED IN ACCORDANCE WITH ASTM C94, AND COMPLY WITH ACI 304 "RECOMMENDED PRACTICE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE," EXCEPT AS OTHERWISE SPECIFIED HEREIN.
- 17. READY-MIXED CONCRETE SHALL BE MIXED AND DELIVERED TO THE POINT OF DISCHARGE AT THE JOB BY MEANS OF A READY MIX CONCRETE TRUCK.
- 18. NO WATER FROM THE TRUCK WATER SYSTEM OR ELSEWHERE SHALL BE ADDED AFTER THE INITIAL INTRODUCTION OF THE MIXING WATER FOR THE BATCH. UNDER NO CIRCUMSTANCES SHALL THE APPROVED MAXIMUM WATER CONTENT BE EXCEEDED NOR SHALL THE SLUMP EXCEED THE MAXIMUM SPECIFIED.
- 19. DISCHARGE OF THE CONCRETE SHALL BE COMPLETED WITHIN 1-1/2 HOURS OR BEFORE THE DRUM HAS REVOLVED 300 REVOLUTIONS, WHICHEVER COMES FIRST, AFTER THE INTRODUCTION OF THE MIXING WATER TO THE CEMENT AND AGGREGATES OR THE INTRODUCTION OF THE CEMENT TO THE AGGREGATES.
- 20. IN HOT WEATHER (AIR TEMPERATURE 80-DEGREES F. AND ABOVE) OR UNDER CONDITIONS CONTRIBUTING TO QUICK STIFFENING OF THE CONCRETE, THE TIME SHALL BE REDUCED TO ONE HOUR.
- 21. CONCRETE DELIVERED IN COLD WEATHER (AIR TEMPERATURE 45-DEGREES F. AND LOWER) SHALL HAVE A TEMPERATURE NOT LESS THAN 60-DEGREES F. AT THE POINT OF DISCHARGE AT THE JOB, AND IN COMPLIANCE WITH ACI 306R "COLD WEATHER CONCRETING". CONCRETE PLACING WILL NOT BE PERMITTED WHEN THE AIR TEMPERATURE IS 35-DEGREES F. OR LOWER.
- 22. CONCRETE DELIVERED UNDER HOT WEATHER CONDITIONS CONTRIBUTING TO QUICK STIFFENING OF CONCRETE, OR IN AIR TEMPERATURE OF 80-DEGREES F. AND OVER, SHALL HAVE A TEMPERATURE BETWEEN 60- AND 80-DEGREES F. AT THE POINT OF DISCHARGE AT THE JOB, AND IN ACCORDANCE WITH ACI 305R "HOT WEATHER CONCRETING."
- 23. IN NO CASE SHALL THE MIXER OR TRUCK BE FLUSHED OUT ONTO THE STREET PAVEMENT, IN A CATCH BASIN OR SEWER MANHOLE, OR IN ANY PUBLIC RIGHT-OF-WAY. SEE SOIL EROSION CONTROL PLAN FOR CONCRETE WASHOUT
- 24. REINFORCEMENT BARS SHALL BE PER MDOT SECTION 905.
- 25. TIE WIRE SHALL BE BLACK, ANNEALED STEEL WIRE, NOT LESS THAN 16 GAUGE.

CONCRETE CURB, SIDEWALK AND PAVEMENT SPECIFICATIONS, CONTINUED

- 26. BAR SUPPORTS SHALL CONFORM TO THE BAR SUPPORT SPECIFICATIONS CONTAINED IN CONCRETE REINFORCING STEEL INSTITUTE'S (CRSI) "MANUAL OF STANDARD PRACTICE." PROVIDE CHAIRS, SPACERS AND OTHER DEVICES SUITABLE FOR PROPER SPACING SUPPORTING AND FASTENING REINFORCING BARS.
- 27. WHEN FORMS ARE USED AND THE CURB RADIUS IS LESS THAN 200 FEET. THE CURVED ALIGNMENT SHALL BE PROVIDED FOR BY EITHER STANDARD STEEL FORMS EQUIPPED WITH FLEXIBLE LINES OR BY FLEXIBLE FORMS. THE FORMS SHALL BE OF THE FULL DEPTH OF THE SECTION. CURB AND GUTTER FORMS SHALL BE SO CONSTRUCTED AS TO PERMIT THE INSIDE OF THE FORMS TO BE SECURELY FASTENED TO THE OUTSIDE FORMS.
- 28. ALL NEW CURB SHALL BE PLACED ONLY ON A PREPARED SUBGRADE, SMOOTH AND LEVELED TO THE GRADES ESTABLISHED BY THE ENGINEER.
- SET WILL BE UNIFORMLY SUPPORTED FOR THE ENTIRE LENGTH. SECURELY STAKE AND BRACE OR TIE FORMS TO PREVENT LEAKAGE OF MORTAR. BRACING WITH FARTH WILL NOT BE PERMITTED.

29. COMPACT AND CUT-TO-GRADE SUBGRADE UNDER FORMS SO THAT FORMS WHEN

- 30. COAT SURFACES OF FORMS TO BE IN CONCRETE WITH A LIGHT CLEAR PARAFFIN OIL OR PARTING COMPOUND WHICH WILL NOT STAIN THE CONCRETE.
- 31. THE INTERIOR SURFACES OF CONCRETE CONVEYING EQUIPMENT SHALL BE MAINTAINED FREE OF HARDENED CONCRETE, DEBRIS, WATER, SNOW, ICE AND OTHER DELETERIOUS MATERIALS.
- 32. CURBING MAY BE CONSTRUCTED EITHER BY USE OF FORMS OR BY A MECHANICAL CURB AND GUTTER PAVER. PROVIDED THE REQUIRED FINISH, AND CROSS-SECTION, AS SHOWN ON DRAWINGS ARE OBTAINED. CONCRETE SHALL BE PLACED TO PROVIDE ONE COURSE MONOLITHIC STRUCTURE WITHOUT THE USE OF MORTAR TOPPING OR SAND-CEMENT DRIER. CONCRETE SHALL BE SPADED OR VIBRATED SUFFICIENTLY TO ENSURE SATISFACTORY CONSOLIDATION.
- 33. PROVIDE REINFORCEMENT FOR CONCRETE CURB AS SHOWN ON THE DRAWINGS. REINFORCEMENT SHALL BE KEPT CLEAN AND FREE FROM OBJECTIONABLE RUST BENDS OR KINKS IN REINFORCING BARS SHALL BE CORRECTED BEFORE PLACING. ALL REINFORCEMENT SHALL BE ACCURATELY LOCATED IN FORMS AND SECURELY HELD IN PLACE BEFORE AND DURING CONCRETE PLACING. BY SUPPORTS ADEQUATE TO PREVENT DISPLACEMENT DURING THE COURSE OF CONSTRUCTION.
- 34. THE CONCRETE CURB SURFACE SHALL BE STRUCK OFF THE REQUIRED CROSS-SECTION WITH A TEMPLATE. AFTER THE CONCRETE CURB HAS BEEN FLOATED TO AN EVEN SURFACE. THE CONTRACTION JOINT SHALL BE CUT AND ALL SLAB EDGES ROUNDED WITH A 1/2 INCH RADIUS EDGING TOOL THAT WILL FINISH TO A WIDTH OF 2 INCHES. AFTER THE CONCRETE HAS SLIGHTLY SET, A BROOM SHALL BE BRUSHED LIGHTLY ACROSS THE SURFACE PARALLEL TO FORMS
- 35. CONTRACTION JOINTS SHALL BE CUT IN CONCRETE CURBING AT MINIMUM 10' INTERVALS. THE JOINT SHALL CUT 1/4 INCH WIDE BY 1/3 THE DEPTH OF THE CONCRETE CURB SECTION. JOINTS SHALL ALSO BE LOCATED ADJACENT TO CURB

SO AS TO IMPART A ROUGH FINISH.

- 36. ISOLATION JOINTS SHALL BE PLACED IN CURBING AT TANGENT POINTS IN CURB RETURNS AT INTERSECTIONS, AT BOTH SIDES OF STRUCTURES LOCATED IN THE LINE AND IN RUNS OF CURB AT INTERVALS NOT EXCEEDING 400 FEET. ISOLATION JOINTS SHALL BE 1" THICK PRE-FORMED JOINT FILLER STRIPS. THE STRIPS SHALL EXTEND THE FULL DEPTH OF THE CONCRETE CURB SECTION. ISOLATION JOINTS SHALL BE PLACED IN CURB AT THE END OF EACH DAYS POUR AND WHEN ABUTTING PREVIOUSLY POURED CURB.
- 37. THE CURING COMPOUND SHALL BE A WHITE PARAFIN BASED COMPOUND SELECTED FROM MDOT'S QUALIFIED PRODUCTS LIST APPLIED AT 200 SQ/FT/GAL.
- 38. ALL CONTRACTION JOINTS IN CONCRETE CURB SECTIONS SHALL BE SEALED WITH

EITHER HOT POURED JOINT SEALER OR COLD APPLIED JOINT SEALER.

- 39. SLIGHTLY UNDERFILL JOINT GROOVE WITH JOINT SEALER TO PREVENT EXTRUSION OF THE SEALER. REMOVE EXCESS JOINT SEALER MATERIALS AS SOON AFTER
- 40. FRESHLY PLACED CONCRETE SHALL BE PROTECTED AS REQUIRED TO MAINTAIN THE TEMPERATURE OF THE CONCRETE AT NOT LESS THAN 50 DEGREES F. NOR MORE THAN 80 DEGREES F. AND IN A MOIST CONDITION CONTINUOUSLY FOR TH PERIOD OF TIME NECESSARY FOR THE CONCRETE TO CURE. CHANGES IN TEMPERATURE OF THE CONCRETE DURING CURING SHALL BE AS UNIFORM AS POSSIBLE AND SHALL NOT EXCEED 5 DEGREES F. IN ANY ONE HOUR, NOR 50 DEGREES F. IN ANY 24 HOUR PERIOD.
- 40-DEGREES F. AND BELOW, THE CONCRETE SHALL BE PROTECTED BY HEATING, INSULATION COVERING, OR COMBINATION THEREOF AS REQUIRED TO MAINTAIN THE IFMPERATURE OF THE CONCRETE AT OR ABOVE 50-DEGREES E. AND IN A MOIST CONDITION CONTINUOUSLY FOR THE CONCRETE CURING PERIOD. COLD WEATHER PROTECTION SHALL MEET THE REQUIREMENTS OF ACI 306R "COLD WEATHER

41. COLD WEATHER PROTECTION: WHEN THE TEMPERATURE OF THE ATMOSPHERE IS

- 42. HOT WEATHER PROTECTION: WHEN THE TEMPERATURE OF THE ATMOSPHERE IS 90-DEGREES F. AND ABOVE. OR DURING OTHER CLIMATIC CONDITIONS WHICH WILL CAUSE TOO RAPID DRYING OF THE CONCRETE, THE CONCRETE SHALL BE PROTECTED BY WINDBREAKS, SHADING, FOG SPRAYING LIGHT COLORED MOISTURE RETAINING COVERING, OR A COMBINATION OF THEREOF AS REQUIRED TO MAINTAIN THE TEMPERATURE OF THE CONCRETE BELOW 80-DEGREE F. AND IN A MOIST CONDITION CONTINUOUSLY FOR THE CONCRETE CURING PERIOD. HOT WEATHER PROTECTION SHALL MEET THE REQUIREMENTS OF ACI 305R "HOT WEATHER
- 43. ALL FORMS, RAILS AND STAKES SHALL BE REMOVED WITHIN 24 HOURS AFTER PLACING THE CURB. EXPOSED EDGES OF CONCRETE SHALL BE IMMEDIATELY BACKFILLED OR SPRAYED WITH CURING COMPOUND
- 44. AFTER COMPLETION OF CONCRETE CURBING IN AN AREA, REMOVE ALL WEATHER PROTECTION MATERIALS, RUBBISH AND DEBRIS RESULTING FROM SPECIFIED WORK, SWEEP CONCRETE CURBS CLEAN, AND SEAL JOINTS.
- 45. ALL CEMENT USED IN SIDEWALK CONSTRUCTION SHALL BE PORTLAND CEMENT, TYPE I OR IA ASTM C-150. 46. ALL NEW WALKS AND CONCRETE PAVEMENTS SHALL BE PLACED ONLY ON A PREPARED SUBGRADE, SMOOTHED AND LEVELED TO THE GRADES ESTABLISHED BY THE ENGINEER. IN CLAY SOILS THE SUBGRADE SHALL BE EXCAVATED 2-INCHES

BELOW THE SIDEWALK BASE AND FILLED WITH APPROVED SAND MEETING MDOT

- CLASS II, SAND DESIGNATION. 47. CONSTRUCT CONCRETE SURFACE COURSE ONLY WHEN GROUND TEMPERATURE IS
- ABOVE 35 DEGREES F. AND BASE IS DRY. 48. SIDEWALKS SHALL PITCH TOWARD THE STREET OR AWAY FROM BUILDINGS WITH A MAXIMUM CROSS SLOPE OF 1/4-INCH PER FOOT OF WIDTH AND A MINIMUM CROSS SLOPE OF 1/8-INCH PER FOOT OF WIDTH. CROSS SLOPE DIRECTION
- TRANSITIONS SHALL BE ACCOMPLISHED IN LENGTHS OF 10 FEET OR LESS. 49. PRIOR TO PLACING THE CONCRETE, ALL DEBRIS, STONES, DIRT, ETC., SHALL BE REMOVED FROM THE SUBGRADE. THE SUBGRADE SHALL BE MOISTENED WITH WATER IN SUCH A MANNER AS TO THOROUGHLY WET THE MATERIAL WITHOUT FORMING PUDDLES OR POCKETS OF WATER. NO CONCRETE SHALL BE PLACED ON

FROZEN SUBGRADE.

- 50. FORMS SHALL BE METAL OR WOOD AND OF AN APPROVED SECTION. THEY SHALL BE STRAIGHT, FREE FROM DISTORTION AND SHALL SHOW NO VERTICAL VARIATION GREATER THAN 1/8-INCH IN 10-FOOT LENGTHS FROM THE TRUE PLANE SURFACE ON THE TOP OF THE FORMS WHEN TESTED WITH A 10-FOOT STRAIGHTEDGE, AND SHALL SHOW NO LATERAL VARIATION GREATER THAN 1/4-INCH IN 10-FEET FROM THE TRUE PLANE SURFACE OF THE LATERAL FACE OF THE FORM WHEN TESTED WITH A 10-FOOT STRAIGHTEDGE. THEY SHALL BE OF THE DEPTH SPECIFIED FOR THE SIDEWALK, OR CONCRETE PAVEMENT PER PLANE AND DETAILS, AND BE SECURELY HELD IN PLACE AND TRUE TO LINE AND GRADE.
- 51. THE CONCRETE SHALL BE DEPOSITED CONTINUOUSLY IN THE FORMS IN SUCH A MANNER AS TO AVOID SEGREGATION AND IT SHALL BE THOROUGHLY TAMPED OR VIBRATED SO THAT THE FORMS ARE ENTIRELY FILLED AND THE CONCRETE THOROUGHLY CONSOLIDATED. THE SLABS SHALL BE PLACED IN SECTIONS OR BLOCKS IN ONE OPERATION AS A MONOLITH.
- 52. THE CONCRETE SURFACE SHALL BE STRUCK OFF TO A PLANE SURFACE WITH A STRAIGHTEDGE. AFTER THE CONCRETE HAS BEEN FLOATED TO AN EVEN SURFACE, THE CONTRACTION JOINT SHALL BE CUT AND ALL SLAB EDGES ROUNDED WITH A 1/2-INCH RADIUS EDGING TOOL THAT WILL FINISH TO A WIDTH OF 2-INCHES. AFTER THE CONCRETE HAS SLIGHTLY SET, A BROOM SHALL BE BRUSHED LIGHTLY ACROSS THE SURFACE AT RIGHT ANGLES TO FORMS SO AS TO IMPART A ROUGH FINISH.
- 53. CONTRACTION JOINTS SHALL BE PLACED AT RIGHT ANGLES TO THE EDGE OF THE SIDEWALK OR CONCRETE PAVEMENT AND PERPENDICULAR TO THE SURFACE AND AT A DEPTH OF AT LEAST 1/4 THE SLAB THICKNESS WITH A MINIMUM DEPTH OF 1-1/4-INCHES FOR SIDEWALKS AND 3-INCHES FOR CONCRETE PAVEMENT SLABS.
- 54. CONTRACTION JOINTS IN SIDEWALKS SHALL BE SPACED AT A MINIMUM OF EVERY 5-FEET IN 4" SIDEWALK, OR 8-FEET IN 6" SIDEWALK, OR AS SHOWN ON THE

CONCRETE CURB, SIDEWALK AND PAVEMENT SPECIFICATIONS, CONTINUED

- 55. ISOLATION PAPERS SHALL BE OF THE PRE-MOLDED, NON-EXTRUDING, ASPHALT IMPREGNATED TYPE, NOT LESS THAN 1/2-INCH THICK. THE LENGTH SHALL BE EQUAL TO THE WIDTH OF THE SLAB, AND THE DEPTH EQUAL TO THE THICKNESS
- OF THE SLAB PLUS 1-INCH. 56. ISOLATION JOINTS SHALL BE PLACED AT THE FOLLOWING LOCATION FOR

SIDEWALKS AND CONCRETE PAVEMENTS:

- A. AT THE BACK OF THE CURB AND FRONT EDGE OF THE SIDEWALKS AND PAVEMENT SLABS ADJACENT TO EACH DRIVEWAY APPROACH AND SERVICE
- B. AT INTERVALS NOT TO EXCEED 50-FEET IN ALL PUBLIC SIDEWALKS.
- C. AT THE BACK OF THE CURB WHERE THE RAMPS EXTEND FROM THE KEY FLAG TO THE PAVEMENT.
- D. BETWEEN THE KEY FLAG AND THE RAMP IN ALL CASES, EXCEPT WHERE THERE ARE EXISTING EXPANSION JOINTS AT THE INTERSECTIONS OF THE SIDEWALKS AND THE KEY FLAG.
- E. AT ANY PLACE WHERE A SIDEWALK OR CONCRETE PAVEMENT ABUTS A BUILDING OR FIXED STRUCTURE.
- F. AT ANY OTHER LOCATIONS INDICATED ON THE PLAN. 57. CONTRACTION JOINTS IN THE CONCRETE PAVEMENT WILL BE AS FOLLOWS:
- A. TRANSVERSE JOINTS SHALL BE AT MAXIMUM 10-FOOT INTERVALS OR AS SHOWN ON PLANS AND DETAILS.
- B. LONGITUDINAL JOINTS SHALL BE AT MAXIMUM 12-FOOT INTERVALS OR AS SHOWN ON PLANS AND DETAILS.
- AND LOOSE PARTICLES, AND DRY SURFACE.

TRAFFIC LANE AND PARKING LOT MARKING

58. PRIOR TO APPLYING JOINT SEALER, CLEAN JOINT GROOVE OF FOREIGN MATTER

- PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, AND SERVICES NECESSARY TO COMPLETE ALL TRAFFIC LANE AND PARKING LOT MARKINGS AS INDICATED IN THE CONSTRUCTION DOCUMENTS.
- AND ISLANDS ON THE PAVEMENT SURFACE APPLIED IN ACCORDANCE WITH THIS SPECIFICATION AND AT THE LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER. TRAFFIC MARKING PAINT SHALL MEET THE REQUIREMENTS OF FEDERAL SPECIFICATION TT-P-1952F, WITH OR WITHOUT REFLECTORIZED BEADS AS

WORK INCLUDES, BUT NOT LIMITED TO PAINTING OF LETTERS, MARKINGS, STRIPES

REQUIRED ON THE PLANS, OR SHALL BE A PRODUCT FROM THE CURRENT MDOT QUALIFIED PRODUCTS LIST.

SHOWN ON THE PLANS.

OTHERWISE.

- 4. COLOR SHALL BE AS SPECIFIED ON THE PLANS OR AS FOLLOWS: A. TRAFFIC LANE STRIPING SHALL BE WHITE OR YELLOW REFLECTORIZED, AS
- B. TRAFFIC MARKING AND CURB FACES SHALL BE WHITE UNLESS NOTED
- C. PARKING LOT STRIPING SHALL BE WHITE, UNLESS NOTED OTHERWISE. D. HANDICAP STALL STRIPING MEETING CURRENT ADA REQUIREMENTS SHALL BE
- BLUE UNLESS NOTED OTHERWISE. THE PAINTING SHALL BE PERFORMED ONLY WHEN THE EXISTING SURFACE IS DRY AND CLEAN, WHEN THE ATMOSPHERIC TEMPERATURE IS ABOVE 40-DEGREES F. AND WHEN THE WEATHER IS NOT EXCESSIVELY WINDY, DUSTY OR FOGGY AND WHEN RAIN IS NOT FORECASTED FOR AT LEAST 2 HOURS AFTER PAINT IS
- 6. ALL EQUIPMENT FOR THE WORK SHALL BE APPROVED BY THE CONTRACTOR AND SHALL INCLUDE THE APPARATUS NECESSARY TO PROPERLY CLEAN THE EXISTING SURFACE, A MECHANICAL MARKING MACHINE. AND SUCH AUXILIARY HAND
- EQUIPMENT AS MAY BE NECESSARY TO SATISFACTORILY COMPLETE THE JOB. 7. THE MECHANICAL MARKER SHALL BE AN APPROVED ATOMIZING SPRAY-TYPE MARKING MACHINE SUITABLE FOR APPLICATION OF TRAFFIC PAINT. IT SHALL PRODUCE AN EVEN AND UNIFORM FILM THICKNESS AT THE REQUIRED COVERAGE AND SHALL BE DESIGNED SO AS TO APPLY MARKINGS OF UNIFORM CROSS-SECTIONS AND CLEAR-CUT EDGES WITHOUT RUNNING OR SPATTERING AND WITHIN THE L LIMITS FOR STRAIGHTNESS SET FORTH HEREIN. WHEN NEEDED. A DISPENSER SHALL BE FURNISHED, WHICH IS PROPERLY DESIGNED FOR ATTACHMENT TO THE MECHANICAL MARKER AND SUITABLE FOR DISPENSING THE
- REQUIRED QUANTITY OF REFLECTIVE BEADS. 8. SUITABLE ADJUSTMENTS SHALL BE PROVIDED ON THE SPRAYER/SPRAYERS OF A MACHINE FOR PAINTING THE WIDTH REQUIRED. MULTIPLE PARALLEL PASSES TO
- IMMEDIATELY BEFORE APPLICATION OF THE PAINT, THE EXISTING SURFACE SHALL BE DRY AND ENTIRELY FREE FROM DIRT, GREASE, OIL, ACIDS, DEBRIS, OR OTHER FOREIGN MATTER WHICH WOULD REDUCE THE BOND BETWEEN THE COAT OF PAINT AND THE PAVEMENT. THE SURFACE SHALL BE THOROUGHLY CLEANED BY SWEEPING AND BLOWING AS REQUIRED TO REMOVE ALL DIRT, DEBRIS AND LOOSE MATERIALS. AREAS WHICH CANNOT BE SATISFACTORILY CLEANED BY BROOMING AND BLOWING SHALL BE SCRUBBED AS DIRECTED WITH A WATER SOLUTION OF TRI-SODIUM PHOSPHATE (10% BY WEIGHT) OR AN APPROVED EQUAL SOLUTION AFTER SCRUBBING, THE SOLUTION SHALL BE RINSED OFF AND THE SURFACE

PAINT THE REQUIRED WIDTH WILL NOT BE ALLOWED.

- 10. EXISTING MARKINGS OR STRIPES WHICH ARE TO BE ABANDONED OR REMOVED SHALL BE OBLITERATED OR OBSCURED BY THE BEST METHODS SUITED FOR THE PURPOSE AND TO THE SATISFACTION OF THE OWNER OR OWNER'S
- 11. THE CONTRACTOR IS RESPONSIBLE FOR LAYING OUT A SAMPLE SECTION OF STRIPING WHICH IS TO BE APPROVED BY THE OWNER OR OWNERS REPRESENTATIVE AS TO QUALITY BEFORE THE CONTRACTOR MAY PROCEED WITH THE STRIPING. THE CONTRACTOR IS TO INSURE THAT ALL SUBSEQUENT STRIPING
- 12. ON THOSE SECTIONS OF PAVEMENTS WHERE NO PREVIOUSLY APPLIED FIGURES, MARKINGS, OR STRIPFS ARE AVAILABLE TO SERVE AS A GUIDE, SUITABLE LAYOUTS AND LINES OF PROPOSED STRIPES SHALL BE SPOTTED IN ADVANCE OF THE PAINT APPLICATION. CONTROL POINTS SHALL BE SPACED AT SUCH

MEETS THE QUALITY OF THE APPROVED SAMPLE APPLICATION.

- 13. THE CONTRACTOR SHALL PROVIDE AN EXPERIENCED TECHNICIAN TO SUPERVISE THE LOCATION ALIGNMENT, LAYOUT, DIMENSIONS AND APPLICATION OF THE PAINT.
- 14. MARKINGS SHALL BE APPLIED AT THE LOCATIONS AND TO THE DIMENSIONS AND SPACING INDICATED ON THE PLANS OR AS SPECIFIED. PAINT SHALL NOT BE APPLIED UNTIL THE INDICATED ALIGNMENT IS LAID OUT AND THE CONDITIONS OF THE EXISTING SURFACE HAVE BEEN APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE.

15. THE PAINT SHALL BE MIXED IN ACCORDANCE WITH THE MANUFACTURER'S

INTERVALS AS WILL ENSURE ACCURATE LOCATION OF ALL MARKINGS.

AND APPLIED TO THE SURFACE OF THE PAVEMENT WITH THE MARKING MACHINE AT ITS ORIGINAL CONSISTENCY WITHOUT THE ADDITION OF THINNER. IF THE PAINT IS APPLIED BY BRUSH, THE SURFACE SHALL RECEIVE TWO (2) COATS; THE FIRST COAT SHALL BE THOROUGHLY DRY BEFORE THE SECOND COAT IS 16. A MINIMUM OF ONE (1) WEEK SHALL ELAPSE BETWEEN APPLICATION OF THE BITUMINOUS SEAL COAT, SLURRY SEAL OR THE PLACEMENT OF THE BITUMINOUS

INSTRUCTIONS BEFORE APPLICATION. THE PAINT SHALL BE THOROUGHLY MIXED

SURFACE COURSE AND THE MARKING OF THE PAVEMENT. THE PAINT SHALL NOT

BLEED EXCESSIVELY, CURL, OR DISCOLOR WHEN APPLIED TO BITUMINOUS OR

CONCRETE SURFACES. CURING COMPOUND MUST BE REMOVED FOR THE ENTIRE

- WIDTH OF THE PAINTED STRIPE OR SYMBOL PRIOR TO PAINTING NEW CONCRETE. 17. IN THE APPLICATION OF STRAIGHT STRIPES, ANY DEVIATION IN THE EDGES EXCEEDING 1/2-INCH IN 50-FEET SHALL BE OBLITERATED AND THE MARKING CORRECTED. THE WIDTH OF THE MARKINGS SHALL BE AS DESIGNATED WITHIN A TOLERANCE OF 5 PERCENT (5%). ALL PAINTING SHALL BE PERFORMED TO THE SATISFACTION OF THE OWNER OR OWNER'S REPRESENTATIVE BY COMPETENT AND EXPERIENCED EQUIPMENT OPERATORS, LABORERS, AND ARTISANS IN A NEAT AND
- 18. PAINT SHALL BE APPLIED UNIFORMLY BY SUITABLE EQUIPMENT AT A RATE OF 0.0094 GAL./S.F. FOR STENCILS AND 0.00313 GAL./FT. FOR STRIPING. PAINT APPLICATION SHALL PRODUCE AN AVERAGE WET FILM THICKNESS OF

WORKMANLIKE MANNER.

19. AFTER APPLICATIONS OF THE PAINT, ALL MARKINGS SHALL BE PROTECTED WHILE THE PAINT IS DRYING. THE FRESH PAINT SHALL BE PROTECTED FROM INJURY OR DAMAGE OF ANY KIND. THE CONTRACTOR SHALL BE DIRECTLY RESPONSIBLE AND SHALL ERECT OR PLACE SUITABLE WARNING SIGNS. FLAGS. OR BARRICADES. PROTECTIVE SCREENS OR COVERINGS AS REQUIRED. ALL SURFACES SHALL B PROTECTED FROM DISFIGURATION BY SPATTER, SPLASHES, SPILLAGE, DRIPPINGS OF PAINT OR OTHER MATERIAL.

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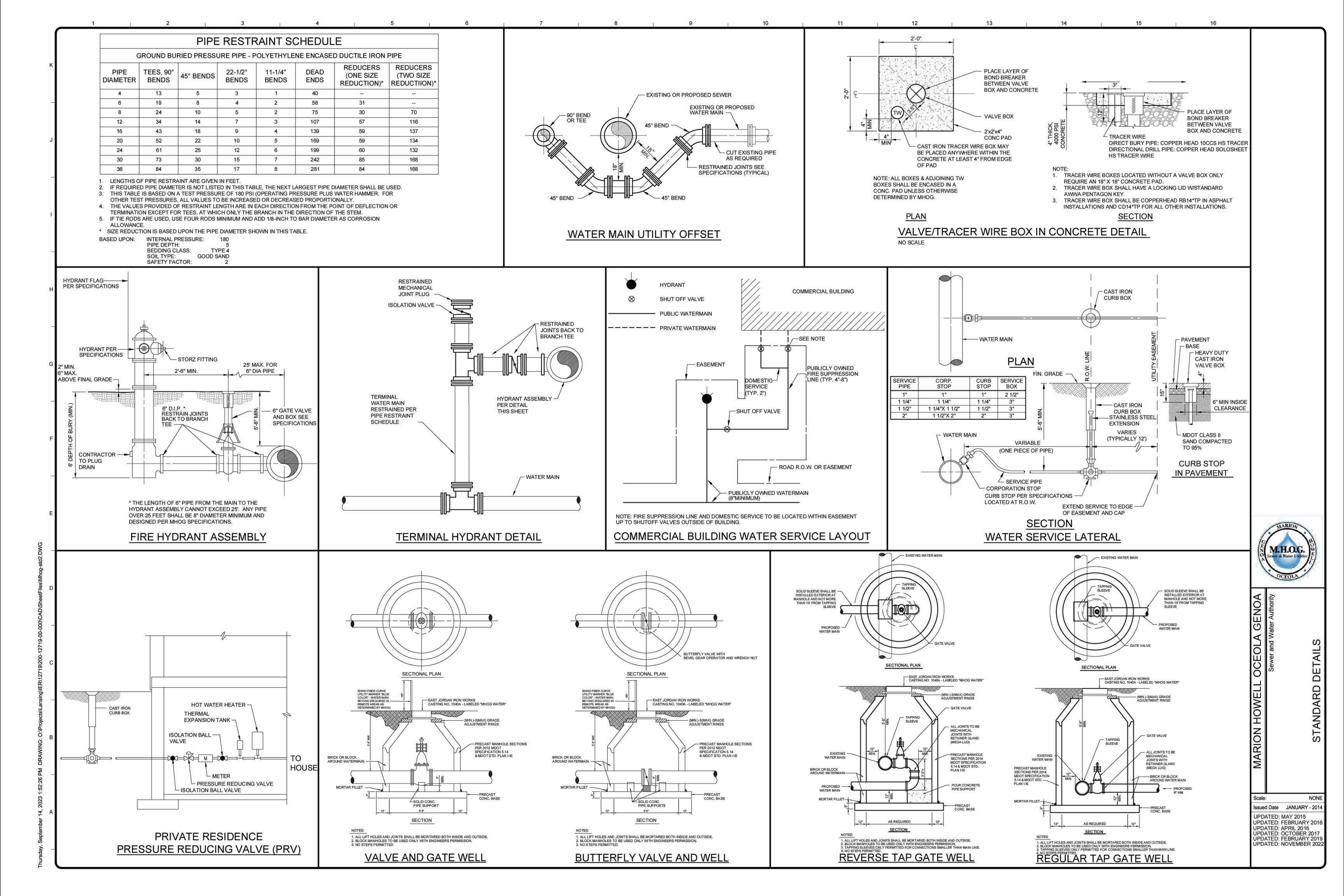
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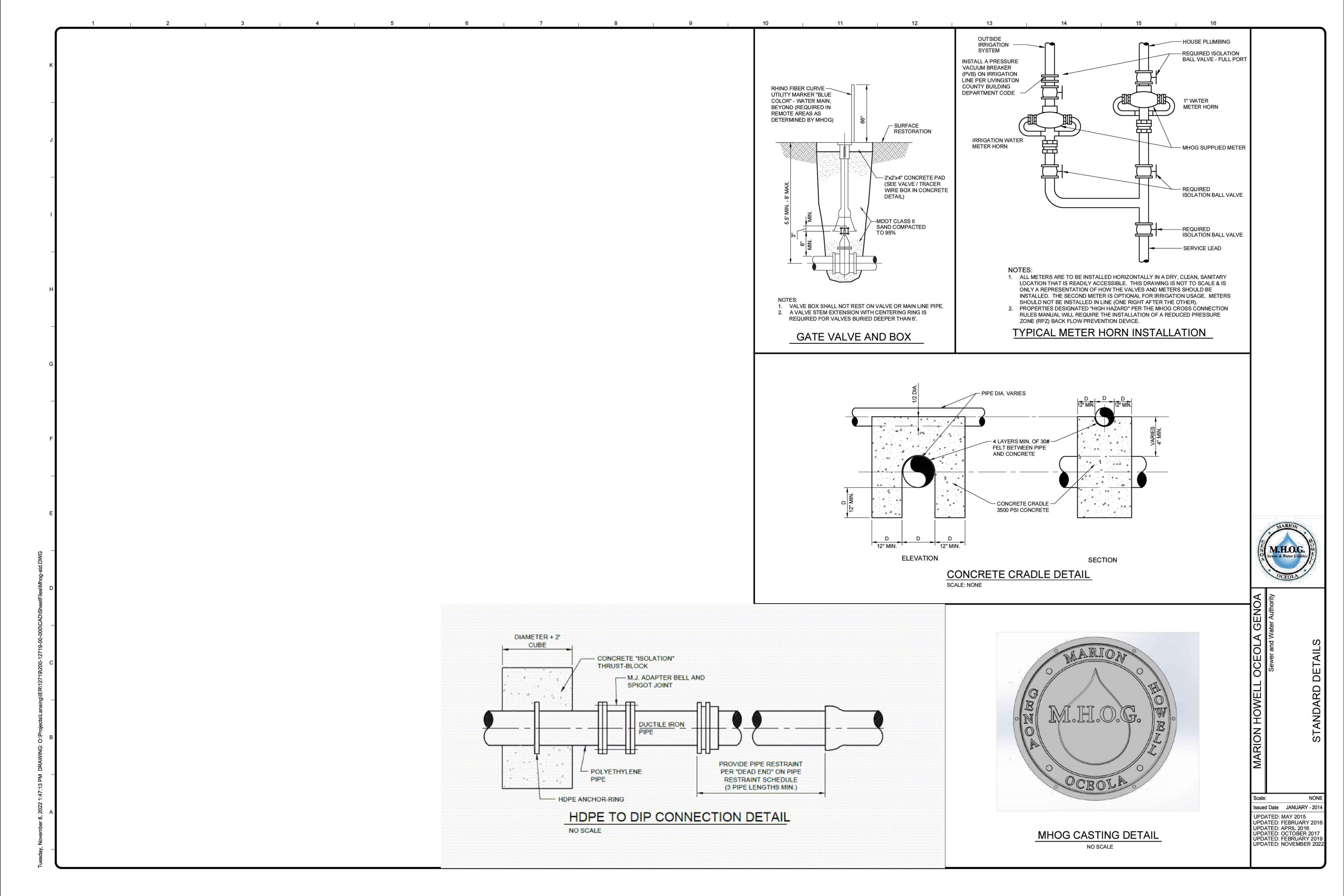
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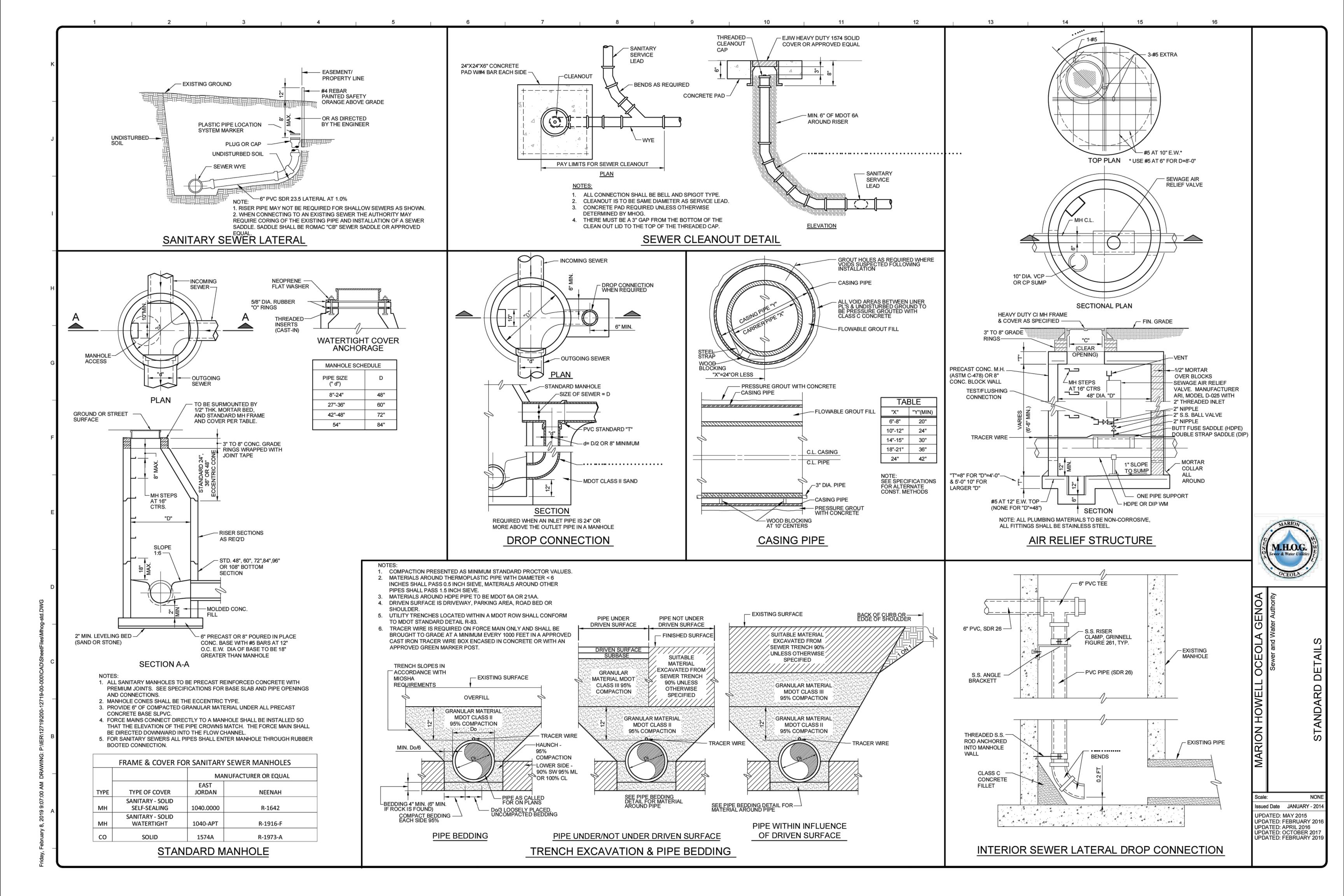
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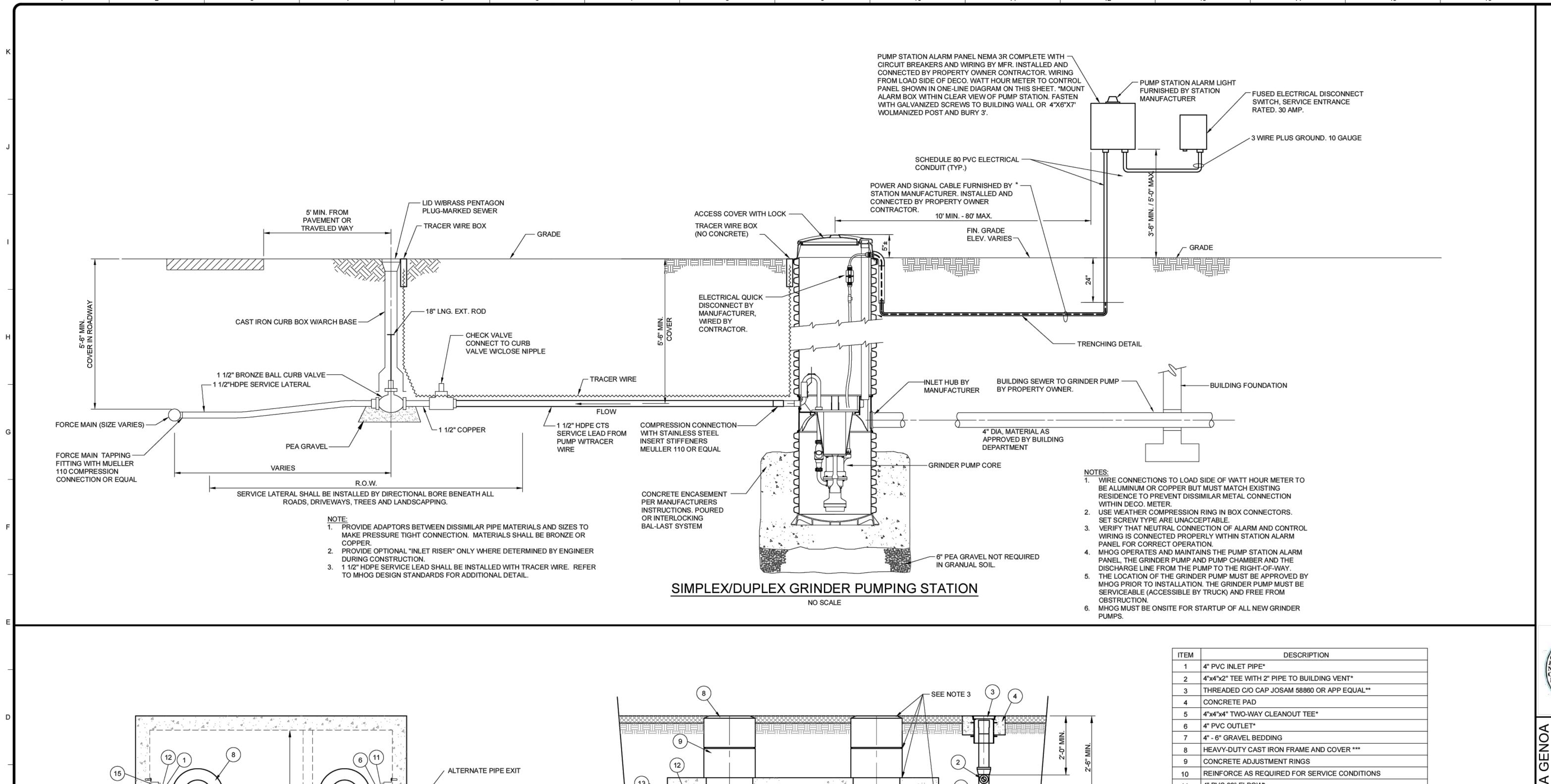
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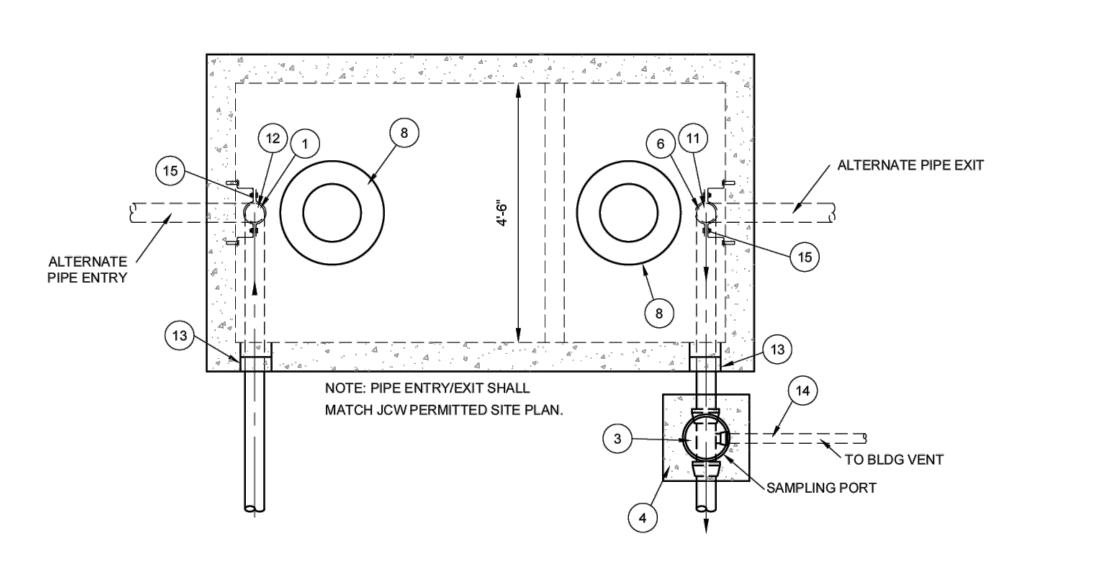
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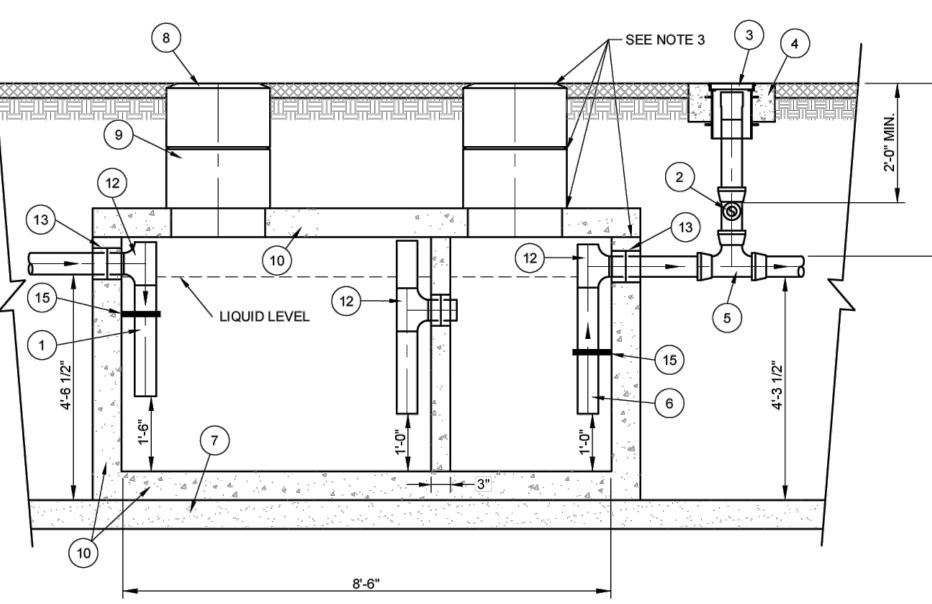












ITEM	DESCRIPTION
1	4" PVC INLET PIPE*
2	4"x4"x2" TEE WITH 2" PIPE TO BUILDING VENT*
3	THREADED C/O CAP JOSAM 58860 OR APP EQUAL**
4	CONCRETE PAD
5	4"x4"x4" TWO-WAY CLEANOUT TEE*
6	4" PVC OUTLET*
7	4" - 6" GRAVEL BEDDING
8	HEAVY-DUTY CAST IRON FRAME AND COVER ***
9	CONCRETE ADJUSTMENT RINGS
10	REINFORCE AS REQUIRED FOR SERVICE CONDITIONS
11	4" PVC 90° ELBOW*
12	4" PVC TEE*
13	A-LOK OR PRESS SEAL PSX PIPE/WALL CONNECTOR
4.4	2" VENT PIPE (IDENTIFY PIPE TYPE, CLASS & JOINT
14	AS REQUIRED FOR PROJECT)
15	STAINLESS STEEL PIPE SUPPORT CLAMP ****

- * 6" PIPE MAY BE SUBSTITUDED TO MATCH UPSTREAM PIPE DIAMETER.
- ** REFER TO CLEAN OUT DETAIL(S) ON STANDARD DETAIL SHEET.
- *** CLAY & BAILEY 2008 BV OR EQUAL (FROST PROOF COVERS OPTIONAL) ****FM STAINLESS FASTNERS #63 OR EQUAL. 1/2"x2-1/2" SS BRACKET W/ 1/2"x1-1/2" FULLY THREADED SS HEX BOLT WITH 1/2" SS WASHER AND 1/2"X1-3/4" SS ANCHORS. CLAMP TO BE FACTORY

INSTALLED.

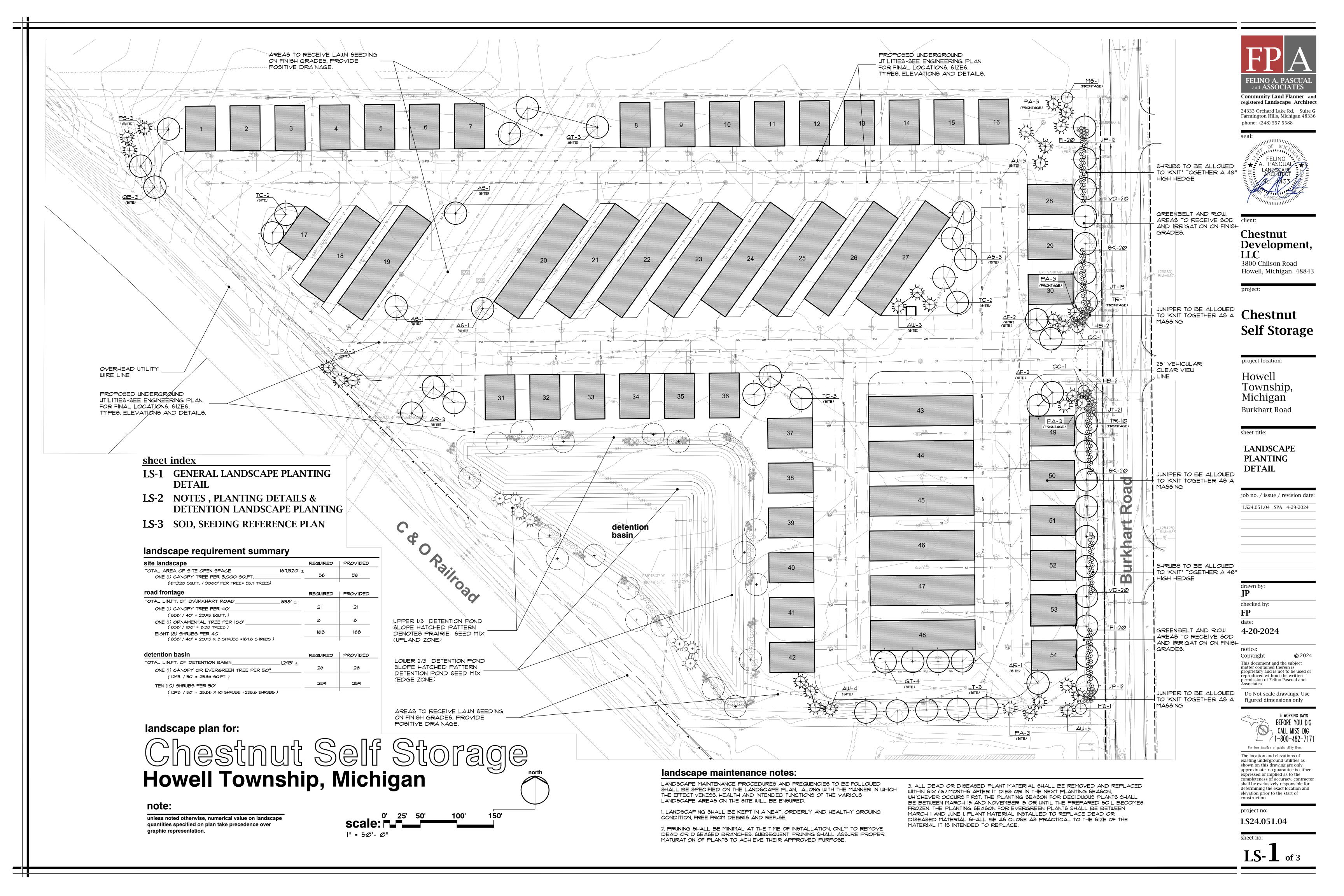
- 1. THREE COVERS AND RISERS SHOWN. TWO COVERS AND RISERS CENTERED OVER UPPER TWO BAFFLES ARE OPTIONAL.
- 2. INTERCEPTOR SIZE 1000 GAL MINIMUM (REVISE THE SIZE DIMENSIONS, AS NEEDED, FOR LARGER
- CAPACITY INTERCEPTORS) 3. ALL JOINTS AT THE FRAME & COVER*, CONCRETE ADJUSTMENT RINGS AND THE LID OF THE
- INTERCEPTOR SHALL BE SEALED WITH A MINIMUM OF TWO (2) ROWS OF 3/4 TO 1 INCH PREFORMED BUTYL JOINT SEALER AND A 6" BUTYL JOINT WRAP AROUND SLEEVE (EZ WRAP). THE ENDS OF THE 6" EZ WRAP SHALL OVERLAP BY 12".
- 4. PIPING ON THE INTERIOR OF THE INTERCEPTOR SHALL BE PVC WITH SOLVENT-CEMENTED JOINTS. 5. GREASE INTERCEPTOR INCLUDING ADJUSTMENT RINGS AND CASTINGS SHALL BE WATER TESTED
- FOR WATER TIGHTNESS AFTER THE BACKFILL OPERATIONS HAVE BEEN COMPLETED. WATER TESTING SHALL CONSIST OF THE FOLLOWING: 1. SEAL THE TANK, 2. FILL WITH WATER, 3. LET STAND FOR 24 HOURS, 4. REFILL TANK, 5. TANK IS APPROVED IS WATER LEVEL IS HELD FOR 1 HOUR.
- 6. ONLY KITCHEN WASTE SHALL BE DIVERTED TO THE GREASE TRAP.



ssued Date JANUARY - 2014 UPDATED: MAY 2015 UPDATED: FEBRUARY 2016 UPDATED: PEBRUARY 2016 UPDATED: OCTOBER 2017 UPDATED: FEBRUARY 2019

UPDATED: NOVEMBER 2022

GREASE INTERCEPTOR 1000 GALLON



general landscape notes:

I. LANDSCAPE CONTRACTOR SHALL VISIT THE SITE, INSPECT EXISTING CONDITIONS, REVIEW PROPOSED PLANTINGS AND RELATED WORK, CONTACT THE OWNER AND/OR LANDSCAPE ARCHITECT WITH ANY CONCERNS OR DISCREPANCY BETWEEN THE PLAN, PLANT MATERIAL LIST, AND/OR SITE CONDITIONS.

2. PRIOR TO BEGINNING OF CONSTRUCTION ON ANY WORK, CONTRACTORS SHALL VERIFY LOCATIONS OF ALL ON SITE UTILITIES, GAS, ELECTRIC, TELEPHONE, CABLE TO BE LOCATED BY CONTACTING MISS DIG 1-800-482-7171. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COORDINATE ALL RELATED WORK ACTIVITIES WITH OTHER TRADES AND REPORT ANY UNACCEPTABLE JOB CONDITIONS TO OWNER PRIOR TO COMMENCING

3. NUMERICAL VALUE ON THE LANDSCAPE QUANTITIES SPECIFIED ON THE PLAN TAKE PRECEEDENCE OVER GRAPHIC REPRESENTATION, VERIFY ANY CONCERN-DISCREPANCY WITH LANDSCAPE ARCHITECT.

4. ALL CONSTRUCTION AND PLANT MATERIAL LOCATION TO BE ADJUSTED ON SITE IF NECESSARY

5. ALL SUBSTITUTIONS OR DEVIATIONS FROM THE LANDSCAPE PLAN MUST BE APPROVED BY HOWELL TOWNSHIP AND LANDSCAPE ARCHITECT IN WRITING.

6. ALL LARGE TREES AND EVERGREENS TO BE STAKED, GUYED AND WRAPPED AS DETAIL SHOWN ON PLAN.

7. PLANT BEDS TO BE DRESSED WITH MIN. 4" OF FINELY DOUBLE SHREDDED HARDBARK MULCH.

8. DIG SHRUB PITS 1' LARGER THAN SHRUB ROOT BALLS AND TREE PITS 2' LARGER THAN ROOT BALL. BACK FILL WITH ONE PART TOP SOIL AND ONE PART SOIL FROM EXCAYATED PLANTING HOLE.

9. REMOVE ALL TWINE, WIRE AND BURLAP FROM TREE AND SHRUB EARTH BALLS, AND FROM TREE TRUNKS, 4" THICK BARK MULCH FOR TREES IN 4' DIA, CIRCLE WITH 3" PULLED AWAY FROM TRUNK . 4" THICK BARK MULCH FOR SHRUBS AND 2" THICK BARK MULCH FOR PERENNIALS.

10. PLANT MATERIAL QUALITY & INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT AMERICAN ASSOCIATION OF NURSERYMEN LANDSCAPE STANDARDS.

II. PROVIDE SOD FOR ALL NEW AND DISTURBED LAWN AREAS UNLESS NOTED OTHERWISE. NO PEAT SOD

12. ALL PLANTING AREAS TO BE PREPARED WITH APPROPRIATE SOIL MIXTURES AND FERTILIZER BEFORE PLANT INSTALLATION. 13. PLANT TREES AND SHRUBS GENERALLY NO CLOSER THEN THE FOLLOWING DISTANCES

FROM SIDEWALKS, CURBS AND PARKING STALLS: a). SHADE TREES_ b). ORNAMENTAL AND EVERGREEN TREES (CRAB, PINE, SPRUCE, ETC.)_ c). SHRUBS THAT ARE LESS THAN I FOOT TALL

AND WIDE AT MATURITY

14. NO TREES OR EVERGREENS TO BE INSTALLED OVER ANY PROPOSED OR EXISTING UTILITY LINES AS SHOWN ON THE OVERALL LANDSCAPE PLAN. SEE ENGINEERING PLANS FOR LOCATION AND DETAILS.

15. ALL NEW LAWN AREAS AND NEW LANDSCAPE BEDS TO BE FULLY IRRIGATED WITH A AUTOMATIC UNDERGROUND SYSTEMS. IRRIGATION SYSTEM TO HAVE SEPARATE ZONES FOR LAWN AREAS, PARKING ISLANDS, AND SHRUB BEDS WITH DIFFERENT CONTROL MOISTURE LEVEL ADJUSTMENT PER ZONE AS REQUIRED. IRRIGATION PLAN TO BE PROVIDED DURING FINAL SITE PLAN APPROVAL

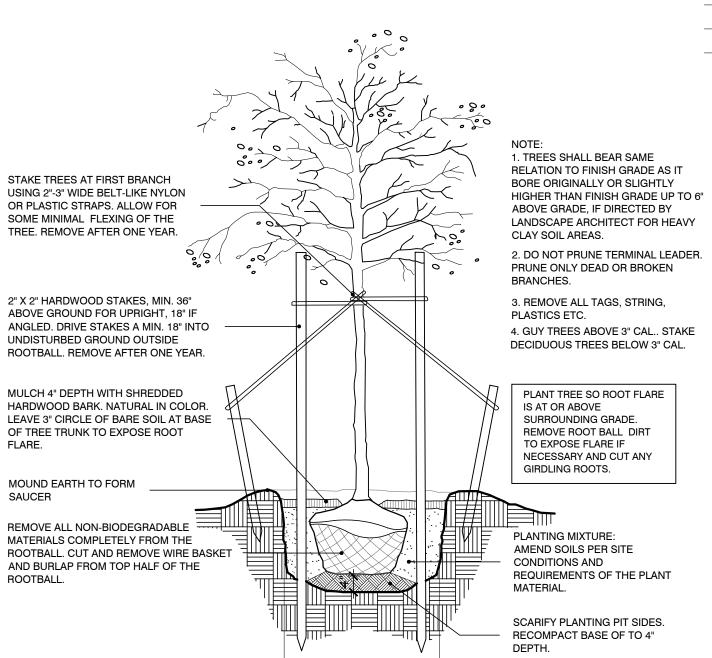
16. UNLESS NOTED OTHERWISE, LANDSCAPE BEDS ADJACENT TO LAWN TO RECIEVE EDGING. EDGING SHALL BE 4" X 1/8" METAL (FINISH BLACK OR GREEN) OR APPROVED EQUAL AND TO BE INSTALLED WITH HORIZONTAL METAL STAKES AT 32" O.C. OR PER MANUFACTERER'S SPECIFICATION.

17. ALL NEW PARKING ISLANDS AND LANDSCAPE BEDS ADJACENT AND NEXT TO BUILDING SHALL BE EXCAVATED OF ALL BUILDING MATERIALS AND POOR SOILS A MIN. OF 16"-18" DEPTH. BACK FILL WITH GOOD, MEDIUM TEXTURED PLANTING SOILS. ADD A MIN. 4" OF TOPSOIL OVERFILL TO FINISH GRADE. PROVIDE POSITIVE DRAINAGE.

18. WATERING OF ALL PLANTS AND TREES TO BE PROVIDED IMMEDIATELY AND MULCHING WITHIN 24 HOURS AFTER INSTALLATION.

19. ALL TREE PITS TO BE TESTED FOR PROPER DRAINAGE PRIOR TO TREE PLANTING. PROVIDE APPROPRIATES DRAINAGE SYSTEM AS REQUIRED IF THE TREE PIT DOES NOT

20. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL LANDSCAPE PLANT MATERIALS AND IRRIGATION INSTALLATION FOR A PERIOD OF TWO YEAR BEGINNING AFTER THE COMPLETION OF LANDSCAPE INSTALLATION DATE APPROVED BY THE CITY OR LANDSCAPE ARCHITECT. THE CONTRACTOR SHALL REPLACE DURING AND AT THE END OF THE GUARANTEE PERIOD, ANY DEAD OR UNACCEPTABLE PLANTS, AS DETERMINED BY THE TOWNSHIP OR LANDSCAPE ARCHITECT, WITHOUT COST TO THE



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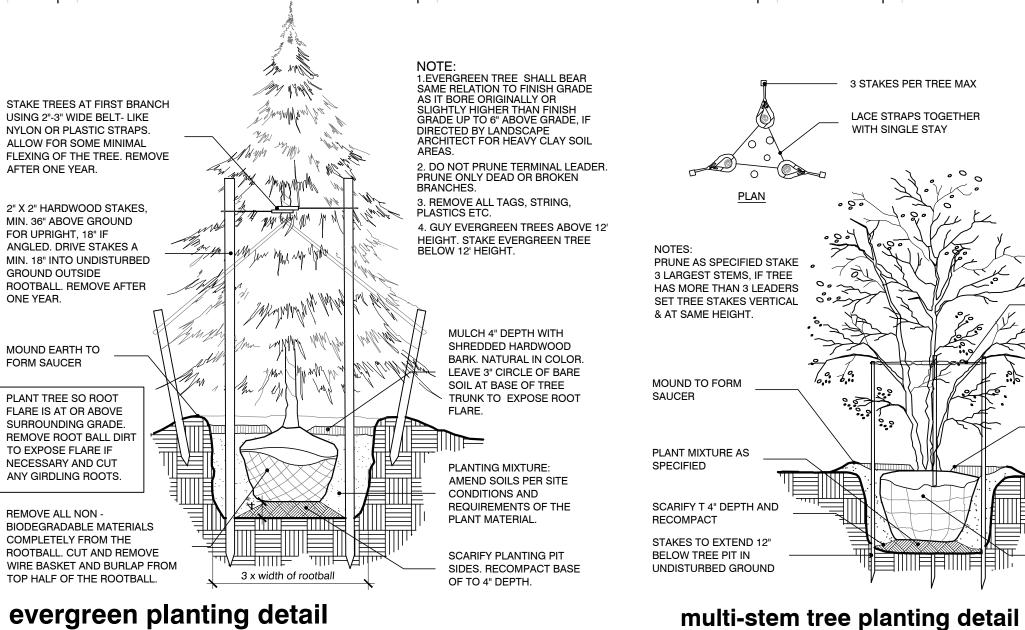
tree planting detail

plant material list (general)

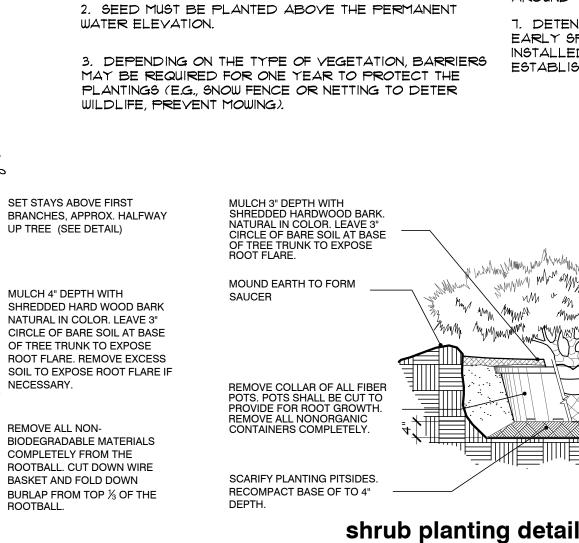
		Plant materia	ii iist (general)		
key	quant. LS- 1A	botanical name	common name	size	comments
		DECIDUOUS AND EVERGREEN TREES			
QB	3	QUERCUS BI-COLOR	WHITE SWAMP OAK	2 1/2" BB	
TR	17	TILIA AMERICANA 'REDMOND'	REDMOND LINDEN	2 1/2" BB	
TC	7	TILIA CORDATA 'GREENSPIRE'	GREENSPIRE LINDEN	2 1/2" BB	
LT	5	LIRIODENDRON TULIPIFERA	TULIPTREE	2 1/2" BB	
AR	4	ACER R. 'FRANKSRED'	RED SUNSET RED MAPLE	2 1/2" BB	
AF.	4	ACER X FREEMANII 'JEFFERSRED'	AUTUMN BLAZE RED MAPLE	2 1/2" BB	
AS	6	ACER SACCHARUM	SUGAR MAPLE	2 1/2" BB	
GT	٦	GLEDITSIA TRI. INERMIS ' SKYCOLE'	SKYLINE HONEY LOCUST	2 1/2" BB	
MS	2	MALUS SARGENTII	SARGENT CRABAPPLE	2" BB	
CC	5	CERCIS CANADENSIS	EASTERN REDBUD	2" BB	
ΔW	13	ABIES CONCOLOR	CONCOLOR FIR	8' BB	
PS	3	PINUS STROBUS	EASTERN WHITE PINE	8' BB	
PA	15	PICEA ABIES	NORWAY SPRUCE	8' BB	
		SHRUBS			
JŤ	40	JUNIPERUS S. 'TAMARISAFOLIA'	TAM'S JUNIPER	30" CONT.	42" O.C. SPACING
HB	4	HYDRANGEA PANICULATA ' ILVOBO'	BOBO HYDRANGEA	30" CONT.	423" O.C. SPACINO
FI	20	FORSYTHIA X INTERMEDIA	BORDER FORSYTHIA	3' BB	60" O.C. SPACINO
JP	24	JUNIPERUS CHINENSIS 'PFITZERIANA COMPACTA'	COMPACT PFITZER COMPACT	30" CONT.	42" O.C. SPACING
VD.	40	VIBURNUM DENTATUM	ARROWWOOD VIBURNUM	3' BB	60" O.C. SPACINO
sK.	40	SYRINGA PATULA 'MISS KIM'	MISS KIM DWARF LILAC	3' BB	60" O.C. SPACINO
		PERENNIALS AND GRASSES			
CKF	-	CALAMAGROSTIS X.A. 'KARL FOERSTER'	KARL FOERSTER FEATHER REED GRASS	*3 CONT.	48" O.C. SPACING
MSM	-	MISCANTHUS SINENSIS 'MORNING LIGHT'	MORNING LIGHT JAPANESE SILVER GRASS	*3 CONT.	48" O.C. SPACING

plant material list (detention)

key	quant. LS- 2A	botanical name	common name	size	comments
		DECIDUOUS AND EVERGREEN TREES			
QB	6	QUERCUS BI-COLOR	WHITE SWAMP OAK	2 1/2" BB	
LS	4	LIQUIDAMBAR STYRACIFLUA	AMERICAN SWEETGUM	2 1/2" BB	
co	3	CELTIS OCCIDENTALIS	COMMON HACKBERRY	2 1/2" BB	
AR	6	ACER RUBRUM	RED MAPLE	2 1/2" BB	
ΔW	7	ABIES CONCOLOR	CONCOLOR FIR	8' BB	
		SHRUBS			
VD	30	VIBURNUM DENTATUM	ARROW WOOD VIBURNUM	30" CONT.	60" SPACING O.C
FI	43	FORSYTHIS X INTERMEDIA	BORDER FORSYTHIA	30" CONT.	60" SPACING 0.0
CS	32	CORNUS STOLONIFERA	REDTWIG DOGWOOD	30" CONT.	60" SPACING 0.0
CF	15	CORNUS FLAVIRAMEA	YELLOWTWIG DOGWOOD	30" CONT.	60" SPACING O.C
RAG	72	RHUS AROMATICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	24" CONT.	42" SPACING O.C.
AM	30	ARONIA ARBUTIFOLIA 'BRILLIANTISSIMA'	RED CHOKEBERRY	30" CONT.	60" SPACING 0.0
SG	51	SPIRAEA J. 'GOLDMOUND'	GOLDMOUND SPIREA	24" CONT	42" SPACING O.C.
		4			



no scale



SEEDING ON FINISH GRADES PROVIDE POSITIVE DRAINAGE RAG-6 XX VD-15 UPPER 1/3 DETENTION POND SLOPE HATCHED PATTERN RAG-6 DENOTES PRAIRIE SEED MIX (UPLAND ZONE) LOWER 2/3 DETENTION POND RAG-SLOPE HATCHED PATTERN DETENTION POND SEED MIX (EDGE ZONE) AREAS TO RECEIVE LAWN SEEDING ON FINISH GRADES. PROVIDE POSITIVE DRAINAGE. RAG-1

AREAS TO RECEIVE LAWN

detention landscape planting plan

detention basin		REQUIRED	PROVIDED
TOTAL LIN.FT. OF DETENTION BASIN	_1,293' <u>+</u>		
ONE (I) CANOPY OR EVERGREEN TREE PER 50"		26	26
(1293' / 50' = 25.86 SQ.FT.)			
TEN (IO) SHRUBS PER 50'		259	259
(1293' / 50' = 25.86 X IO SHRUBS =258.6 SHRUBS)		1

basin construction notes

. PROPER CONSTRUCTION TECHNIQUES, PARTICULARLY A MUCH BLANKET PEGGED IN PLACE. INSTALLATION OF VEGETATION, ARE IMPORTANT TO THE SUCCESSFUL FUNCTIONING OF OPEN DETENTION BASINS, ESPECIALLY FOR CONSTRUCTED WETLAND TYPE OPEN DETENTION BASINS IN ORDER TO ESTABLISH A DENSE AND DIVERSE EMERGENT WETLAND PLANT COMMUNITY GENERAL GUIDELINES FOR VEGETATION INSTALLATION INCLUDE:

2. SEED MUST BE PLANTED ABOVE THE PERMANENT

3. DEPENDING ON THE TYPE OF VEGETATION, BARRIERS MAY BE REQUIRED FOR ONE YEAR TO PROTECT THE PLANTINGS (E.G., SNOW FENCE OR NETTING TO DETER

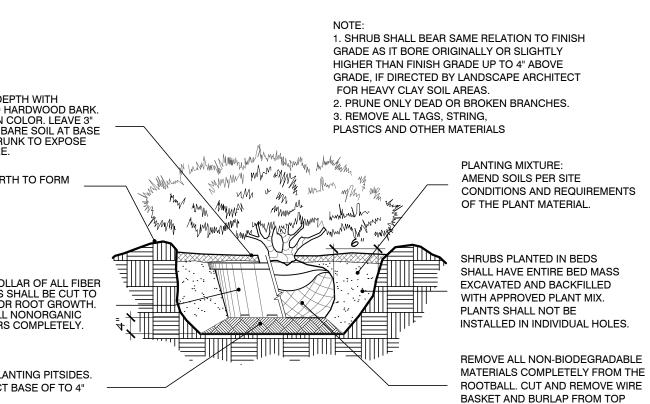
4. ALL SEEDED AREAS TO BE PROPERLY STABILIZED WITH

5. IF DETENTION BASIN ARE COMPACTED, THE SLOPES MUST BE ROTOTILLED. 4" (FOUR) OF COMPOST OR TOPSOIL MUST BE

6. "NO MOW ZONE" SIGNS MUST BE PLACED AROUND THE BASIN

1. DETENTION BASIN NATIVE SEEDING TO BE PERFORMED IN EARLY SPRING OR LATE FALL. AQUATIC PLANTS SHOULD BE INSTALLED IN THE SUMMER AFTER THE COVER CROP HAS ESTABLISHED

HALF OF THE ROOTBALL.



approximate. no guarantee is eithe expressed or implied as to the completeness of accuracy. contractor shall be exclusively responsible for determining the exact location and elevation prior to the start of

> project no: LS24.051.04

and **ASSOCIATES**

Community Land Planner and

registered Landscape Architect

24333 Orchard Lake Rd, Suite G

Farmington Hills, Michigan 48336

phone: (248) 557-5588

Chestnut

Development,

Howell, Michigan 48843

3800 Chilson Road

Chestnut

project location:

Howell

sheet title:

NOTES

checked by:

4-20-2024

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For free location of public utility lines

existing underground utilities as

shown on this drawing are only

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Burkhart Road

PLANT DETAILS

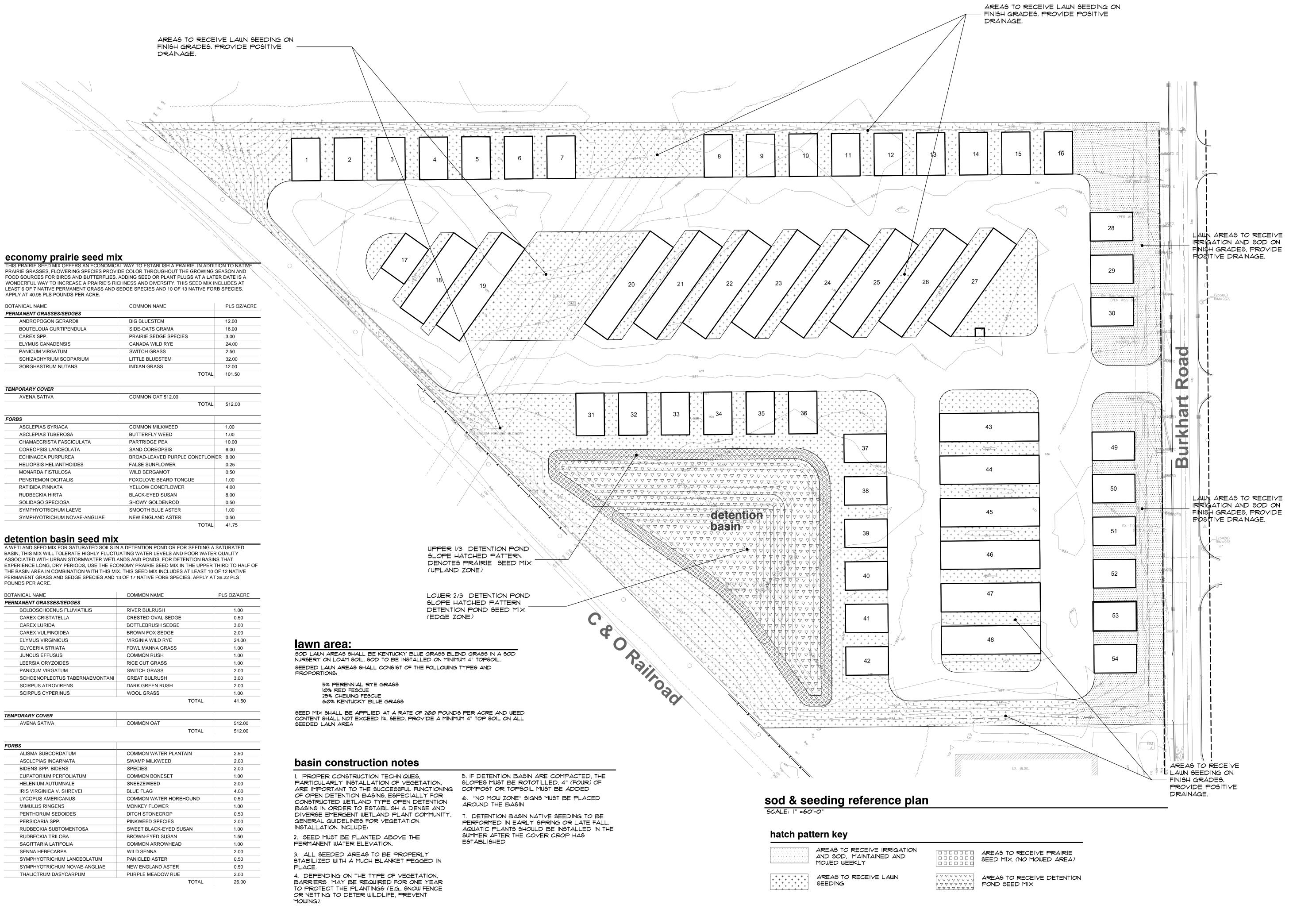
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LS24.051.04 SPA 4-29-2024

Self Storage

seal:



FELINO A. PASCUAL and ASSOCIATES

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phone: (248) 557-5588

seal:

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FELINO

A. PASCUAL

LANDSCAPE

ARCHITECT

ANDSCAPE

ARCHITECT

ANDSCAPE

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ct:

Chestnut Self Storage

Howell Township, Michigan Burkhart Road

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checked by:

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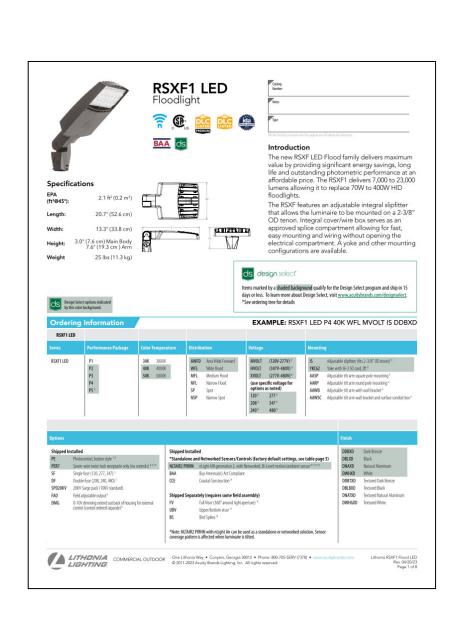
For free location of public utility lines

The location and elevations of existing underground utilities as shown on this drawing are only approximate. no guarantee is either expressed or implied as to the completeness of accuracy. contracte shall be exclusively responsible for determining the exact location and elevation prior to the start of construction

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LS-3 of 3



General Note

- 1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
- 2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' 0" & 5' 0"
- 5. CALCULATIONS ARE SHOWN IN FOOTCAMPLES AT. 0 0 & 5 0

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705.

Alternates Note

THE USE OF FIXTURE ALTERNATES MUST BE RESUBMITTED TO THE CITY FOR APPROVAL.

Drawing Note

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Mounting Height Note

MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

Schedul													
Symbol	Label	QTY	Manufacturer	Catalog	Description	LLF	Mounting Height						
	F	25	Lithonia Lighting	RSXF1 LED 40K	RSXF Flood Fixture Size 1 4000K CCT	0.9	16'						
	S1	4	Lithonia Lighting	RSX1 LED 40K	RSX LED Area Luminaire Size 1 4000K CCT	0.9	25'						
	S2	2	Lithonia Lighting	RSX1 LED 40K	RSX LED Area Luminaire Size 1 4000K CCT	0.9	25'						
	W	153	Lithonia Lighting	WPX1 LED 40K Mvolt	WPX1 LED wallpack 4000K color temperature 120-277 Volts	0.9	12'						

Statistics											
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min					
Overall	+	0.5 fc	7.8 fc	0.0 fc	N/A	N/A					
Property Line	+	0.0 fc	0.6 fc	0.0 fc	N/A	N/A					
Main Drive Lane	ж	1.0 fc	7.8 fc	0.1 fc	78.0:1	10.0:1					

*1.6 *1.2 *0.8 *0.5

*0.2 *0.5 *0.8 *1.1 *1.5 +2.9 +3.6 +3.6 +3.1

*0.3 *0.6 *1.1 *1.8 [†]1.5 [†]1.8 [†]1.7 [†]0.8 [†]1.7 [†]2.0 [†]0.9 [†]1.4 [†]2.3 [†]

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CHESTNUT ST PHOTOMETRIC GASSER BUSH AS WWW.GASSERBI

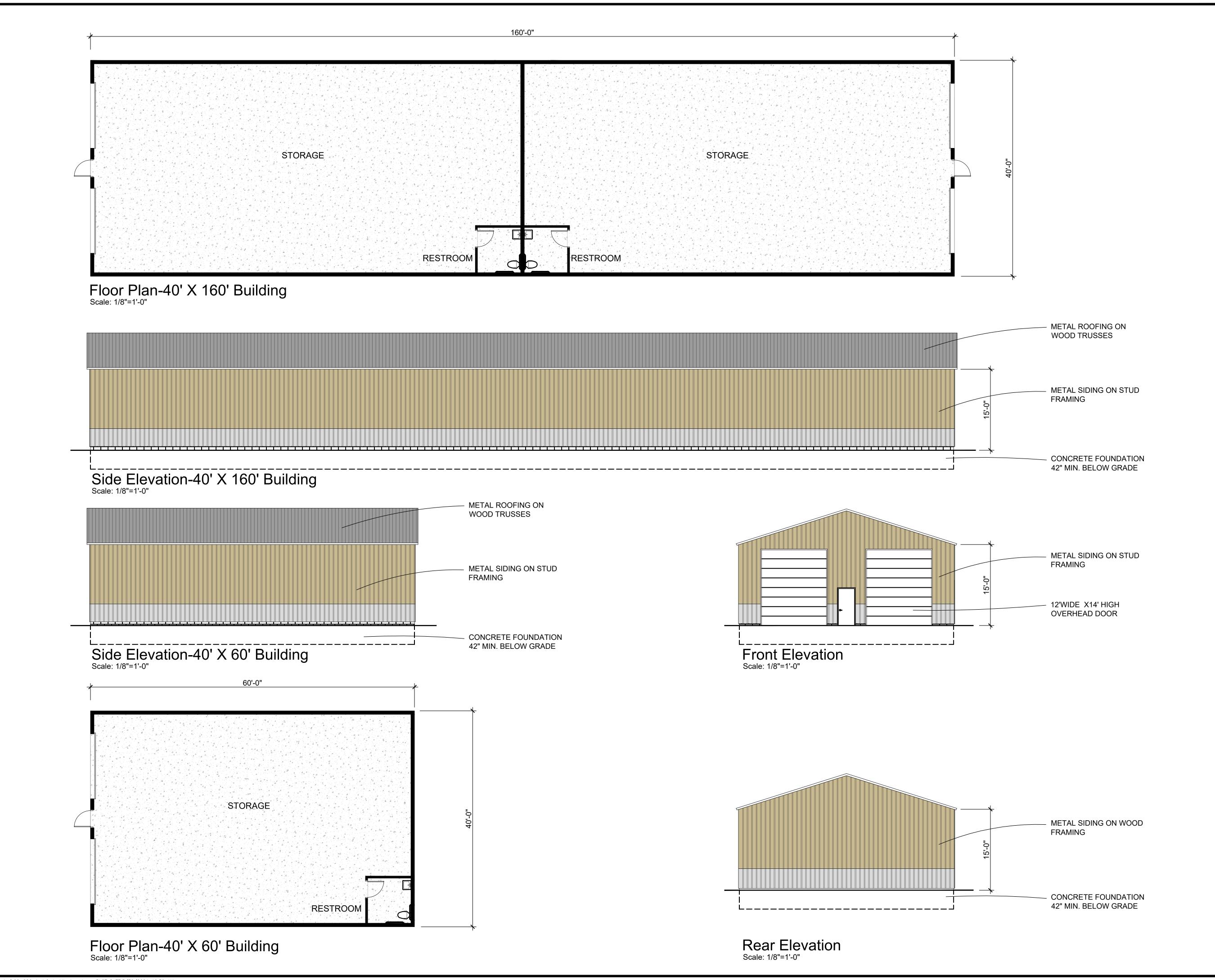
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AND ELEVATIONS PRIOR TO THE START

CLIENT :

CHESTNUT DEVELOPMENT, LLC 3800 CHILSON ROAD HOWELL, MI 48843

POC: STEVE GRONOW 517-552-2489

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VINGSTON CO., MICHIGAN

CHESTNUT S
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PLAN SUBMITTALS/REVISIONS DATE
PRELIMINARY/FINAL SITE PLAN SUBMITTAL 5/28/202
REVISED SITE PLAN SUBMISSION 5/30/202

ORIGINAL ISSUE DATE: 02/29/2024

PROJECT NO: 22-286

SCALE: 1/8"=1'-0'

0 1/2" 1"

FIELD:

DRAWN BY: CD

DESIGN BY: BS

CHECK BY: AP

CK BY: AP

A-1.0