CITY OF PORTAGE PLANNING COMMISSION

AGENDA

Thursday, June 26, 2025
7:00 PM

Portage City Hall Council Chambers

CALL TO ORDER

PLEDGE OF ALLEGIANCE

ROLL CALL

APPROVAL OF MINUTES:

1. Meeting Minutes dated May 1, 2025

PUBLIC HEARINGS

SITE/FINAL PLANS:

1. An application seeking Site Plan approval for Jiffy Lube automotive service station at 8516 Shaver Road.

OLD BUSINESS:

NEW BUSINESS:

STATEMENT OF CITIZENS:

ADJOURNMENT:

Star (*) indicates printed material within the agenda packet.

CITY OF PORTAGE PLANNING COMMISSION

Thursday, May 1, 2025
7:00 PM Portage
Portage City Hall Council Chamber

The City of Portage Planning Commission meeting of May 1, 2025, was called to order by Chair Corradini at 7:00 p.m.

IN ATTENDANCE

- Peter Dame, Chief Development Officer
- Eric Feldt, Senior City Planner
- Alex Johnson, City Planner
- Biqi Zhao, Deputy Director of Planning and Zoning
- Catherine Kaufman, City Attorney

ROLL CALL

Staff called the roll: Chairman Corradini (yes); Vice Chair Baldwin (yes); Secretary Freiman (yes), Adams (yes); Copp (yes); Joshi (yes); Fries (yes); Youngs (yes); and Crowell (yes). 9-Present; 0-Absent.

APPROVAL OF MINUTES

1. Meeting Minutes dated April 17, 2025

Commissioner Joshi clarified the minutes that her words got misinterpreted and stated for the record that she did not have negative commons towards duplexes. Motion by Commissioner Joshi, seconded by Vice Chair Baldwin to approve April 17, 2025, meeting minutes with the clarification. Motion carried 9-0.

PUBLIC HEARINGS

1. Rezoning #24/25-4: The City of Portage seeks to amend the Code of Ordinances of the City of Portage, Michigan, Article 4 - Zoning of Chapter 42 by establishing new development standards of partial City Centre Subarea and rezoning to create opportunities for mixed-use development at 8120 S. Westnedge Avenue and a portion of 129 W. Centre Avenue.

Mr. Feldt presented the proposal, project details, site area, drawings, background, maps, the site and review standards, details of the zoning amendment, process, and analysis. He also stated that the required public noticing had taken place. Mr. Feldt stated that staff had not received any comments about the project. He concluded the presentation with the recommendation to the City Council the approval of the Text Amendment and Rezoning #24/25-4 by establishing new development standards of partial City Centre Subarea and rezoning to create opportunities for mixed-use development at 8120 S. Westnedge Avenue and a portion of 129 W. Centre Avenue.

Chair Corridini inquired about the infrastructure and its ability to support future development, and if the schools had given any feedback regarding the rezone.
Mr. Feldt indicated that staff's future review of the project will address utilities, and that the concept development is not part of the rezone. He indicated there has been no feedback from the schools regarding this rezone.

Commissioner Youngs asked if this particular lot was part of the Brownfield program.
Mr. Feldt confirmed that it was.

Commissioner Copp expressed concerns about how the narrowness of the adjacent driveway and parking lot could impact future development resulting from the rezone.
Mr. Feldt stated that those concerns will be addressed through staff review in the future if a project is proposed.

Chair Corridini opened the public hearing.

- Robert Williams, 10930 S. Westnedge Ave,
  Mr. Williams stated concerns about over-development, the lack of associated infrastructure, increased traffic and parking needs, and disagreed with the location of the concept development.

Motion by Commissioner Joshi, seconded by Vice Chair Baldwin to close the public hearing. Upon a voice vote, motion carried 9-0.

Motion by Commissioner Joshi, supported by Secretary Freiman, to recommend to City Council the approval of Text Amendment and Rezoning #24/25-4 by establishing new development standards of partial City Centre Subarea and rezoning to create opportunities for mixed-use development at 8120 S. Westnedge Avenue and a portion of 129 W. Centre Avenue. Upon voice vote, motion carried 9-0.

SITE/FINAL PLANS

None.

OLD BUSINESS

None.

NEW BUSINESS

1. Presentation: Proposed CIP program for FY 2025-26

Peter Dame, Chief Development Officer with the City of Portage, presented an overview of this year's Capital Improvement Program (CIP) project to the Commission. He stated that there were no decisions needed, and this was to inform the Planning Commission. He gave a brief overview of each chapter of the CIP, and mentioned various street projects, sidewalks and trails, utilities, and public facilities.

Chair Corridini inquired if any projects would be eliminated if they were deferred to later fiscal years.
Mr. Dame stated that it happens rarely. He also stated that only the first-year projects are budgeted, later years' projects are less guaranteed budgeting and are placed in a queue.

Chair Corridini stated support for construction that addresses both infrastructure and the street itself at the same time, instead of separating the two elements. He asked if the City was losing money on improving roads, as in the previous years, more money had been put towards road improvement projects.
Mr. Dame stated that using grants and the Capital Improvement millage provides consistent funds, but the cost of constructing projects has increased quickly. He also stated support for using more preventative measures to avoid future costly replacements.

Motion by Commissioner Copp, supported by Commissioner Crowell, to accept the CIP. Upon voice vote, motion carried 9-0.

STATEMENT OF CITIZENS

- Robert Williams, 10930 S. Westnedge Ave,
  Mr. Williams expressed concerns about the growing number of rentals in Portage lately, and seeing an abundance of apartments with vacancies. He asked if the targeted housing need in Kalamazoo County from the W.E. Upjohn Institute Kalamazoo County Housing Plan has been surpassed.
  Commissioner Adams said that he works for the W. E. Upjohn Institute and there have been 2,500 permitted units in the last three years in Kalamazoo County.

STATEMENT OF COMMISSIONERS/ STAFF

Mr. Feldt indicated that the May 15th meeting might be cancelled; an email will be sent to all Commissioners about that meeting in the near future. City Hall will be closed on June 19th for Juneteenth so there will be no meeting on that day. Staff will inform the Commission if a second meeting will be held in June. The next meeting after would be July 3rd, which is close to the July 4th holiday and the Commission can expect an email in the future about rescheduling that meeting.

Chair Corridini wished Commissioner Joshi farewell as she will be termed out.
Commissioner Joshi thanked everyone and wished them farewell.

ADJOURNMENT

There being no further business to come before the Commission, Chair Corradini adjourned the meeting at 8:04 p.m.

Respectfully submitted,

Eric Feldt
Senior City Planner

TO: Planning Commission **DATE:** June 26, 2025

FROM: Peter Dame, Chief Development Officer

SUBJECT: An application seeking Site Plan approval for Jiffy Lube automotive service station at 8516 Shaver Road.

I. INTRODUCTION:

The applicant (Guggenheim Development Services LLC) has filed a Site Plan application for an automotive service station (Jiffy Lube) at 8516 Shaver Road, located along the west side of Shaver Road in front of Walmart (8350 Shaver Rd). The proposal consists of a new building and parking areas connecting to the existing overall parking and internal circulation areas of the Walmart Shopping Center site.

In addition to the subject Site Plan, the applicant recently gained an approved Parcel Line Adjustment from the City of Portage to slightly relocate the northeast property line to have all 13 existing parking spaces be entirely located on the subject parcel. The approved survey for this adjustment is attached.

The applicant has submitted a building permit to be reviewed by staff concurrent with the subject Site Plan review. This building permit cannot be issued until the Planning Commission approves the Site Plan.

II. BACKGROUND INFORMATION:

The subject parcel is part of an overall Commercial Planned Development (CPD) zoning district, as seen in the attached zoning map. The intent of CPD is to support an integrated commercial setting that unifies and complements various businesses in a defined area. This district was established in late 2003 through the redevelopment of several former parcels and buildings into Walmart Shopping Center and gas station, Arby's restaurant, and several undeveloped outlots. The subject parcel is one of these outlots.

The permitting of the Walmart Shopping Center, later additions, gas station and Arby's restaurant required certain City Council and Planning Commission approvals. Specifically, Arby's restaurant only required Planning Commission approval for Site Plan review in our record. Today's proposed Site Plan will proceed similarly.

The applicant is anticipated to purchase the property if the subject Site Plan is approved.

The following table summarizes **Existing Conditions** in this general area.

Existing Land Use/ Zoning	• The subject site is vacant and zoned Commercial Planned Development (CPD). • North: Restaurant (Arby's); 8508 Shaver Rd; CPD

	• South: Walmart Gas Station; 8350 Shaver Rd; CPD • West: Walmart Shopping Center; 8350 Shaver Rd; CPD • East (Across Shaver Rd, Railroad tracks): Commercial business; 706 W. Melody Dr.; I-2 Heavy Industrial
Public Streets	The surrounding roadway network: Shaver Road – 15,591 average daily trips in 2021 (taken north of Melody Ave. & Shaver Rd intersection).
Public Utilities	City water and sanitary sewer, and private stormwater utilities are available at the site.
Environment	The site is vacant; contains some perimeter trees; and portion of a parking lot.
Unique Conditions	There are no mapped wetlands, flood hazards, or identified historic structures on the site.

Applicable Zoning Regulations

The following sections of Chapter 42 apply and set forth applicable procedures and regulations:

- Site Plan Review: Sec 42-480 thru - 485; and

Proposed Site Plan Review

The proposed Site Plan is for a new Jiffy Lube automobile service center consisting of a one-story brick-sided building with a new parking and circulation areas, landscaping, lighting, dumpster enclosure, and a connecting sidewalk. The building is designed as 2,944 square-foot and consists of three service bays, an office, customer waiting areas, bathrooms, and HVAC room.

The site is accessed through an existing internal Walmart Shopping Center access drives and through another internal drive connected to the adjacent Arby's restaurant site. No direct access to Shaver Road is provided nor allowed for the subject site. The building will connect to existing City water and sewer utilities, and connect to a private storm sewer utility within the overall Walmart Shopping Center area. The applicant has gained permission via easement from adjacent property owners to access those utilities.

Business operations include oil change as the primary service but also consist of servicing of batteries, brakes, tires, windows, engine, filters, fluids and other regular minor automobile maintenance items. The attached floor plan shows the majority of the building is an open area for automobile servicing. Expected business hours are generally during the daytime, Monday – Saturday. Six employees are anticipated to be working during a typical shift.

III. ANALYSIS:

Site Plan Review

Per Sec 42-482 *Site Plan Review Procedures*, the applicant has submitted the required Site Plan application, drawings, and fee.

Proposed Use

The proposed use is categorized as 'auto repair', which is a principal permitted use in the CPD district (this district permits uses in the B-1, B-2, B-3 districts and others) and must meet the following standards (Sec. 42-262. B-3. B.4):

- all operations must occur indoors,
- no outdoor storage of auto parts/ material, and
- vehicle waiting service shall not be located outdoors longer than 14 days.

As proposed, the project meets the above standards. The applicant has been informed that these must continue to be met throughout the operation of the business.

Division 6 - *Site Development Requirements*

The applicant's submitted drawings show how the development meets the following site development requirements:

- **Parking:** Per Sec 42-520, the parking requirement for the project is 14 spaces. The project exceeds this by providing a total of 17 spaces (14 outside, 3 inside).
- **Landscaping:** Per Sec 42-572, trees and bushes are required between the eastern parking lot and Shaver Rd. ROW as a screening from passers-by along Shaver Road. Staff determined not to require trees in this area due to the steep decline in topograph. And, bushes are not required because the parking lot is several feet lower than Shaver Road which will buffer parked cars from Shaver Road passers-by. However, staff recommended the applicant continue the existing shrub hedgerow in front of Arby's restaurant. The applicant has provided this. No other landscaping is required. The applicant is preserving several trees along the southern access drive and two along the north lot line, and providing internal landscaping immediately north of the building.
- **Refuse Enclosure:** Per Sec 42-574, an outdoor dumpster shall be located in an enclosure consisting of a six-foot tall (minimum) full opaque fence or wall. The applicant meets this by providing a refuse enclosure immediately north of the building, consisting of a 6' 2" tall split-faced block wall.
- **Outdoor Lighting:** Per Sec 42-590 thru -597, establish outdoor lighting standards. Due to the commercial nature of the neighborhood, few lighting standards apply. The applicant will continue to use the three existing light posts (one along the southern drive, and two along the north lot line) and install eight new wall-mounted lights around the building walls.
- **Yard Setbacks**: Setbacks in the CPD are flexible to allow for an integrated, cohesive commercial environment. The proposed building is located 34' away from the southern (curved

lot line), 98’ away from the Shaver Rd ROW, 64’ away from the west lot line, and 70’ (approx.) from the north lot line. These are acceptable in the CPD.

Commercial Planned Development (CPD) Standards

The underlying CPD was established in late 2003 to facilitate the overall Walmart Shopping Center and several abutting outlots close to Shaver Road. The permitting process for the adjacent Arby’s restaurant located on a former outlot required a Site Plan vote by the Planning Commission as it was determined to be consistent with the original overall CPD plan. No City Council vote was required. Staff find that the proposed Jiffy Lube business is also generally consistent with the original overall CPD plan. Therefore, the subject Site Plan requires Planning Commission approval the same as the Arby's restaurant process.

Conditions of the original CPD were established for the development of the Walmart Shopping Center outlots such as lighting, landscaping, access restrictions and others to ensure an overall cohesive commercial area. One of the conditions pertains to exterior building material, as described below from the 2/17/2005 Planning Commission staff report on the permitted Arby’s restaurant (8508 Shaver Rd):

"Consistent with the Walmart building and to create a high-quality and unified architectural character to the overall development, the Arby’s building will be constructed of various compatible brick material and horizontal banding with a color scheme that will maintain individual corporate identity. "

Although the review of exterior building material is not typical in a Site Plan nor often reviewed by the Planning Commission, this project lies within the CPD where specific development standards apply. The applicant is aware of the condition and has incorporated these elements. See attached proposed building designs.

Neighborhood Harmony

The proposal of an oil change service station provides a new service-oriented business within a planned commercial area. The building will be designed with similar materials to adjacent existing buildings. Access and parking are located in the interior of the commercial area. The development of the subject parcel is supported by the 2003 original CPD district plan. The project’s expected general daily use, noise, and traffic and overall operation are expected to be lower than that of Walmart and the adjacent Arby’s restaurant.

Preliminary Evaluations from the Development Review Team (DRT)

The project was reviewed by the Development Review Team (DRT) who reviews development's consistency with City’s infrastructure, engineering, and other requirements, including streets, sewers, water mains, storm water, parking, landscaping, and others. DRT comprises representatives from the Department of Transportation and Utilities, Fire Department, Department of Parks and Recreation, Office of the City Assessor, and Department of Community Development. DRT has no suggested changes to the site plan drawings. Since the applicant does not yet own the property but is expected to upon receiving approval of this Site Plan, DRT recommends the following conditions:

- Record and provide copy of the City-approved Parcel Line Adjustment legal descriptions to the City.
- Record and provide copy of the City-required Stormwater Maintenance Agreement to the City.

- Record and provide copy of easements with adjacent neighbors allowing access and use of the Sanitary Sewer Lateral and Storm Sewer to the City.

Overall, staff find the applicant's submittals and, with the recommended conditions, meet Sec. 42-483 *Site plan review standards*, and will not negatively impact the neighborhood, transportation network in the area, environment, nor overall utilities.

Public Noticing Requirement

This project requires Planning Commission review and vote, but does not require a public hearing nor public notice.

IV. RECOMMENDATION:

If there are no additional requests by the Planning Commission, staff recommend the Commission approve the Site Plan for the 'Jiffy Lube' automobile service center development at 8516 Shaver Road with the following conditions:

1. Per Sec 42-262. B-3.B.4, the following must always be met:

- all operations must occur indoors,
- no outdoor storage of auto parts/ material, and
- vehicle waiting service shall not be located outdoors longer than 14 days.

2. Prior to issuance of building permit, the applicant shall submit building elevations showing brick material and horizontal banding.
3. Prior to issuance of building permit, record and provide a copy of the City-approval Parcel Line Adjustment legal descriptions.
4. Prior to issuance of building permit, record and provide a copy of the City-required Stormwater Maintenance Agreement.
5. Prior to issuance of building permit, record and provide a copy of easements with adjacent neighbor(s) allowing access and use of the Sanitary Sewer Lateral and Storm Sewer.

Attachments:

1. Commercial Development Application
2. Owner's acknowledgement letter
3. Vicinity Map
4. Approved Survey, Parcel Line Adjustment
5. Applicant's Drawings
6. Zoning Map
7. Staff's Site Pictures

COMMERCIAL DEVELOPMENT APPLICATION

Department of Community Development
7900 South Westnedge Avenue – Portage, Michigan 49002 – (269) 329-4477

Applicant must complete all items in sections 1-9 (if applicable).

Please note: Separate applications must be submitted for Plumbing, Mechanical and Electrical Work Permits

No Work is to Start Prior to the Issuance of Building Permit

1) PROJECT INFORMATION

Project Description	Address
Jiffy Lube	8516 Shaver Rd

2) IDENTIFICATION (OWNER) - Applicant Guggenheim Developments Services LLC is future owner

Name	Address		
Cayl-Chris LLC	3885 S 9th St #528		
City Oshtemo	State MI	Zip 49077	Phone

3) ARCHITECT OR ENGINEER

Name	Address	City
Excel Engineering Inc	100 Camelot Dr	Fond du Lac
State WI	Zip 54935	Phone 920-926-9800
License Number 6201069223	Expiration Date 07/31/25	Email jason.daye@excelengineer.com

4) BUILDING CONTRACTOR

Company name	Address	City
TBD		
State	Zip	Phone
Email	Federal Employer ID	
Builder License Number	Expiration Date	
Workers Comp Insurance Carrier	MESC Employer Number	

5) TYPE OF DEVELOPMENT PROJECT

☑ Site Plan ☐ Building Plan ☐ Final Plan in Planned Development

☐ Subdivision ☐ Condominium ☐ Land Division Requiring Public Improvements

☑ Landscape Plans ☐ Public Water Main ☐ Public Sanitary Sewer Main

☐ Other:_____

(Note: Please provide a Portable Document Format (PDF) of the plans for the project at time of document submittal. The submitted format shall be CD/DVD or USB. If a PDF is not submitted, an additional $25 fee plus $1 for each plan sheet after 20 sheets will apply.)

6) TYPE OF IMPROVEMENT

☑ New Building ☐ Alteration ☐ Addition ☐ Repair ☐ Demolition ☐ Foundation Only

☐ Relocation ☐ Special Inspection ☐ Solar ☐ Other:_____

7) DESCRIPTION OF WORK

A) New Jiffy Lube automotive service center with associated site improvements. Lot line adjustment request is being submitted concurrently.

B) Valuation of Project: $ 1,675,000.00

8) CHARACTERISTICS OF THE BUILDING

A) Water Meter Size

☐ 5/8" ☐ ¾" ☐ 1" ☐ 1 ½"

☐ Other_____ ☐ Irrigation Size_____ ☐ Fire Sprinkler Size_____

B) Electric Service Size

☐ 200 AMP ☑ 400 AMP ☐ 600 AMP ☐ 800 AMP ☐ 1000 AMP ☐ Other_____

C) Type of Mechanical

Air Conditioning? ☑ Yes ☐ No Fire Suppression? ☐ Yes ☑ No Hood System? ☐ Yes ☑ No

9) CONSTRUCTION PLANS SUBMITTED

Required submittals for plan review:

- Plans shall be signed and sealed when required in accordance with State of Michigan Act No.299 of Public Acts of 1980.
- All plans shall be drawn on uniform sheets no greater than 30"X42".
- All plans shall be drawn to an architectural scale.
- All plans shall be clear, legible and accurate.
- Plans shall be stapled along the left margin.

Type of Plan Submitted:

☐ Building ☐ Electrical ☐ Plumbing ☐ Mechanical ☐ Energy

Building Code: Site plan, foundation plan, soil bearing capacity, floor plans, building elevations, building sections, framing plan, details, roof plan, roof finish schedule, roof live and dead loads.

Electric Code: Lighting layout, circuiting, switching, conductor and raceway sizes, wattage schedule, service location and riser diagram, load calculations, and appropriate plans showing standard symbols of all electrical equipment.

Plumbing Code: Site plan, floor plans, DWV riser diagrams and water distribution system and roof plan, Show direction of flow, pipe sizes, grade of horizontal piping, elevations, drainage fixture unit loading of both stacks and drains in the DWV system, supply fixture unit load for the water system, branch supplies serving more than one plumbing fixture, appliance or hose outlet, meter locations.

Mechanical Code: Plans indicating heating equipment, air conditioning equipment, ductwork material and layout, fire dampers, ventilation of rooms and areas, location of chimneys and vents, piping layouts, kitchen equipment layout, and combustion air. (Plans for fire suppression systems may be submitted after permit issuance, but are required prior to installation.)

Energy Code: Floor plans, building sections, details, average annual degree days, exterior envelope components materials, "U" values of elements, "R" values of insulating materials, size and type of apparatus and equipment, energy calculations.

Note: Additional plan review fee(s) required of all non-concurrent plan submittals

APPLICANT INFORMATION

Applicant is responsible for the payment of all fees and charges applicable to this application and must provide the following information:

Name Guggenheim Development Services LLC - Jason Bolling	Phone 214-534-8191
Address 3000 Internet Blvd	City Frisco
State TX	Zip 75034

I hereby certify that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his/her authorized agent, and I agree to conform to all applicable laws of the State of Michigan and ordinances of the City of Portage. All information submitted on the application is accurate to the best of my knowledge.

Signature of Applicant: DocuSigned by: Raymond Parker 9044D1871597410... ***Date:*** 3/26/2025

FOR DEPARTMENTAL USE ONLY

☐Vacant
☐A-1: Assembly (Theaters)
☐A-2: Assembly (Restaurants)
☐A-3: Assembly (Library, ETC.)
☐A-4: Assembly (Indoor Sports)
☐A-5: Assembly (Outdoor Sports)
☐B: Business
☐E: Educational
☐F-1: Factory (Moderate hazard)
☐F-2: Factory (Low Hazard)
☐H-1: High Hazard (Detonation)
☐H-2: High Hazard (Deflagration)
☐H-3: High Hazard (Physical)
☐H-4: High Hazard (Health)
☐H-5: High Hazard (HPM)
☐I-1: Institutional (Supervised)
☐I-2: Institutional (Hospital)
☐I-3: institutional (Prisons)
☐I-4: Institutional (Day Cares, ETC.)
☐M: Mercantile
☐R-1: Residential (Hotels. Motels, ETC.)
☐R-2: Residential (Multi Family, ETC.)
☐R-3: Residential (1 & 2 Fam. Townhomes)
☐R-4: Residential (Assisted living)
☐S-1: Storage (Moderate hazard)
☐S-2: Storage (Low hazard)
☐U: Utility (Garage, Shed)

CHARACTERISTICS OF BUILDING

Frame:

☐ Masonry ☐ Wood Frame ☐ Structural Steel ☐ Reinforced Concrete ☐Other

Heating System:

☐Gas ☐ Electricity ☐ Solar ☐Other_____

New Sewer Connection:

☐Yes ☐No

New Water Connection:

☐Yes ☐No

Type of Mechanical:

☐(Y) Air Conditioning ☐(Y) Fire Suppression

DIMENSIONS / DATA

Number of Stories_____ Use groups_____ Construction Type_____

Number of Occupants_____

Floor Area	Existing	Alterations	New
Basement			
1st Floor			
2nd Floor			
3rd Floor			
4th Floor			
5th Floor			
Total			

City of Portage

April 21, 2025

Planning Department

7900 South Westnedge Avenue

Portage, MI 49002

RE: 8516 Shaver Rd., Portage, MI 29024

To Whom it May Concern,

I am giving my consent to authorize both the Site Plan and Lot Line Adjustment submittals by the Buyer (Guggenheim Development Services, LLC and its affiliates), regarding my property located at 8516 Shave Rd., Portage, MI 29024.

Regards

Robert Jackson, JR

dotloop verified
04/21/25 3:26 PM
EDT
PB49-JYHT-IQR9-EIA6

Rob Jackson

Cayl-Chris, LLC

Its: Member

PORTAGE
A Natural Place to Move

Imagery Captured, April 2025

Vicinity Map
8516 Shaver Road

1 inch = 250 feet

Date: 6/16/2025

CERTIFICATE OF SURVEY

FOR: Jason Daye
Excel Engineering
100 Camelot Dr
Fond Du Lac, WI 54935

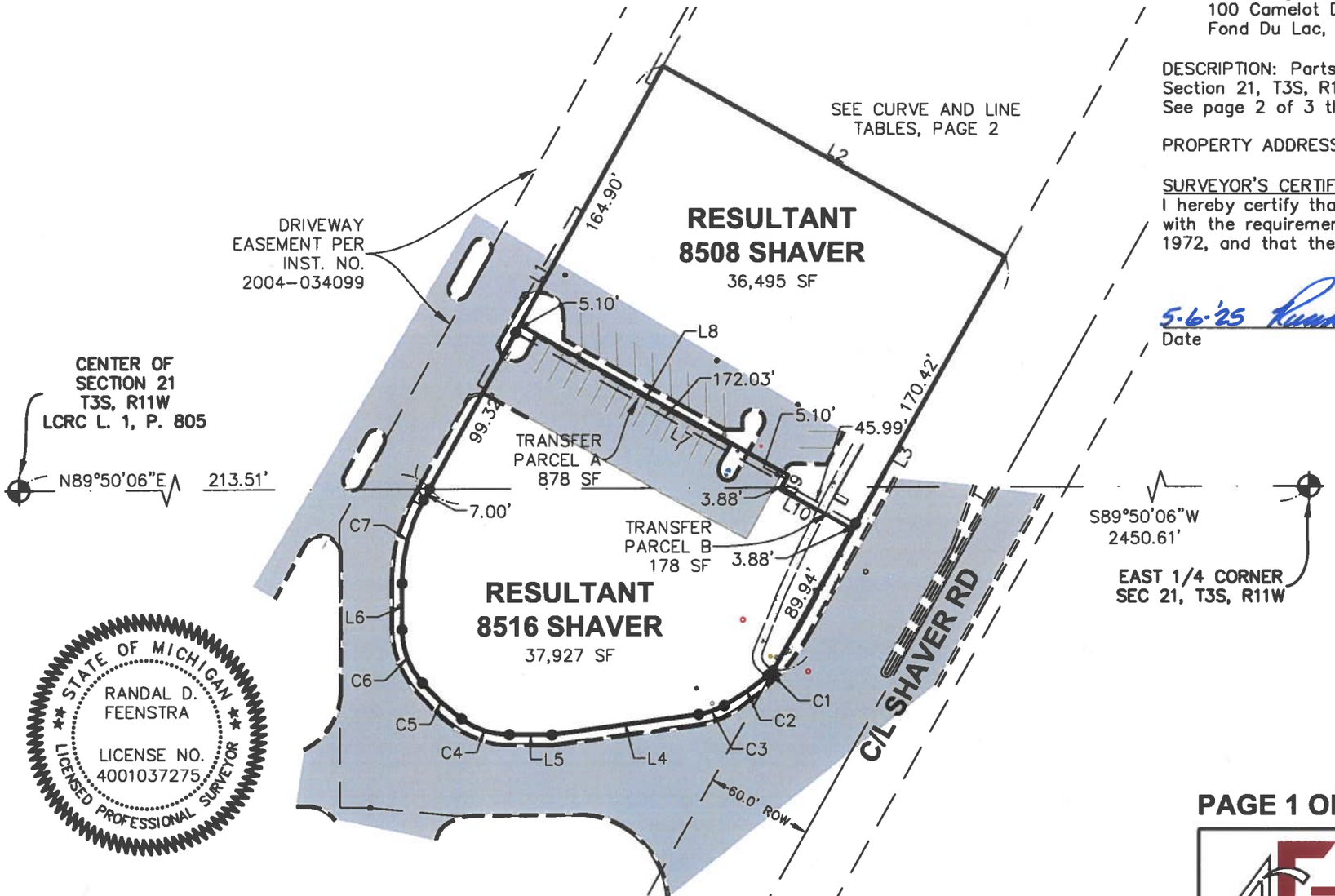
DESCRIPTION: Parts of the Northeast 1/4 and the Southeast 1/4 of Section 21, T3S, R11W, City of Portage, Kalamazoo County, Michigan. See page 2 of 3 through 3 of 3 for complete descriptions.

PROPERTY ADDRESS: 8508, 8516 Shaver Rd

SURVEYOR'S CERTIFICATE
I hereby certify that this survey has been prepared in conformance with the requirements of Act No. 132, P.A. 1970 and of Act 280, P.A. 1972, and that the survey error of closure is no greater than 1:5000.

5-6-'25
Date

Randal D. Feenstra
Registered Surveyor,
State of Michigan
RLS # 4001037275



LEGEND

- ● Found Iron Stake
- ○ Set Iron Stake
- □ Set Wood Stake
- ⊕ Utility Pole
- —x—x— Fence Line
- D = Deeded
- P = Platted
- M = Measured
- Building
- Deck
- Concrete
- Asphalt
- Gravel

Scale 1" = 80'

STATE OF MICHIGAN
RANDAL D. FEENSTRA
LICENSE NO. 4001037275
LICENSED PROFESSIONAL SURVEYOR

This survey was made from the legal description shown above. The description should be compared with the Abstract of Title or Title Policy for accuracy, easements and exceptions. The relative positional precision of the corners identified for this survey and shown on the map are within the limits accepted by the practice of professional surveying. I certify that the requirements for 1970 PA 132, MCL 54.213 have been met.

REV: 05/05/2025

Feenstra & Associates, Inc.
CIVIL ENGINEERS & SURVEYORS
3145 Prairie St SW
Grandville, MI 49418
Phone: 616.457.7050
www.feenstrainc.com

Proj	240918
File	21-3S-11
Date	03/20/2025
Drafted by	NB

CERTIFICATE OF SURVEY

FOR: Jason Daye
Excel Engineering
100 Camelot Dr
Fond Du Lac, WI 54935

EXISTING DESCRIPTIONS:
8508 Shaver Rd, PP#10–00021–280–C
A parcel of land located in the East 1/2 of Section 21, T3S, R11W, further described as: Commencing at the East 1/4 corner of Section 21, T3S, R11W; thence along the East–West 1/4 line of said Section 21, S89°50'06"W, 2450.61 feet to a point that is N89°50'06"E, 213.51 feet from the center of said Section 21; thence N29°10'06"E, 99.32 feet, to the point of beginning; thence N29°10'06"E, 170.00 feet; thence S60°49'54"E, 217.45 feet to the Northwesterly right of way line of Shaver Road; thence along said right of way line, S29°10'06"W 170.00 feet; thence N60°49'54"W, 217.45 feet to the point of beginning.

8516 Shaver Rd, PP#10–00021–280–D
Land situated in the City of Portage, Kalamazoo County, Michigan:
That part of Section 21, T3S, R11W, described as: Commencing at the center of said Section 21; thence N89°50'06"E 213.51 feet along the East–West 1/4 line of said Section 21 to the Point of Beginning for this description; thence N29°10'06"E 269.32 feet; thence S60°49'54"E 217.45 feet; thence S29°10'06"W 264.09 feet; thence Southwesterly 3.85 feet along the arc of a 45.00 foot radius curve to the right, said curve having a central angle of 04°54'00", and the chord of which bears S47°20'23"W 3.85 feet; thence Southwesterly 29.95 feet along the arc of a 145.00 foot radius curve to the right, said curve having a central angle of 11°50'06", and the chord of which bears S55°42'26"W 29.90 feet; thence Southwesterly 15.08 feet along the arc of a 45.00 foot radius curve to the right, said curve having a central angle of 19°12'17", and the chord of which bears S71°13'38"W 15.01 feet; thence S82°16'49"W 83.18 feet; thence S89°50'40"W 23.52 feet; thence Northwesterly 28.99 feet along the arc of a 45.00 foot radius curve to the right, said curve having a central angle of 36°54'23", and the chord of which bears N71°42'08"W 28.49 feet; thence Northwesterly 29.72 feet along the arc of a 145.00 foot radius curve to the right, said curve having a central angle of 11°44'42", and the chord of which bears N47°22'36"W 29.67 feet; thence Northwesterly 32.57 feet along the arc of a 45.00 foot radius curve to the right, said curve having a central angle of 41°28'14", and the chord of which bears N20°46'08"W 31.86 feet; thence N00°02'01"W 25.64 feet; thence Northeasterly 48.42 feet along the arc of a 95.00 foot curve to the right, said curve having a central angle of 29°12'07", and the chord of which bears N14°34'02"E 47.90 feet; thence N29°10'06"E 7.00 feet to the Point of Beginning.

LESS AND EXCEPT
A parcel of land located in the East 1/2 of Section 21, T3S, R11W; thence along the East–West 1/4 line of said Section 21, S89°50'06"W, 2450.61 feet to a point that is N89°50'06"E, 213.51 feet from the center of said Section 21; thence N29°10'06"E, 99.32 feet, to the Point of Beginning; thence N29°10'06"E, 170.00 feet; thence S60°49'54"E, 217.45 feet to the Northwesterly right of way line of Shaver Road; thence along said right of way line, S29°10'06"W 170.00 feet; thence N60°49'54"W, 217.45 feet to the Point of Beginning.

LINE TABLE				
LINE #	MEASURED LENGTH	MEASURED BEARING	DEEDED LENGTH	DEEDED BEARING
L1	276.31'	N29°01'13"E	276.32'	N29°10'06"E
L2	219.05'	S60°54'52"E	217.45'	S60°49'54"E
L3	264.24'	S29°22'05"W	264.09'	S29°10'06"W
L4	83.10'	S82°14'26"W	83.18'	S82°16'49"W
L5	23.75'	N89°41'44"W	23.52'	S89°50'40"W
L6	25.67'	N00°00'26"W	25.64'	N00°02'01"W
L7	218.02'	S60°47'44"E	217.45'	S60°49'54"E
L8	172.05'	S60°47'44"E	N/A	N/A
L9	8.98'	S29°12'16"W	N/A	N/A
L10	45.97'	S60°47'44"E	N/A	N/A

CURVE TABLE						
CURVE #	RADIUS	MEASURED LENGTH	MEASURED CHORD		DEEDED LENGTH	DEEDED CHORD	
C1	45.00'	3.87'	S46°48'21"W	3.87'	3.85'	S47°20'23"W	3.85'
C2	145.00'	29.98'	S55°35'34"W	29.93'	29.95'	S55°42'26"W	29.90'
C3	45.00'	15.10'	S71°13'05"W	15.03'	15.10'	S71°13'05"W	15.03'
C4	45.00'	28.77'	N71°57'47"W	28.29'	28.99'	N71°42'08"W	28.49'
C5	145.00'	29.72'	N47°23'19"W	29.67'	29.72'	N47°22'36"W	29.67'
C6	45.00'	32.55'	N20°51'59"W	31.84'	32.57'	N20°46'08"W	31.86'
C7	95.00'	48.42'	N14°32'10"E	47.90'	48.42'	N14°32'02"E	47.90'

REV: 05/05/2025

Feenstra & Associates, Inc.
CIVIL ENGINEERS & SURVEYORS
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Grandville, MI 49418
Phone: 616.457.7050
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Proj	240918
File	21–3S–11
Date	03/20/2025
Drafted by	NB

S:\Section\Town–South Range–West\03s–11\21ne.dwg

CERTIFICATE OF SURVEY

FOR: Jason Daye
Excel Engineering
100 Camelot Dr
Fond Du Lac, WI 54935

NOTE: Transfer parcels and resultant parcels are described based on the measured bearings and distances between the actual property corners, as located in the field on December 6, 2024.

LANDS TO BE TRANSFERRED:

TRANSFER PARCEL A (FROM 8508 SHAVER RD TO 8516 SHAVER RD)
That part of the East 1/2 of Section 21, T3S, R11W, City of Portage, Kalamazoo County, Michigan, described as: Commencing at the East 1/4 corner of said Section; thence N89°50'06"W 2450.61 feet along the East–West 1/4 line of said Section; thence N29°01'13"E 99.32 feet to the Point of Beginning; thence continuing N29°01'13"E 5.10 feet; thence S60°47'44"E 172.05 feet; thence S29°12'16"W 5.10 feet; thence N60°47'44"W 172.03 feet to the Point of Beginning. Contains 878 square feet.

TRANSFER PARCEL B (FROM 8516 SHAVER RD TO 8508 SHAVER RD)
That part of the East 1/2 of Section 21, T3S, R11W, City of Portage, Kalamazoo County, Michigan, described as: Commencing at the East 1/4 corner of said Section; thence N89°50'06"W 2450.61 feet along the East–West 1/4 line of said Section; thence N29°01'13"E 99.32 feet; thence S60°47'44"E 172.03 feet to the Point of Beginning; thence continuing S60°47'44"E 45.99 feet to the Northwesterly right of way line of Shaver Road; thence S29°22'05"W 3.88 feet along said Northwesterly right of way line; thence N60°47'44'W 45.97 feet; thence N29°12'16"E 3.88 feet to the Point of Beginning. Contains 178 square feet.

RESULTANT DESCRIPTIONS:
8508 SHAVER RD
That part of the East 1/2 of Section 21, T3S, R11W, City of Portage, Kalamazoo County, Michigan, described as: Commencing at the East 1/4 corner of said Section; thence N89°50'06"W 2450.61 feet along the East–West 1/4 line of said Section; thence N29°01'13"E 104.42 feet to the Point of Beginning; thence continuing N29°01'13"E 164.90 feet; thence S60°54'52"E 219.05 feet to the Northwesterly right of way line of Shaver Road; thence S29°22'05"W 174.30 feet along said right of way line; thence N60°47'44"W 45.97 feet; thence N29°12'16"E 8.98 feet; thence N60°47'44"W 172.05 feet to the Point of Beginning. Contains 36,495 square feet.

8516 SHAVER RD
That part of the East 1/2 of Section 21, T3S, R11W, City of Portage, Kalamazoo County, Michigan, described as: Commencing at the East 1/4 corner of said Section; thence N89°50'06"W 2450.61 feet along the East–West 1/4 line of said Section to the Point of Beginning; thence N29°01'13"E 104.42 feet; thence S60°47'44"E 172.05 feet; thence S29°12'16"W 8.98 feet; thence S60°47'44"E 45.97 feet to the Northwesterly right of way line of Shaver Road; thence S29°22'05"W 89.94 feet along said Northwesterly right of way; thence Southwesterly 3.87 feet along a 45.00 foot radius curve to the right, the chord of which bears S46°48'21"W 3.87 feet; thence Southwesterly 29.98 feet along a 145.00 foot radius curve to the right, the chord of which bears S55°35'34"W 29.98 feet; thence Southwesterly 15.10 feet along a 45.00 foot radius curve to the right, the chord of which bears S71°13'05"W 15.10 feet; thence S82°14'26"W 83.10 feet; thence N89°41'44"W 23.75 feet; thence Northwesterly 28.77 feet along a 45.00 foot radius curve to the right, the chord of which bears N71°57'47"W 28.29 feet; thence Northwesterly 29.72 feet along a 145.00 foot radius curve to the right, the chord of which bears N47°23'29"W 29.67 feet; thence Northerly 32.55 feet along a 45.00 foot radius curve to the right, the chord of which bears N20°51'59"W 31.84 feet; thence N00°00'26"W 25.67 feet; thence Northeasterly 48.42 feet along a 95.00 foot radius curve to the right, the chord of which bears N14°32'10"E 47.90 feet; thence N29°01'13"E 7.00 feet to the Point of Beginning. Contains 37,927 square feet.

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REV: 05/05/2025

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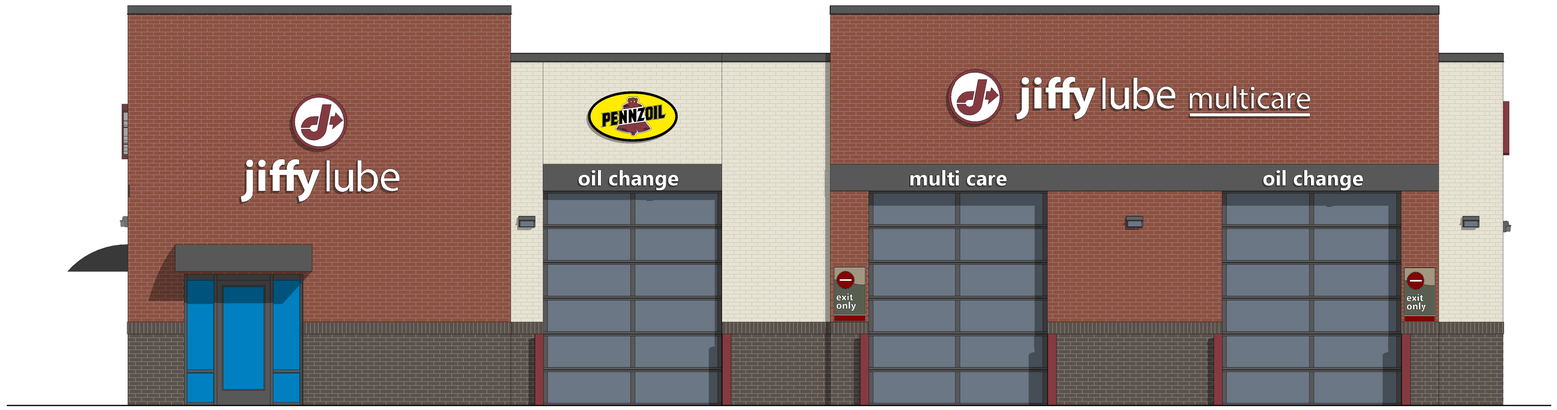
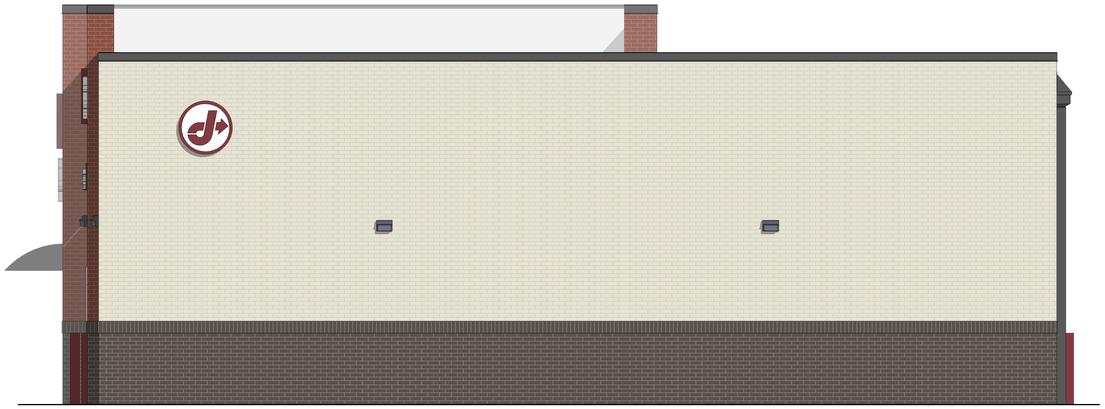


EAST ELEVATION

SCALE: 1/4" = 1'-0"

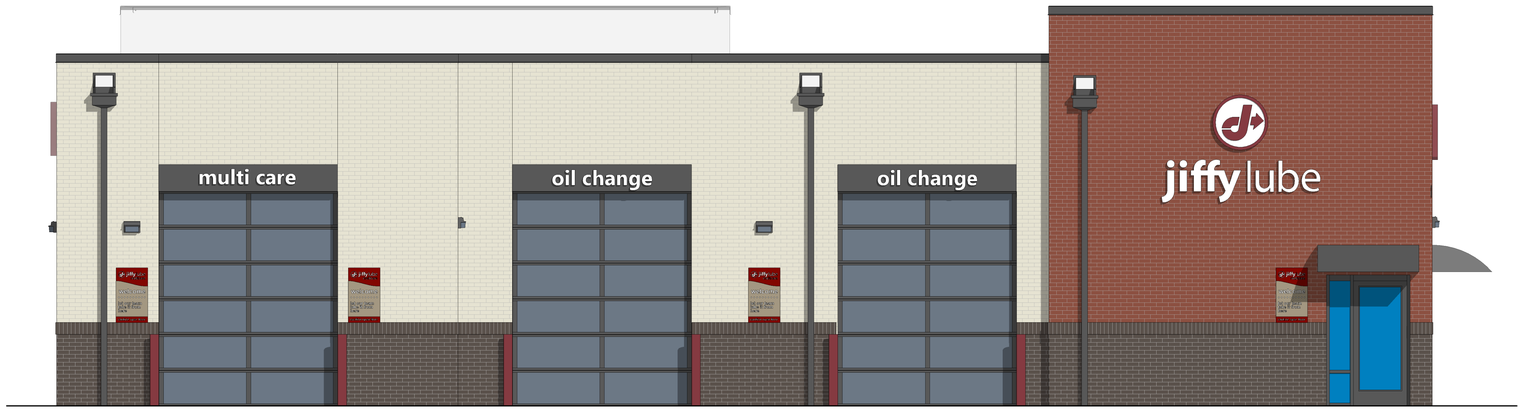
SOUTH ELEVATION

SCALE: 1/4" = 1'-0"



NORTH ELEVATION

SCALE: 1/4" = 1'-0"



WEST ELEVATION

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

1. ALL COLOR NAMES INDICATED ARE FOR SELECTION PURPOSES ONLY. SEE PAINT SPECS FOR SPECIFIC REQUIREMENTS. DESCRIPTION: (ALL "SHERWIN / WILLIAMS" NUMBERS 'SW' COLORS)
2. APPLY CLEAR COAT OVER "LUXURIOUS RED" ON EXTERIOR APPLICATIONS.
3. ALL SIGNAGE SHOWN IS FOR ILLUSTRATION PURPOSES ONLY. ALL SIGNAGE IS UNDER SEPARATE PERMIT AND FINAL DESIGN IS BY SIGNAGE VENDOR.

EXTERIOR FINISH KEY

PREFINISHED METAL COPING / FASCIA
MFR: FIRESTONE UNA-CLAD
COLOR: WHITE

BRICK VENEER
MFR: ACME
COLOR: EBONY
MORTAR: WESTERN LIME CORP W-11

BRICK VENEER
MFR: ACME
COLOR: GLACIER WHITE
MORTAR: WESTERN LIME CORP W-11

BRICK VENEER
MFR: ACME
COLOR: CRANBBERY
MORTAR: WESTERN LIME CORP W-11

ARCHITECTURAL EXTERIOR ELEVATIONS

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PROJECT INFORMATION

PROPOSED JIFFY LUBE FOR:

GUGGENHEIN DEVELOPMENT SERVICES, LLC

NWC OF W MELODY AVE & SHAVER RD • SUGAR GROVE, IL

PRELIMINARY DATES

DEC. 10, 2024

NOT FOR CONSTRUCTION

JOB NUMBER

250083600

SHEET NUMBER

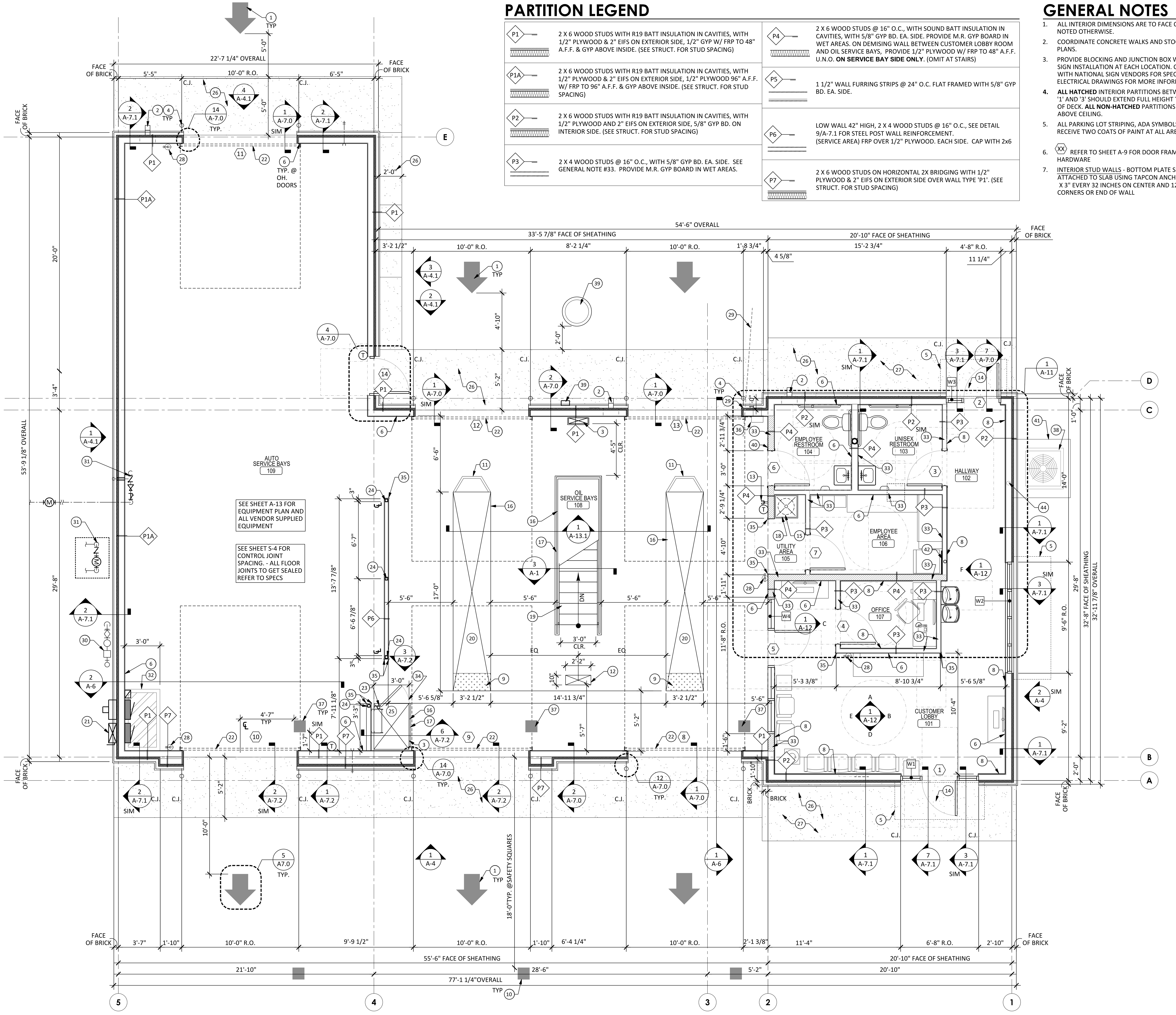
A-4

PARTITION LEGEND

Type	Description
P1	2 X 6 WOOD STUDS WITH R19 BATT INSULATION IN CAVITIES, WITH 1/2" PLYWOOD & 2" EIFS ON EXTERIOR SIDE, 1/2" GYP W/ FRP TO 48" A.F.F. & GYP ABOVE INSIDE. (SEE STRUCT. FOR STUD SPACING)
P1A	2 X 6 WOOD STUDS WITH R19 BATT INSULATION IN CAVITIES, WITH 1/2" PLYWOOD & 2" EIFS ON EXTERIOR SIDE, 1/2" PLYWOOD 96" A.F.F. W/ FRP TO 96" A.F.F. & GYP ABOVE INSIDE. (SEE STRUCT. FOR STUD SPACING)
P2	2 X 6 WOOD STUDS WITH R19 BATT INSULATION IN CAVITIES, WITH 1/2" PLYWOOD AND 2" EIFS ON EXTERIOR SIDE, 5/8" GYP BD. ON INTERIOR SIDE. (SEE STRUCT. FOR STUD SPACING)
P3	2 X 4 WOOD STUDS @ 16" O.C., WITH 5/8" GYP BD. EA. SIDE. SEE GENERAL NOTE #33. PROVIDE M.R. GYP BOARD IN WET AREAS.
P4	2 X 6 WOOD STUDS @ 16" O.C., WITH SOUND BATT INSULATION IN CAVITIES, WITH 5/8" GYP BD. EA. SIDE. PROVIDE M.R. GYP BOARD IN WET AREAS. ON DEMISING WALL BETWEEN CUSTOMER LOBBY ROOM AND OIL SERVICE BAYS, PROVIDE 1/2" PLYWOOD W/ FRP TO 48" A.F.F. U.N.O. **ON SERVICE BAY SIDE ONLY**. (OMIT AT STAIRS)
P5	1 1/2" WALL FURRING STRIPS @ 24" O.C. FLAT FRAMED WITH 5/8" GYP BD. EA. SIDE.
P6	LOW WALL 42" HIGH, 2 X 4 WOOD STUDS @ 16" O.C., SEE DETAIL 9/A-7.1 FOR STEEL POST WALL REINFORCEMENT. (SERVICE AREA) FRP OVER 1/2" PLYWOOD. EACH SIDE. CAP WITH 2x6
P7	2 X 6 WOOD STUDS ON HORIZONTAL 2X BRIDGING WITH 1/2" PLYWOOD & 2" EIFS ON EXTERIOR SIDE OVER WALL TYPE 'P1'. (SEE STRUCT. FOR STUD SPACING)

GENERAL NOTES

1. ALL INTERIOR DIMENSIONS ARE TO FACE OF STUD, UNLESS NOTED OTHERWISE.
2. COORDINATE CONCRETE WALKS AND STOOPS WITH CIVIL PLANS.
3. PROVIDE BLOCKING AND JUNCTION BOX WITH ACCESS FOR SIGN INSTALLATION AT EACH LOCATION. COORDINATE WITH NATIONAL SIGN VENDORS FOR SPECIFICATIONS. SEE ELECTRICAL DRAWINGS FOR MORE INFORMATION.
4. **ALL HATCHED** INTERIOR PARTITIONS BETWEEN GRID LINES '1' AND '3' SHOULD EXTEND FULL HEIGHT TO UNDERSIDE OF DECK. **ALL NON-HATCHED** PARTITIONS SHOULD STOP 6" ABOVE CEILING.
5. ALL PARKING LOT STRIPING, ADA SYMBOLS, ETC. SHALL RECEIVE TWO COATS OF PAINT AT ALL AREAS.
6. (XX) REFER TO SHEET A-9 FOR DOOR FRAME AND HARDWARE
7. INTERIOR STUD WALLS - BOTTOM PLATE SHALL BE ATTACHED TO SLAB USING TAPCON ANCHORS OF 3/8" X 3" EVERY 32 INCHES ON CENTER AND 12 INCHES OFF CORNERS OR END OF WALL



1 UPPER BAY FLOOR PLAN

SCALE: 1/4" = 1'-0"

PLAN KEY NOTES

1. PAINTED ARROW BOTH SIDES (PAINT P-09), SEE 5/A-7.0
2. DOWNSPOUT - SEE SHEET A-3 FOR MORE INFORMATION
3. SLAB OPENINGS FOR DUCT, COORDINATE WITH STRUCTURAL AND MECHANICAL DRAWINGS, PROVIDE 20GA GALV. STEEL ANGLES FOR CLOSURE TRIM
4. PIPE BOLLARD - SEE DETAIL 10/A-5 FOR MORE INFORMATION
5. CANOPY ABOVE - BY SIGN VENDOR - GC TO PROVIDE BLOCKING FOR ATTACHMENT.
6. GC TO PROVIDE BLOCKING IN WALL FOR MOUNTING OF EQUIPMENT AND FIXTURES
7. 4" DIA. PVC SLEEVED OPENING, COORDINATE FINAL LOCATION WITH EQUIPMENT INSTALLER
8. CHAIR RAIL - INPRO 2500 CHAIR RAIL (SILVER 0105) - GC TO CONFIRM MOUNTING HEIGHT IS ADJUSTED TO PREVENT BACK OF CHAIR FROM HITTING WALL
9. DIAMOND PLATE, TYP. OF (2). SEE DETAIL 1/A-13.2
10. NOT USED
11. WHEEL GUARD, TYP. OF (2). SEE DETAIL 1/A-13.2
12. LOCATION OF LUBE DISPENSE CONSOLE, SEE STRUCTURAL FOR LEAVE OUT
13. EYEWASH STATION W/ SIGN STATING "EYE WASH" - SEE PLUMBING DRAWINGS
14. 60" X 54" LEVEL LANDING AT FLOOR AND/OR GROUND SURFACE - SLOPE SHALL NOT EXCEED 1:48 (△1)
15. WATER HEATER LOCATED ABOVE - SEE PLUMBING DWGS. INSULATE ALL LINES.
16. EXPOSED STEEL PLATE TOE KICK ALONG BASE OF GUARDRAIL (4") AND PIT OPENING (2"), SEE STRUCTURAL
17. 1 1/2" STEEL PIPE GUARD RAILING WITH MESH AROUND OPENING - SEE DETAIL 6/A7.2.
18. MOP SINK - SEAL PERIMETER OF MOP SINK TO WALL ON THREE WALLED SIDES - SEE PLUMBING DRAWINGS
19. STAIR - SEE A-1 AND A-6 FOR DETAILS
20. SLAB OPENING FOR SERVICE
21. DISCONNECT AND METER SYSTEM, SEE ELECTRICAL - SEAL ALL PENETRATIONS AND AT TOP OF PANELS TO WALL. PAINT EXPOSED CONDUIT BUT NOT PANELS.
22. REFER TO STRUCTURAL FOR DOOR RECESS AT ALL OVERHEAD DOOR LOCATIONS
23. 2 1/2" STEEL POST WELD TO BOTTOM OF FLOOR BEAM AND PERIMETER ANGLE, PROVIDE ANGLE BRACKET BACK TO WALL AT TOP, TO SUPPORT SAFETY GATE, SEE 6/A-1
24. STEEL POST SUPPORTS IN LOW WALL, TYP., SEE 10/A-7.2
25. FLOOR ACCESS LADDER FROM LOWER BAY AREA, SEE DETAIL 6/A-7.2
26. 5'-0" CONCRETE APRON, NATURAL FINISH, LIGHT BROOM. PROVIDE TOOLED CONTROL JOINTS (NO SAW CUTS) AND TOOLED EDGE AT CONC. ASPHALT TRANSITION. ALL JOINTS SHALL BE SEALED - REFER TO STRUCTURAL FOR REINFORCEMENT
27. SIDEWALK - SEE CIVIL-VERIFY 2% ADA SLOPE AND FLUSH TRANSITION FROM FLOOR SLAB TO SIDEWALK
28. FIRE EXTINGUISHER W/ SIGNS ABOVE (BY GC). VERIFY EXACT LOCATION WITH FIRE MARSHAL. MOUNT AT 48" AFF. MAX. TO COMPLY WITH ADA. PROVIDE CERTIFICATION TAGS ON UNIT.
29. MOUNT 6X6 JBOX ON BRICK WITH 2" CONDUIT (BELL HOSE) AND PULL STRING, REFER TO E-1 FOR CONDUIT SITE ROUTING. SURFACE MOUNT INTERIOR 2" CONDUIT UP AND OVER TO BELL LOCATION
30. GAS METER - SEE PLUMBING DRAWINGS - PAINT ALL PIPES GRAY. SEAL PENETRATION AT WALL.
31. DOMESTIC & IRRIGATION WATER SERVICES - SEE PLUMBING DRAWINGS - LOCATE INTERIOR IF IN COLD CLIMATE STATES, PROVIDE HOT BOX. SEAL ALL PENETRATIONS.
32. PAINT TWO COATS OF 4" SAFETY YELLOW (P-09) FLOOR STRIPES 36" DEEP TO 6" TO EACH SIDE OF PANELS. (OPTIONAL TAPE IN LIEU OF PAINT IF PAINT WON'T STICK DUE TO ASHFORD COATING)
33. PROVIDE SOUND BATTS IN THIS WALL
34. PROVIDE YELLOW SAFETY GATE. SEE A-1 FOR ADDITIONAL INFORMATION. RUBBER SILENCER REQUIRED ON GATE.
35. PROVIDE 1 1/2" x 48" TALL STAINLESS STEEL CORNER GUARDS AT LOCATIONS NOTED. SECURE WITH 3M HEAVY DUTY DOUBLE STICK CARPET TAPE, MODIFY AT SHORT WALLS. NO SCREWS ARE TO BE USED. INSTALL CLEAR SILICONE SEALANT AT TOPS.
36. KEY DROP BOX WDC-160 PROTEX WALL DROP BOX WITH ADJUSTABLE CHUTE, PROVIDE CHUTE EXTENSION WHERE WALL THICKNESS REQUIRES IT. SEE A-4 & 5/A7.2 - SEAL EXTERIOR EDGES. LOCATE CHUTE AS NOT TO CUT THROUGH JACK STUDS.
37. 12" X 12" PAINTED SAFETY SQUARES LOCATED AT THE SHOP INTERIOR AND EXTERIOR. SQUARES ARE TO BE LOCATED ON THE VEHICLE EXIT SIDE OF THE BUILDING ON THE DRIVERS SIDE - COLOR: SAFETY YELLOW - TWO COATS, TYP.
38. SECURITY CAGE AROUND CONDENSING UNIT, PROPERTY ARMOR PRO SERIES BRAWLER STYLE AC CAGE
39. APPROXIMATE SUMP PUMP LOCATION - SEE PLUMBING FOR MORE INFORMATION - LOCATE ALARM ON WALL.MOUNT ON BRICK ONLY
40. GC TO PROVIDE WOOD BLOCKING IN WALL FROM 4' TO 8' FOR MOUNTING OF EQUIPMENT AND FIXTURES, COORDINATE WITH EQUIPMENT VENDOR.
41. CONDENSING UNIT WITH 4" MIN. CONCRETE PAD, SEE MECHANICAL.
42. 3/4" PLYWOOD AND BLOCKING FOR PHONE BOARD ABOVE REFRIGERATOR, SEE ELECTRICAL FOR MORE INFORMATION. COORDINATE FINAL LOCATION WITH FIXTURES AND EQUIPMENT.
43. STEEL ANGLE TOE KICK, SEE STRUCTURAL
44. PROVIDE VERTICAL 10' RIGID GALV STEEL CONDUIT FOR REFRIGERANT LINE IN EXTERIOR WALL CAVITY. COORDINATE FINAL SIZE AND LOCATION WITH MANUFACTURER / INSTALLER.

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MULTI-CARE SERVICES
JIFFY LUBE PROTOTYPE WITH STONEBRIAR OPTIONS

PORTAGE, MI

NWC OF W MELODY AVE & SHAVER RD

NO:	DATE:	ISSUE:
	03/28/2025	ISSUED FOR APPROVAL

FLOOR PLAN - UPPER BAY

DRAWN: RG CHECKED: TSS

SHEET NO:

A-2

PROPOSED JIFFY LUBE FOR:

GUGGENHEIM DEVELOPMENT SERVICES

PORTAGE, MI

PROJECT INFORMATION

SITE INFORMATION:

PARCEL ID NUMBER: 00021-280D

EXISTING PROPERTY AREA: 37,227 S.F. (0.855 AC)

PROPOSED PROPERTY AREA: 37,935 SF (0.871 AC) FOLLOWING LOTLINE ADJUSTMENT

EXISTING ZONING: CPD - COMMERCIAL PLANNED DEVELOPMENT

PROPOSED ZONING: CPD - COMMERCIAL PLANNED DEVELOPMENT

EXISTING USE: VACANT OUTLOT

PROPOSED USE: JIFFY LUBE AUTOMOTIVE SERVICE CENTER

AREA OF SITE DISTURBANCE: 30,882 SF (0.709 AC)

SETBACKS:
BUILDING: FRONT/STREET (EAST/SOUTH) = 15'
INTERIOR SIDE (NORTH) = 15'
REAR (WEST) = 11'

PAVEMENT: FRONT/STREET (EAST/SOUTH) = 10'
INTERIOR SIDE (NORTH) = CODE IS SILENT
REAR (WEST) = CODE IS SILENT

MAX. BLDG HEIGHT ALLOWED: 35'

PARKING REQUIRED: 2 PER SERVICE STATION + 1 PER EMPLOYEE
(4 SERVICE STATIONS + 6 EMPLOYEES = 14 SPACES REQ.)

PARKING PROVIDED: 14 SPACES (1 H.C. ACCESSIBLE)

HANDICAP STALLS REQUIRED: 1 REQUIRED, 1 PROVIDED

EXISTING SITE DATA

	AREA (AC)	AREA (SF)	RATIO
BUILDING FLOOR AREA	0.00	0	0.0%
PAVEMENT (ASP. & CONC.)	0.17	7,392	19.5%
TOTAL IMPERVIOUS	0.17	7,392	19.5%
LANDSCAPE/ OPEN SPACE	0.70	30,543	80.5%
PROJECT SITE	0.87	37,935	100.0%

PROPOSED SITE DATA

	AREA (AC)	AREA (SF)	RATIO
BUILDING FLOOR AREA	0.07	2,944	7.8%
PAVEMENT (ASP. & CONC.)	0.40	17,421	45.9%
TOTAL IMPERVIOUS	0.47	20,365	53.7%
LANDSCAPE/ OPEN SPACE	0.40	17,570	46.3%
PROJECT SITE	0.87	37,935	100.0%

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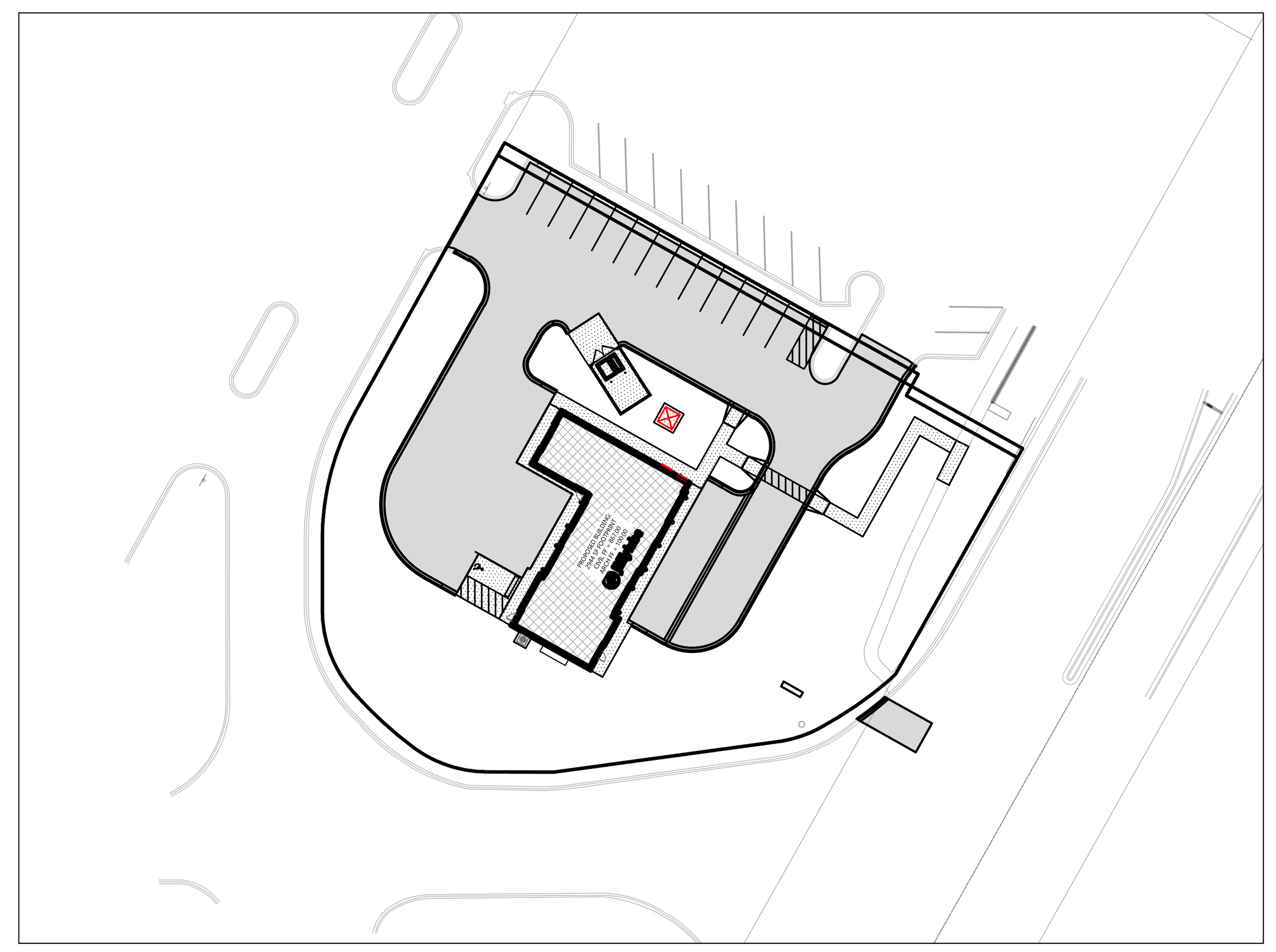
Know what's below. Call before you dig.



SITE PLAN OVERVIEW

EXCEL LEGEND

NOTE: ALL SYMBOLS SHOWN MAY NOT APPEAR ON DRAWINGS.

SYM.	IDENTIFICATION	SYM.	IDENTIFICATION
SPOT ELEVATIONS			
000.00	PROPOSED SPOT ELEVATIONS (FLOW LINE OF CURB UNLESS OTHERWISE SPECIFIED)	000.00 TC / 000.00 FL	PROPOSED SPOT ELEVATIONS (TOP OF CURB, FLOWLINE OF CURB)
000.00 EG	EXISTING GRADE SPOT ELEVATIONS		
000.00 BG / 000.00 FG	PROPOSED SPOT ELEVATIONS (REFERENCE R-WALL DETAIL) BG-FINISHED SURFACE GRADE AT BACK OF WALL FG-FINISHED SURFACE GRADE AT FRONT OF WALL	000.00 TW / 000.00 BW	PROPOSED SPOT ELEVATIONS (TOP OF WALK, BOTTOM OF WALK @ FLOWLINE)
PROPOSED SITE SYMBOLS			
	PROPOSED DRAINAGE FLOW	CO	PROPOSED CLEANOUT
	PROPOSED WATER VALVE IN BOX	DS	PROPOSED DOWNSPOUT
W	PROPOSED WELL		PROPOSED APRON END SECTION
	PROPOSED LIGHT POLE		SOIL BORING
	PROPOSED STORM CATCH BASIN - ST CB		CENTER LINE
	PROPOSED STORM FIELD INLET - ST FI		PROPOSED HANDICAP PARKING STALL
	PROPOSED STORM CURB INLET - ST CI		PROPOSED SIGN
PROPOSED LINETYPES			
	PROPOSED PROPERTY LINE		INTERIOR PROPERTY LINE
ST	PROPOSED STORM SEWER AND MANHOLE - ST MH		RAILROAD TRACKS
SA	PROPOSED SANITARY SEWER AND MANHOLE - SAN MH	800	EXISTING GROUND CONTOUR
W	PROPOSED WATER LINE AND HYDRANT	800	PROPOSED GROUND CONTOUR
	PROPOSED CURB AND GUTTER	POL	PROPOSED POLISH SEWER AND MANHOLE
	GRADING/SEEDING LIMITS	P	PROPOSED PROCESS SEWER AND MANHOLE
	RIGHT-OF-WAY LINE	CLW	PROPOSED CLEAR WATER LINE
T	PROPOSED UNDERGROUND TELEPHONE CABLE	G	PROPOSED UNDERGROUND GAS LINE
	PROPOSED GUARD RAIL	E	PROPOSED UNDERGROUND ELECTRIC CABLE
FO	PROPOSED UNDERGROUND FIBER OPTIC LINE		

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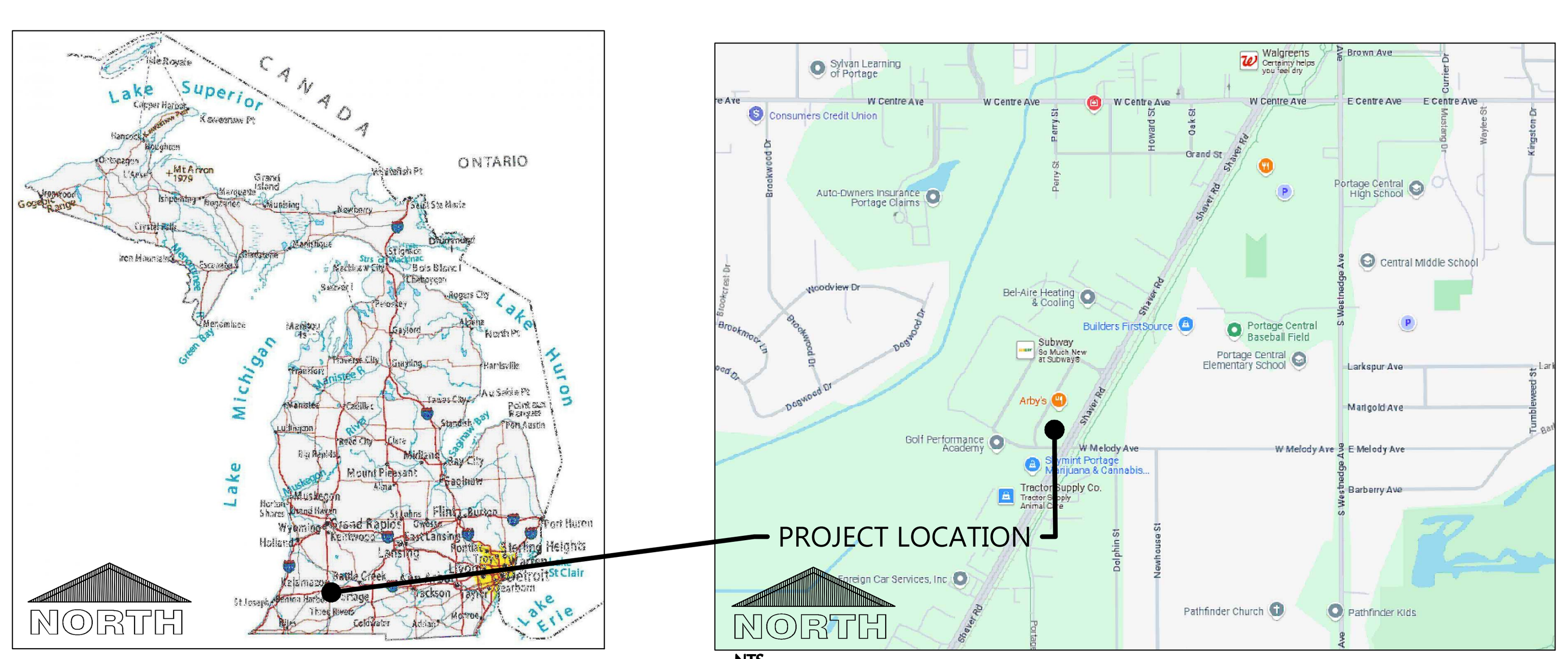
LOCATION MAP



PROJECT NOTES

GENERAL PROJECT NOTES

1. ALL DRIVEWAYS AND CURB CUTS TO BE CONSTRUCTED ACCORDING TO LOCAL ORDINANCES. CONTRACTOR TO OBTAIN ALL NECESSARY PERMITS.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL WORK IN ROW PERMITS.
3. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY AND WORK INVOLVING UTILITIES SHALL CONFORM TO THE CITY OF PORTAGE STANDARD SPECIFICATIONS AND DETAILS.

SHEET INDEX

SHEETS BELOW INTENDED TO BE PRINTED IN: COLOR. REFER TO DIGITAL FORMAT DRAWINGS IF PRINTED GRAYSCALE TO ENSURE SCOPE CLARITY.

NUMBER	SHEET NAME / DESCRIPTION
C0.1	CIVIL COVER SHEET
C0.2	CIVIL SPECIFICATIONS
C0.3	GEOTECHNICAL SPECIFICATIONS
C0.4	GEOTECHNICAL SPECIFICATIONS
C1.0	EXISTING SITE AND DEMOLITION PLAN
C1.1	SITE PLAN
C1.2	GRADING AND EROSION CONTROL PLAN
C1.3	UTILITY PLAN
C1.4	LANDSCAPE AND RESTORATION PLAN
C2.0	DETAILS
C2.1	DETAILS
C3.1	SITE PHOTOMETRIC PLAN & DETAILS

EXCEL
Always a Better Plan
100 Camelot Drive
Fond du Lac, WI 54935
920-926-9800
excelengineer.com

JOB NUMBER: 250083800

jiffy lube®
MULTI-CARE SERVICES
JIFFY LUBE PROTOTYPE WITH STONEBRIAR OPTIONS
PORTAGE, MI
NWC OF W MELODY AVE & SHAVER RD

NO:	DATE:	ISSUE:
	03/28/2025	ISSUED FOR APPROVAL
	04/29/2025	CITY REVIEW #1
	05/19/2025	CITY REVIEW #2

STATE OF MICHIGAN
JASON DAYE
ENGINEER
No. 6201069223
LICENSED PROFESSIONAL ENGINEER

CIVIL COVER SHEET
DRAWN: DS CHECKED: JD
SHEET NO:
C0.1

CIVIL SPECIFICATIONS

DIVISION 31 EARTH WORK

31 10 00 SITE CLEARING (DEMOLITION)

A. CONTRACTOR SHALL CALL MISS DIG 811 AND CONDUCT A PRIVATE UTILITY LOCATE AS REQUIRED TO ENSURE THAT ALL UTILITIES HAVE BEEN LOCATED BEFORE STARTING SITE DEMOLITION. DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.
B. CONTRACTOR TO FIELD TELEVISE ALL EXISTING SANITARY AND STORM LATERALS THAT ARE SCHEDULED TO BE RE-USED AND/OR CONNECTED TO ON SITE AT TIME OF DEMOLITION. THE TELEVISING SHALL BE COMPLETED TO ENSURE THE EXISTING LATERAL(S) ARE FREE OF OBSTRUCTIONS AND IN SOUND STRUCTURAL CONDITION. TELEVISING OF THESE LATERAL(S) SHOULD BE COMPLETED AT BEGINNING OF CONSTRUCTION AND DESIGN ENGINEER SHALL BE NOTIFIED OF ANY PIPE OBSTRUCTIONS AND/OR STRUCTURAL DEFICIENCIES IMMEDIATELY AFTER COMPLETION OF FIELD TELEVISING.
C. DEMOLITION PLAN IS AN OVERVIEW OF DEMOLITION TO TAKE PLACE ON SITE. CONTRACTOR TO FIELD VERIFY EXISTING SITE CONDITIONS PRIOR TO BIDDING. CONTRACTOR SHALL REMOVE, REPLACE, OR DEMOLISH ALL ITEMS AS NEEDED DURING CONSTRUCTION.
D. CONTRACTOR TO PROTECT EXISTING IMPROVEMENTS THAT ARE SCHEDULED TO REMAIN. ANY DAMAGE TO EXISTING FACILITIES SHALL BE REPLACED AT CONTRACTORS EXPENSE.
E. ALL CONCRETE NOTED TO BE REMOVED SHALL BE REMOVED TO THE NEAREST CONTROL JOINT.

31 20 00 EARTH MOVING

A. CONTRACTOR SHALL CALL MISS DIG 811 AND CONDUCT A PRIVATE UTILITY LOCATE AS REQUIRED TO ENSURE THAT ALL UTILITIES HAVE BEEN LOCATED BEFORE STARTING EXCAVATION. DESIGN ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES BETWEEN PLAN AND FIELD CONDITIONS PRIOR TO CONSTRUCTION.
B. PROVIDE ALL LABOR, MATERIALS AND EQUIPMENT FOR ALL EXCAVATION, GRADING, FILL AND BACKFILL WORK AS REQUIRED TO COMPLETE THE GENERAL CONSTRUCTION WORK. ALL EXCAVATION AND BACKFILL FOR ELECTRICALS AND MECHANICALS ARE THE RESPONSIBILITY OF THE RESPECTIVE CONTRACTOR UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS.
C. ALL ORGANIC TOPSOIL INSIDE THE BUILDING AREA, UNDER PAVED AREAS, AND AT SITE FILL AREAS SHALL BE REMOVED. PROOF ROLL SUBGRADES BEFORE PLACING FILL WITH HEAVY PNEUMATIC-TIRED EQUIPMENT, SUCH AS A FULLY-LOADED TANDEM AXLE DUMP TRUCK, TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. CONTRACTOR SHALL VERIFY TOPSOIL DEPTHS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL REVIEW AND FOLLOW THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT AND ACCOUNT FOR EXISTING CONDITIONS PRIOR TO SUBMITTING BID FOR THE PROJECT. EXCESS MATERIALS SHALL BE REMOVED FROM THE SITE UNLESS OTHERWISE DIRECTED IN THE PLANS OR BY LOCAL ZONING REQUIREMENTS.
D. PLACE AND COMPACT FILL MATERIAL IN LAYERS TO REQUIRED ELEVATIONS. UNIFORMLY MOISTEN OR AERATE SUBGRADE AND EACH SUBSEQUENT FILL OR BACKFILL LAYER BEFORE COMPACTION AS RECOMMENDED TO ACHIEVE SPECIFIED DRY DENSITY. REMOVE AND REPLACE, OR SCARIFY AND AIR DRY, OTHERWISE SATISFACTORY SOIL MATERIAL THAT IS TOO WET TO COMPACT TO SPECIFIED DRY DENSITY.
E. PLACE BACKFILL AND FILL MATERIALS IN LAYERS NOT MORE THAN 8" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HEAVY COMPACTION EQUIPMENT, AND NOT MORE THAN 4" IN LOOSE DEPTH FOR MATERIAL COMPACTED BY HAND-OPERATED TAMPERS.
F. COMPACT THE SOIL TO NOT LESS THAN THE FOLLOWING PERCENTAGES OF MAXIMUM DRY DENSITY ACCORDING TO ASTM D 698, STANDARD PROCTOR TEST. FILL MAY NOT BE PLACED ON FROZEN GROUND AND NO FROZEN MATERIALS MAY BE USED FOR BACK FILL. APPLY THE MORE STRINGENT REQUIREMENTS WHEN COMPARING BETWEEN THE FOLLOWING AND THE GEOTECHNICAL REPORT.
   1. UNDER FOUNDATIONS - SUBGRADE, AND EACH LAYER OF BACKFILL OR FILL MATERIAL, TO NOT LESS THAN 98 PERCENT.
   2. UNDER INTERIOR SLAB-ON-GRADE WHERE GROUNDWATER IS MORE THAN 3 FEET BELOW THE SLAB - PLACE A DRAINAGE COURSE LAYER OF 3/4" CRUSHED STONE, WITH 5% TO 12% FINES, PER THICKNESS INDICATED ON FOUNDATION PLANS ON PREPARED SUBGRADE. COMPACT THE SUBGRADE AND DRAINAGE COURSE TO NOT LESS THAN 95 PERCENT.
   3. UNDER INTERIOR SLAB-ON-GRADE WHERE GROUNDWATER IS WITHIN 3 FEET OF THE SLAB SURFACE- PLACE A DRAINAGE COURSE LAYER OF CLEAN 3/4" CRUSHED STONE, WITH NO MORE THAN 5% FINES, PER THICKNESS INDICATED ON FOUNDATION PLANS ON PREPARED SUBGRADE. COMPACT THE SUBGRADE AND DRAINAGE COURSE TO NOT LESS THAN 95 PERCENT.
   4. UNDER EXTERIOR CONCRETE AND ASPHALT PAVEMENTS - COMPACT THE SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL TO NOT LESS THAN 95 PERCENT.
   5. UNDER WALKWAYS - COMPACT SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL TO NOT LESS THAN 95 PERCENT.
   6. UNDER LAWN OR UNPAVED AREAS - COMPACT SUBGRADE AND EACH LAYER OF BACKFILL OR FILL MATERIAL, TO NOT LESS THAN 85 PERCENT.
G. OWNER SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND INSPECTIONS. CONTRACTOR SHALL PROVIDE DOCUMENTATION OF PASSING DENSITY TESTING AND PROOF-ROLLING TO ENGINEER UPON COMPLETION. IT IS SUGGESTED THAT THE GEOTECHNICAL FIRM USED TO PERFORM THE SUBSURFACE SOIL INVESTIGATION BE ENGAGED FOR THE FIELD QUALITY CONTROL TESTS. THE GEOTECHNICAL REPORT WAS PERFORMED BY INTERTEK PSI.
H. ALLOW THE TESTING AGENCY TO TEST AND INSPECT SUBGRADES AND EACH FILL OR BACKFILL LAYER. PROCEED WITH SUBSEQUENT EARTHWORK ONLY AFTER TEST RESULTS FOR PREVIOUSLY COMPLETED WORK COMPLY WITH REQUIREMENTS. PROVIDE ONE TEST FOR EVERY 2000 SQUARE FEET OF PAVED AREA OR BUILDING SLAB, ONE TEST FOR EACH SPREAD FOOTING, AND ONE TEST FOR EVERY 50 LINEAR FEET OF WALL STRIP FOOTING.
I. WHEN THE TESTING AGENCY REPORTS THAT SUBGRADES, FILLS, OR BACKFILLS HAVE NOT ACHIEVED DEGREE OF COMPACTION SPECIFIED, SCARIFY AND MOISTEN OR AERATE, OR REMOVE AND REPLACE SOIL TO DEPTH REQUIRED; RECOMPACT AND RETEST UNTIL SPECIFIED COMPACTION IS OBTAINED.
J. THE BUILDING SITE SHALL BE GRADED TO PROVIDE DRAINAGE AWAY FROM THE BUILDING AS INDICATED ON THE PLANS. SITE EARTHWORK SHALL BE GRADED TO WITHIN 0.10' OF REQUIRED EARTHWORK ELEVATIONS ASSUMING POSITIVE DRAINAGE IS MAINTAINED IN ACCORDANCE WITH THE GRADING PLAN.

31 30 00 EROSION CONTROL

A. THE GRADING PLAN REFLECTS LESS THAN 1 ACRE OF DISTURBED AREA. THE DESIGN ENGINEER SHALL PREPARE AN EROSION/SEDIMENT CONTROL PLAN TO MEET LOCAL/COUNTY CONSTRUCTION SITE PERFORMANCE STANDARDS.
B. EROSION AND SEDIMENT CONTROL IMPLEMENTED DURING CONSTRUCTION SHALL STRICTLY COMPLY WITH THE GUIDELINES AND REQUIREMENTS SET FORTH BY MICHIGAN EGLE AND OTHER SPECIFIC LOCAL/COUNTY STANDARDS. THE METHODS AND TYPES OF EROSION CONTROL WILL BE DEPENDENT ON THE LOCATION AND TYPE OF WORK INVOLVED. ALL SEDIMENT CONTROL MEASURES SHALL BE ADJUSTED TO MEET FIELD CONDITIONS AT THE TIME OF CONSTRUCTION, AND INSTALLED PRIOR TO ANY GRADING OR DISTURBANCE OF EXISTING SURFACE MATERIAL. BELOW IS A LIST OF EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES TO ACHIEVE THE PERFORMANCE STANDARDS REQUIRED.
   1. SILT FENCE SHALL BE PLACED ON SITE AT LOCATIONS SHOWN ON THE EROSION CONTROL PLAN. SILT FENCE SHALL ALSO BE PROVIDED AROUND THE PERIMETER OF ALL SOIL STOCKPILES THAT WILL EXIST FOR MORE THAN 7 DAYS.
   2. DITCH CHECKS SHALL BE PROVIDED TO REDUCE THE VELOCITY OF WATER FLOWING IN DITCH BOTTOMS. PLACE AT LOCATIONS SHOWN ON THE EROSION CONTROL PLAN.
   3. STONE TRACKING PADS AND TRACKOUT CONTROL PRACTICES SHALL BE PLACED AT ALL CONSTRUCTION SITE ENTRANCES AND SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE CONSTRUCTION SITE. SEE THE EROSION CONTROL PLAN FOR LOCATIONS. SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. OTHER TRACKOUT CONTROL PRACTICES INCLUDING STABILIZED WORK SURFACES, MANUFACTURED TRACKOUT CONTROL DEVICES, TIRE WASHING, AND STREET/PAVEMENT CLEANING SHALL BE IMPLEMENTED AS NECESSARY TO MITIGATE THE TRACKOUT OF SEDIMENT OFFSITE.
   4. STORM DRAIN INLET PROTECTION SHALL BE PROVIDED FOR ALL NEW AND DOWNSTREAM STORM CATCH BASINS AND CURB INLETS.
   5. DUST CONTROL MEASURES SHALL BE PROVIDED TO REDUCE OR PREVENT THE SURFACE AND AIR TRANSPORT OF DUST DURING CONSTRUCTION. CONTROL MEASURES INCLUDE APPLYING MULCH AND ESTABLISHING VEGETATION, WATER SPRAYING, SURFACE ROUGHENING, APPLYING POLYMERS, SPRAY-ON TACKIFIERS, CHLORIDES, AND BARRIERS. SOME SITES MAY REQUIRE AN APPROACH THAT UTILIZES A COMBINATION OF MEASURES FOR DUST CONTROL.
   6. THE USE, STORAGE, AND DISPOSAL OF CHEMICALS, CEMENT, AND OTHER COMPOUNDS AND MATERIALS USED ON SITE SHALL BE MANAGED DURING THE CONSTRUCTION PERIOD TO PREVENT THEIR TRANSPORT BY RUNOFF INTO WATERS OF THE STATE.
   7. CONTRACTOR SHALL PROVIDE AN OPEN AGGREGATE CONCRETE TRUCK WASHOUT AREA ON SITE. CONTRACTOR TO ENSURE THAT CONCRETE WASHOUT SHALL BE CONTAINED TO THIS DESIGNATED AREA AND NOT BE ALLOWED TO RUN INTO STORM INLETS OR INTO THE OVERLAND STORMWATER DRAINAGE SYSTEM. WASHOUT AREA SHALL BE REMOVED UPON COMPLETION OF CONSTRUCTION.
   8. TEMPORARY SITE RESTORATION SHALL TAKE PLACE IN DISTURBED AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE OR ON WHICH LAND DISTURBING ACTIVITIES WILL NOT BE PERFORMED FOR A PERIOD GREATER THAN 14 DAYS AND REQUIRES VEGETATIVE COVER FOR LESS THAN ONE YEAR. THIS TEMPORARY SITE RESTORATION REQUIREMENT ALSO APPLIES TO SOIL STOCKPILES THAT EXIST FOR MORE THAN 7 DAYS. PERMANENT RESTORATION APPLIES TO AREAS WHERE PERENNIAL VEGETATIVE COVER IS NEEDED TO PERMANENTLY STABILIZE AREAS OF EXPOSED SOIL. PERMANENT STABILIZATION SHALL OCCUR WITHIN 3 WORKING DAYS OF FINAL GRADING. ANY SOIL EROSION THAT OCCURS AFTER FINAL GRADING AND/OR FINAL STABILIZATION MUST BE REPAIRED AND THE STABILIZATION WORK REDONE.
   9. IF SITE DEWATERING IS REQUIRED FOR PROPOSED CONSTRUCTION ACTIVITIES, ALL SEDIMENT LADEN WATER GENERATED DURING THE DEWATERING PROCESS SHALL BE TREATED TO REMOVE SEDIMENT PRIOR TO DISCHARGING OFF-SITE OR TO WATERS OF THE STATE. FOLLOW ALL STATE AND LOCAL REQUIREMENTS.
   10. ALL OFF-SITE SEDIMENT DEPOSITS OCCURRING AS A RESULT OF CONSTRUCTION WORK OR A STORM EVENT SHALL BE CLEANED UP BY THE END OF EACH WORKING DAY.
C. ALL EROSION CONTROL DEVICES SHALL AT A MINIMUM BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24 HOUR PERIOD. MAINTENANCE SHALL BE PERFORMED PER STATE AND LOCAL REQUIREMENTS.
D. EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL THE AREA(S) SERVED HAVE ESTABLISHED VEGETATIVE COVER.
E. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL LOCAL EROSION CONTROL PERMITS.

DIVISION 32 EXTERIOR IMPROVEMENTS

32 10 00 AGGREGATE BASE & ASPHALT PAVEMENT

A. CONTRACTOR TO PROVIDE COMPACTED AGGREGATE BASE AND HOT MIX ASPHALT PAVEMENT WHERE INDICATED ON THE PLANS. ALL AGGREGATE PROVIDED MUST COMPLY WITH MICHIGAN DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. PROVIDE HOT MIX ASPHALT MIXTURE TYPES COMPLYING WITH MICHIGAN DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. CONTRACTOR SHALL OBTAIN AND REVIEW SOILS REPORT FOR RECOMMENDATIONS FOR GEO-GRID / GEOTEXTILE BELOW CRUSHED AGGREGATE (IF APPLICABLE). CONTRACTOR TO PROVIDE AGGREGATE BASE AND HOT MIX ASPHALT PAVEMENT TYPES AND DEPTHS AS INDICATED BELOW:

   LIGHT DUTY ASPHALT PAVING SECTION:
   2" WEARING COURSE (MDOT 36A)
   2" LEVELING COURSE (MDOT 13A)
   6" CRUSHED AGGREGATE BASE COURSE (MDOT21AA)

B. CONTRACTOR TO COMPACT THE AGGREGATE BASE, ASPHALT BINDER COURSE, AND ASPHALT SURFACE COURSE TO AN AVERAGE DENSITY PER MICHIGAN DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. ALL ASPHALT PAVEMENT AREAS SHALL BE PAVED TO WITHIN 0.05' OF DESIGN SURFACE GRADES WITH POSITIVE DRAINAGE BEING MAINTAINED IN ACCORDANCE WITH DESIGN PLANS. A MINIMUM OF 1.5% SLOPE SHALL BE MAINTAINED IN ALL ASPHALT PAVEMENT AREA.
C. HOT MIX ASPHALT CONSTRUCTION TO BE PROVIDED PER MORE STRINGENT REQUIREMENTS OF GEOTECHNICAL REPORT OR CONSTRUCTION DOCUMENTS.
D. CONTRACTOR TO PROVIDE 4" WIDE WHITE PAINTED STRIPING FOR PARKING STALLS, TRAFFIC LANES, AND NO PARKING AREAS. WHITE PAINT MARKINGS SHALL ALSO BE PROVIDED FOR H.C. ACCESSIBLE SYMBOLS, TRAFFIC ARROWS, AND TRAFFIC MESSAGES. TWO COATS OF PAINT ARE REQUIRED FOR ALL PAVEMENT MARKINGS.

32 20 00 CONCRETE AND AGGREGATE BASE

A. CONTRACTOR TO PROVIDE CRUSHED AGGREGATE BASE AND CONCRETE WHERE INDICATED ON THE PLANS.
B. ALL AGGREGATE PROVIDED MUST COMPLY WITH MICHIGAN DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION. ALL AGGREGATE PLACED MUST BE COMPACTED TO AN AVERAGE DENSITY PER MICHIGAN DOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
C. DESIGN AND CONSTRUCTION OF ALL CAST-IN-PLACE EXTERIOR CONCRETE FLAT WORK SHALL CONFORM TO ACI 330R-08 & ACI 318-08.
D. EXTERIOR CONCRETE FLAT WORK CONSTRUCTION TO BE PROVIDED PER MORE STRINGENT REQUIREMENTS OF THE GEOTECHNICAL REPORT OR THIS SPECIFICATION. CONCRETE FLAT WORK CONSTRUCTION IS AS FOLLOWS:
   1. SIDEWALK CONCRETE - 4" OF CONCRETE OVER 4" OF 3/4" CRUSHED AGGREGATE BASE. CONTRACTION JOINTS SHALL CONSIST OF 1/8" WIDE BY 1" DEEP TOOLED JOINT WHERE INDICATED ON THE PLANS. SIDEWALKS TO BE REINFORCED LINEARLY ALONG FULL LENGTH OF SIDEWALK WITH #4 REBARS PLACED 6" FROM EACH OUTSIDE EDGE OF SIDEWALK.
   2. DUMPSTER PAD/APRON CONCRETE - 8" OF CONCRETE OVER 6" OF AGGREGATE BASE.
      a. CONCRETE SHALL BE STEEL REINFORCED WITH THE FOLLOWING AND PLACED IN THE UPPER 1/3 TO ½ OF THE SLAB:
         1) TIE BARS AT ALL CONTRACTION JOINTS OF THE CONCRETE. TIE BARS SHALL BE #4 REBAR 30" LONG PLACED AT 30" O.C.
      b. DUMPSTER PAD CONCRETE JOINTING SHALL BE AS FOLLOWS:
         1) CONTRACTION SAWCUT JOINT - CONTRACTOR SHALL PROVIDE A SAWCUT JOINT AT MAXIMUM SPACING OF 15' ON CENTER. SAWCUT SHALL BE 2" IN DEPTH.
         2) TYPICAL POUR CONTROL JOINT - POUR CONTROL JOINT SHALL BE PROVIDED WITH 1-1/4" DIAMETER BY 20" LONG SMOOTH DOWEL PLACED AT 12" O.C. ONE HALF OF THE DOWEL SHALL BE GREASED. GREENSTREAK 9" SPEED DOWEL TUBES SHALL BE USED.
   3. STANDARD CONCRETE- 5" OF CONCRETE OVER 4" OF 3/4" CRUSHED AGGREGATE. CONTRACTION JOINTS SHALL BE SAWCUT 1.5" IN DEPTH AND BE SPACED A MAXIMUM OF 12.5' ON CENTER
      a. CONCRETE SHALL BE STEEL REINFORCED AS FOLLOWS:
         1) TIE BARS AT OUTERMOST CONTRACTION JOINT (FIRST JOINT FROM EDGE OR AT CURB JOINT) AROUND PERIMETER OF CONCRETE. TIE BARS SHALL BE #4 REBAR 24" LONG PLACED AT 30" O.C.
         2) TYPICAL POUR CONTROL JOINT - POUR CONTROL JOINT SHALL BE PROVIDED WITH 1/4" X 4-1/2" X 4-1/4" DIAMOND SHAPED TAPERED PLATE DOWELS MANUFACTURED PER ASTM A36. INSTALL PER MANUFACTURERS SPECIFICATIONS.
E. DESIGN MIXES SHALL BE IN ACCORDANCE WITH ASTM C94
   1. STRENGTH TO BE MINIMUM OF 4,500 PSI AT 28 DAYS FOR EXTERIOR CONCRETE.
   2. MAXIMUM WATER/CEMENT RATIO SHALL BE 0.45.
   3. SLUMP SHALL NOT EXCEED 4" FOR EXTERIOR CONCRETE FLAT WORK
   4. SLUMP SHALL BE 2.5" OR LESS FOR SLIP-FORMED CURB AND GUTTER
   5. SLUMP SHALL BE BETWEEN 1.5" TO 3" FOR NON SLIP-FORMED CURB AND GUTTER.
   6. ALL EXTERIOR CONCRETE SHALL BE AIR ENTRAINED WITH 4% TO 7% AIR CONTENT. NO OTHER ADMIXTURES SHALL BE USED WITHOUT APPROVAL OF EXCEL ENGINEERING, INC. CALCIUM CHLORIDE SHALL NOT BE USED.
   7. MAXIMUM AGGREGATE SIZE FOR ALL EXTERIOR CONCRETE SHALL BE 0.75 INCHES.
F. VERIFY EQUIPMENT CONCRETE PAD SIZES WITH CONTRACTOR REQUIRING PAD. PADS SHALL HAVE FIBERMESH 300 FIBERS AT A RATE OF 1.5 LBS/CU. YD. OR 6 X 6-W1.4 X W1.4 WELDED WIRE MESH WITH MINIMUM 1 INCH COVER. EQUIPMENT PADS SHALL BE 5.5 INCHES THICK WITH 1 INCH CHAMFER UNLESS SPECIFIED OTHERWISE. CONCRETE SHALL BE PROVIDED ON 6" OF 3/4" CRUSHED AGGREGATE BASE. COORDINATE ADDITIONAL PAD REQUIREMENTS WITH RESPECTIVE CONTRACTOR.
G. ALL CONCRETE FLAT WORK SURFACES AND CONCRETE CURB FLOWLINES SHALL BE CONSTRUCTED TO WITHIN 0.05' OF DESIGN SURFACE AND FLOWLINE GRADES ASSUMING POSITIVE DRAINAGE IS MAINTAINED IN ACCORDANCE WITH THE DESIGN PLANS.
H. CONCRETE FLAT WORK SHALL HAVE CONSTRUCTION JOINTS OR SAW CUT JOINTS PLACED AS INDICATED ON THE PLANS OR PER THIS SPECIFICATION. SAWCUTS SHALL BE DONE AS SOON AS POSSIBLE, BUT NO LATER THAN 24 HOURS AFTER CONCRETE IS PLACED. CONCRETE CURB AND GUTTER JOINTING SHALL BE PLACED EVERY 10' OR CLOSER (6' MIN.). IF CONCRETE PAVEMENT IS ADJACENT TO CONCRETE CURB, JOINTING IN THE PAVEMENT AND CURB SHALL ALIGN. ALL EXTERIOR CONCRETE SHALL HAVE A BROOM FINISH UNLESS NOTED OTHERWISE. A UNIFORM COAT OF A HIGH SOLIDS CURING COMPOUND MEETING ASTM C309 SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES. ALL CONCRETE IS TO BE CURED FOR 7 DAYS. EXTERIOR CONCRETE SHALL BE SEPARATED FROM BUILDINGS WITH CONTINUOUS 0.5 INCH FIBER EXPANSION JOINT AND/OR 0.25 INCH FIBER EXPANSION JOINT AT DECORATIVE MASONRY UNITS.
I. ALL REINFORCING BARS SHALL BE ASTM A615 GRADE 60. THICKNESS OF CONCRETE COVER OVER REINFORCEMENT SHALL BE NOT LESS THAN 3" WHERE CONCRETE IS DEPOSITED AGAINST THE GROUND WITHOUT THE USE OF FORMS AND NOT LESS THAN 1.5" FOR UP TO #5 BARS AND 2" FOR #6 TO #10 BARS IN ALL OTHER LOCATIONS. ALL REINFORCING SHALL BE LAPPED 48 DIAMETERS FOR UP TO #6 BARS, 62 DIAMETERS FOR #7 TO #9 BARS, 68 DIAMETERS FOR #10 BARS OR AS NOTED ON THE DRAWINGS AND EXTENDED AROUND CORNERS WITH CORNER BARS. PLACING AND DETAILING OF STEEL REINFORCING AND REINFORCING SUPPORTS SHALL BE IN ACCORDANCE WITH CRSI AND ACI MANUAL AND STANDARD PRACTICES. THE REINFORCEMENT SHALL NOT BE PAINTED AND MUST BE FREE OF GREASE/OIL, DIRT OR DEEP RUST WHEN PLACED IN THE WORK. ALL WELDED WIRE FABRIC SHALL MEET THE REQUIREMENTS OF ASTM A 1064. WELDED WIRE FABRIC SHALL BE PLACED 2" FROM TOP OF SLAB, UNLESS INDICATED OTHERWISE.
J. OWNER SHALL ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO SAMPLE MATERIALS, PERFORM TESTS, AND SUBMIT TEST REPORTS DURING CONCRETE PLACEMENT. TESTS WILL BE PERFORMED ACCORDING TO ACI 301. CAST AND LABORATORY CURE ONE SET OF FOUR STANDARD CYLINDERS FOR EACH COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIX EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD., PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD. OR FRACTION THEREOF. PERFORM COMPRESSIVE-STRENGTH TESTS ACCORDING TO ASTM C 39. TEST TWO SPECIMENS AT 7 DAYS AND TWO SPECIMENS AT 28 DAYS. PERFORM SLUMP TESTING ACCORDING TO ASTM C 143. PROVIDE ONE TEST AT POINT OF PLACEMENT FOR EACH COMPOSITE SAMPLE, BUT NOT LESS THAN ONE TEST FOR EACH DAY'S POUR OF EACH CONCRETE MIX. PERFORM ADDITIONAL TESTS WHEN CONCRETE CONSISTENCY APPEARS TO CHANGE.
K. PROTECT FRESHLY PLACED CONCRETE FROM PREMATURE DRYING AND EXCESSIVE COLD OR HOT TEMPERATURES. IN HOT, DRY, AND WINDY WEATHER, APPLY AN EVAPORATION-CONTROL COMPOUND ACCORDING TO MANUFACTURER'S INSTRUCTIONS AFTER SCREEDING AND BULL FLOATING, BUT BEFORE POWER FLOATING AND TROWELLING.
L. LIMIT MAXIMUM WATER-CEMENTITIOUS RATIO OF CONCRETE EXPOSED TO FREEZING, THAWING AND DEICING SALTS TO 0.45.
M. TEST RESULTS WILL BE REPORTED IN WRITING TO THE DESIGN ENGINEER, READY-MIX PRODUCER, AND CONTRACTOR WITHIN 24 HOURS AFTER TESTS. REPORTS OF COMPRESSIVE STRENGTH TESTS SHALL CONTAIN THE PROJECT IDENTIFICATION NAME AND NUMBER, DATE OF CONCRETE PLACEMENT, NAME OF CONCRETE TESTING SERVICE, CONCRETE TYPE AND CLASS, LOCATION OF CONCRETE BATCH ON SITE, DESIGN COMPRESSIVE STRENGTH AT 28 DAYS, CONCRETE MIX PROPORTIONS AND MATERIALS, COMPRESSIVE BREAKING STRENGTH, AND TYPE OF BREAK FOR BOTH 7-DAY TESTS AND 28-DAY TESTS.
N. CONTRACTOR TO PROVIDE 4" WIDE WHITE PAINTED STRIPING FOR PARKING STALLS, TRAFFIC LANES, AND NO PARKING AREAS. WHITE PAINT MARKINGS SHALL ALSO BE PROVIDED FOR H.C. ACCESSIBLE SYMBOLS, TRAFFIC ARROWS, AND TRAFFIC MESSAGES. TWO COATS OF PAINT ARE REQUIRED FOR ALL PAVEMENT MARKINGS.

32 30 00 LANDSCAPING AND SITE STABILIZATION

D. TOPSOIL: CONTRACTOR TO PROVIDE A MINIMUM OF 6" OF TOPSOIL FOR ALL DISTURBED OPEN AREAS, OTHER THAN AT LANDSCAPED ISLANDS, WHICH SHALL BE PROVIDED WITH A MINIMUM OF 10" OF TOPSOIL. REUSE SURFACE SOIL STOCKPILED ON SITE AND SUPPLEMENT WITH IMPORTED OR MANUFACTURED TOPSOIL FROM OFF SITE SOURCES WHEN QUANTITIES ARE INSUFFICIENT. EXCAVATOR SHALL BE RESPONSIBLE FOR ROUGH PLACEMENT OF TOPSOIL TO WITHIN 1" OF FINAL GRADE PRIOR TO LANDSCAPER FINAL GRADING. LANDSCAPER TO PROVIDE PULVERIZING AND FINAL GRADING OF TOPSOIL. PROVIDE SOIL ANALYSIS BY A QUALIFIED SOIL TESTING LABORATORY AS REQUIRED TO VERIFY THE SUITABILITY OF SOIL TO BE USED AS TOPSOIL AND TO DETERMINE THE NECESSARY SOIL AMENDMENTS. TEST SOIL FOR PRESENCE OF ATRAZINE AND INFORM EXCEL ENGINEERING, INC. IF PRESENT PRIOR TO BIDDING PROJECT. TOPSOIL SHALL HAVE A PH RANGE OF 5.5 TO 8, CONTAIN A MINIMUM OF 5 PERCENT ORGANIC MATERIAL CONTENT, AND SHALL BE FREE OF STONES 1 INCH OR LARGER IN DIAMETER. ALL MATERIALS HARMFUL TO PLANT GROWTH SHALL ALSO BE REMOVED.
E. TOPSOIL INSTALLATION: LOOSEN SUBGRADE TO A MINIMUM DEPTH OF 6 INCHES AND REMOVE STONES LARGER THAN 1" IN DIAMETER. ALSO REMOVE ANY STICKS, ROOTS, RUBBISH, AND OTHER EXTRANEOUS MATTER AND DISPOSE OF THEM OFF THE PROPERTY. SPREAD TOPSOIL TO A DEPTH OF 6" BUT NOT LESS THAN WHAT IS REQUIRED TO MEET FINISHED GRADES AFTER LIGHT ROLLING AND NATURAL SETTLEMENT. DO NOT SPREAD TOPSOIL IF SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET. GRADE PLANTING AREAS TO A SMOOTH, UNIFORM SURFACE PLANE WITH LOOSE, UNIFORMLY FINE TEXTURE. GRADE TO WITHIN 0.05 FEET OF FINISHED GRADE ELEVATION.
F. SODDED LAWNS: PROVIDE SOD CONSISTING OF THE FOLLOWING GRASS SPECIES - 65% KENTUCKY BLUEGRASS, 20% PERENNIAL RYEGRASS, 15% FINE FESCUE. PROVIDE VIABLE SOD OF UNIFORM DENSITY, COLOR, AND TEXTURE. SOD SHOULD BE STRONGLY ROOTED AND CAPABLE OF VIGOROUS GROWTH AND DEVELOPMENT WHEN PLANTED. LAY SOD WITHIN 24 HOURS OF HARVESTING. DO NOT LAY SOD IF DORMANT OR IF GROUND IS FROZEN OR MUDDY. LAY SOD WITH TIGHTLY FITTED BUTT END AND SIDE JOINTS. DO NOT STRETCH OR OVERLAP. STAGGER SOD STRIPS TO OFFSET JOINTS IN ADJACENT COURSES. TAMP AND ROLL LIGHTLY TO ENSURE CONTACT WITH TOPSOIL. ANCHOR SOD ON SLOPES EXCEEDING 6:1 SLOPE. PROVIDE SLOW RELEASE FERTILIZER AS RECOMMENDED BY SOD SUPPLIER FOR PROPER LAWN ESTABLISHMENT. SATURATE WITH FINE WATER SPRAY WITHIN 2 HOURS OF PLANTING.
G. SODDED LAWN MAINTENANCE: CONTRACTOR TO PROVIDE MAINTENANCE FOR ALL SODDED AREAS FOR A PERIOD OF 90 DAYS FROM THE DATE OF INSTALLATION. AT THE END OF THE MAINTENANCE PERIOD, A HEALTHY, WELL-ROOTED, EVEN-COLORED, VIABLE LAWN SHOULD BE ESTABLISHED. THE LAWN SHOULD BE FREE OF WEEDS, OPEN JOINTS, BARE AREAS, AND SURFACE IRREGULARITIES. REESTABLISH LAWNS THAT DO NOT COMPLY WITH THESE REQUIREMENTS AND CONTINUE MAINTENANCE UNTIL LAWNS ARE SATISFACTORY.
H. TREES AND SHRUBS: FURNISH NURSERY-GROWN TREES AND SHRUBS WITH HEALTHY ROOT SYSTEMS DEVELOPED BY TRANSPLANTING OR ROOT PRUNING. PROVIDE WELL-SHAPED, FULLY BRANCHED, AND HEALTHY LOOKING STOCK. STOCK SHOULD ALSO BE FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS SUCH AS KNOTS, SUN SCALD, INJURIES, ABRASIONS, AND DISFIGUREMENT. SEE THE LANDSCAPE PLAN FOR SPECIFIC SPECIE TYPE, SIZE, AND LOCATION.
I. TREE AND SHRUB INSTALLATION: EXCAVATE CIRCULAR PITS WITH SIDES SLOPED INWARD. TRIM BASE LEAVING CENTER AREA RAISED SLIGHTLY TO SUPPORT ROOT BALL. EXCAVATE PIT APPROXIMATELY THREE TIMES AS WIDE AS THE ROOT BALL DIAMETER. SET TREES AND SHRUBS PLUMB AND IN CENTER OF PIT WITH TOP OF BALL 1" ABOVE ADJACENT FINISHED GRADES. PLACE PLANTING SOIL MIX AROUND ROOT BALL IN LAYERS AND TAMP TO SETTLE MIX. WATER ALL PLANTS THOROUGHLY. PROVIDE TEMPORARY STAKING FOR TREES AS REQUIRED.
J. TREE AND SHRUB MAINTENANCE/WARRANTY: CONTRACTOR TO PROVIDE MAINTENANCE OF ALL LANDSCAPING FOR A PERIOD OF 90 DAYS FROM THE DATE OF INSTALLATION. MAINTENANCE TO INCLUDE REGULAR WATERING AS REQUIRED FOR SUCCESSFUL PLANT ESTABLISHMENT. CONTRACTOR TO PROVIDE 1 YEAR WARRANTY ON ALL TREES, SHRUBS, AND PERENNIALS.
K. HARDWOOD MULCH: PROVIDE 3" MINIMUM THICK BLANKET OF SHREDDED HARDWOOD MULCH AT ALL PLANTING AREAS INDICATED ON THE LANDSCAPE PLAN. INSTALL OVER NON-WOVEN WEED BARRIER FABRIC. COLOR BY OWNER.
L. LANDSCAPE STONE: PROVIDE 3" MINIMUM THICK BLANKET OF 0.75" TO 1.5" CRUSHED DECORATIVE STONE AT ALL PLANTING AREAS INDICATED ON THE LANDSCAPE PLAN. INSTALL OVER NON-WOVEN WEED BARRIER FABRIC. COLOR BY OWNER.
M. PLASTIC EDGING: INSTALL VALLEY VIEW INDUSTRIES BLACK DIAMOND LAWN EDGING TO SEPARATE ALL PLANTING BEDS FROM LAWN AREAS. EDGING TO BE 5.5" TALL WITH METAL STAKES INSTALLED PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
N. LANDSCAPE AND LAWN IRRIGATION: CONTRACTOR TO PROVIDE DESIGN AND INSTALLATION OF IRRIGATION SYSTEM PIPING, VALVES, VALVE BOXES, SPRINKLERS, EMITTERS, DRIP TUBES, AND CONTROLS IN COMBINATIONS THAT BEST SUIT THE LANDSCAPE PLAN LAYOUT. ALL LAWN AND LANDSCAPING AREAS SHALL BE PROVIDED WITH IRRIGATION AS DELINEATED ON THE PLAN. THE DESIGN SHOULD MINIMIZE THE AMOUNT OF WATER THAT EXTENDS BEYOND THE PROPERTY AND ON PAVED AREAS. THE SYSTEM SHALL BE DESIGNED FOR FULLY AUTOMATIC OPERATION AND PROVIDE ALL NECESSARY CONTROLS, VALVES, AND WIRING TO OPERATE THE SYSTEM. THE CONTROL UNIT SHALL BE INSTALLED IN A MECHANICAL ROOM OR AT A LOCATION AGREED TO WITH THE OWNER. THE CONTROL UNIT SHOULD BE PROVIDED WITH A LOCKING COVER. POP-UP SPRAY OR ROTARY SPRINKLERS SHALL BE USED AT LAWN AREAS TO PROVIDE A UNIFORM COVERAGE OF 1 TO 2 INCHES OF WATER PER HOUR. EMITTERS AND DRIP TUBES OR SHRUBBERY SPRINKLERS SHALL BE USED AT PLANTS AND SHRUBS AS APPROPRIATE FOR THE PLANTING DENSITY AND SPECIES TYPE. ALL SPRINKLER HEADS SHALL BE COMMERCIAL GRADE. THE SYSTEM SHALL BE CIRCUITED AS REQUIRED TO PROVIDE ADEQUATE WATER FLOW TO EACH SPRINKLER HEAD. THE CONTROL SYSTEM MUST INCLUDE A RAIN SENSING SHUT OFF DEVICE. THE ENTIRE SYSTEM IS TO BE INSTALLED WITH A MINIMUM UNIFORM SLOPE OF 0.5 PERCENT TOWARD DRAIN VALVES.

DIVISION 33 UTILITIES

33 10 00 SITE UTILITIES

A. CONTRACTOR TO FIELD VERIFY ALL EXISTING UNDERGROUND UTILITIES ON SITE. CONTRACTOR TO VERIFY PIPE LOCATIONS, SIZES, AND DEPTHS AT POINT OF PROPOSED CONNECTIONS AND VERIFY PROPOSED UTILITY ROUTES ARE CLEAR (PER CODE) OF ALL EXISTING UTILITIES AND OTHER OBSTRUCTIONS PRIOR TO CONSTRUCTION. COSTS INCURRED FOR FAILURE TO DO SO SHALL BE THE CONTRACTORS RESPONSIBILITY.
B. CONTRACTOR TO FIELD TELEVISE ALL EXISTING SANITARY AND STORM LATERALS THAT ARE SCHEDULED TO BE RE-USED AND/OR CONNECTED TO ON SITE. THE TELEVISING SHALL BE COMPLETED TO ENSURE THE EXISTING LATERAL(S) ARE FREE OF OBSTRUCTIONS AND IN SOUND STRUCTURAL CONDITION. TELEVISING OF THESE LATERAL(S) SHOULD BE COMPLETED AT BEGINNING OF CONSTRUCTION AND DESIGN ENGINEER SHALL BE NOTIFIED OF ANY PIPE OBSTRUCTIONS AND/OR STRUCTURAL DEFICIENCIES IMMEDIATELY AFTER COMPLETION OF FIELD TELEVISING
C. ALL SANITARY PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE. INSULATION SHALL BE PROVIDED PER STATE PLUMBING CODES AS NECESSARY BASED ON PROPOSED DEPTH PER PLANS.
D. SANITARY MANHOLES SHALL BE 48" PRECAST AND CONFORM TO STATE AND LOCAL STANDARDS. SANITARY MANHOLE FRAME AND GRATE TO BE IN ACCORDANCE WITH LOCAL STANDARDS. RIM ELEVATION TO BE SET AT FINISHED GRADE IN DEVELOPED AREAS AND 12" ABOVE FINISHED GRADE IN UNDEVELOPED AREAS EXCEPT AS OTHERWISE DIRECTED BY THE ENGINEER.
E. CLEANOUTS SHALL BE PROVIDED FOR THE SANITARY & STORM SERVICES AT LOCATIONS INDICATED ON THE UTILITY PLAN. THE CLEANOUT SHALL CONSIST OF A COMBINATION WYE FITTING IN LINE WITH THE SANITARY/STORM SERVICE WITH THE CLEANOUT LEG OF THE COMBINATION WYE FACING STRAIGHT UP. THE CLEANOUT SHALL CONSIST OF A (4" OR 6") VERTICAL PVC PIPE WITH A WATER TIGHT REMOVABLE CLEANOUT PLUG. AN 8" PVC FROST SLEEVE SHALL BE PROVIDED. THE BOTTOM OF THE FROST SLEEVE SHALL TERMINATE 12" ABOVE THE TOP OF THE SANITARY LATERAL OR AT LEAST 6" BELOW THE PREDICTED FROST DEPTH, WHICHEVER IS SHALLOWER. THE CLEANOUT SHALL EXTEND JUST ABOVE THE SURFACE GRADE IN LAWN OR LANDSCAPE AREAS WITH THE FROST SLEEVE TERMINATING AT THE GRADE SURFACE. THE CLEANOUT SHALL EXTEND TO 4 INCHES BELOW SURFACE GRADE IN PAVED SURFACES WITH A ZURN (Z-1474-N) HEAVY DUTY CLEANOUT HOUSING PLACED OVER THE TOP OF THE CLEANOUT FLUSH WITH THE SURFACE GRADE. IN PAVED SURFACES, THE FROST SLEEVE SHALL TERMINATE IN A CONCRETE PAD AT LEAST 6" THICK AND EXTENDING AT LEAST 9" FROM THE SLEEVE ON ALL SIDES, SLOPING AWAY FROM THE SLEEVE. THE CLEANOUT HOUSING SHALL BE CONSTRUCTED PER MANUFACTURERS REQUIREMENTS.
F. ALL PROPOSED WATER PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE. 5' MINIMUM COVER SHALL BE PROVIDED OVER ALL WATER PIPING UNLESS OTHERWISE SPECIFIED.
G. ALL PROPOSED STORM PIPE SHALL BE IN ACCORDANCE WITH MATERIALS SPECIFIED IN TABLE A: ALLOWABLE PIPE MATERIAL SCHEDULE. SEE UTILITY PLANS FOR ALL STORM PIPE MATERIAL TYPES TO BE USED. PIPE SHALL BE PLACED MIN. 8' HORIZONTALLY FROM FOUNDATION WALLS.
H. SANITARY, STORM, AND WATER UTILITY PIPE INVERTS SHALL BE CONSTRUCTED WITHIN 0.10' OF DESIGN INVERT ELEVATIONS ASSUMING PIPE SLOPE AND SEPARATION IS MAINTAINED PER THE UTILITY DESIGN PLANS AND STATE REQUIREMENTS.
I. SITE UTILITY CONTRACTOR SHALL RUN SANITARY SERVICE TO A POINT WHICH IS A MAXIMUM OF 5' FROM THE EXTERIOR WALL OF THE FOUNDATION. SITE UTILITY CONTRACTOR SHALL RUN STORM SEWER FOR INTERNALLY DRAINED BUILDINGS TO A POINT WHICH IS A MAXIMUM OF 5' FROM THE EXTERIOR WALL OF THE FOUNDATION. SITE UTILITY CONTRACTOR SHALL RUN DOWNSPOUT LEADS TO BUILDING FOUNDATION AND UP 6" ABOVE SURFACE GRADE FOR CONNECTION TO DOWNSPOUT FOR ALL DOWNSPOUT TO RISER (DSR) CONNECTIONS. DOWNSPOUTS TO GRADE (DSG) SHALL BE PROVIDED WITH SPLASH BLOCKS AT THE DISCHARGE LOCATION. ALL DOWNSPOUT LOCATIONS SHOULD BE VERIFIED WITH ARCHITECTURAL PLANS AND DOWNSPOUT CONTRACTOR/GC PRIOR TO INSTALLATION OF DOWNSPOUT LEADS. DOWNSPOUT LEADS SHALL NOT UNDERMINE BUILDING FOUNDATIONS. SITE UTILITY CONTRACTOR SHALL RUN WATER SERVICE TO A POINT WITHIN THE FOUNDATION SPECIFIED BY THE PLUMBING PLANS. CONTRACTOR TO CUT AND CAP WATER SERVICE 12" ABOVE FINISHED FLOOR ELEVATION.
J. ALL UTILITIES SHALL BE INSTALLED WITH PLASTIC COATED TRACER WIRE (10 TO 14 GAUGE SOLID COPPER, OR COPPER COATED STEEL WIRE). PLASTIC WIRE MAY BE TAPED TO PLASTIC WATER OR SEWER PIPE. IF ATTACHED, THE TRACER WIRE SHALL BE SECURED EVERY 6 TO 20 FEET AND AT ALL BENDS. TRACER WIRE SHALL HAVE ACCESS POINTS AT LEAST EVERY 300 FEET. TRACER WIRE SHALL TERMINATE IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS AT GRADE OR IN TERMINATION BOX PER LOCAL/STATE REQUIREMENTS.
K. ALL UTILITIES SHALL BE INSTALLED PER STATE, LOCAL, AND INDUSTRY STANDARDS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL OTHER PERMITS REQUIRED TO INSTALL WATER, SANITARY AND STORM SEWER IF REQURED BY LOCAL AHJ.
L. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY AND WORK INVOLVING UTILITIES SHALL CONFORM TO THE CITY OF PORTAGE STANDARD SPECIFICATIONS AND DETAILS.
M. SEE PLANS FOR ALL OTHER UTILITY SPECIFICATIONS AND DETAILS.

SHOP DRAWING SUBMITTALS

MATERIAL / INFORMATION

1. 31.10.00 - TELEVISING REPORTS OF EXISTING LATERALS
   - STORM
   - SANITARY
2. 31.20.00 - FILL
   - PRODUCT DATA
   - SOURCE MATERIAL
3. 32.10.00 (A) - AGGREGATE BASE & ASPHALT PAVEMENT
   - HOT MIX ASPHALT SPECIFICATIONS
   - AGGREGATE BASE
   - PAVEMENT MARKINGS
4. 32.20.00-CONCRETE AND AGGREGATE BASE
   - DESIGN MIX
   - AGGREGATE BASE
   - COMPRESSION TEST RESULTS
   - PAVEMENT MARKINGS
   - DETECTABLE WARNING PLATES
5. 32.30.00 LANDSCAPING
   - AMENDED SOIL MIX
   - SOD PRODUCT DATA
   - PLANTING SUBSTITUTION SCHEDULE
   - MULCH PRODUCT DATA
   - IRRIGATION CONTROL PRODUCT DATA
   - IRRIGATION LAYOUT
6. 33.10.00 - SITE UTILITIES
   - SANITARY & STORM MANHOLES
   - SANITARY PIPING MATERIALS
   - OIL INTERCEPTOR SHOP DRAWINGS
   - WATER PIPING MATERIALS
   - WATER FITTINGS & APPURTENANCES
   - STORM PIPING MATERIALS

Table A: Allowable Pipe Material Schedule

Utility	Material	Pipe Code	Fitting Code	Joint Code	Comments
Water Lateral	Type K Copper-Soft	ASTM B-88	ASTM B16.22, ASTM B16.29	ASTM B32 AWS A5.8 BCuP Silver Braze	<2", No Joints below Building
Sanitary Sewer	SDR 35 PVC	ASTM D1785, ASTM D2665, ASTM D3034, ASTM F891	ASTM F1336	Push On: ASTM D3212 for Tightness Elastomeric Gasket: ASTM F477	4"-15", ≤ 20' deep
Storm Sewer	HDPE	ASTM F2648, ASTM F2306, AASHTO M252, TYPE S (4 IN - 10 IN), AASHTO M294, TYPE S (12 IN - 60 IN)	ASTM F2648, ASTM F2306, AASHTO M252, or AASHTO M294	Joint: ASTM F2648, ASTM F2306, AASHTO M252, or AASHTO M294 Elastomeric Seal: ASTM F477	
Storm Sewer	SDR 35 PVC	ASTM D1785, ASTM D2665, ASTM D3034, ASTM F891	ASTM F1336	Push On: ASTM D3212 for Tightness Elastomeric Seal: ASTM F477	4"-15", ≤ 20' deep

CONSTRUCTION SEQUENCE

PHASE	TYPE OF ACTION
1. PRE-CONSTRUCTION ACTION	1. CONTRACTOR TO CALL MISS DIG 811 AT A MINIMUM OF 3 DAYS PRIOR TO CONSTRUCTION.
	2. CONTRACTOR TO FIELD VERIFY LOCATION AND DEPTH OF ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION. NOTIFY ENGINEER OF DISCREPANCIES.
	3. PLACE ALL SILT FENCE AND INLET PROTECTION.
	4. CONSTRUCT TRACKING STONE ENTRANCES AND ANY TEMPORARY CONSTRUCTION ROADWAYS AS NEEDED.
	5. CONSTRUCT PERMANENT STORMWATER CONVEYANCE SYSTEMS.
	6. CONSTRUCT ANY TEMPORARY STORMWATER CONVEYANCE SYSTEMS AS NEEDED.
	7. STABILIZE ALL TEMPORARY AND PERMANENT EROSION CONTROL AND STORMWATER CONVEYANCE SYSTEMS BEFORE TOPSOIL CAN BE STRIPPED.
2. CONSTRUCTION ACTION	1. SITE DEMOLITION AS REQUIRED.
	2. STRIP AND RELOCATE TOPSOIL TO THE DESIGNATED TOPSOIL STOCKPILE. FINAL LOCATION BY CONTRACTOR. PROVIDE PERIMETER SILT FENCE UNTIL STABILIZED.
	3. BEGIN MASS EARTH WORK FOR THE BUILDING PAD AND PAVEMENT AREAS.
	4. CONSTRUCT ANY REMAINING STORMWATER CONVEYANCE SYSTEMS, AND INSTALL ALL OTHER UTILITIES ON SITE.
	5. DIG AND POUR ALL BUILDING FOOTINGS.
	6. PLACE GRAVEL FOR ALL PROPOSED PAVEMENT AREAS.
	7. STABILIZE ALL DISTURBED AREAS OUTSIDE THE BUILDING AND PROPOSED PAVEMENT AREAS VIA SOD APPLICATION.
	8. CONSTRUCT BUILDING.
	9. PAVE DRIVEWAYS AND PARKING AREAS.
	10. STABILIZE ALL OTHER DISTURBED AREAS. PLACE EROSION MATTING AND RIP RAP IF REQUIRED.
3. POST CONSTRUCTION ACTION	1. CONTRACTOR TO REMOVE TEMPORARY EROSION CONTROL MEASURES UPON SITE STABILIZATION.
	2. SEE THE POST CONSTRUCTION MAINTENANCE PLAN FOR PERMANENT STORMWATER MANAGEMENT SYSTEMS.

CONTRACTOR TO FOLLOW THE EROSION CONTROL SPECIFICATIONS FOR CONSTRUCTION EROSION CONTROL INSPECTION AND MAINTENANCE.

IF SOIL OR GROUNDWATER CONTAMINATION IS ENCOUNTERED OR SUSPECTED DURING CONSTRUCTION THE FOLLOWING STEPS SHALL BE FOLLOWED:

1. CONTRACTOR SHALL STOP WORK IMMEDIATELY AND NOTIFY OWNER AND/OR OWNER'S REPRESENTATIVE.
2. OWNER AND/OR OWNER'S REPRESENTATIVE SHALL NOTIFY THE CITY.
3. OWNER SHALL ENGAGE THE SERVICES OF A QUALIFIED ENVIRONMENTAL CONSULTANT (CONSULTANT).
4. CONSULTANT SHALL CONDUCT A SITE ASSESSMENT AND REPORT TO THE ABOVE PARTIES.
5. CONSULTANT SHALL DEVELOP A PLAN TO ADDRESS ANY CONTAMINATION WHICH MAY BE FOUND DURING CONSTRUCTION.
6. THE CONSULTANT TOGETHER WITH THE DESIGN ENGINEER SHALL COMPLETE A SITE EVALUATION PROCESS FOLLOWING THE DOCUMENT ENTITLED IMPLEMENTING STORMWATER INFILTRATION PRACTICES AT VACANT PARCELS AND BROWNFIELD SITES (EPA, 2013) TO DETERMINE IF THE STORMWATER MANAGEMENT SYSTEM REQUIRES REDESIGN AND RESUBMITTAL TO THE CITY FOR REVIEW AND APPROVAL.
7. OWNER AND/OR OWNER'S REPRESENTATIVE SHALL SUBMIT TO THE CITY SUPPORTING DOCUMENTATION OF THE SITE EVALUATION PROCESS. A REVISED STORMWATER REVIEW PACKAGE MUST ALSO BE SUBMITTED IF IT BECOMES NECESSARY TO CHANGE THE DESIGN OF THE STORMWATER MANAGEMENT SYSTEM.
8. MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) REMEDIATION AND REDEVELOPMENT DIVISION (RRD) STAFF SHALL BE NOTIFIED AS APPLICABLE.

GENERAL NOTES:

- ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY AND WORK INVOLVING UTILITIES SHALL CONFORM TO THE CITY OF PORTAGE STANDARD SPECIFICATIONS AND DETAILS.

EXCEL
Always a Better Plan
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MULTI-CARE SERVICES
JIFFY LUBE PROTOTYPE WITH STONEBRIAR OPTIONS
PORTAGE, MI
NWC OF W MELODY AVE & SHAVER RD

NO:	DATE:	ISSUE:
	03/28/2025	ISSUED FOR APPROVAL
	04/29/2025	CITY REVIEW #1
	05/19/2025	CITY REVIEW #2

CIVIL SPECIFICATIONS
DRAWN: DS CHECKED: JD
SHEET NO:
C0.2

GEOTECHNICAL RECOMMENDATIONS

(THE BELOW INFORMATION IS PROVIDED FOR REFERENCE ONLY. GC TO REVIEW AND ADHERE TO MOST RECENT VERSION OF INTERTEK PSI'S FINAL GEOTECHNICAL REPORT FOR ALL APPLICABLE SOILS INFORMATION PRIOR TO AND DURING CONSTRUCTION)

PROJECT INFORMATION

Project Authorization

This engineering report presents the results of our geotechnical engineering exploration and recommendation performed for the proposed Jiffy Lube that is planned at 8516 Shaver Rd, Portage, Michigan. The exploration was performed for **Guggenheim Development Services, LLC**, in accordance with PSI Proposal No. 0381-437538 dated October 28, 2024. Authorization to perform this exploration and analysis was in the form of a Subconsultant Agreement.

Project Description

Project information was provided by Mr. Raymond Parker, Sr. Vice President of Development & Construction at **Guggenheim Development Services, LLC**, via email on October 29, 2024. The correspondence included the following:

- Request for proposal and geotechnical engineering services.
- Site location with proposed layout/new site plan.

Briefly, PSI understands that **Guggenheim Development Services, LLC**, is supporting the design of a proposed Jiffy Lube's in Portage, Michigan. The new building is approximately 3,942 sq ft, which includes an 890 sq ft basement/sump pit. Based on the site plan and drawings provided, the pit wall height is approximately 9 feet. Based on the email provided by Ms. Lina Estevez, Development Coordinator at **Guggenheim Development Services, LLC**, the typical exterior wall loads of the main at-grade building are 2.0 kips per lineal foot, and steel column load in the basement/sump pit is 16 kips. **PSI considered these loads for foundation recommendations.** The finished floor elevation is 100 feet for the main building and 91 feet for the pit.

The geotechnical recommendations presented in this report are based on the available project information, considered structural loads, and results of our geotechnical exploration. If any of the noted information is considered incorrect or is changed, please inform PSI in writing so that we may amend the recommendations presented in this report if appropriate and if desired by **Guggenheim Development Services, LLC**. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project. PSI should be consulted once the structural design has been finalized. Additional subsurface exploration may need to be performed by PSI at that time.

Purpose and Scope of Services

The purpose of this geotechnical exploration was to evaluate the subsurface conditions within the vacant project lot and to develop geotechnical design criteria for support of foundations for the planned Jiffy Lube. The scope of the exploration and analysis included a reconnaissance of the project site, completion of eight soil borings, field and laboratory testing of representative portions of the recovered samples, and engineering analysis and evaluation of the subsurface materials encountered.

The scope of services did not include an environmental assessment for determining the presence or absence of wetlands, hazardous or toxic materials in the soil, bedrock, surface water, groundwater or air on, below or around this site. Any statement in this report or on the boring logs regarding odors, colors, and unusual or suspicious items or conditions are strictly for informational purposes. Prior to the

development of any site, an environmental assessment is advisable.

As directed by the scope of service provided by **Guggenheim Development Services, LLC**, PSI did not provide any service to investigate or detect the presence of moisture, mold or other biological contaminates in or around any structure or any service that was designed or intended to prevent or lower the risk of the occurrence of the amplification of the same. **Guggenheim Development Services, LLC** acknowledges that mold is ubiquitous to the environment with mold amplification occurring when building materials are impacted by moisture. **Guggenheim Development Services, LLC** further acknowledges that site conditions are outside of PSI 's control and that mold amplification will likely occur or continue to occur in the presence of moisture. As such, PSI cannot and shall not be held responsible for the occurrence or recurrence of mold amplification.

PSI also provides an array of complementary environmental and industrial hygiene services to assist in successfully assessing and developing properties such as the one referenced in this report. PSI's environmental consultants apply their experience, local geologic knowledge and thorough understanding of **ASTM** standards, environmental risk, and regulatory knowledge to conduct due diligence assessments of a wide range or property types and proposed developments.

SITE AND SUBSURFACE CONDITIONS

Site Location and Description

The project site is a vacant lot and is located at 8516 Shaver Rd, Portage, Michigan. The general site location is shown on the site location plan in the **Appendix** as **Figure No. 1**. At the time of our field exploration, the project site consisted of a grass vacant lot area. The terrain across the project site was of +/- 2 feet grade difference based on visual observation at the project site. PSI mobilized and utilized a CME-75 truck rig to drill at all boring locations.

Field Exploration and Laboratory Testing

The site subsurface conditions were determined by completion of eight Standard Penetration Test (SPT) soil borings located within the proposed automotive shop area. SB-01 through SB-04 were advanced to depth of 10 feet, SB-05 and SB-08 to a depth of 15 feet, and SB-06 and SB-07 were advanced to depth of 25 feet below existing grade. **The depths of borings were established by Guggenheim Development Services, LLC.** All soil borings were performed on top of grass surface, so no pavement coring was required. The boring locations were located and marked in the field by PSI. The approximate boring locations are depicted on the boring location plan included in the **Appendix** in **Figure No. 2**.

The soil borings were performed on November 18, 2024, by means of a CME-75 truck rig equipped with a rotary head utilizing 2¼ inch hollow-stem augers to advance the boreholes. Representative soil samples were recovered employing split-barrel sampling procedures in general accordance with "Penetration Test and Split-Barrel Sampling of Soils" (**ASTM D1586**). After the completion of the test borings the boreholes were backfilled with the excavated soils.

Determination of the ground surface elevations by survey at the test boring positions was not within the scope of PSI's services. The approximate ground surface location (longitude and latitude) and elevations at boring locations were obtained by PSI from Google Earth Pro. Prior to final design and construction, field

measurement at the boring locations should be made by a professional land surveyor registered in the State of Michigan. References to depths in this report and on the attached Boring Logs are from the existing ground surface unless otherwise noted.

In addition to the field exploration, field and representative laboratory-testing programs were conducted to evaluate engineering characteristics of the subsurface materials. The laboratory-testing program included visual classification and moisture content tests on all the material recovered. The results of these tests are located on the boring logs which are included in the **Appendix**. Each phase of the laboratory testing program was conducted in general accordance with applicable **ASTM** specifications. The unused portion of the soil samples will be placed in storage at PSI's Plymouth, Michigan facility. Unless otherwise requested in writing, the samples will be discarded 60 days after the submission of the final report.

Surface/Subsurface Conditions

At the time of our field exploration, the surface and subsurface conditions encountered at the project site can be generally described in the following table:

Table 1: Existing Surface/Subsurface Summary

Soil Boring	Depth (feet)	Surface Material and Thickness	Major Native Strata
SB-01	10.0	8" Topsoil	Brown POORLY GRADED SAND
SB-02	10.0	7" Topsoil	Brown POORLY GRADED SAND
SB-03	10.0	8" Topsoil	Brown POORLY GRADED SAND
SB-04	10.0	7" Topsoil	Brown POORLY GRADED SAND
SB-05	15.0	7" Topsoil	Brown POORLY GRADED SAND
SB-06	25.0	9" Topsoil	Brown POORLY GRADED SAND
SB-07	25.0	13" Topsoil	Brown POORLY GRADED SAND
SB-08	15.0	7.5" Topsoil	Brown POORLY GRADED SAND

At the time of our field exploration, the surface of each soil boring location consisted of a grass/topsoil layer ranging between approximately 7.0 and 13.0 inches in thickness. Underneath the topsoil, a uniform brown poorly graded sand layer was encountered, and this sand layer extended to the termination depths at all boring locations. The SPT values (N-value) of the sandy stratum varied between five and 25 blows per foot, indicating a loose to a dense density. The natural moisture content of this layer ranged between 12 and 30 percent. The samples visually appeared to be in moist to wet condition when examined in the laboratory.

Cobbles and/or boulders were not encountered during drilling operations. However, cobbles/boulders could be encountered very nearby or between the soil boring positions. The contractor should be equipped for this condition.

The above subsurface descriptions are of a generalized nature and are provided to highlight the major soil strata encountered. The Boring Logs included in the **Appendix** should be reviewed for specific information as to individual boring locations. The stratification shown on the Boring Logs represents the conditions encountered at the specific boring locations. Variations may occur and should be expected between boring locations. The stratification represents the approximate boundary between subsurface materials; however, the actual transition may be gradual, abrupt, or not clearly defined. In the absence of foreign substances or debris, it is often difficult to distinguish between native soils and clean fill soil.

Groundwater Information

Free groundwater was only encountered in the two deep borings (SB-06 and SB-07) at the depths shown in the table below in mid of November 2024. Therefore, difficulties may be anticipated in earthwork and foundations construction in the pit. A collapse of the soils above (or below) groundwater levels (i.e., "dry cave") was not observed during drilling operations at any soil boring locations. The Boring Logs included in the Appendix should be reviewed for specific information as to depths of wet or dry caves.

Table 2: Groundwater table (GWT) condition

Soil Boring	GWT depth during drilling (feet)	GWT depth after completion (feet)
SB-01	Not encountered	Not encountered
SB-02	Not encountered	Not encountered
SB-03	Not encountered	Not encountered
SB-04	Not encountered	Not encountered
SB-05	Not encountered	Not encountered
SB-06	13.5	15.0
SB-07	18.5	19.0
SB-08	Not encountered	Not encountered

Groundwater levels on this site (if present) are likely to vary due to seasonal conditions and fluctuations should be anticipated. Groundwater quantities and flow volumes will largely depend on the permeability of the soil profile. It is recommended that the contractor determine the actual groundwater levels at the time of the construction to evaluate groundwater impact on construction procedures.

Site Seismic Classification

Portage in Michigan lies in the Central Stable Tectonic Region and in Seismic Zone Area 1 of probable seismic activity of the Building Officials Congress of America (**BOCA**), National Building Code, and the Uniform Building Code (**UBC**). This zone indicates that little to minor damage due to occasional earthquakes might be expected in this area.

In the 2015 Michigan Building Code (**MBC**), the State of Michigan has adopted the provisions of the International Building Code (IBC). The Site Class is based on a weighted average of known or estimated soil properties for the uppermost 100 feet of the subsurface profile. Soil borings at the project site extended to a maximum depth of approximately 25 feet below the existing ground surface. Based on the regional geologic mapping, as well as data available on the Water Well Record Retrieval System of the Department of Environmental Quality in the State of Michigan, PSI anticipates that the subsurface conditions below the

explored depth may consist of alternating deposits of sand, gravel, and clay with bedrock located at a depth of approximately 100 feet or more below the existing ground surface. Bedrock most likely is part of the Saginaw formation of the Pennsylvanian geologic age, which consists of sandstone, shale, with variable presence of limestone and coal. Based on our review of the available data, knowledge of regional geology and the Standard Penetration Test (SPT) N-values and approximated soil shear strength, PSI estimates that the seismic design for this project, based on the upper 100 feet of the interpreted subsurface soil profile, would be **Site Class D.**

The 2015 International Building Code requires a site class for the calculation of earthquake design forces. This class is a function of soil type (i.e., depth of soil and stratum types). Based on the anticipated depth of the rock and the estimated shear strength of the soil at the boring locations, **Site Class "D"** is recommended.

The USGS-NEHRP probabilistic ground motion values near Latitude 42.193569 and Longitude -85.598102 are as follows:

Table 3: USGS-NEHRP Probabilistic Ground Motion Values

Period (seconds)	2% Probability of Event in 50 years * (%g)	Site Coefficients	Max. Spectral Acceleration Parameters	Design Spectral Acceleration Parameters	
0.2 (S_s)	8.9	$F_a = 1.6$	$S_{ms} = 0.142$	$S_{Ds} = 0.095$	$T_0 = 0.1705$
1.0 (S_1)	5.1	$F_v = 2.4$	$S_{m1} = 0.121$	$S_{D1} = 0.081$	$T_s = 0.8526$

$S_{ms} = F_a S_s$ $S_{Ds} = 2/3 * S_{ms}$ $T_0 = 0.2 * S_{D1}/S_{Ds}$

$S_{m1} = F_v S_1$ $S_{D1} = 2/3 * S_{m1}$ $T_s = S_{D1}/S_{Ds}$

The Site Coefficients, F_a and F_v were interpolated from 2015 IBC Tables 1613.3.3(1) and 1613.3.3(2) as a function of the site classification and the mapped spectral response acceleration at the short (S_s) and one second (S_1) periods. The development of shear strains tending to cause liquefaction of sand deposits is governed by the character of the ground motion (i.e., acceleration and frequency), soil type (granular type), groundwater level (soil must be saturated), and in-situ stress conditions. PSI believes the risk of liquefaction occurring at this site is very low based on the site being in a low seismic activity area and soils are mostly loose to medium dense and not saturated.

EVALUATION AND RECOMMENDATIONS

Site Preparation

Prior to site grading activities or excavation for foundation elements, existing underground utilities and any structures, which are not anticipated, should be identified and rerouted or properly abandoned in-place. Existing underground utilities that are not re-routed or abandoned should be adequately marked and protected to minimize the potential for damage during construction activities.

Topsoil, any existing pavement, undocumented fill, and soils containing organics can potentially undergo high and variable volume changes when subjected to loads, resulting in detrimental performance of

floor slabs and shallow foundations placed on them. **Therefore, PSI recommends that topsoil, as well as any old fill soils or apparent old fill soils (if encountered), be stripped from the planned construction areas and under PSI' s supervision.** In this subsurface exploration, PSI did not encounter any fill materials at the eight boring locations. However, fill material can be encountered anywhere else on site or between soil borings, and these materials should be stripped from the planned foundation areas.

Subgrade Proofrolled. After the topsoil, old fill soils, and loose/soft soils (if encountered) have been removed from the areas of construction and any cut sections are performed, exposed subgrades should be observed and be thoroughly proof rolled/compacted with a large, heavy rubber-tired vehicle prior to the placement of engineered fill or backfill required to achieve the proposed subgrade elevation. Areas that exhibit instability or are observed to rut or deflect excessively under the moving load should be further undercut, stabilized by aeration, drying (if wet) and additional compaction to attain a stable finished subgrade. The proof rolling/compacting and undercutting activities should be performed during a period of dry weather and should be performed under the supervision of the geotechnical engineer's representative. Exposed granular subgrades must be compacted to a minimum of 95 percent of the maximum dry density within three percent of the optimum moisture content as determined by **ASTM D-1557** (Modified Proctor).

Subgrade Stabilization. Where subgrade conditions are not improved through aeration, drying and compaction, or where undercut and replacement is considered impractical due to the underlying soil conditions, it may be necessary to stabilize localized areas of subgrade instability with a woven geotextile, geogrid and a layer of well graded crushed concrete or well graded coarse aggregate such as MDOT 4AA, 6A or 21AA. The need for the use of geotextile, geogrid and the thickness and gradation requirements of the crushed aggregate layer required should be determined at the time of the subgrade preparation, based on the condition of the exposed subgrade at the time of construction. The subgrade should be stabilized prior to placement of engineered fill or aggregate base course. New engineered fill supporting at-grade structures should be an environmentally clean material, free of organic matter, frozen soil, or other deleterious material. The material proposed to be used as engineered fill should be evaluated and approved for use by a PSI geotechnical engineer or his representative prior to placement in the field.

Engineering Fill. After the subgrade has been stabilized, any engineered fill required may then be placed. PSI should monitor proper control of the placement and compaction of new fill soils. The new materials must be free of organic matter. Fill materials are to be placed in individual lifts not exceeding eight inches in loose thickness. Each lift is to be compacted to 95 percent of the maximum dry density within three percent of the optimum moisture content as determined in accordance with ASTM Method D-1557 (Modified Proctor). A minimum of one test per 2,000 square feet of building should be performed for each lift, unless otherwise specified by the engineer. The moisture/density relationship (Proctor) of the material to be used as engineered fill should be evaluated by a PSI geotechnical engineer or his representative prior to placement in the field. PSI recommends one Proctor test for every 5,000 cubic yards (cyds) of fill and one test per change of material.

Old Fill Removal. While we recommend all fill soils (if encountered) be entirely removed from below the proposed new structure footprint, some or all of the fill soils could be left in place for support of the

pavements only, providing the owner accepts the risks associated in doing so. These risks include variable support characteristics and the possibility that buried topsoil or other unsuitable soil layer(s) could be present below or within fill deposits, resulting in an increased risk of detrimental settlement of the pavements or utilities occurring. If these risks are unacceptable, then all fill soils must be removed as recommended and be replaced with engineered fill. Where organic soils or debris are present below fill soils, both the organic and fill soils should be entirely removed and replaced with engineered fill. If the owner elects to leave fill soils in place, additional test pits should be performed to better evaluate the fill soils. Regardless, all surface soils containing organics or debris at this site must be removed.

Portions of the native soils appear to be suitable for re-use as engineered fill providing the soils are free of organics and miscellaneous debris and particle sizes do not exceed three inches in diameter. PSI must be on site prior to re-use of the existing native and fill materials to document and verify that these soils are suitable for the intended use as engineered fill. Imported materials to be utilized as structural fill should meet (or be similar to) the requirements of **MDOT Class II** granular soil. Construction traffic should be restricted from the exposed subgrade to help reduce the potential for loosening of the subgrade soils, particularly where excess moisture is present from groundwater and/or precipitation. PSI recommends that the fill be strategically placed so that the construction equipment remains on newly placed fill soils and not on the exposed subgrade during fill placement.

Concrete Slab-on-Grade

The subgrade soils utilized for the support of slabs-on-grade should be prepared as indicated in the Site Preparation Section of this report. It appears that newly placed engineered fill (emplaced on suitable native soils) will be adequate for support of concrete slabs. If soft, lose or unsuitable fill soils are encountered at the subgrade level, we recommend that these materials be undercut to an adequate depth and replaced with properly compacted granular or low plasticity fill soil. Proof-Rolling, as discussed earlier in this report, should be performed to identify any soft or unsuitable soils, which should then be removed from the floor slab area prior to fill placement and/or floor slab construction.

A granular mat should be provided between the floor slab and the subgrade soil. It should be 6 inches or greater in thickness and be properly compacted as recommended in this report. The granular mat materials should meet the requirement of **MDOT Class II granular soil (as SP and SW).**

Slabs should be suitably reinforced to make them as rigid as necessary. Proper joints should be provided at the junctions of the slab and the foundation system so that a small amount of independent movement can occur without causing damage. The floor areas should be provided with joints at frequent intervals to compensate for concrete volume changes during curing. If a vapor retarder/barrier is utilized, placement should be following the current version of ACI 302.1, local building codes and the recommendations of the flooring manufacturer. **A modulus of subgrade reaction for the native soils (or imported fills) specified and conditioned as described in this report of 90 psi/in may be used for the floor slab design.** This value may be confirmed in the field by performing a 1-foot by 1-foot plate load test. However, depending on how the slab load is applied, the value must be geometrically modified.

Foundation Recommendations

The native soils with some organics may be present in un-explored areas of the site. The bottoms of the

undercut excavations, i.e., those didn't pass proofroll, must be evaluated under PSI supervision prior to placement of engineered backfill. Structural fill placement should be performed in accordance with the Site Preparation Section of this report.

Where the removal of localized unsuitable bearing material is performed beneath the proposed footings and the excavation is backfilled with compacted fill materials, the excavation must extend laterally beyond the perimeter of the foundation for a distance equal to one-half of the thickness of the engineered backfill placed below the footing bottom. The over excavation is necessary for proper support of lateral loads exerted through the fill by the foundations.

Following undercutting and replacement of the uncontrolled old fill materials as outlined above (as necessary), the proposed structure may be supported on a conventional shallow foundation system. PSI recommends a net allowable soil bearing capacity of up to **4,000** pounds per square foot (psf) be used in the design of the foundations where they bear on properly compacted granular native soils and considering **three feet square footings and one and a half feet wall footings**. Following the previous bearing capacity values, total settlement is estimated to be on the order of **one inch** with differential settlement less than ½ of the total settlement, provided the following design and construction details are incorporated.

In order to protect against frost action, perimeter footings, exterior footings and footings located in unheated areas must bear at a minimum depth of three and one-half feet below final surface grades. Square footings supporting individual columns should have a minor dimension of no less than three feet, while wall footings should have a minimum width of one and one-half feet, even if those dimensions result in stress below the allowable bearing capacity. The purpose of limiting the footing size is to prevent "punching" shear deformation and to provide for vertical stability.

Where bearing soils are granular in nature, PSI recommends that the foundation inverts be compacted in place by several passes of a vibratory compactor, prior to placement of formwork or cast-in-place foundation concrete, to densify any soils disturbed during excavation as well as to densify the underlying native granular soils. The compaction should continue until no additional densification is observed with additional passes.

Basement/Pit Wall Recommendations

PSI understands that the construction includes a basement/pit that is approximately 9 feet deep. Free-drainage granular backfill conforming to **MDOT's Class II gradation or equivalent** shall be used as a backfill behind the basement wall. Behind this backfill, free-drainage material (e.g., sand or gravel) shall also be used. Based on the current subsurface investigation, poorly graded sands with less than 5% of fines was encountered at all boring locations. This poorly graded in-situ sand may be used behind the MDO's Class II backfill material, subjected to the engineers' approval.

For designing the basement concrete walls, the earth or lateral pressure exerting on the basement wall are required. At-rest conditions are considered to develop in basement walls to restrict lateral movement from occurring. **Table 4** presents the recommended at-rest earth pressure coefficient to be used in retaining wall design and stability analysis.

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	05/19/2025	CITY REVIEW #2

GEOTECHNICAL SPECIFICATIONS

DRAWN: DS CHECKED: JD

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GEOTECHNICAL RECOMMENDATIONS

(THE BELOW INFORMATION IS PROVIDED FOR REFERENCE ONLY. GC TO REVIEW AND ADHERE TO MOST RECENT VERSION OF INTERTEK PSI'S FINAL GEOTECHNICAL REPORT FOR ALL APPLICABLE SOILS INFORMATION PRIOR TO AND DURING CONSTRUCTION)

Table 4: At-Rest Earth Pressure for the MDOT's Class II Gradation

At-rest earth pressure coefficient (K_0)	Equivalent Fluid Unit Weight (pcf)
0.43	50.0

Pavement Section Recommendations
Based on the scope of service requested by **Guggenheim Development Services, LLC**, California Bearing Ratio (CBR) analysis was not performed on samples of the expected subgrade soils. In lieu of extensive testing for determination of pavement subgrade support characteristics, we have made considerations based on our experience and the results from the Standard Penetration Test (SPT), and laboratory testing performed. These considerations are based on the removal and replacement of any existing fill soil affecting the pavement areas or subgrade as discussed in the Site Preparation Section of this report.

Estimated Soil Parameters

- Estimated Subgrade CBR 5-6 percent (based on the scope of work provided by **Guggenheim Development Services, LLC**).
- Design Subgrade Resilient Modulus (M_R) = 4,500 psi.

Recommended Design Inputs

- Reliability = 85% flexible & 95% rigid
- Standard Deviation = 0.49 flexible & 0.39 rigid
- Initial Serviceability Index = 4.2
- Terminal Serviceability Index = 2.0
- New HMA Layer Coefficient = 0.42
- New Aggregate Base Layer Coefficient = 0.14

Traffic Considerations (20-year Design Life)

- Light Duty - 30,000 ESAL's (Construction and Service; automobile parking areas)
- Medium Duty - 100,000 ESAL's (Construction and Service; automobile roadways)

The CBR value should be verified by the most updated version of the ASTM laboratory test method **D1883,** and specific traffic frequencies and axle loading determined prior to pavement design acceptance. In accepting the following pavement designs based on the correlated CBR value, **Guggenheim Development Services, LLC** must then accept a greater risk of over-design or pavement failure and/or higher maintenance costs.

In view of the available soil information, the recommended site preparation activities, and from experience on similar projects, PSI is providing the following pavement sections for the pavement areas on this site. The first flexible profile will consist of a "medium duty" pavement, to be used by passenger vehicles in the main parking areas. The second flexible profile will be a "heavy duty" pavement, which should be utilized in areas of channeled traffic (i.e., entrance and exit drives and areas of heavy loading). The third section will be a rigid concrete pavement, which may be a more suitable alternative for the

heavy-duty areas, and for areas supporting dumpsters, or where garbage and delivery trucks are turning and/or parking.

For the subgrade conditions and anticipated traffic loads, we have calculated a minimum required flexible design structural number 2.20 for standard duty. Based on the scope of work provided by **Guggenheim Development Services, LLC**, the preferred pavement section is of 2" surface asphalt, 2" base asphalt and 6" closed graded stone base. Based on the *PAVEXpress* software design outputs and local practices, PSI recommends the following minimum pavement sections:

Table 5: Pavement Sections

Pavement Section	Light Duty – Flexible (30,000 ESAL's)	Standard Duty – Flexible (100,000 ESAL's)	Standard Duty – Rigid (100,000 ESAL's)
Wearing Course	2" MDOT 36A	2" MDOT 36A	6" MDOT S1 Concrete
Leveling Course	2" MDOT 13A	2" MDOT 13A	
Aggregate Course	6" MDOT 21AA	8" MDOT 21AA	6" MDOT 21AA

The flexible pavement designs should incorporate high quality; high stability plant mixes being supplied with design properties; and aggregate gradation meeting or exceeding the requirements as outlined in the 2012 MDOT Standard Specification Section 501. The crushed aggregate base course should conform to the requirements of **MDOT Class 21AA.**

The above pavement sections are based on the **AASHTO** design methods for flexible and rigid pavement design and are based on a design life of 20 years and the estimated subgrade support values. The sections represent typical medium and heavy-duty type pavement sections for use in design. Final pavement section design should be provided by the design civil engineers based on actual traffic volumes and axle loads, laboratory determined CBR tests, and the owner's design life requirements. Periodic maintenance should be expected and performed on all pavements during the service life. All pavement materials and construction procedures should conform to (Michigan Department of Transportation) MDOT or appropriate local requirements.

Placement of geogrid below flexible pavements may be a suitable alternative to utilizing a rigid pavement section in heavy-duty areas (particularly near the entrances and exits). The geogrid reinforcement should be placed immediately below the aggregate base (**MDOT 21AA**) stratum. Construction equipment should not be permitted on the geogrid reinforcement; otherwise, damage may occur to the geogrid product. Furthermore, all other recommendations regarding the transportation, stockpiling, and installation of the geogrid reinforcement by the manufacturer should be followed. PSI should observe and document the installation of the geogrid product.

These pavements may be placed after the subgrade has been properly prepared as outlined in this report. Unstable areas should be treated as outlined therein. Appropriate drainage, including finger drains around catch basins and perimeter drainage must be incorporated into the pavement design. **Inadequate drainage will result in heaving and significant distress to the pavement.**

The aggregate base should comply with the gradation requirements of an MDOT 21AA (or similar) dense-graded aggregate. It should be compacted to 95 percent of the maximum dry density as

determined by **ASTM D1557** (Modified Proctor). The asphalt leveling and wearing courses and concrete for the development should comply with the master composition requirements of **MDOT 2012** Standard Specifications for Construction and Supplemental Specifications. The placement of the pavement should also comply with MDOT construction specifications.

It is recommended that rigid concrete pavement be provided. This will provide for the proposed dumpster pad. Concrete design parameters include: (a) a 28-day mean modulus of rupture of 670 psi, and (b) a 28-day mean modulus of elasticity of approximately 4,200,000 psi. In addition, the concrete mix design should consist of a normal weight concrete with a minimum 28-day compressive strength of 4,000 psi when tested in accordance with **ASTM C39**. The concrete should contain an air entraining admixture to resist the effects of freezing and thawing. The design of joints, joint spacing, doweling and steel/wire mesh reinforcement was not included in PSI's Scope-of-Services, but should conform to the applicable local or MDOT requirements.

Vehicle traffic or the loading of a partially constructed pavement section will likely cause premature pavement failure. All vehicle traffic or pavement loading should be restricted until the pavement section has been completely constructed or the partial pavement section must be designed for this purpose, particularly if construction traffic will use the partial pavement.

It should be recognized that all pavements require regular maintenance and occasional repairs to keep the pavements in a serviceable condition. Of particular value, is a timely sealing of joints and cracks, which if left un-repaired, can serve to permit water to enter the pavement section and cause rapid deterioration of the pavement during freeze-thaw cycles. The need for such maintenance and repair is not necessarily indicative of premature pavement failure. However, if appropriate maintenance and repairs are not performed on a timely basis, the serviceable life of the pavement can be reduced significantly.

CONSTRUCTION CONSIDERATIONS

Drainage and Groundwater Considerations
Free groundwater was encountered during drilling operations and upon completion of soil exploration at the two deep boring locations in mid-November 2024. Therefore, **little difficulty with groundwater seepage and subgrade instability may be anticipated** during earthwork, foundation excavation and construction associated with the basement/pit. However, it is possible for the groundwater table to vary within the depths explored during other times of the year depending upon climatic conditions (seasonal fluctuation). PSI recommends that the contractor verify the actual groundwater and seepage conditions at the time of the construction activities and propose groundwater control methods for the Engineer's approval, including the disposal of discharge water.

Every effort should be made to keep the excavations and any other prepared subgrades dry if water is encountered or if rainfall or snowmelt occurs during construction. During wet weather periods, increases in the moisture content of the soil can cause significant reduction in soil strength and support capabilities. In addition, soils that become wet may be slow to dry and thus significantly retard the progress of grading and compaction activities. It will, therefore, be advantageous to perform earthwork and foundation construction activities during dry weather.

Water should not be allowed to collect in foundation or subsurface level excavations or other prepared subgrades of the construction area, either during or after construction. Water accumulation should be removed from shallow excavations by pumping from sump pits placed around the perimeter of the excavation. Positive site surface drainage should be provided to reduce infiltration of surface water. The grades should be sloped away from the proposed structures and surface drainage should be collected and discharged.

Excavation Safety Considerations
Care must be taken so that all excavations are properly backfilled with suitable material compacted in accordance with the procedures outlined in this report. Before the backfill is placed, all water and loose debris should be removed from these excavations. Materials removed from the excavation should not be stockpiled immediately adjacent to the excavation top or edges, since this load may cause a sudden collapse of the excavation top wall. The contractor should establish a minimum lateral distance from the crest of the slope for all vehicles and spoil piles. Likewise, the contractor should establish protective measures for exposed slope faces and preventative measures for the buildup of moisture in the excavation sidewalls, which can cause slope instability. A slope stability analysis should be performed to determine the factor of safety for cut and fill depths if the depth of the excavations warrant. If temporary shoring of excavation sidewalls is performed, a qualified registered professional engineer must design it. Formed foundations will be required if placed on or within granular soils.

In Federal Register, Volume 54. No. 209 (October 1989), the United States Department of Labor, Occupational Safety and Health Administration (**OSHA**) amended its "Construction Standards for Excavations, 29 CFR, part 1926, subpart P". This document was issued to better insure the safety of workmen entering trenches or excavations. It is mandated by this federal regulation that all excavations, whether they be utility trenches or footing excavations, be constructed in accordance with the current OSHA guidelines. It is PSI's understanding that these regulations are being strictly enforced and if they are not closely followed, the owner and the contractor could be liable for substantial penalties.

The contractor is solely responsible for designing and constructing stable and safe, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor's responsible person, as defined in 29 CFR Part 1926, should evaluate the soil exposed in the excavations as part of the contractor's safety procedures. In no case should slope height, slope inclination, or excavation depth, including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

All earthwork and operations should be conducted in accordance with the project specifications and under the observation of a representative of the geotechnical engineer. We provide this information solely as a service to 814 Services, LLC. PSI does not assume responsibility for construction site safety or the contractor's or other parties' compliance with local, state, and federal safety or other regulations. Such responsibility is not being implied and should not be inferred.

GEOTECHNICAL RISK

The concept of risk is an important aspect of the geotechnical evaluation. The primary reason for this is

that the analytical methods used to develop geotechnical recommendations do not comprise an exact science. The analytical tools which geotechnical engineers use are generally empirical and must be used in conjunction with engineering judgment, experience, and continue observation during construction activities. Therefore, the solutions and recommendations presented in the geotechnical evaluation should not be considered risk-free and, more importantly, are not guarantee that the interaction between the soils and the proposed structure will perform as planned. The engineering recommendations presented in the preceding sections constitute PSI's professional estimate of those measures that are necessary for the proposed structure to perform according to the proposed design based on the information generated and referenced during this evaluation, and PSI's experience in working with these conditions.

REPORT LIMITATIONS

The recommendations submitted in this report are based on the available soil information and the design details furnished by **Guggenheim Development Services, LLC**. If there are any revisions to the plans for this project, changes on the structural loads, or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI must be notified and retained immediately to determine if changes in the foundation recommendations are required. If PSI is not retained to perform these functions, PSI cannot be responsible for the impact of those conditions on the performance of the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

After the plans and specifications are complete, PSI should be retained to review the final design plans and specifications. This review is required to verify that the engineering recommendations are appropriate for the final configuration, and that they have been properly incorporated into the design documents. This geotechnical report has been prepared for the exclusive use of **Guggenheim Development Services, LLC,** for specific application to the proposed Jiffy Lube that will be located in Portage, Michigan.

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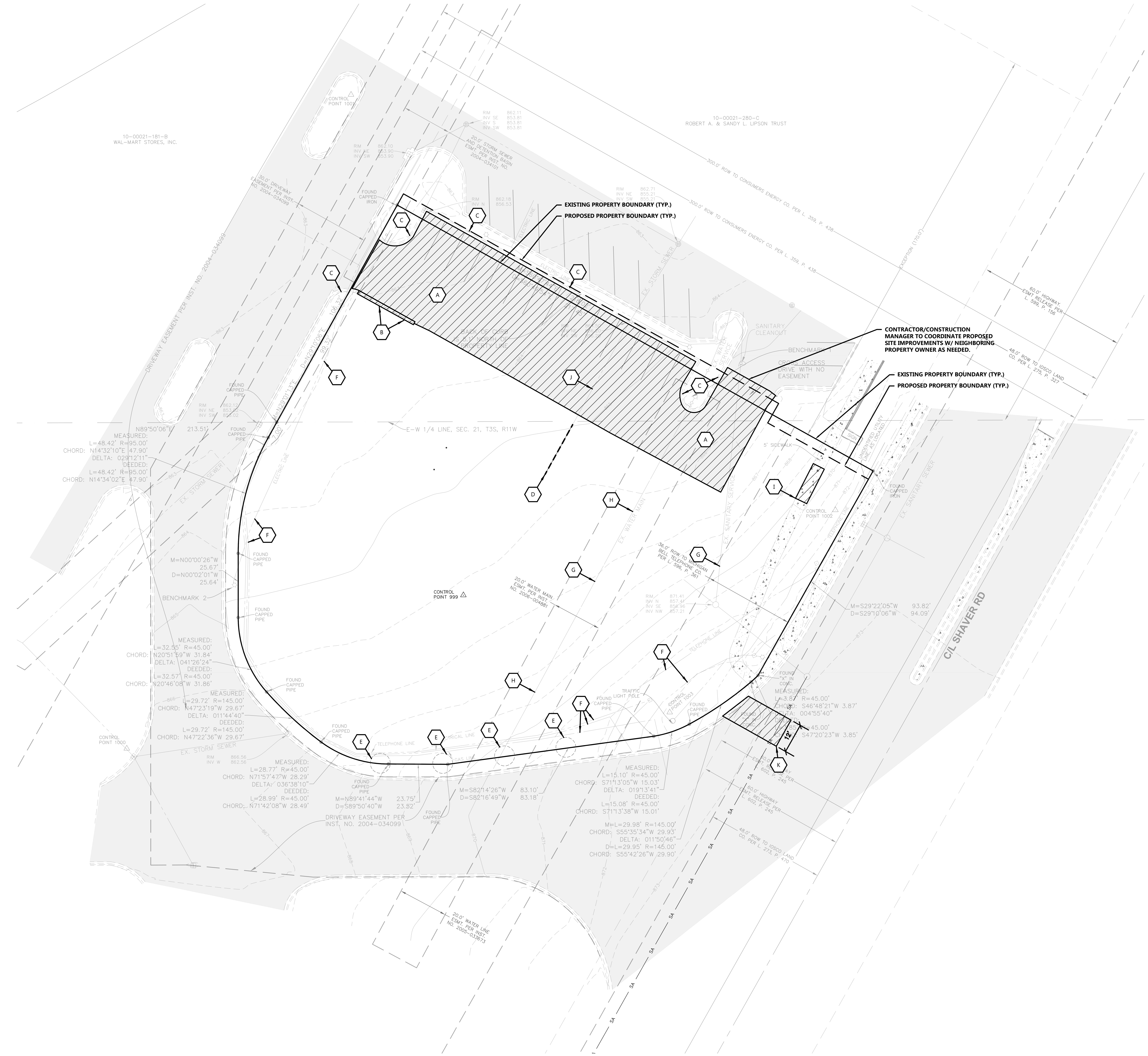

GENERAL NOTES:

- DEMOLITION PLAN IS AN OVERVIEW OF DEMOLITION TO TAKE PLACE ON SITE. CONTRACTOR TO FIELD VERIFY EXISTING SITE CONDITIONS PRIOR TO BIDDING. CONTRACTOR SHALL REMOVE, OR DEMOLISH ITEMS AS NEEDED DURING CONSTRUCTION.
- PRIVATE LOCATE SHALL BE COMPLETED PRIOR TO CONSTRUCTION AND EXISTING UTILITY LOCATIONS AND DEPTHS SHALL BE FIELD VERIFIED AS NEEDED. PROPOSED DOWNSTREAM UTILITY CONNECTIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION. NOTIFY DESIGN ENGINEER OF CONFLICTS AND/OR DISCREPANCIES.
- EXISTING CONDITIONS SURVEY WAS COMPLETED BY FEENSTRA & ASSOCIATES AND PROVIDED TO EXCEL ENGINEERING FOR DESIGN PURPOSES WITH LATEST REVISION DATE OF 12/11/2024. REFER TO SURVEY LEGEND AND INFORMATION LISTED HEREON.
- FEENSTRA PROJECT #240918
- FEENSTRA CONTACT: JUSTIN BRANDS (616) 457-7050

KEYNOTES

A	SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT WITHIN HATCHED AREA AS NEEDED FOR PROPOSED SITE IMPROVEMENTS. RE-GRADE & COMPACT EXISTING BASE MATERIAL TO ENSURE PROPOSED PAVEMENT SECTION IS ACHIEVED. COORDINATE WITH SHEET C1.1 AS NEEDED.
B	SAWCUT AND REMOVE EXISTING CURB AND GUTTER WITHIN HATCHED AREA. (TYP.)
C	PROTECT EXISTING CURB AND GUTTER THROUGHOUT CONSTRUCTION.
D	REMOVE REMNANT PORTION OF EXISTING STORM PIPE. COORDINATE WITH SHEET C1.3 FOR PROPOSED NEW UTILITY CONNECTIONS.
E	PROTECT EXISTING STREET TREES. (TYP.)
F	PROTECT EXISTING DRY UTILITIES THROUGHOUT CONSTRUCTION. FIELD VERIFY DEPTHS/LOCATIONS AS NEEDED DURING CONSTRUCTION. (TYP.)
G	PROTECT EXISTING WATER AND SEWER LINES THROUGHOUT CONSTRUCTION.
H	CONTRACTOR TO HYDRO-VAC EXISTING WATER MAIN IN VARIOUS LOCATIONS PRIOR TO CONSTRUCTION TO CONFIRM EXISTING BURY DEPTH AND TO CONFIRM 5' MINIMUM COVER IS MAINTAINED WITH PROPOSED SITE ELEVATIONS. REPORT FINDINGS TO DESIGN ENGINEER. COORDINATE WITH SHEET C1.2 & C1.3.
I	SAWCUT AND REMOVE EXISTING CONCRETE SIDEWALK TO NEAREST CONTROL JOINT AS NEEDED FOR NEW CONNECTION. SEE SHEET C1.1 & C1.2.
J	TELEVISE EXISTING STORM SEWER LATERAL TO ENSURE EXISTING LATERAL IS STRUCTURALLY SOUND AND IN WORKING ORDER. NOTIFY DESIGN ENGINEER OF DEFICIENCIES.
K	SAWCUT AND REMOVE EXISTING ASPHALT PAVEMENT AND CONCRETE CURB AND GUTTER PER CITY STANDARDS AS NEEDED FOR NEW SANITARY LATERAL INSTALLATION. COORDINATE WITH SHEETS C1.1 AND C1.3 FOR RESTORATION REQUIREMENTS.

FEENSTRA & ASSOCIATES SURVEY INFORMATION:

BENCHMARKS:

BENCHMARK 1: The hydrant flange bolt under the 'E' in 'EJIW' on a hydrant in the North end of the Water Main Easement. Elevation: 867.55

BENCHMARK 2: The top of the Northeast bolt in the light pole base on a light pole along the West property line. Elevation: 867.91

CONTROL POINTS:

	NORTHING	EASTING	ELEVATION
#999	4438.52	2317.12	866.40
#1000	4377.17	2182.51	866.68
#1001	4638.80	2272.18	863.54
#1002	4472.58	2465.87	872.64
#1003	4391.66	2399.63	873.16

LEGEND

T - TOWN
R - RANGE
N - NORTH
S - SOUTH
E - EAST
W - WEST
SEC. - SECTION
POB - POINT OF BEGINNING

- SECTION CORNER
- SET CAPPED IRON
- FOUND IRON OR NAIL
- STORM SEWER MANHOLE
- SANITARY SEWER MANHOLE
- CATCH BASIN
- HYDRANT
- VALVE
- UTILITY POLE
- GUY WIRE
- LIGHT POLE
- WALL MOUNTED LIGHT
- PEDESTAL
- TRANSFORMER
- SIGN

SCALE: 1" = 20'
20' 0 20' 40'
NORTH

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PORTAGE, MI
NWC OF W MELODY AVE & SHAVER RD

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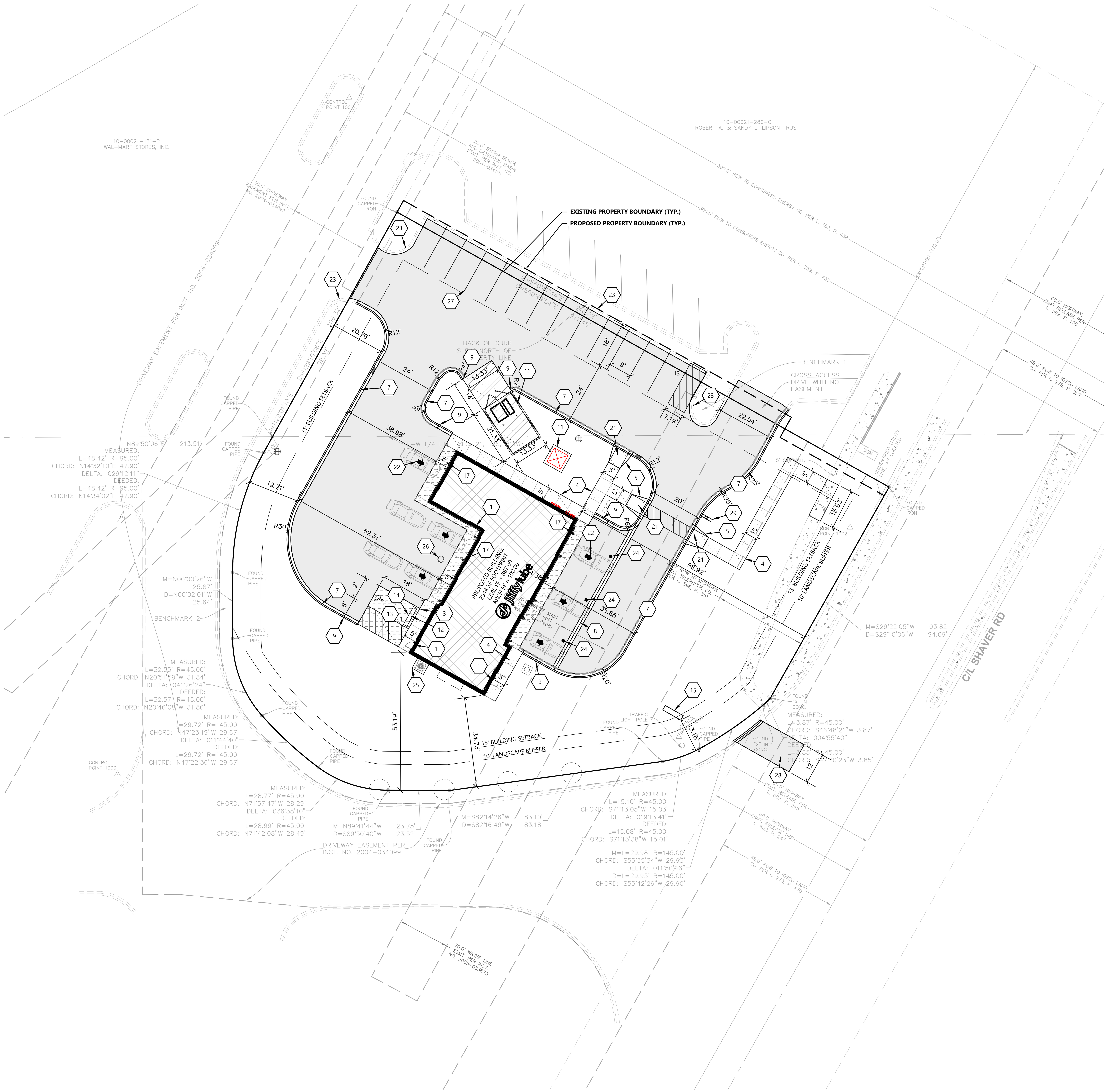
	05/19/2025	CITY REVIEW #2

EXISTING SITE AND DEMOLITION PLAN

DRAWN: DS CHECKED: JD

SHEET NO:

C1.0



GENERAL NOTES:

- ALL PAVEMENT PAINT STRIPING INCLUDING ARROWS AND SAFETY SQUARES SHALL HAVE TWO COATS OF PAINT.
- ALL CONCRETE JOINTS TO BE FILLED/SEALED.
- ANY ELECTRICAL/GAS PIPING INSTALLED ABOVE GROUND SHALL BE PAINTED GRAY.
- NO MATERIAL SUBSTITUTIONS SHALL BE ALLOWED UNLESS SPECIFICALLY APPROVED BY OWNER/CONSTRUCTION MANAGER.
- SIDEWALKS TO BE REINFORCED LINEARLY ALONG FULL LENGTH OF SIDEWALK WITH #4 REBARS PLACED 6" FROM EACH OUTSIDE EDGE OF SIDEWALK.
- KNOX BOX TO BE PROVIDED AT PRIMARY ENTRANCE PER LOCAL REQUIREMENTS. CONTRACTOR TO COORDINATE W/ BUILDING INSPECTOR/FIRE DEPARTMENT FOR SPECIFIC REQUIREMENTS.

LEGEND:

HATCH	PAVEMENT SECTION
	STANDARD ASPHALT
	STANDARD CONCRETE
	SIDEWALK CONCRETE
	DUMPSTER PAD/APRON CONCRETE
	INVERTED CURB & GUTTER
	SHEDDING CURB & GUTTER

KEYNOTES

1	CONCRETE STOOP (SEE STRUCTURAL PLANS FOR DETAILS)
3	FLUSH WALK (SEE DETAIL)
4	CONCRETE SIDEWALK (TYP.)
5	CURB RAMP (SEE DETAIL)
7	18" CURB & GUTTER (SEE DETAIL)
8	CONCRETE DRAINAGE FLUME (TYP.) (SEE DETAIL)
9	TAPER CURB TO FLUSH IN 6' (SEE DETAIL)
11	CONCRETE TRANSFORMER PAD BY UTILITY SUPPLIER (CONTRACTOR TO VERIFY FINAL LOCATION & DESIGN W/ UTILITY PRIOR TO CONSTRUCTION)
12	HANDICAP SIGN PER STATE CODE (SEE DETAIL)
13	HANDICAP STALL & STRIPING PER STATE CODES
14	PRECAST CONCRETE WHEEL STOP (TYP.)
15	MONUMENT SIGN. SIGN CONTRACTOR TO VERIFY SIGN PLACEMENT IN RELATION TO EXISTING DRY UTILITIES. SEE SHEET C1.3 FOR ADDITIONAL INFORMATION. (DETAILS, FINAL LOCATION, & APPROVAL BY SIGN VENDOR)
16	DUMPSTER ENCLOSURE (SEE ARCH PLANS FOR DETAILS)
17	6" CONCRETE BOLLARDS (TYP.) (SEE ARCH PLANS FOR DETAILS)
21	DETECTABLE WARNING PLATE PER STATE CODE
22	TRAFFIC FLOW ARROWS (TYP). COLOR TO MATCH PARKING STALL STRIPING
23	EXISTING CONCRETE CURB AND GUTTER TO REMAIN IN PLACE AND BE PROTECTED THROUGHOUT CONSTRUCTION. (TYP.)
24	SAFETY SQUARE PAINT MARKINGS PER JLI STANDARDS (TYP.)
25	CONCRETE EQUIPMENT PAD. VERIFY PAD SIZE WITH CONTRACTOR REQUIRING PAD PRIOR TO CONSTRUCTION.
26	SUMP PUMP LOCATION. SEE PLBG PLANS FOR DETAILS.
27	4" WIDE WHITE PAINT STRIPING. SEE GENERAL NOTES THIS SHEET AND SPECIFICATIONS ON SHEET C0.2.
28	REPLACE EXISTING ASPHALT PAVEMENT AND CONCRETE CURB AND GUTTER PER CITY OF PORTAGE STANDARDS AS NEEDED FOR PROPOSED NEW SANITARY LATERAL CONNECTION. PAVEMENT SECTION SHALL INCLUDE FULL DEPTH RESTORATION TO MATCH THE EXISTING PAVEMENT SECTION OR PER DETAIL PROVIDED ON SHEET C2.0 (FIELD VERIFY EXISTING PAVEMENT SECTION AND PROVIDE THE GREATER OF THE TWO OPTIONS). COSTS ASSOCIATED WITH PAVEMENT REMOVALS, RESTORATION, TRAFFIC CONTROL, ETC SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. MILLING AND RESURFACING THE WEARING COURSE SHALL BE COMPLETED BEYOND THE LIMITS OF FULL DEPTH RESTORATION TO THE NEAREST LANE STRIPING.
29	DOUBLE SIDED SIGN; STOP/DO NOT ENTER. (TYP.)

SCALE: 1" = 20'
20' 0 20' 40'
NORTH

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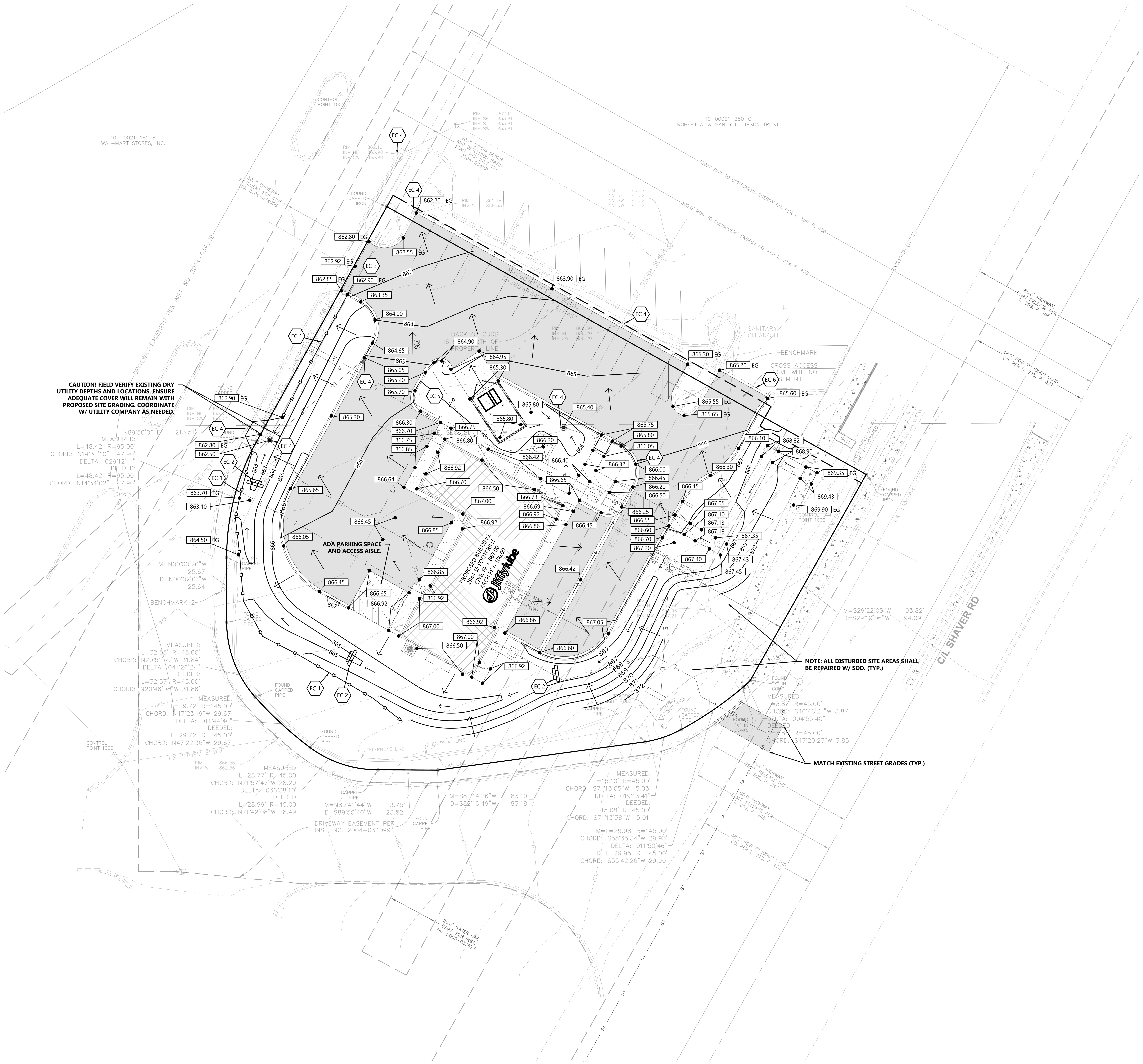
SITE PLAN

DRAWN: DS CHECKED: JD

SHEET NO:

C1.1



GENERAL NOTES:

- HANDICAP STALL AND ACCESS AISLES SHALL NOT EXCEED A SLOPE OF 1.50% IN ANY DIRECTION. HANDICAP STALL & ACCESS AISLES SHALL CONFORM TO ADA REQUIREMENTS (CURRENT EDITION)
- ALL SIDEWALKS SHALL NOT EXCEED A MAXIMUM CROSS SLOPE OF 1.50% AND RUNNING SLOPE OF 4.50% UNLESS OTHERWISE SPECIFIED.
- CONTRACTOR SHALL PROVIDE STABILIZED CONSTRUCTION ENTRANCE AT CONSTRUCTION ENTRANCE FOR PROPOSED IMPROVEMENTS AS REQUIRED PER CODE.
- CONTRACTOR SHALL PROVIDE CONCRETE WASHOUT AS REQUIRED PER CODE. FINAL LOCATION TBD BY CONTRACTOR.
- CONTRACTOR SHALL PROVIDE TEMPORARY INLET PROTECTION FOR ALL CURB INLETS & CATCH BASINS ONSITE & OFFSITE IMMEDIATELY DOWNSTREAM OF THE PROJECT SITE PER LOCAL CODE.

IF SOIL OR GROUNDWATER CONTAMINATION IS ENCOUNTERED OR SUSPECTED DURING CONSTRUCTION THE FOLLOWING STEPS SHALL BE FOLLOWED:

1. CONTRACTOR SHALL STOP WORK IMMEDIATELY AND NOTIFY OWNER AND/OR OWNER'S REPRESENTATIVE.
2. OWNER AND/OR OWNER'S REPRESENTATIVE SHALL NOTIFY THE CITY.
3. OWNER SHALL ENGAGE THE SERVICES OF A QUALIFIED ENVIRONMENTAL CONSULTANT (CONSULTANT).
4. CONSULTANT SHALL CONDUCT A SITE ASSESSMENT AND REPORT TO THE ABOVE PARTIES.
5. CONSULTANT SHALL DEVELOP A PLAN TO ADDRESS ANY CONTAMINATION WHICH MAY BE FOUND DURING CONSTRUCTION.
6. THE CONSULTANT TOGETHER WITH THE DESIGN ENGINEER SHALL COMPLETE A SITE EVALUATION PROCESS FOLLOWING THE DOCUMENT ENTITLED IMPLEMENTING STORMWATER INFILTRATION PRACTICES AT VACANT PARCELS AND BROWNFIELD SITES (EPA, 2013) TO DETERMINE IF THE STORMWATER MANAGEMENT SYSTEM REQUIRES REDESIGN AND RESUBMITTAL TO THE CITY FOR REVIEW AND APPROVAL.
7. OWNER AND/OR OWNER'S REPRESENTATIVE SHALL SUBMIT TO THE CITY SUPPORTING DOCUMENTATION OF THE SITE EVALUATION PROCESS. A REVISED STORMWATER REVIEW PACKAGE MUST ALSO BE SUBMITTED IF IT BECOMES NECESSARY TO CHANGE THE DESIGN OF THE STORMWATER MANAGEMENT SYSTEM.
8. MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) REMEDIATION AND REDEVELOPMENT DIVISION (RRD) STAFF SHALL BE NOTIFIED AS APPLICABLE.

KEYNOTES

EC 1	SILT FENCE
EC 2	DITCH CHECK
EC 3	STABILIZED CONSTRUCTION ENTRANCE
EC 4	INLET PROTECTION
EC 5	CONCRETE WASHOUT
EC 6	SEDIMENT LOG

SEE APPLICABLE EROSION/SEDIMENT CONTROL DETAILS ON SHEET C2.1

FEENSTRA & ASSOCIATES SURVEY INFORMATION:

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BENCHMARK 2: The top of the Northeast bolt in the light pole base on a light pole along the West property line. Elevation: 867.91

CONTROL POINTS:

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#1002	4472.58	2465.87	872.64
#1003	4391.66	2399.63	873.16

SCALE: 1" = 20'

NORTH

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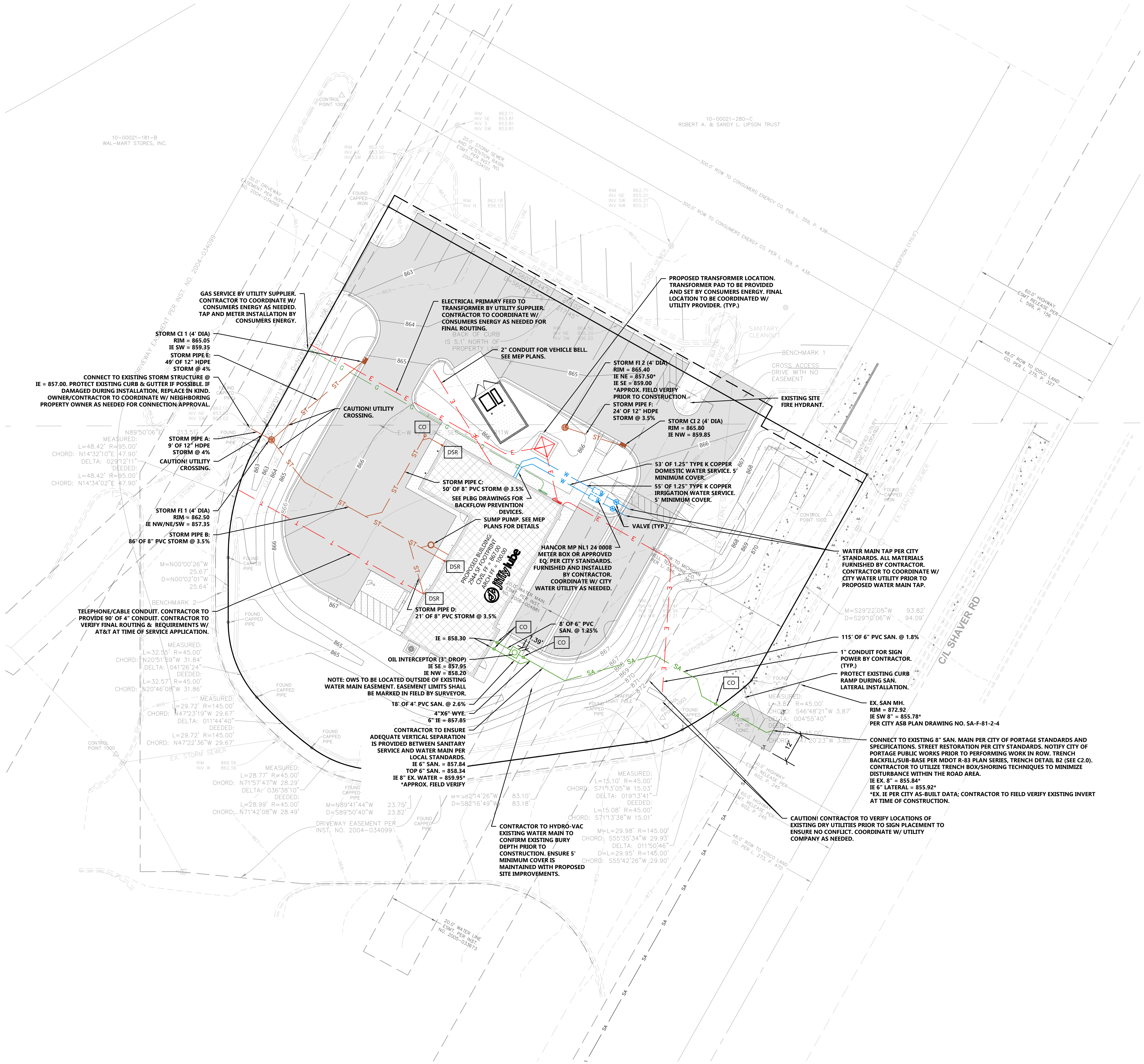
GRADING & EROSION CONTROL PLAN

DRAWN: DS CHECKED: JD

SHEET NO:

C1.2


GAS SERVICE BY UTILITY SUPPLIER. CONTRACTOR TO COORDINATE W/ CONSUMERS ENERGY AS NEEDED. TAP AND METER INSTALLATION BY CONSUMERS ENERGY.
ELECTRICAL PRIMARY FEED TO TRANSFORMER BY UTILITY SUPPLIER. CONTRACTOR TO COORDINATE W/ CONSUMERS ENERGY AS NEEDED FOR FINAL ROUTING.
PROPOSED TRANSFORMER LOCATION. TRANSFORMER PAD TO BE PROVIDED AND SET BY CONSUMERS ENERGY. FINAL LOCATION TO BE COORDINATED W/ UTILITY PROVIDER. (TYP.)
STORM CI 1 (4' DIA) RIM = 865.05 IE SW = 859.35
STORM PIPE E: 49' OF 12" HDPE STORM @ 4%
CONNECT TO EXISTING STORM STRUCTURE @ IE = 857.00. PROTECT EXISTING CURB & GUTTER IF POSSIBLE. IF DAMAGED DURING INSTALLATION, REPLACE IN KIND. OWNER/CONTRACTOR TO COORDINATE W/ NEIGHBORING PROPERTY OWNER AS NEEDED FOR CONNECTION APPROVAL.
2" CONDUIT FOR VEHICLE BELL. SEE MEP PLANS.
STORM FI 2 (4' DIA) RIM = 865.40 IE NE = 857.50* IE SE = 859.00 *APPROX. FIELD VERIFY PRIOR TO CONSTRUCTION.
STORM PIPE F: 24' OF 12" HDPE STORM @ 3.5%
EXISTING SITE FIRE HYDRANT.
STORM CI 2 (4' DIA) RIM = 865.80 IE NW = 859.85
CAUTION! UTILITY CROSSING.
STORM PIPE A: 9' OF 12" HDPE STORM @ 4%
CAUTION! UTILITY CROSSING.
53' OF 1.25" TYPE K COPPER DOMESTIC WATER SERVICE. 5' MINIMUM COVER.
55' OF 1.25" TYPE K COPPER IRRIGATION WATER SERVICE. 5' MINIMUM COVER.
STORM PIPE C: 50' OF 8" PVC STORM @ 3.5%
SEE PLBG DRAWINGS FOR BACKFLOW PREVENTION DEVICES.
SUMP PUMP. SEE MEP PLANS FOR DETAILS
STORM FI 1 (4' DIA) RIM = 862.50 IE NW/NE/SW = 857.35
STORM PIPE B: 86' OF 8" PVC STORM @ 3.5%
VALVE (TYP.)
WATER MAIN TAP PER CITY STANDARDS. ALL MATERIALS FURNISHED BY CONTRACTOR. CONTRACTOR TO COORDINATE W/ CITY WATER UTILITY PRIOR TO PROPOSED WATER MAIN TAP.
HANCOR MP NL1 24 0008 METER BOX OR APPROVED EQ. PER CITY STANDARDS. FURNISHED AND INSTALLED BY CONTRACTOR. COORDINATE W/ CITY WATER UTILITY AS NEEDED.
PROPOSED BUILDING 2944 SF FOOTPRINT CIVIL FF = 867.00 ARCH FF = 100'-00"
TELEPHONE/CABLE CONDUIT. CONTRACTOR TO PROVIDE 90' OF 4" CONDUIT. CONTRACTOR TO VERIFY FINAL ROUTING & REQUIREMENTS W/ AT&T AT TIME OF SERVICE APPLICATION.
STORM PIPE D: 21' OF 8" PVC STORM @ 3.5%
8' OF 6" PVC SAN. @ 1.25%
IE = 858.30
OIL INTERCEPTOR (3' DROP) IE SE = 857.95 IE NW = 858.20
NOTE: OWS TO BE LOCATED OUTSIDE OF EXISTING WATER MAIN EASEMENT. EASEMENT LIMITS SHALL BE MARKED IN FIELD BY SURVEYOR.
18' OF 4" PVC SAN. @ 2.6%
4"X6" WYE. 6" IE = 857.85
CONTRACTOR TO ENSURE ADEQUATE VERTICAL SEPARATION IS PROVIDED BETWEEN SANITARY SERVICE AND WATER MAIN PER LOCAL STANDARDS. IE 6" SAN. = 857.84 TOP 6" SAN. = 858.34 IE 8" EX. WATER = 859.95* *APPROX. FIELD VERIFY
115' OF 6" PVC SAN. @ 1.8%
1" CONDUIT FOR SIGN POWER BY CONTRACTOR. (TYP.)
PROTECT EXISTING CURB RAMP DURING SAN. LATERAL INSTALLATION.
EX. SAN MH. RIM = 872.92 IE SW 8" = 855.78* PER CITY ASB PLAN DRAWING NO. SA-F-81-2-4
CONNECT TO EXISTING 8" SAN. MAIN PER CITY OF PORTAGE STANDARDS AND SPECIFICATIONS. STREET RESTORATION PER CITY STANDARDS. NOTIFY CITY OF PORTAGE PUBLIC WORKS PRIOR TO PERFORMING WORK IN ROW. TRENCH BACKFILL/SUB-BASE PER MDOT R-83 PLAN SERIES, TRENCH DETAIL B2 (SEE C2.0). CONTRACTOR TO UTILIZE TRENCH BOX/SHORING TECHNIQUES TO MINIMIZE DISTURBANCE WITHIN THE ROAD AREA. IE EX. 8" = 855.84* IE 6" LATERAL = 855.92* *EX. IE PER CITY AS-BUILT DATA; CONTRACTOR TO FIELD VERIFY EXISTING INVERT AT TIME OF CONSTRUCTION.
CONTRACTOR TO HYDRO-VAC EXISTING WATER MAIN TO CONFIRM EXISTING BURY DEPTH PRIOR TO CONSTRUCTION. ENSURE 5' MINIMUM COVER IS MAINTAINED WITH PROPOSED SITE IMPROVEMENTS.
CAUTION! CONTRACTOR TO VERIFY LOCATIONS OF EXISTING DRY UTILITIES PRIOR TO SIGN PLACEMENT TO ENSURE NO CONFLICT. COORDINATE W/ UTILITY COMPANY AS NEEDED.
10-00021-181-B WAL-MART STORES, INC.
10-00021-280-C ROBERT A. & SANDY L. LIPSON TRUST
C/L SHAVER RD
BENCHMARK 1
CROSS ACCESS DRIVE WITH NO EASEMENT
CO
DSR
SCALE: 1"= 20'
NORTH

GENERAL NOTES:

- PRIVATE LOCATE SHALL BE COMPLETED PRIOR TO CONSTRUCTION AND EXISTING UTILITY LOCATIONS AND DEPTHS SHALL BE FIELD VERIFIED AS NEEDED. PROPOSED DOWNSTREAM UTILITY CONNECTIONS SHALL BE VERIFIED PRIOR TO CONSTRUCTION. NOTIFY DESIGN ENGINEER OF CONFLICTS AND/OR DISCREPANCIES.
- GC TO COORDINATE PROPOSED DRY UTILITY CONNECTIONS & DESIGN WITH APPLICABLE UTILITY PROVIDERS AS NEEDED.
- ALL PIPE LENGTHS NOTED ON PLAN ARE FOR PLAN REVIEW REFERENCE ONLY. CONTRACTOR TO VERIFY ALL PIPE LENGTHS FOR BIDDING PURPOSES.
- SITE LIGHTING IS PROVIDED VIA BUILDING MOUNTED LIGHTING AND EXISTING ADJACENT POLE LIGHTING. SEE PXP FOR ADDITIONAL INFORMATION.

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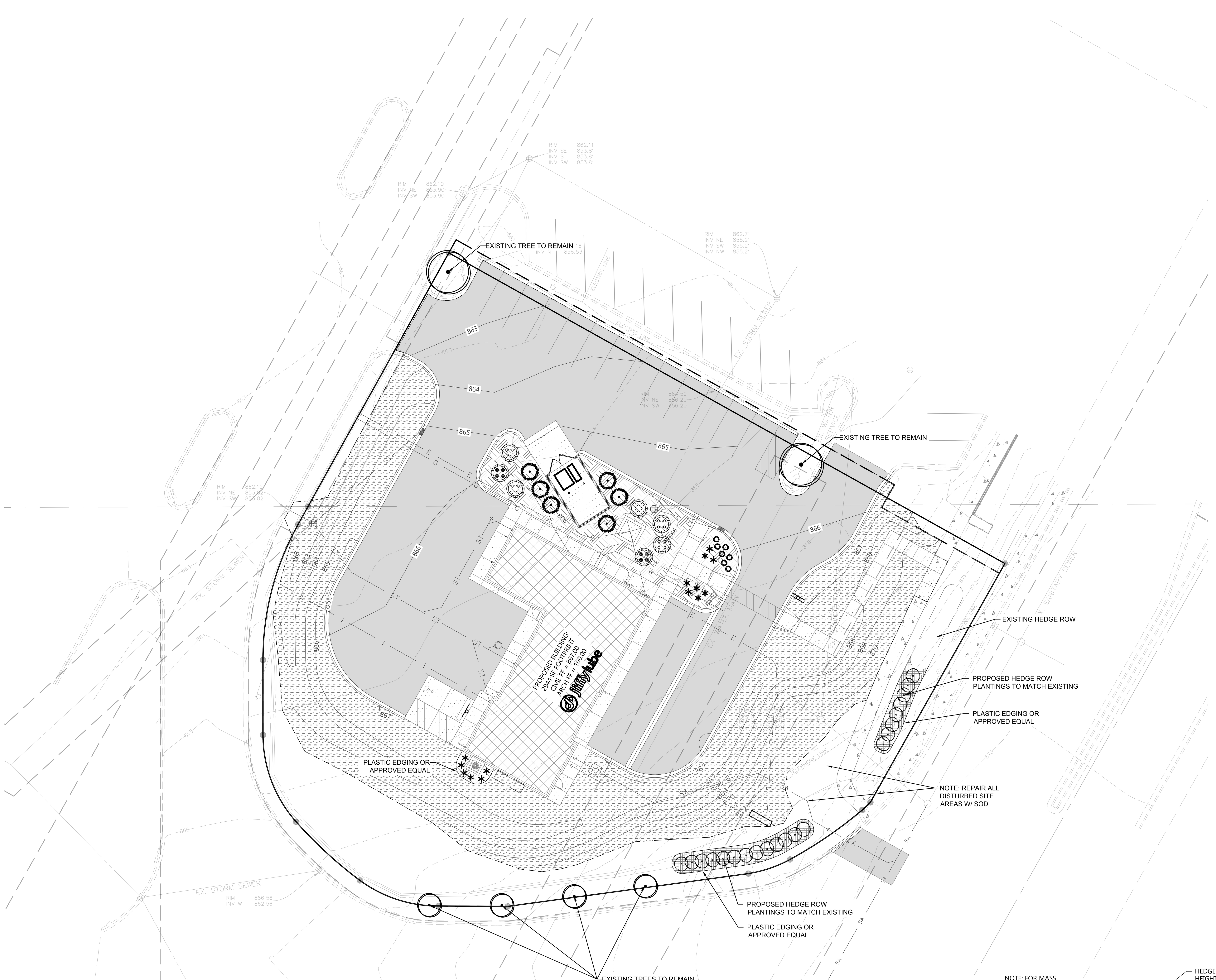
UTILITY PLAN

DRAWN: DS CHECKED: JD

SHEET NO:

C1.3



PLANT SCHEDULE

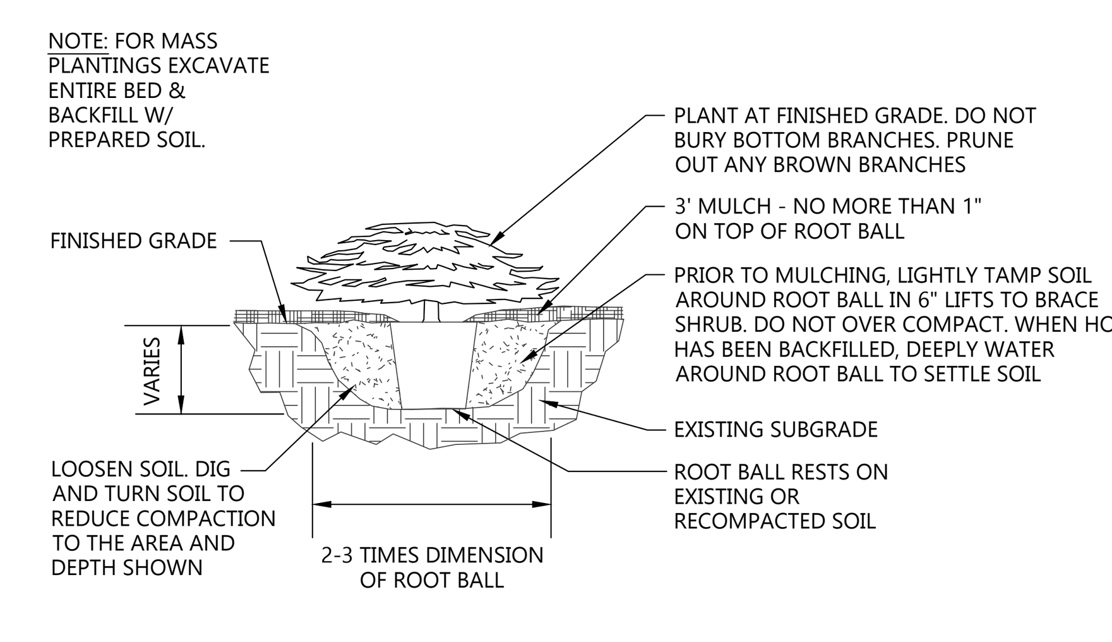
SYMBOL	COMMON NAME	BOTANICAL NAME	QUANTITY	PLANTED SIZE	ROOT
DECIDUOUS TREES					
⊙	Existing Trees	N/A	6	N/A	N/A
DECIDUOUS SHRUBS					
	Gro-low Sumac	Rhus aromatica 'Gro-low'	7	18" HT.	CONT.
⊙	Shrubs To Match Existing Species In Hedge Row	N/A	21	36" HT.	CONT.
EVERGREEN SHRUBS					
	Sea Green Juniper	Juniperus chinesis 'Sea Green'	6	24" HT.	CONT.
PERENNIALS					
*	Karl Foerster Feather Reed Grass	Calamagrostis x acutiflora 'Karl Foerster'	14	1 GAL.	POT
	Walker's Low Catmint	Nepeta 'Walker's Low'	7	1 GAL.	POT

LANDSCAPING CALCULATIONS

ZONE	REQ. PLANTS	PLANTS PROVIDED
INTERIOR	1 SF OF LANDSCAPING PER 15 SF PARKING AREA EXCLUDING AREA WITHIN 20' OF PERIMETER 107 SF EXCLUDING AREA WITHIN 20' OF PERIMETER	MET BY 353 SF OF EXISTING LAWN AREA WITHIN ISLANDS
PERIMETER	1 TREE PER 30' OF PARKING LOT 168'/30' = 5.6 TREES	MET BY 6 EXISTING TREES ON SITE

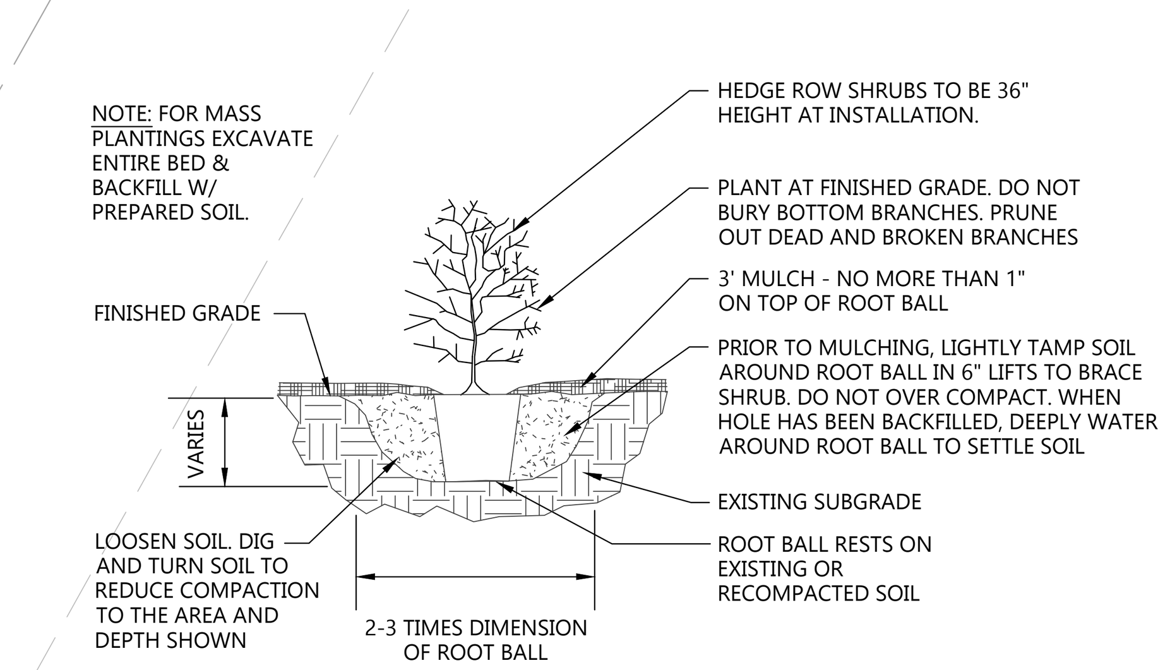
HATCH KEY:

HATCH	LANDSCAPE MATERIAL
	ORGANIC MULCH (MATCH EXISTING)
	LANDSCAPE STONE
	SOD



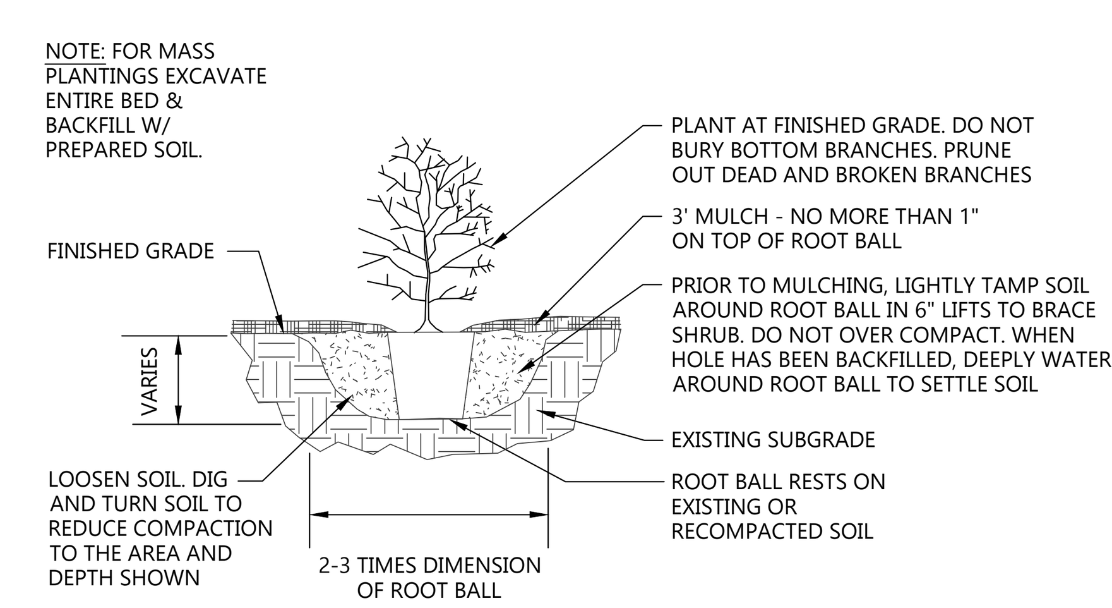
EVERGREEN SHRUB PLANTING DETAIL

NOT TO SCALE



HEDGE ROW SHRUB PLANTING DETAIL

NOT TO SCALE



DECIDUOUS SHRUB PLANTING DETAIL

NOT TO SCALE

SCALE: 1"= 20'
20' 0 20' 40'
NORTH

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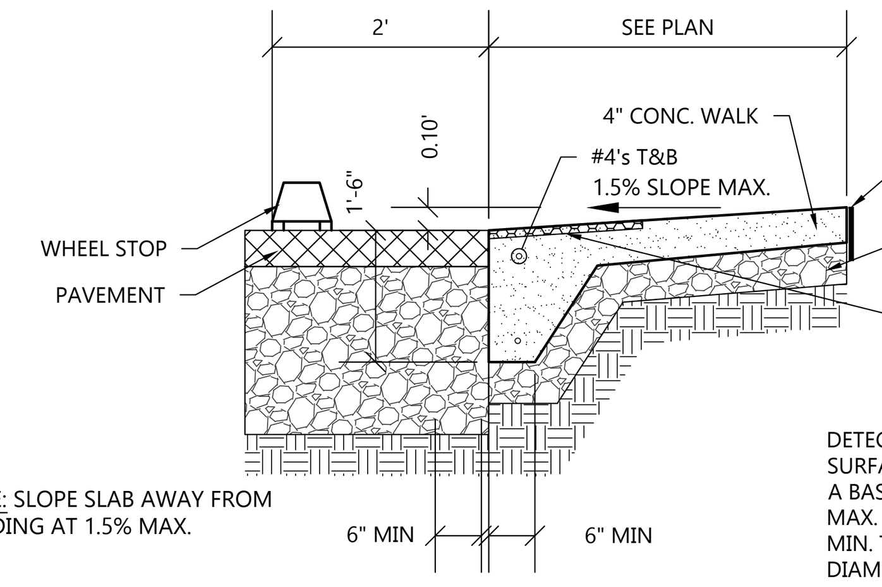
LANDSCAPE AND RESTORATION PLAN

DRAWN: DS CHECKED: JD

SHEET NO:

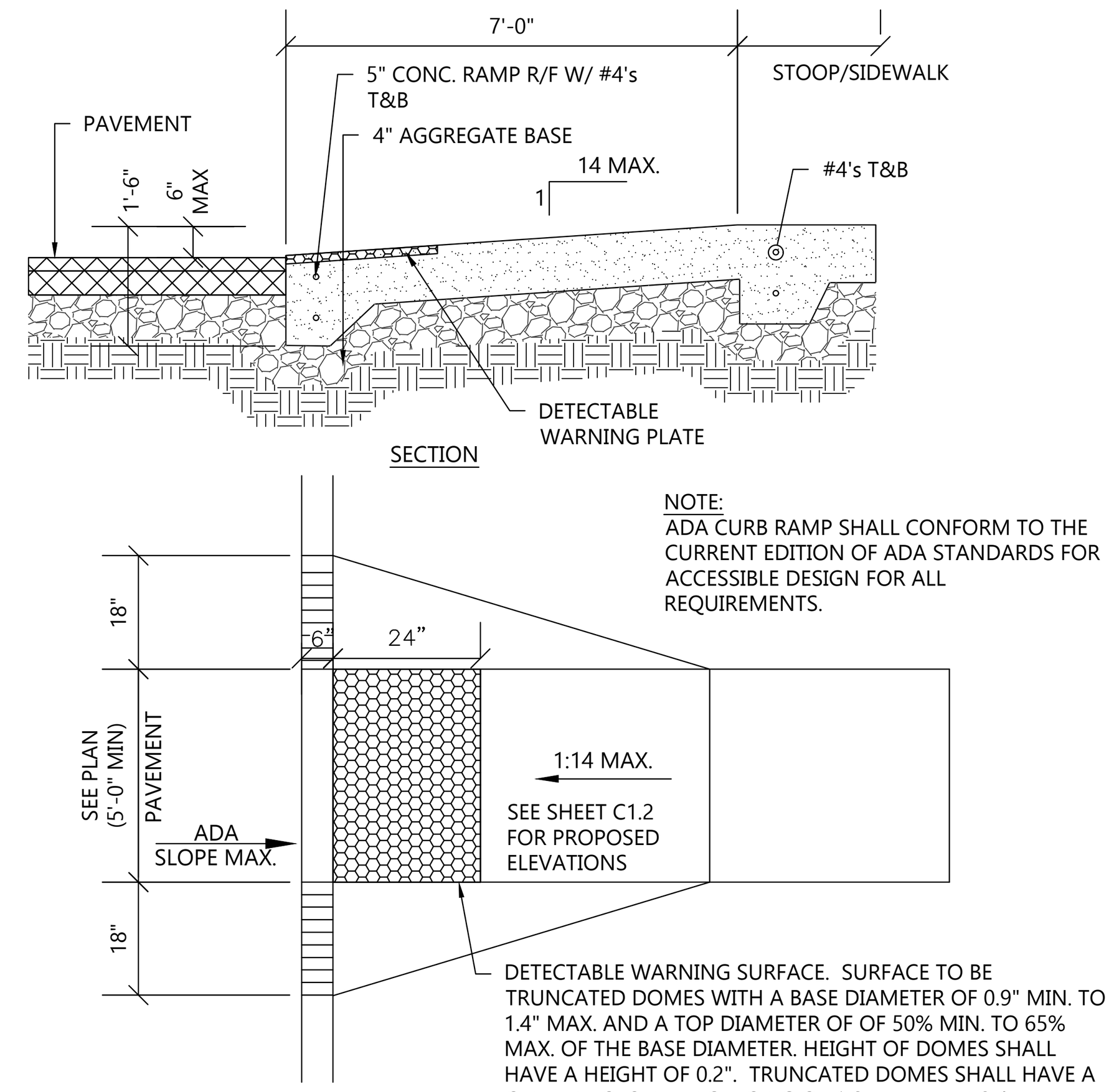
C1.4



NOTE: SLOPE SLAB AWAY FROM BUILDING AT 1.5% MAX.

DETECTABLE WARNING SURFACE. SURFACE TO BE TRUNCATED DOMES WITH A BASE DIAMETER OF 0.9" MIN. TO 1.4" MAX. AND A TOP DIAMETER OF OF 50% MIN. TO 65% MAX. OF THE BASE DIAMETER. HEIGHT OF DOMES SHALL HAVE A HEIGHT OF 0.2". TRUNCATED DOMES SHALL HAVE A CENTER-TO-CENTER SPACING OF 1.6" MIN. AND 2.4" MAX. AND A BASE-TO-BASE SPACING OF 0.65" MIN. MEASURED BETWEEN THE MOST ADJACENT DOMES ON THE GRID. DOMES SHALL BE ALIGNED IN A SQUARE GRID PATTERN.

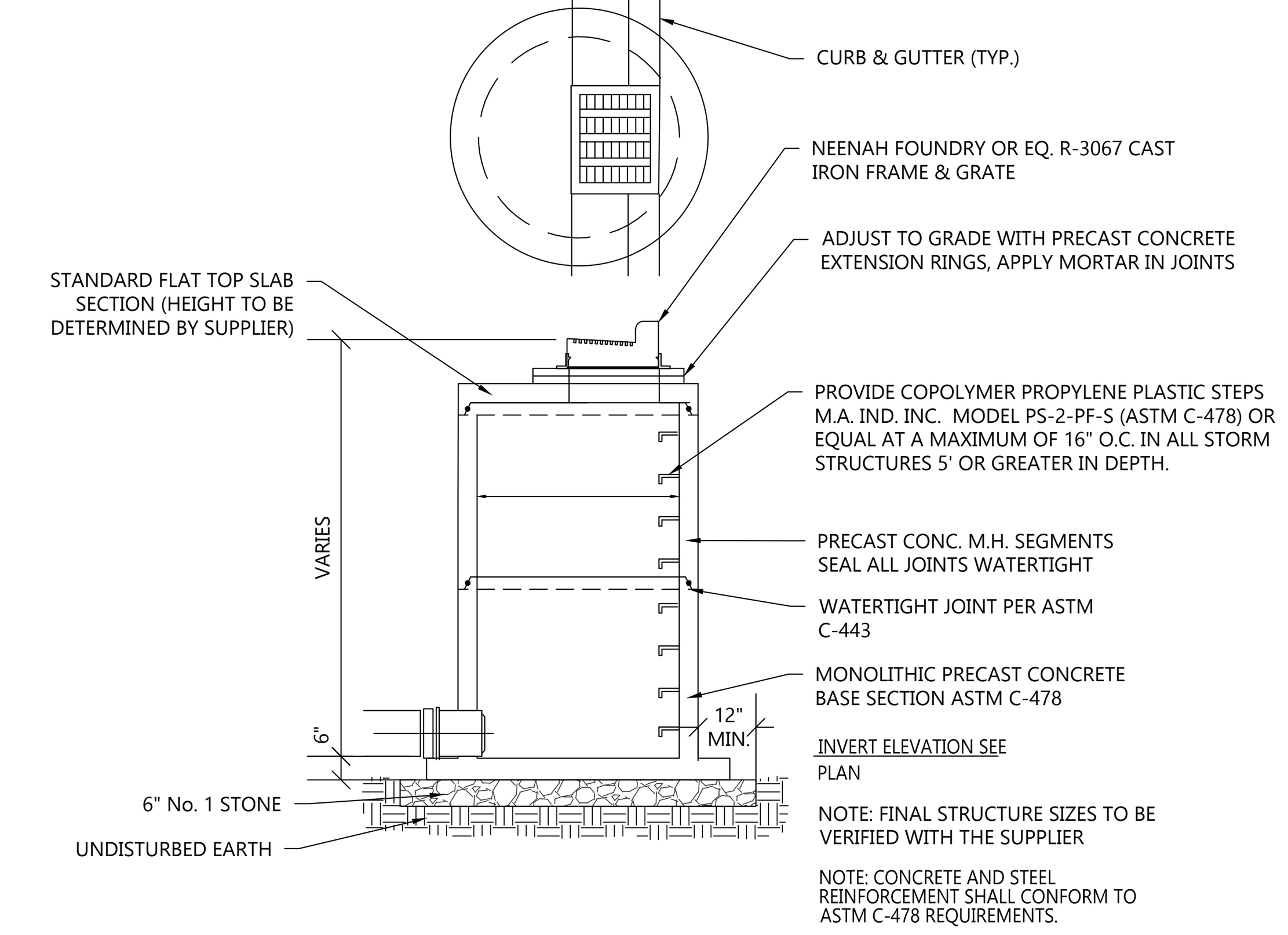
FLUSH WALK DETAIL
NOT TO SCALE



NOTE:
ADA CURB RAMP SHALL CONFORM TO THE CURRENT EDITION OF ADA STANDARDS FOR ACCESSIBLE DESIGN FOR ALL REQUIREMENTS.

DETECTABLE WARNING SURFACE. SURFACE TO BE TRUNCATED DOMES WITH A BASE DIAMETER OF 0.9" MIN. TO 1.4" MAX. AND A TOP DIAMETER OF OF 50% MIN. TO 65% MAX. OF THE BASE DIAMETER. HEIGHT OF DOMES SHALL HAVE A HEIGHT OF 0.2". TRUNCATED DOMES SHALL HAVE A CENTER-TO-CENTER SPACING OF 1.6" MIN. AND 2.4" MAX. AND A BASE-TO-BASE SPACING OF 0.65" MIN. MEASURED BETWEEN THE MOST ADJACENT DOMES ON THE GRID. DOMES SHALL BE ALIGNED IN A SQUARE GRID PATTERN.

CURB RAMP DETAIL
NOT TO SCALE

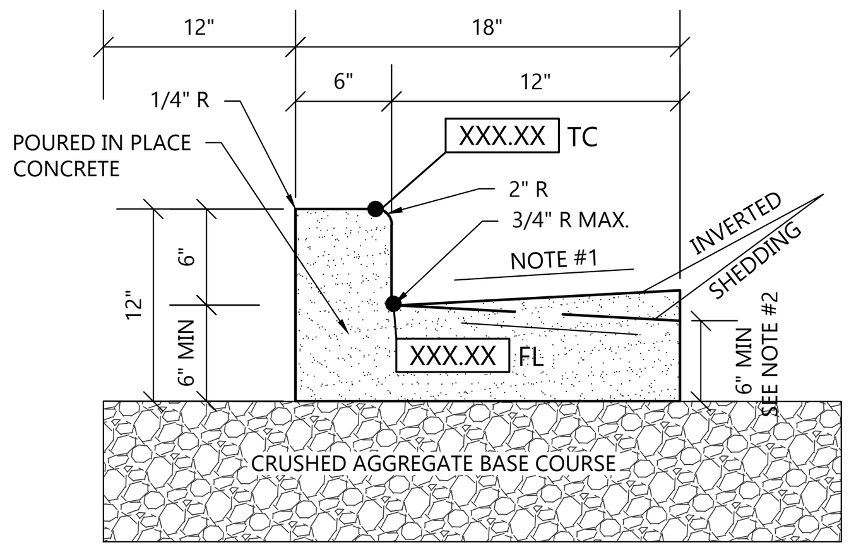


INVERT ELEVATION SEE PLAN

NOTE: FINAL STRUCTURE SIZES TO BE VERIFIED WITH THE SUPPLIER

NOTE: CONCRETE AND STEEL REINFORCEMENT SHALL CONFORM TO ASTM C-478 REQUIREMENTS.

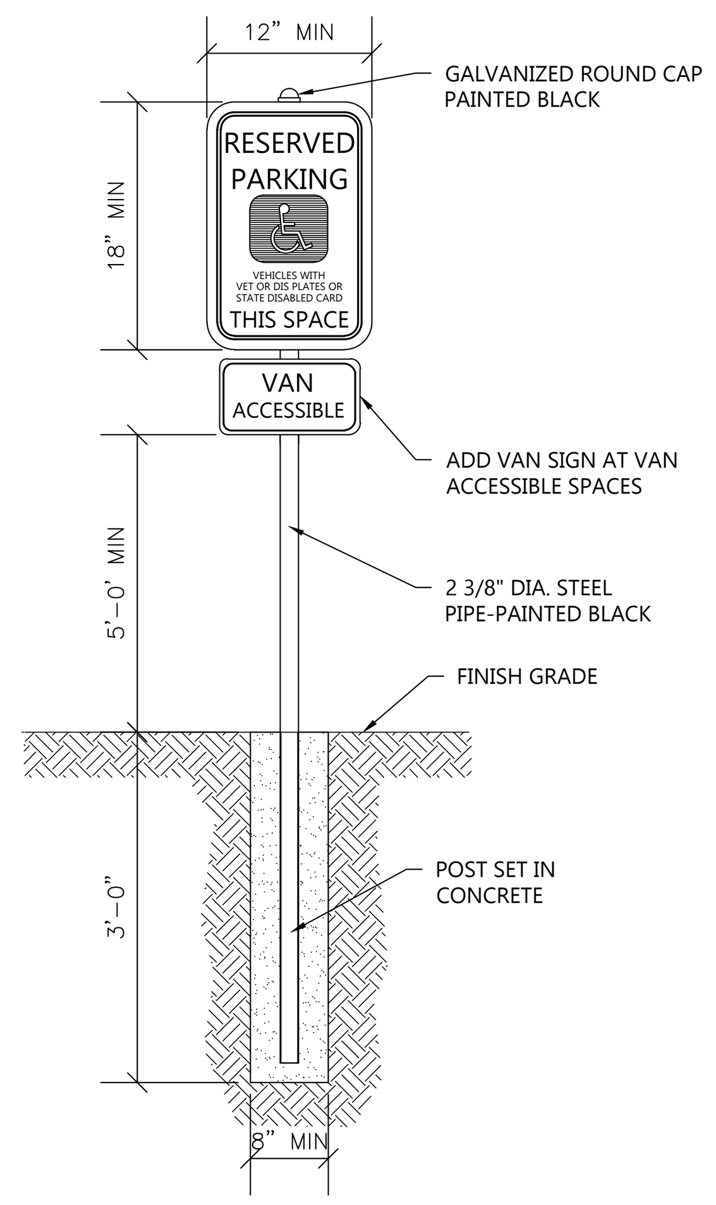
STORM CURB INLET (CI) W/ ROUND STRUCTURE DETAIL
NOT TO SCALE



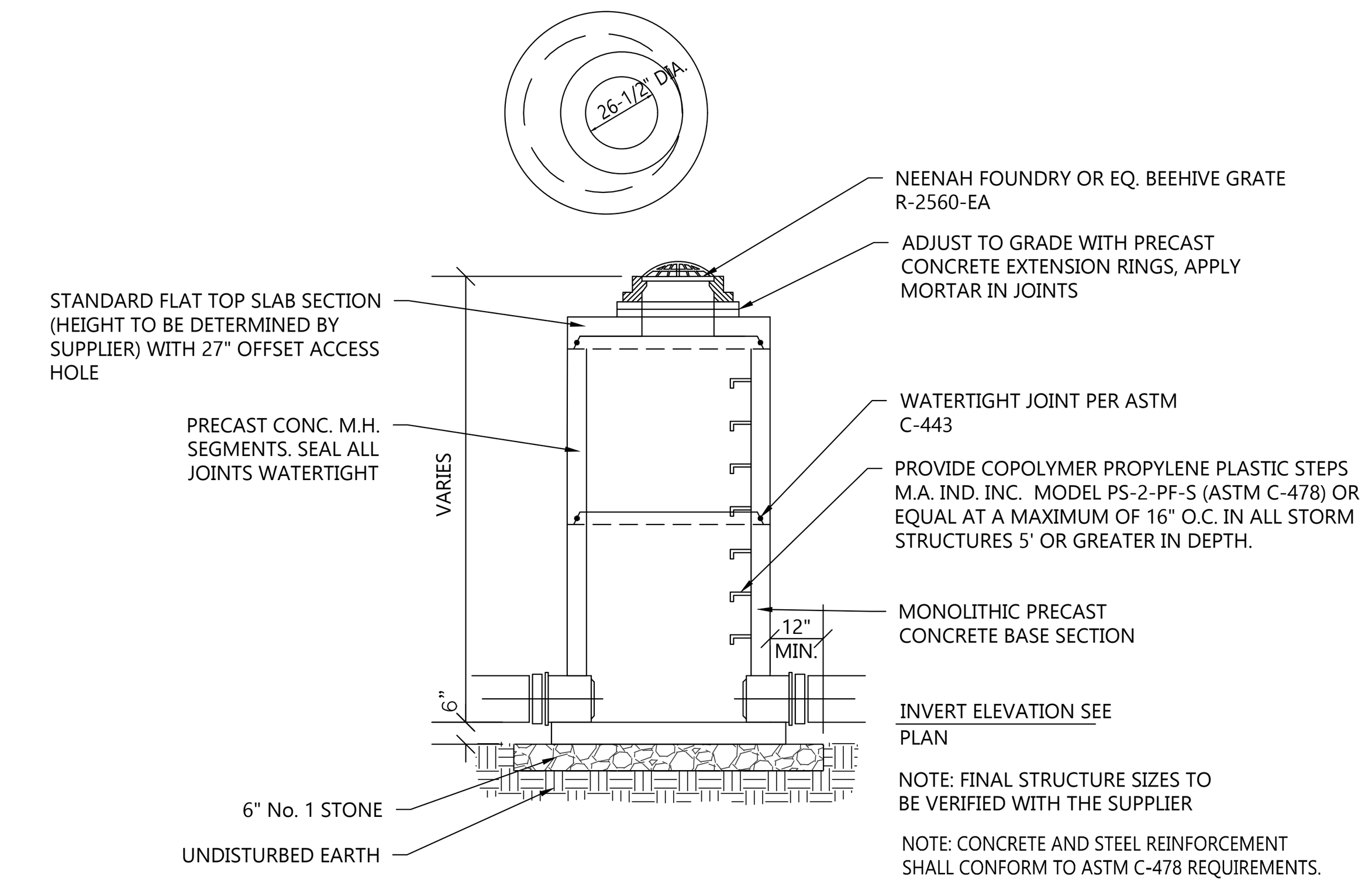
NOTE:

1. USE 4% GUTTER CROSS SLOPE UNLESS OTHERWISE NOTED IN THE PLANS.
2. THE BOTTOM OF CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDED A 6" MIN. GUTTER THICKNESS IS MAINTAINED.
3. SEE SITE PLAN & GRADING PLAN FOR INVERTED & SHEDDING CURB LOCATIONS

18" CONCRETE CURB & GUTTER DETAIL
NOT TO SCALE



HANDICAP SIGNAGE WITH CONCRETE BASE DETAIL
NOT TO SCALE

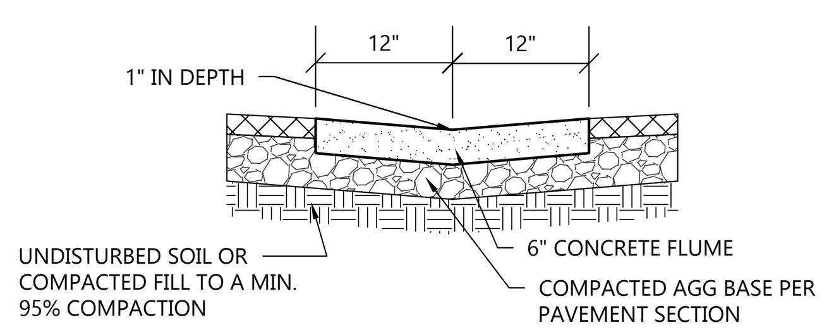


INVERT ELEVATION SEE PLAN

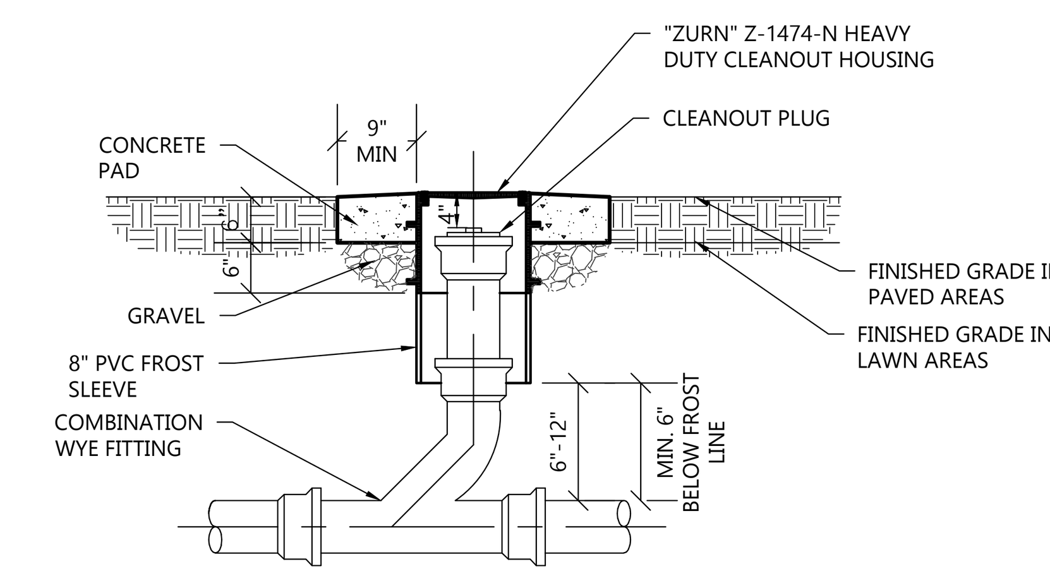
NOTE: FINAL STRUCTURE SIZES TO BE VERIFIED WITH THE SUPPLIER

NOTE: CONCRETE AND STEEL REINFORCEMENT SHALL CONFORM TO ASTM C-478 REQUIREMENTS.

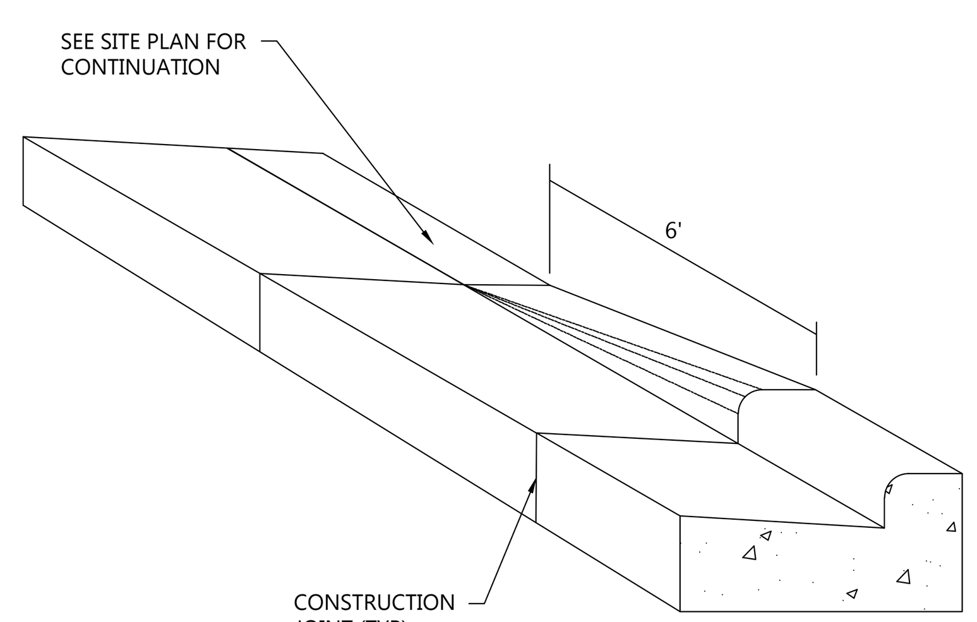
STORM FIELD INLET (FI) W/ DOME GRATE DETAIL
NOT TO SCALE



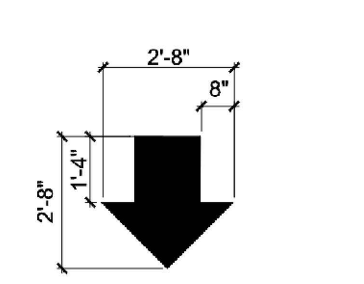
CONCRETE FLUME DETAIL (PAVEMENT)
NOT TO SCALE



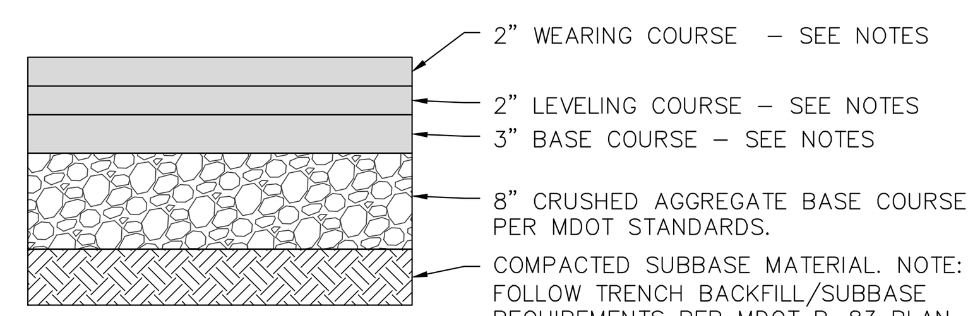
CLEANOUT TO GRADE DETAIL
NOT TO SCALE



CURB TAPER DETAIL
NOT TO SCALE



TRAFFIC ARROW DETAIL
NOT TO SCALE



PAVEMENT REPLACEMENT NOTES

THE PAVEMENT SECTION SHALL BE THE GREATER OF EITHER THE EXISTING THICKNESS OR THE FOLLOWING SECTION. APPLICATION RATES PER MDOT STANDARD OF APPROXIMATELY 110 LBS/SYD PER INCH OF HMA THICKNESS:

A. WEARING COURSE HMA 5EML @ 220 LBS/SYD (BINDER PG 64-28)

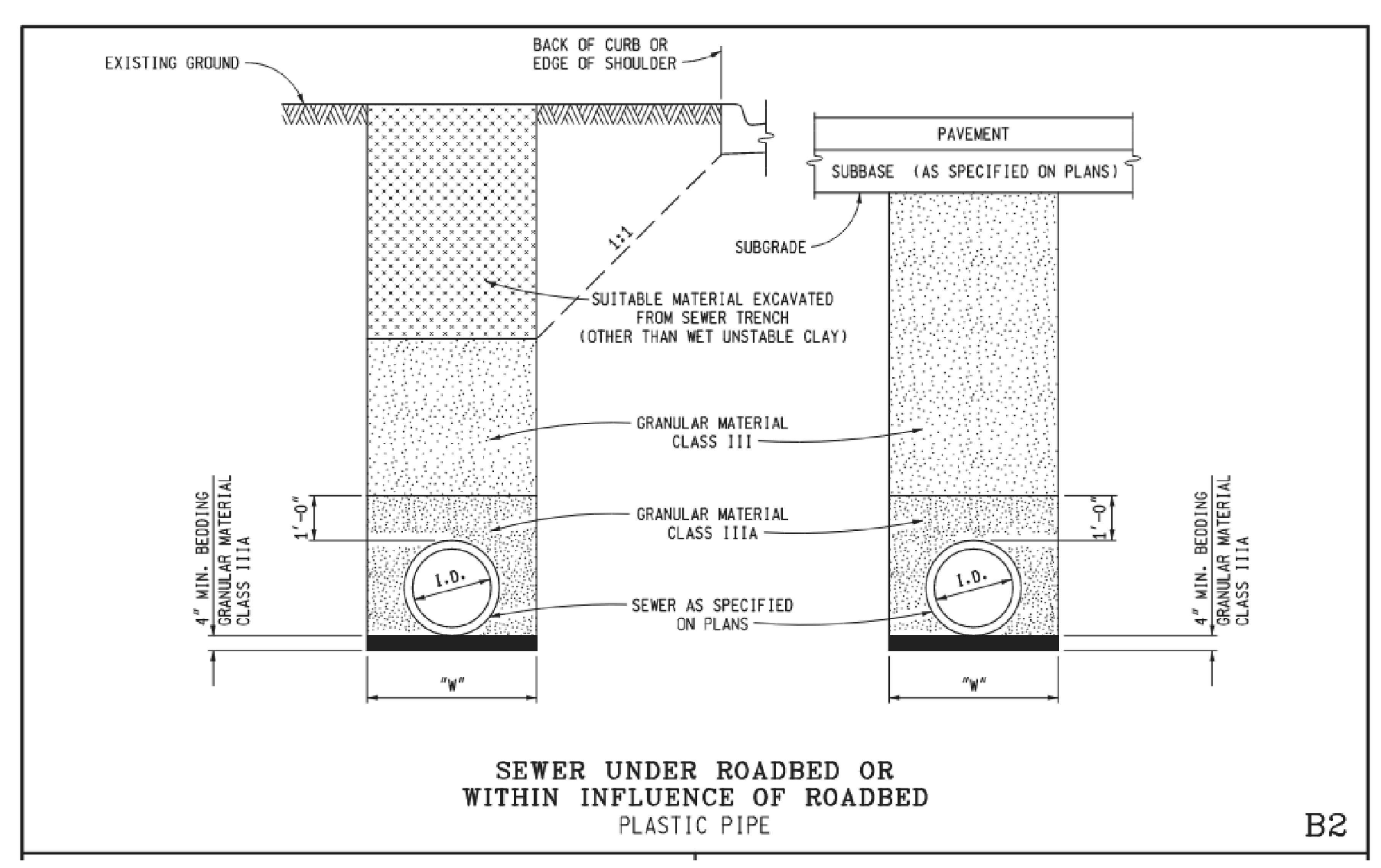
B.LEVELING COURSE HMA 4EML @ 220 LBS/SYD (BINDER PG 64-28)

C.BASE COURSE HMA 4EML @ 330 LBS/ SYD (BINDER PG 64-28) COMPACTED IN 2 LIFTS.

D. APPLY TAC COAT PER MDOT SPECIFICATIONS.

E. 8" AGGREGATE BASE

ASPHALT PAVEMENT REPLACEMENT DETAIL - SHAVER RD
NO SCALE



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JIFFY LUBE PROTOTYPE WITH STONEBRIAR OPTIONS

PORTAGE, MI

NWC OF W MELODY AVE & SHAVER RD

NO:	DATE:	ISSUE:
	03/28/2025	ISSUED FOR APPROVAL
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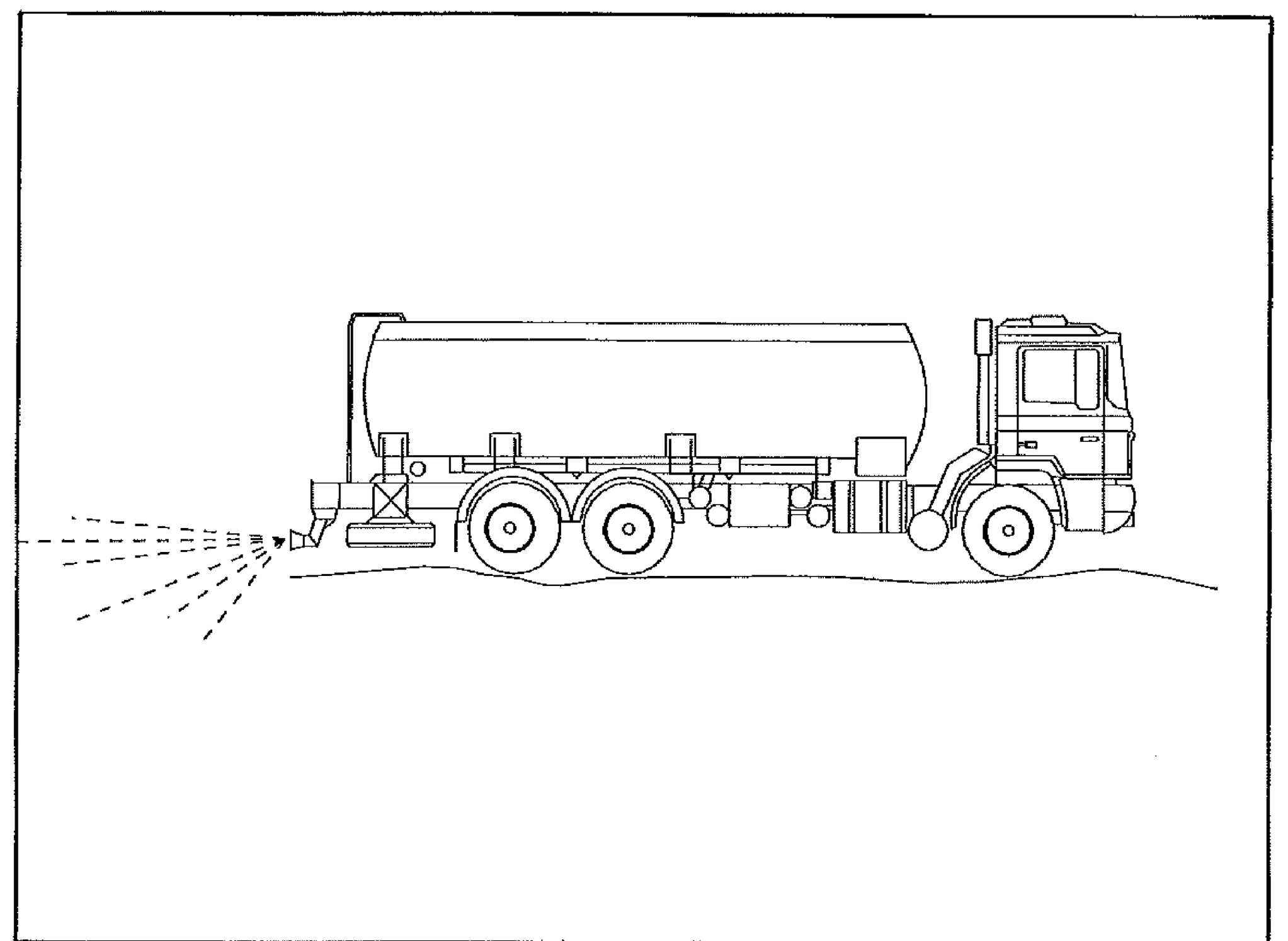
DETAILS

DRAWN: DS CHECKED: JD

SHEET NO:

C2.0



Use:
For disturbed areas not subject to traffic, vegetation (temporary or permanent) provides the most practical and effective means of Dust Control. For other areas, Dust Control measures include, but are not limited to, mulching, sweeping, watering, and applying calcium chloride or polymers.

Installation and Maintenance:
For off-road areas where vegetation will be the final stabilization method, calcium chloride shall not be used since it would inhibit vegetation establishment.

Optional Measures:

Related SESC Measures:
E & S-3 Permanent/Temporary Seeding
E & S-8 Aggregate Cover
E & S-14 Gravel Access Approach
E & S-28 Mulching and Mulch Anchoring
E & S-32 Surface Roughening and Scarification
E & S-33 Mulch Blankets and High Velocity Mulch Blankets

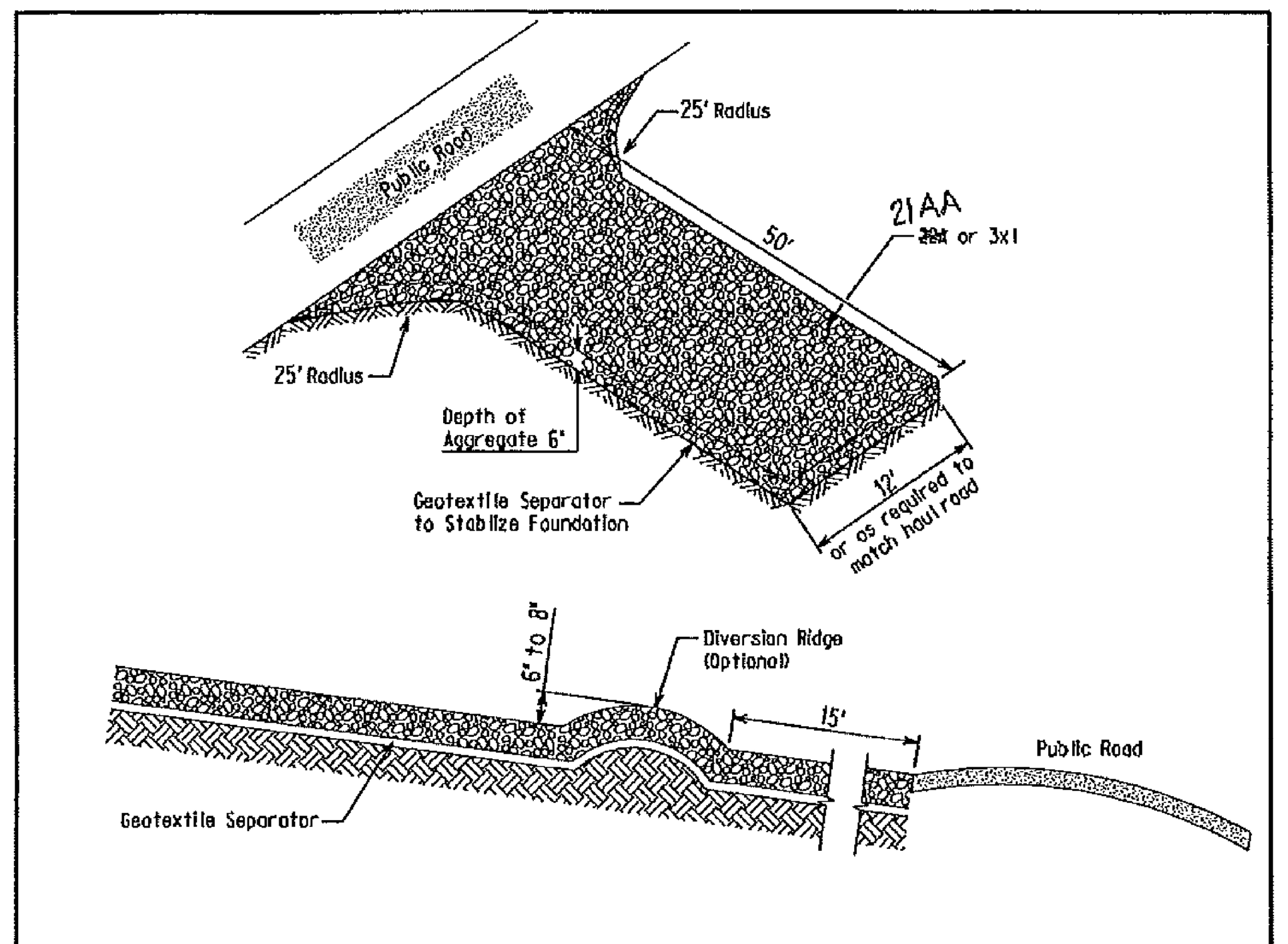
Measurement and Payment:
If not shown as a pay item, payment for Dust Control will be included in related items of work.

Contract Item (Pay Item)	Pay Unit
Dust Palliative, Applied	Ton

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Dust Control

MDOT | 04-07-2008 PLAN DATE | E&S-4-A | SHEET 1 OF 1



Use:
Providing a stable Gravel Access Approach, minimizes the tracking of loose materials from the construction site onto public roadways. Coarser aggregate is more effective in reducing tracking. Any materials tracked onto public roadways shall be removed as specified in the Standard Specifications for Construction, or as directed by the Engineer.

Installation and maintenance of Gravel Access Approach is effective in reducing sediment loading to inlet protection devices.

Installation and Maintenance:
The Gravel Access Approach should be located in accordance with the plans or as directed by the Engineer. All vegetation and other objectionable material shall be removed from the foundation area. Geotextile Separator must be placed beneath the aggregate to stabilize the foundation.

Replace or replenish aggregate if it is no longer preventing tracking.

Optional Measures:
A Gravel Access with Diversion Ridge is recommended where access grade exceeds 2%. This will also aid in dislodging soil or debris from tires.

Related SESC Measures:

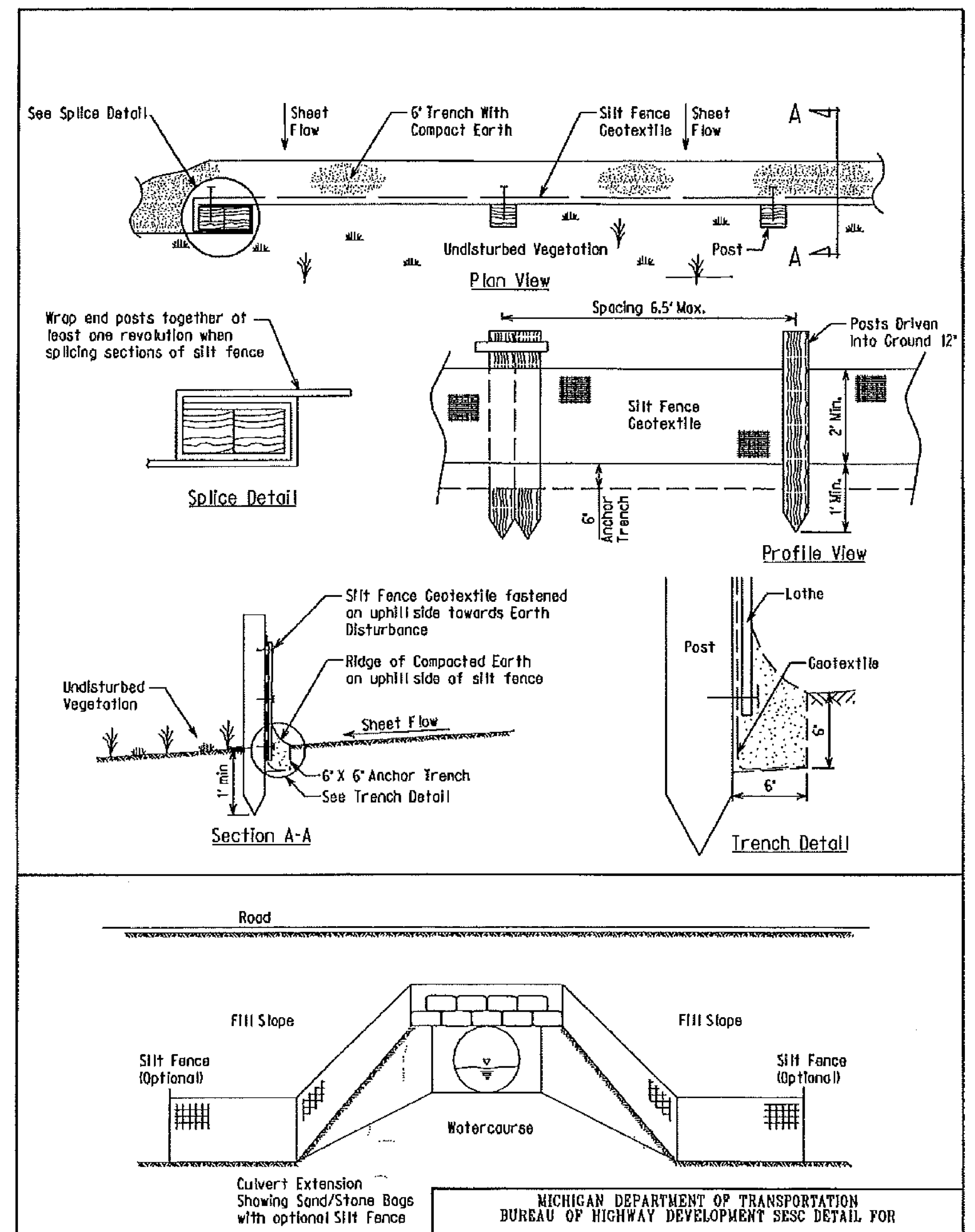
Measurement and Payment:
Optional work shown, when installed and maintained as directed by the Engineer, will be included in the item Gravel Access Approach

Contract Item (Pay Item)	Pay Unit
Erosion Control, Gravel Access Approach	Each

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Gravel Access Approach

MDOT | 04-07-2008 PLAN DATE | E&S-14-A | SHEET 1 OF 1



MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Silt Fence

MDOT | 09-30-2005 PLAN DATE | E&S-26-A | SHEET 1 OF 2

GENERAL NOTES:

- REFER TO SHEET C0.2 FOR EROSION & SEDIMENT CONTROL SPECIFICATIONS.
- REFER TO MDOT SESC MANUAL FOR ADDITIONAL EROSION & SEDIMENT CONTROL SPECIFICATIONS AND DETAILS.

Use:
A Silt Fence is a permeable barrier erected adjacent to disturbed areas to capture sediment from sheet flow. It is made of woven geotextile fabric which is stretched and supported by wooden posts and trenched in at the bottom.

The Silt Fence retards the movement of sediment-laden water allowing the deposition and retention of sediment.

Do not install Silt Fence across streams or ditches where flows are concentrated.

The use of a Silt Fence should never be substituted for the application of permanent or temporary vegetative cover.

Installation and Maintenance:
It is critical to thoroughly trench in the bottom of Silt Fence as shown to maximize its performance and to prevent failure from undercutting, overtopping or collapsing. Geotextile should extend along side and bottom of trench.

Ensure that stable overflow outlets are available.

Remove all sediment from behind Silt Fence when it reaches approximately 50 percent of its capacity and make repairs promptly.

Silt Fence shall remain in place and properly maintained until the disturbed area is completely stabilized.

Optional Measures:
As an extra precautionary measure when there is a steep disturbed area adjacent to a watercourse, two rows of Silt Fence may be placed.

Sand and Stone Bags (E & S-24) may be used to provide additional support for Silt Fence. Installed at culvert extensions as shown in the detail above

Related SESC Measures:
E & S-2 Grubbing Omitted
E & S-6 Vegetative Buffer Strips
E & S-9 Benches
E & S-24 Sand and Stone Bags
E & S-28 Mulching and Mulch Anchoring
E & S-32 Surface Roughening and Scarification
E & S-33 Mulch Blankets and High Velocity Mulch Blankets.

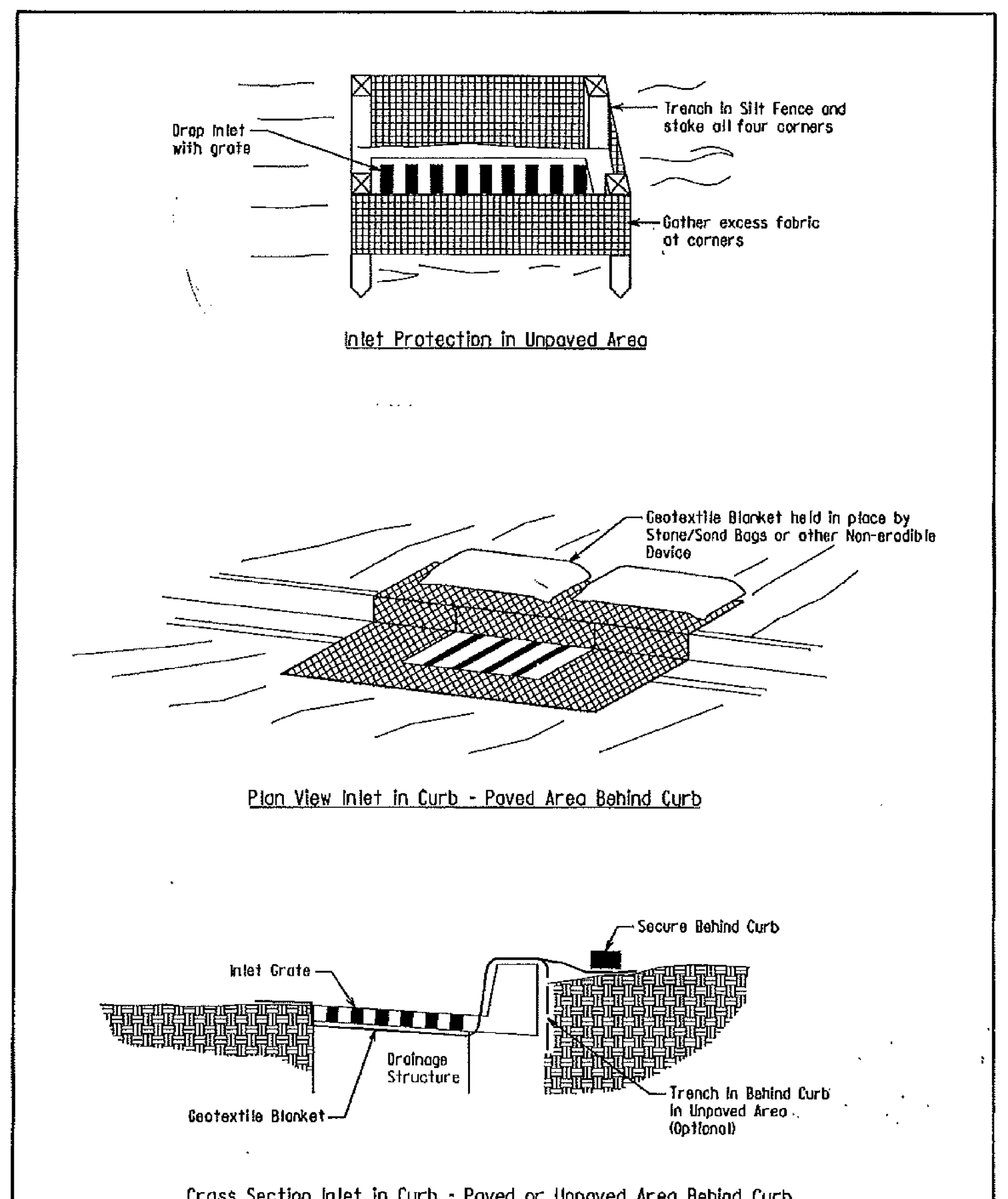
Measurement and Payment:
Optional work shown, when installed and maintained as directed by the Engineer, will be paid using the associated contract item listed here.

Contract Item (Pay Item)	Pay Unit
Erosion Control, Silt Fence	Foot
Erosion Control, Maintenance, Sediment Removal	Cubic Yard
Erosion Control, Sand Bag	Each
Erosion Control, Stone Bag	Each

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Silt Fence

MDOT | 04-07-2008 PLAN DATE | E&S-26-A | SHEET 2 OF 2



MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Inlet Protection Fabric Drop

MDOT | 04-07-2008 PLAN DATE | E&S-29-A | SHEET 1 OF 2

Use:
Inlet Protection Fabric Drop is a temporary device used to prevent sediment from entering drainage structure inlets.

Installation and Maintenance:
Inlet Protection Fabric Drop requires frequent maintenance to function properly.

For drainage structures not located in the curb, Silt Fence (E & S-26) is installed around the outside of the drainage structure. The Silt Fence must be trenched in on all sides.

For drainage structures with covers located in the curb, a nonwoven geotextile blanket is installed between the cover and the frame of the drainage structure cover. The Geotextile Blanket must be trenched in or otherwise held in place behind the curb line.

If the inlet protection is placed prior to the installation of the cover, wire mesh shall be placed over the opening to support the Geotextile Blanket.

Care must be taken when removing fabric to prevent loss of sediment into the inlet.

Optional Measures:
For those instances where the volume of storm water may be high, a Gravel Filter Berm (E & S-13) may be installed in one corner of the Inlet Protection Fabric Drop to enable storm water to be filtered prior to entering the drainage structure.

Trench in fabric behind curb in unpaved areas if this will not result in exposing undisturbed area to accelerated erosion.

Related SESC Measures:
E & S-13 Gravel Filter Berm
E & S-31 Drop Inlet Protection Sediment Trap

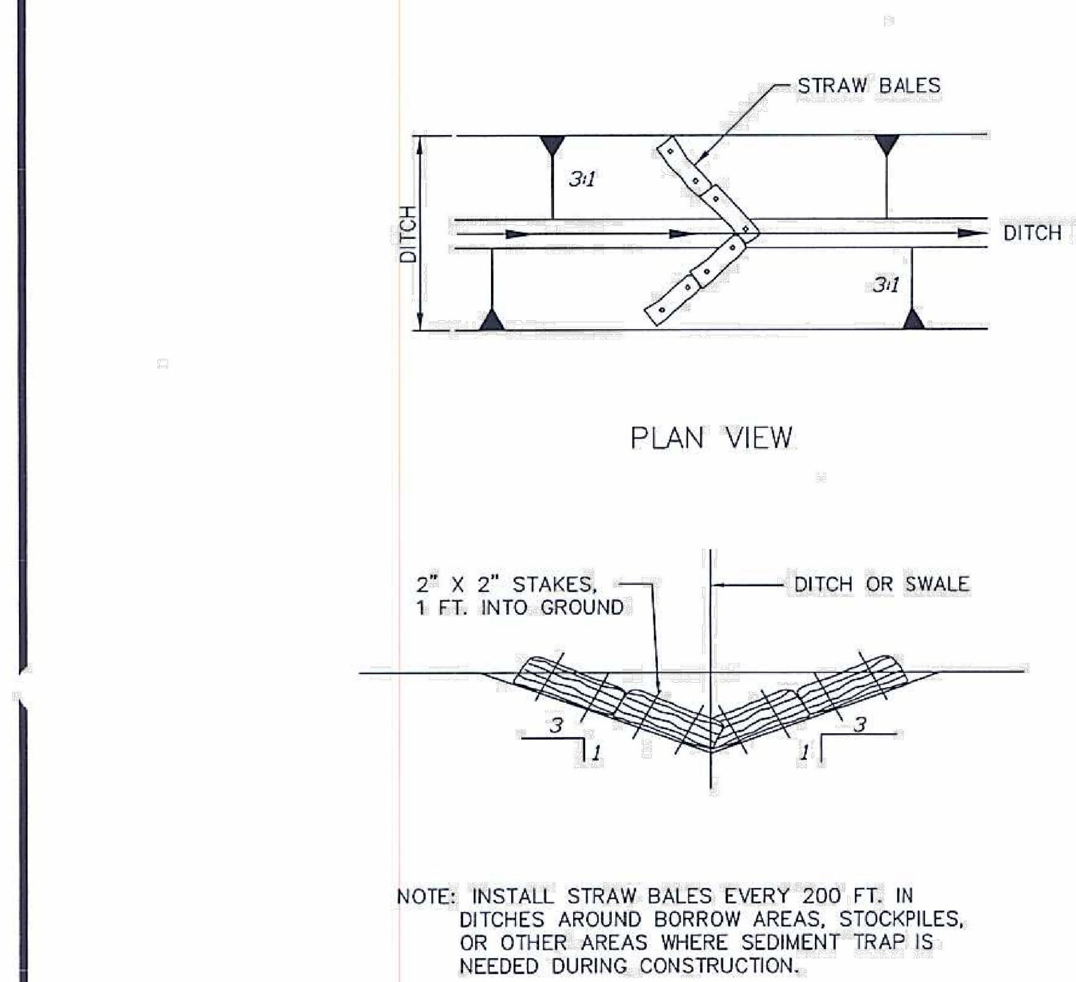
Measurement and Payment:
Payment for Inlet Protection Fabric Drop includes all labor and materials required to secure Geotextile Fabric as shown. Optional work shown, when installed and maintained as directed by the Engineer, will be paid using the associated contract items listed here.

Contract Item (Pay Item)	Pay Unit
Erosion Control, Inlet Protection, Fabric Drop	Each
Erosion Control, Gravel Filter Berm	Foot
Erosion Control, Silt Fence	Foot
Erosion Control, Maintenance, Sediment Removal	Cubic Yard

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL FOR

Inlet Protection Fabric Drop

MDOT | 04-07-2008 PLAN DATE | E&S-29-A | SHEET 2 OF 2



STRAW BALE SEDIMENT TRAP DETAIL
N.T.S.

CITY OF PORTAGE
SEDIMENTATION CONTROLS
STRAW BALE
SEDIMENT TRAP
STANDARD DESIGN SD-125B

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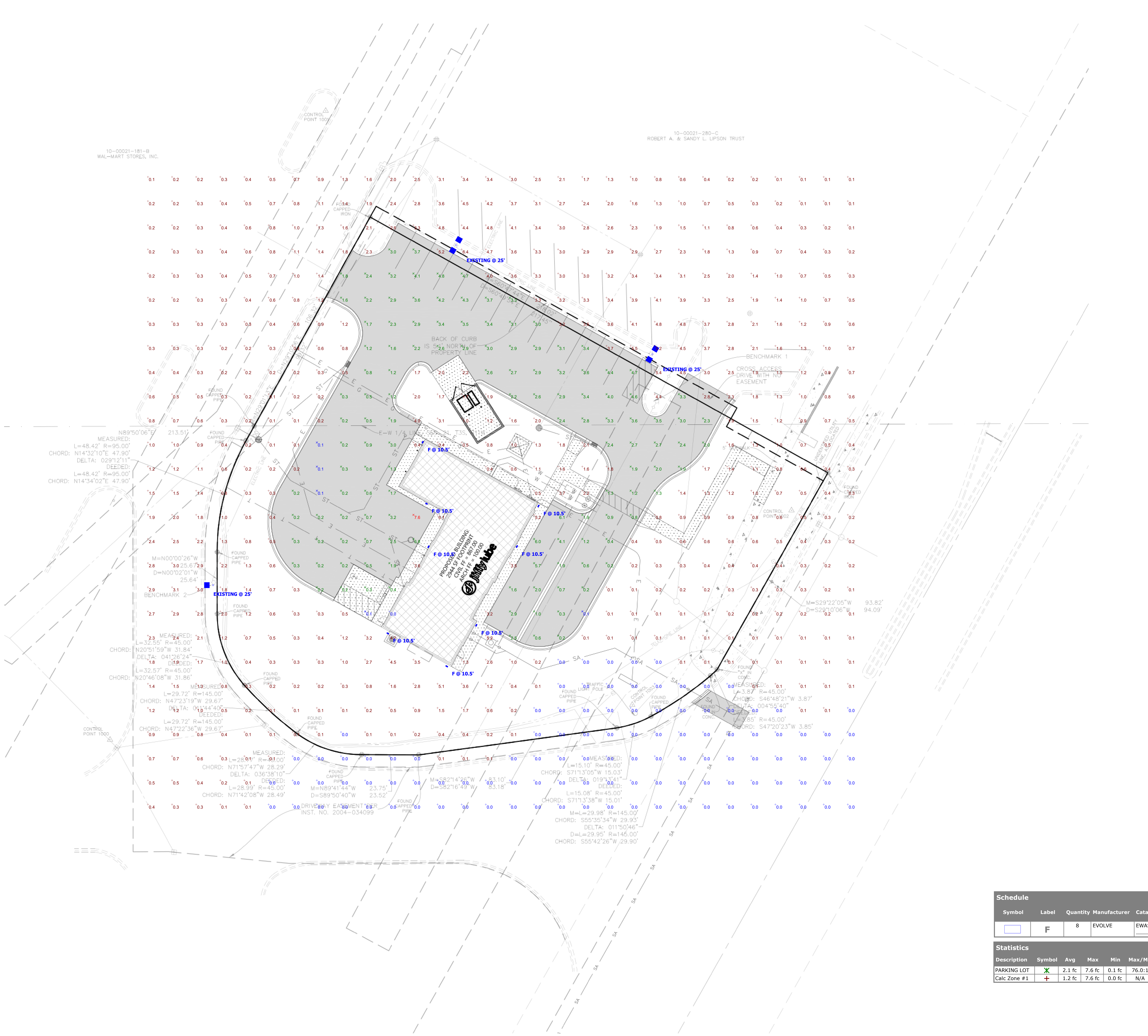


EVOLVE

CUSTOMER NAME ______
PROJECT NAME ______
DATE ______ TYPE ______
CATALOG NUMBER ______

EWAS A Series

LED Wall Pack

The **Evolve**® LED A Series Wall Pack (EWAS), offers Type II, III and IV optical patterns with lumen levels ranging from 3,000 to 17,000 lumens, and is a designed replacement for 50W to 400W HID including an optional Emergency Battery Backup.

Construction

Housing:	Aluminum die cast enclosure. Integral heat sink for maximum heat transfer
Lens:	Impact resistant tempered glass
Paint:	Corrosion resistant polyester powder paint, minimum 2.0 mil thickness Standard = Black, Dark Bronze, Gray & White (RAL & custom colors available)
Weight:	8 - 10 lbs.

Optical System

Lumens:	3,000 - 17,000
Distribution:	Type II, III, IV
CCT:	3000K, 4000K, 5000K
CRI:	≥70

Electrical

Input Voltage:	120-277V & 347-480V
Input Frequency:	50/60Hz
Power Factor:	> 90% at rated watts
Total Harmonic Distortion:	< 20% at rated watts

Surge Protection

TYPCIAL (120 STRIKES)	ENHANCED (40 STRIKES)	EXTREME (40 STRIKES)
☐ 6kV/3kA*	☐ 10kV/5kA*	☐ 20kV/10kA*

*Per ANSI C136.2-2015

Warranty

☐ 5 Year (Standard)

Lumen Maintenance

Projected Lxx per IES TM-21-11 at 25°C

DISTRIBUTION	LXX(10K) @ HOURS 25,000 HR	50,000 HR	60,000 HR
A2, A3, A4, B2, B3, B4, C2, C3, C4, D2, D3, D4	L95	L93	L92
E2, E3, E4, F2, F3, F4, G2, G3, G4	L96	L94	L94

Note: Projected Lxx based on LM80 (≥ 10,000 hour testing). Accepted Industry tolerances apply to initial luminous flux and lumen maintenance measurements.

Luminaire Ambient Temperature Factor

AMBIENT TEMP (°C)	INITIAL FLUX FACTOR	AMBIENT TEMP (°C)	INITIAL FLUX FACTOR
10	1.02	30	0.99
20	1.01	40	0.98
25	1.00	50	0.97

Ratings

Operating Temperature:	-40°C to 40°C
Vibration:	3G per ANSI C136.31-2010
LM-79:	Testing in accordance with IESNA Standards

Controls

Dimming:	Standard - 0-10V ☐ Optional - DALI (Option U) ☐
Sensors:	Photo Electric Sensors (PE) available LightGrid+™ and Daintree Compatible

Emergency Battery Backup

- Provides reliable emergency operations when there is a loss to normal power, supported by Independent Secondary Battery and LED Board.
- Powers luminaire for a minimum of 90 minutes @ 1,000 lumens.
- Available on A* and B* Optical Code Packages only
- Operating Temperature (for EMBB models) -20° to 40°C
- 3kV/1.5kA surge protection for EMBB models.

Not all product variations listed on this page are DLC qualified. Visit www.designlights.org/search to confirm qualifications.

IP66 Optical IK08

Current LED.com

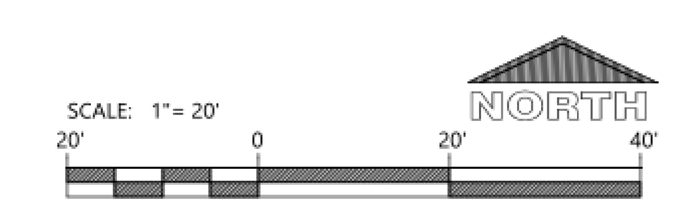
Page 1 of 7 (Rev 09/23/24) OLP3165-Evolve-EWAS-LED-Wall-Pack-Specsheet_R12

Schedule

Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage	Wattage
▭	F	8	EVOLVE	EWAS01_A3AW730_____ _____-120-277V	EWAS WALL PACK	1	2900	1	21	

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
PARKING LOT	✕	2.1 fc	7.6 fc	0.1 fc	76.0:1	21.0:1
Calc Zone #1	+	1.2 fc	7.6 fc	0.0 fc	N/A	N/A



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SITE PHOTOMETRIC PLAN & DETAILS

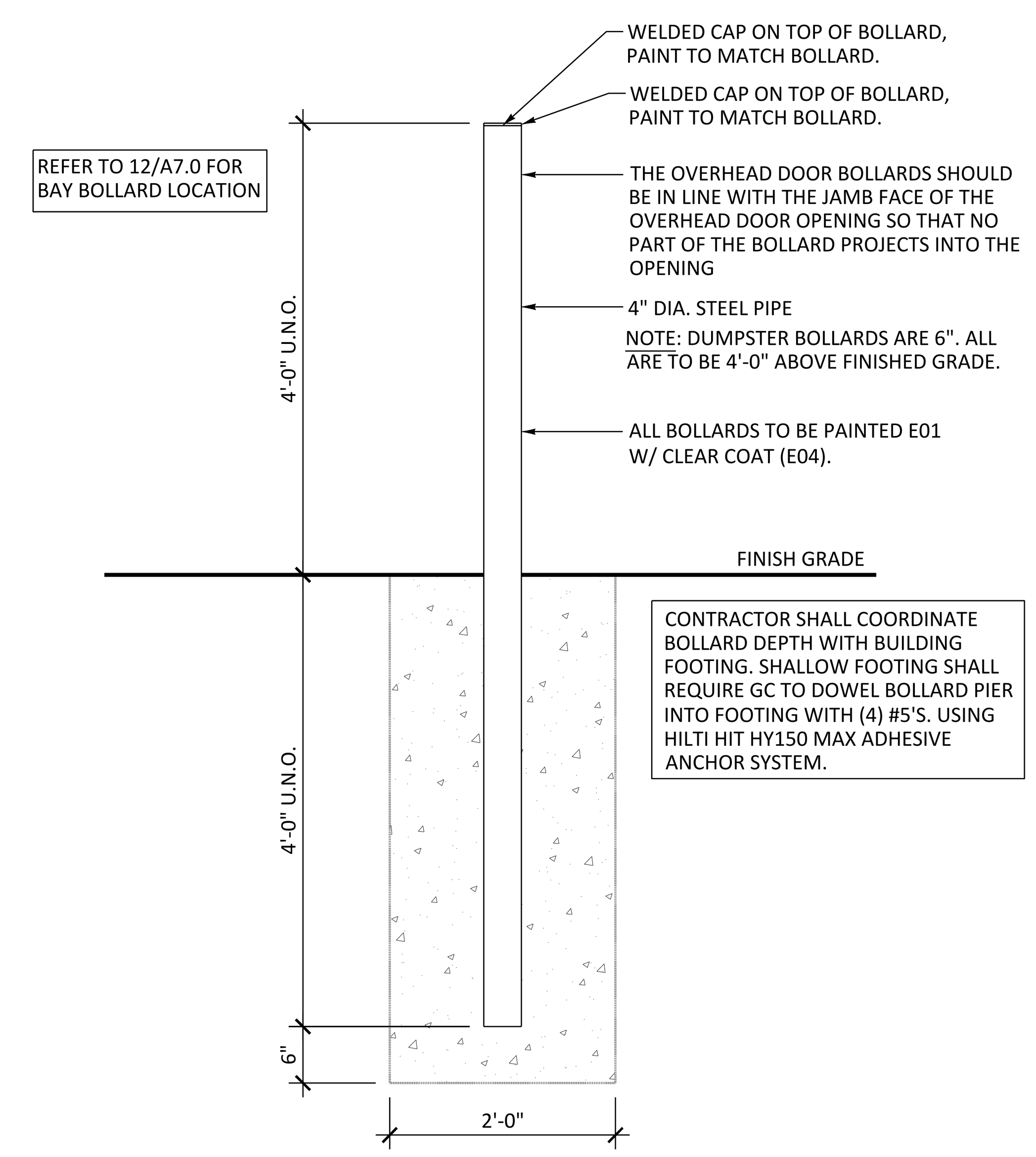
DRAWN: DS CHECKED: JD

SHEET NO:

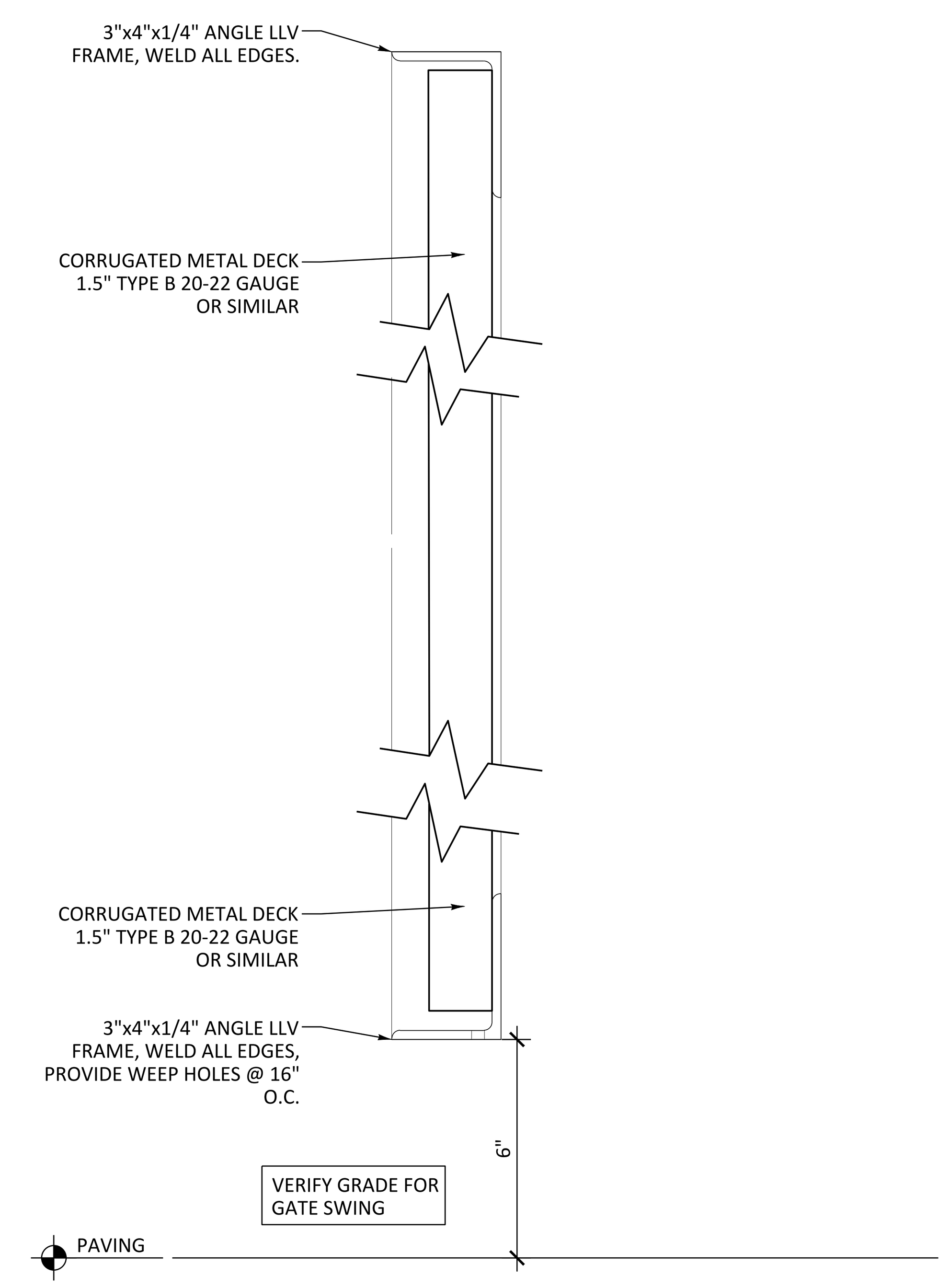
C3.1

REINFORCED MASONRY

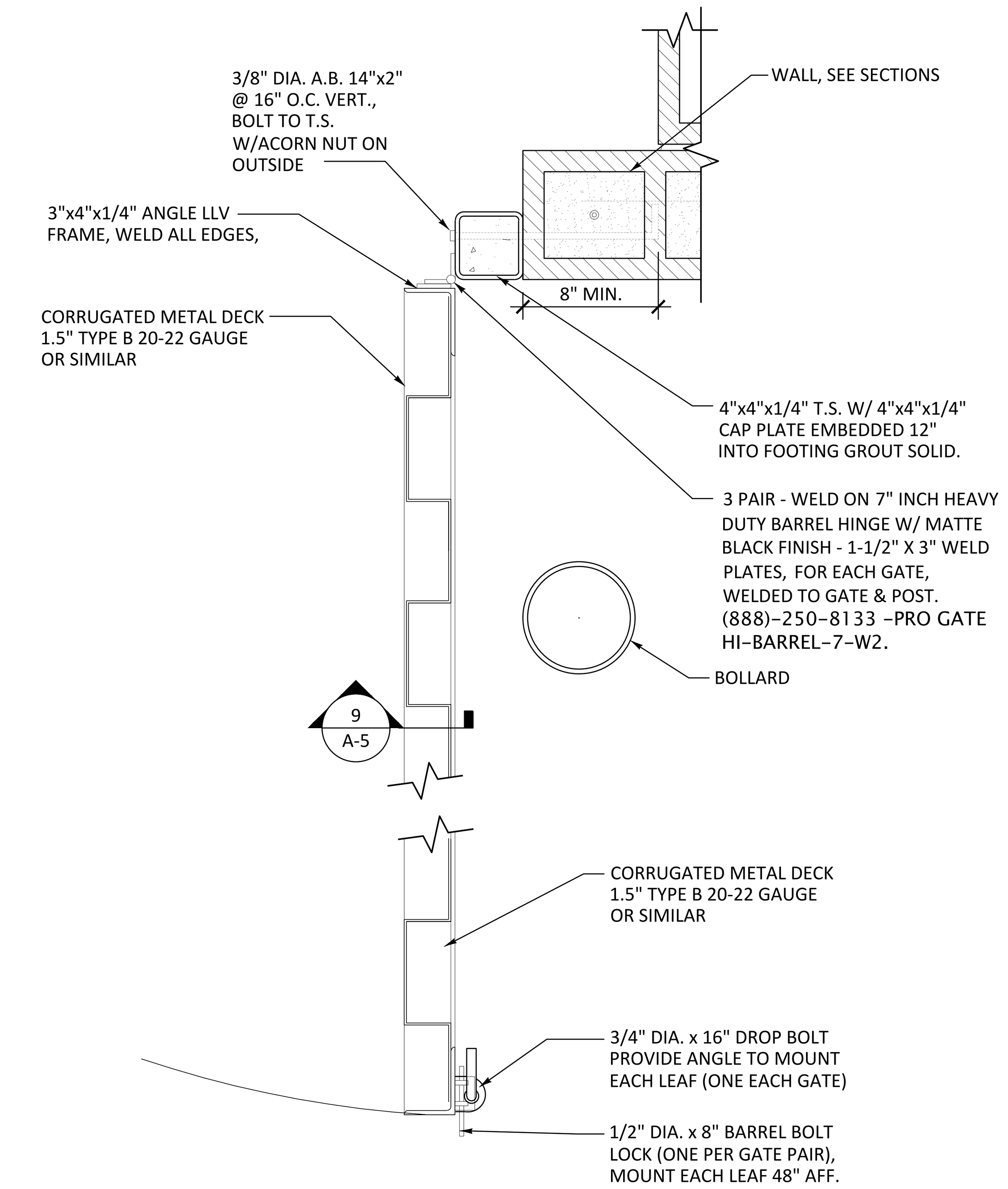
1. THE REINFORCED MASONRY FOR THIS PROJECT HAS BEEN DESIGNED AND DETAILED IN ACCORDANCE WITH THE ALLOWABLE STRESS DESIGN METHOD.
2. MASONRY WALLS HAVE BEEN DESIGNED TO SPAN VERTICALLY, AS SIMPLE SPANS, FROM FLOOR TO STEEL GIRT LINE, AND ARE DEPENDENT UPON THE COMPLETED INSTALLATION OF THE STEEL GIRTS AND COMPLETION OF ALL MASONRY WALLS FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES. THE GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING ALL NECESSARY BRACING AS REQUIRED FOR STABILITY, RESISTANCE OF CONSTRUCTION LOADS, AND FOR RESISTANCE TO WIND AND SEISMIC FORCES UNTIL THE ENTIRE STRUCTURE IS COMPLETE. THE SHORING SHALL NOT RELY ON ANY MOMENT RESISTANCE CAPACITY OF THE FOOTINGS.
3. REINFORCED MASONRY SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH, f'm = 1500 PSI. MASONRY UNITS SHALL BE NORMAL WEIGHT BLOCK CONFORMING TO ASTM C90 AND SHALL HAVE A MINIMUM NET AREA COMPRESSIVE STRENGTH OF 1900 PSI. MORTAR SHALL CONFORM TO ASTM C270, TYPE S. PORTLAND CEMENT TYPE 1 OR 2, LOW ALKALI PER ASTM C150 NON AIR ENTRAINED OR HYDRATED LIME PER ASTM C207 TYPES. GROUT SHALL CONFORM TO ASTM C476 AND SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2000 PSI.
4. REFERENCE THE ARCHITECTURAL DRAWINGS FOR GENERAL LOCATIONS OF CONTROL JOINTS IN MASONRY WALLS. HORIZONTAL BOND BEAM AND LINTEL REINFORCING SHALL BE CONTINUOUS ACROSS VERTICAL CONTROL JOINTS. JOINT REINFORCING SHALL BE STOPPED EITHER SIDE OF VERTICAL CONTROL JOINTS.
5. MASONRY REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60, UNLESS NOTED OTHERWISE.
6. CONTINUOUS WIRE REINFORCING (JOINT REINFORCING) SHALL BE GALVANIZED TRUSS OR LADDER TYPE FORMED FROM 9 GAUGE COLD-DRAWN STEEL WIRE COMPLYING WITH ASTM A82. JOINT REINFORCING SHALL BE SPACED AT 16" O.C. VERTICALLY IN ALL MASONRY WALLS.
7. ALL REINFORCED CELLS AND ALL CELLS BELOW THE FINISHED FLOOR ELEVATION SHALL BE GROUTED SOLID.
8. WHEN A FOUNDATION DOWEL DOES NOT LINE UP WITH A VERTICAL BLOCK CORE, IT SHALL NOT BE SLOPED MORE THAN ON HORIZONTAL IN SIX VERTICAL. DOWELS MAY BE GROUTED INTO A CELL IN VERTICAL ALIGNMENT, EVEN THOUGH IT IS AN ADJACENT CELL TO THE VERTICAL WALL REINFORCING. GROUT THE CELL FOR THE FULL HEIGHT OF THE DOWEL.
9. ALL REINFORCING STEEL SHALL BE CENTERED IN THE MASONRY UNIT CELL, UNLESS NOTED OTHERWISE.
10. ALL REINFORCING STEEL SHALL BE SECURED IN PLACE BEFORE GROUTING STARTS.
11. ALL REINFORCING BARS SHALL HAVE A MINIMUM GROUT COVER OF 1/2" TO THE INSIDE OF THE MASONRY UNIT, A MINIMUM OF TOTAL MASONRY COVER OF 2".
12. ALL REINFORCING BARS IN WALLS SHALL HAVE NOT LESS THAN ON E BAR DIAMETER NOR 1" CLEAR BETWEEN BARS.
13. ALL REINFORCING BARS IN COLUMNS AND PILASTERS SHALL HAVE NOT LESS THAN ONE AND ONE-HALF BAR DIAMETERS NOR 1 1/2" CLEAR BETWEEN BARS.
14. VERTICAL CELLS THAT WILL BE GROUTED SHALL HAVE A VERTICAL ALIGNMENT TO MAINTAIN A CONTINUOUS UNOBSTRUCTED CELL AREA NOT LESS THAN 3"x4".
15. GROUTING SHALL BE STOPPED 1 1/2" BELOW THE TOP OF A COURSE SO AS TO FORM A KEY AT THE POUR JOINT.
16. GROUTING OF MASONRY BEAMS AND LINTELS OVER OPENINGS SHALL BE DONE IN ONE CONTINUOUS OPERATION.
17. ALL BOLTS, ANCHORS, ETC., INSERTED IN THE WALLS, SHALL BE GROUTED SOLID INTO POSITION.
18. UNDER ALL BEAMS AND JOIST BEARINGS, FILL UNITS 2 CMU COURSES DEEP x 32" WIDE MINIMUM.
19. PROVIDE A CONTINUOUS BOND BEAM UNDER ALL TRUSS BEARINGS.
20. ALL REINFORCING LAP SPLICES SHALL BE A MINIMUM OF 72 BAR DIAMETERS BASED ON THE MAXIMUM ALLOWABLE STRESS, UNLESS NOTED OTHERWISE.



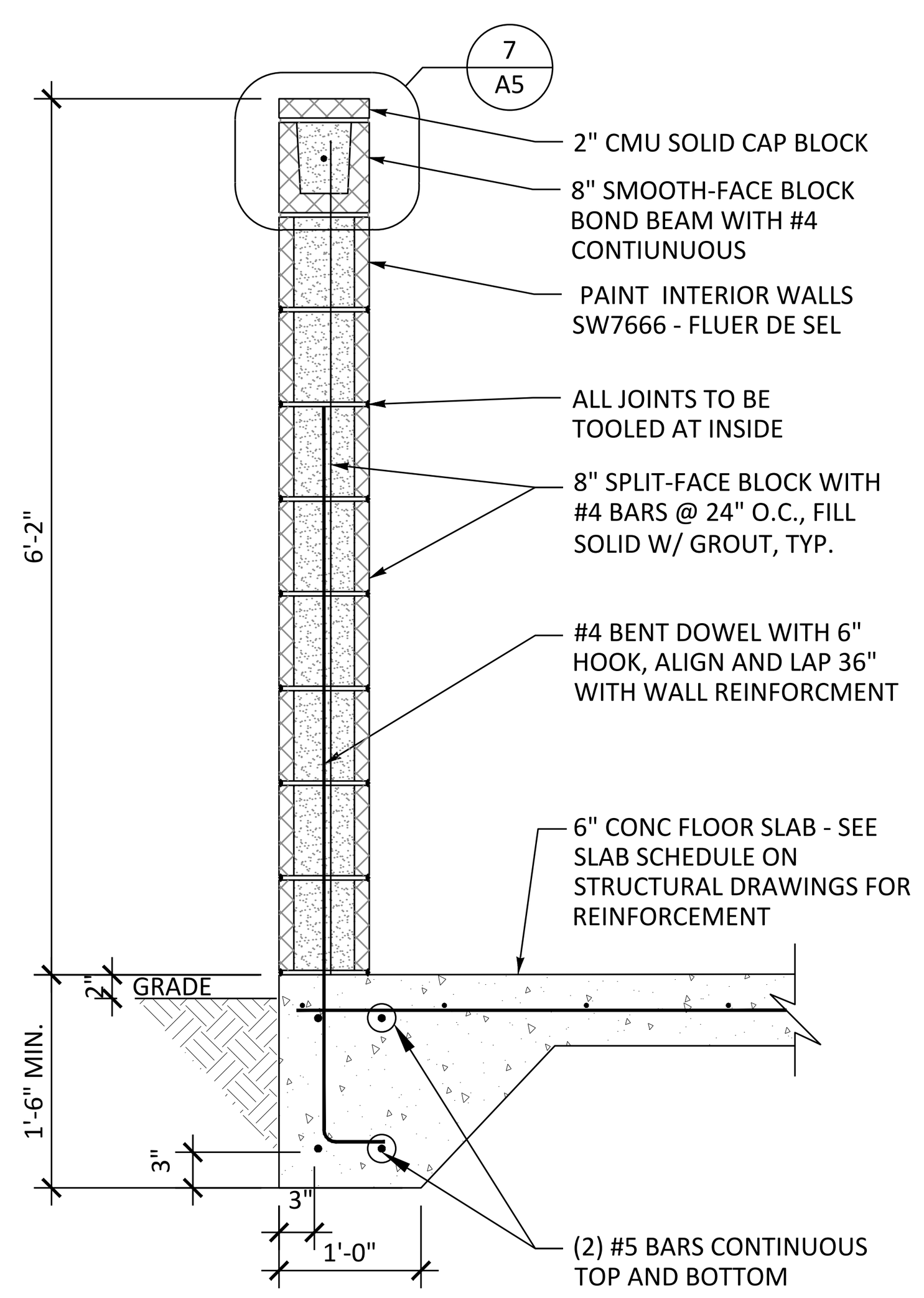
10 **TYP. PIPE BOLLARD DETAIL**
SCALE: 3/4" = 1'-0"



9 **GATE SECTION**
SCALE: 3" = 1'-0"

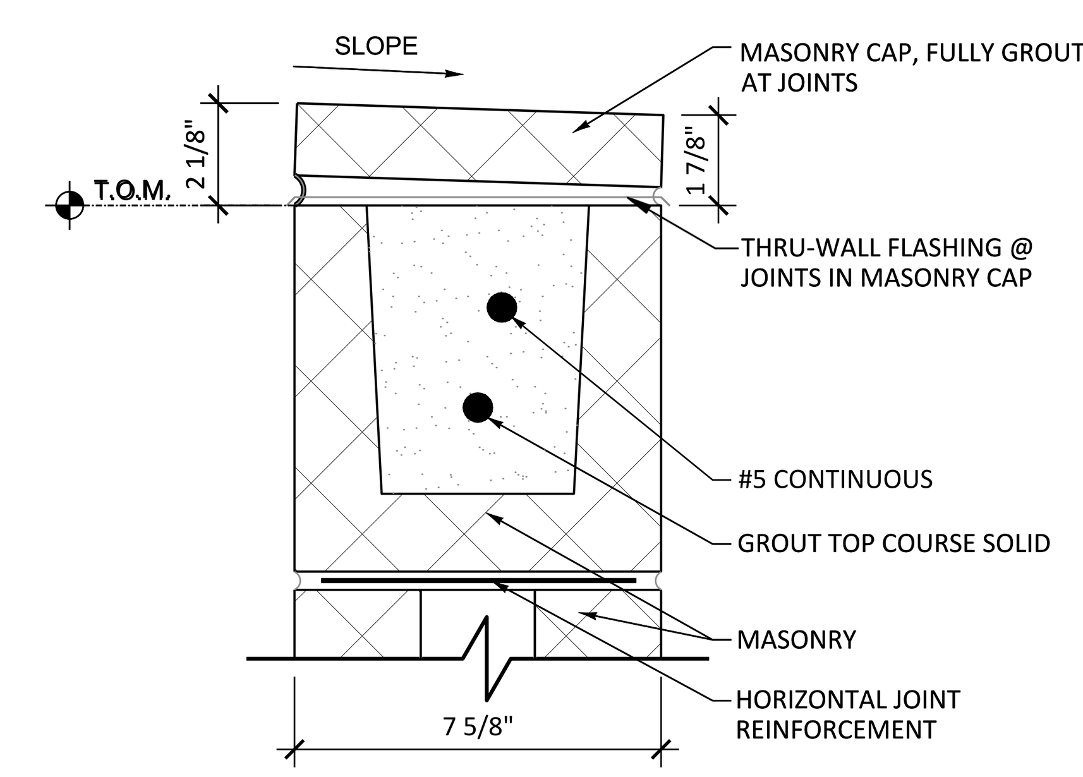


8 **GATE DETAIL**
SCALE: 1-1/2" = 1'-0"

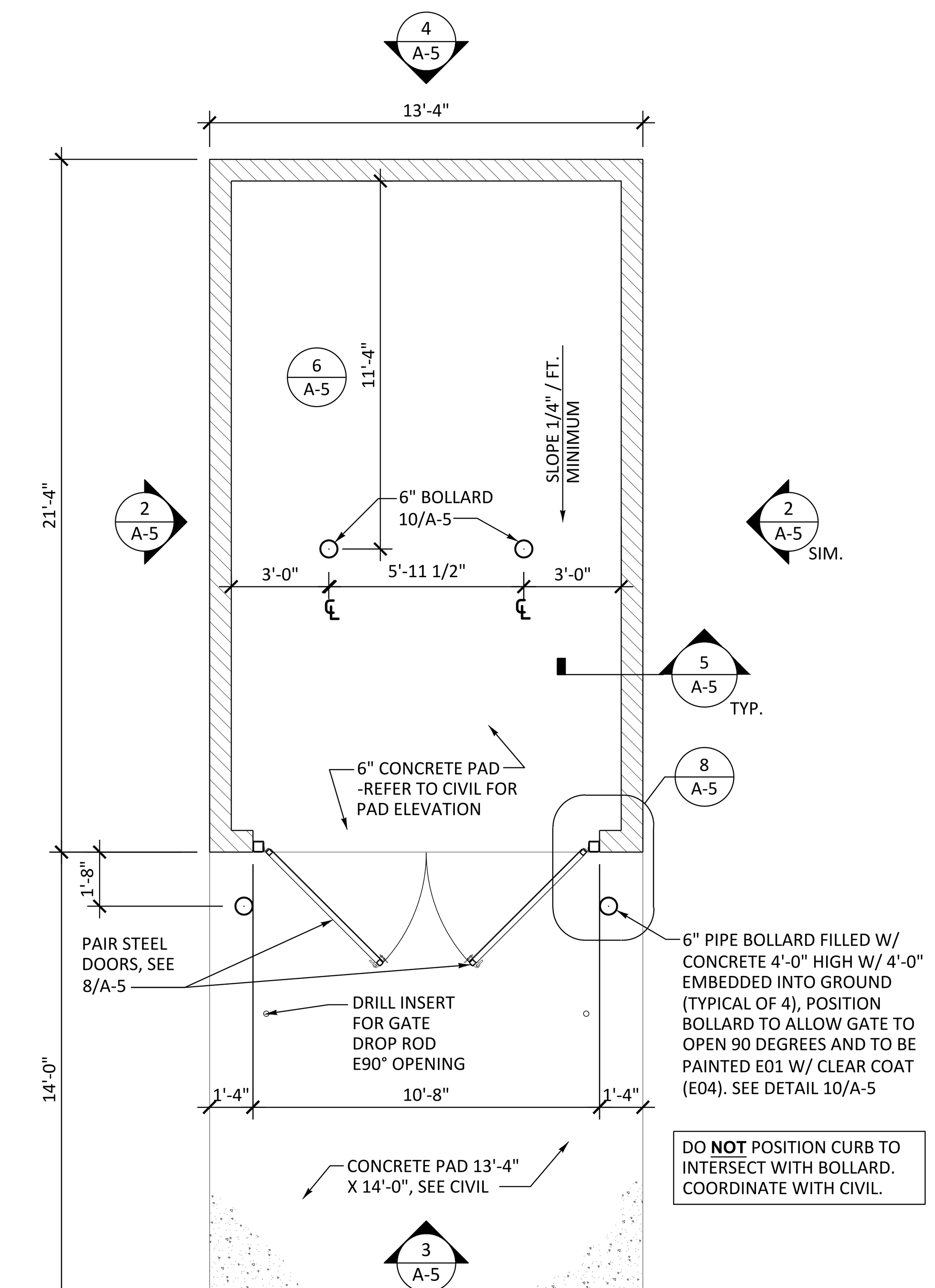


5 **WALL SECTION**
SCALE: 3/4" = 1'-0"

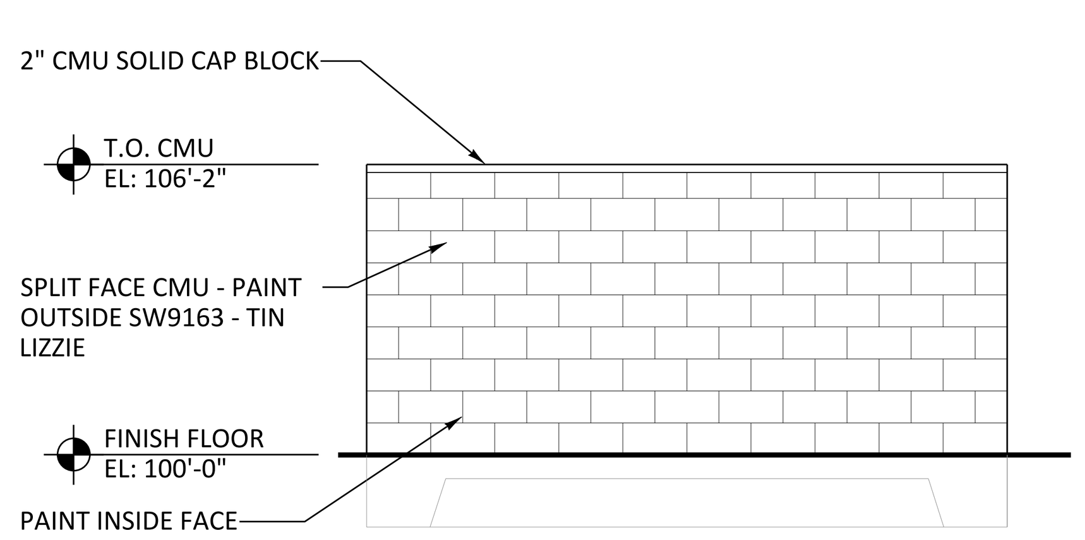
6 **NOT USED**



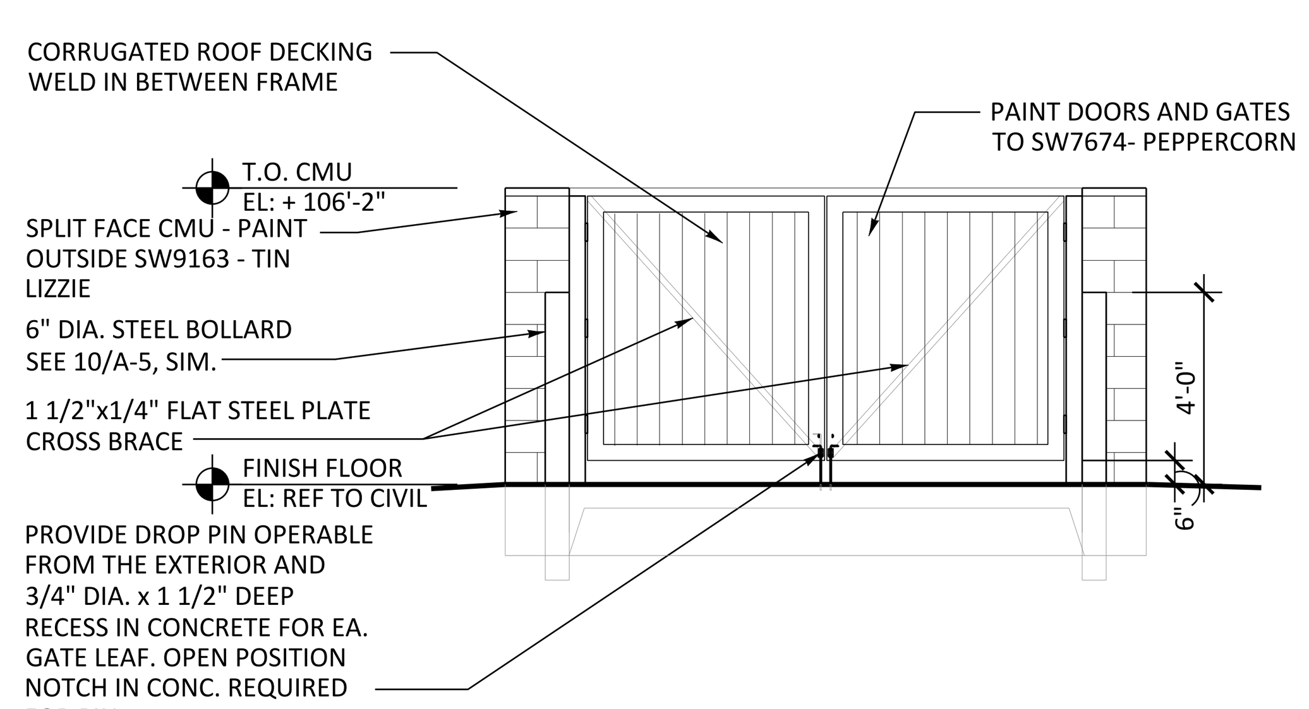
7 **WALL CAP DETAIL**
SCALE: 3" = 1'-0"



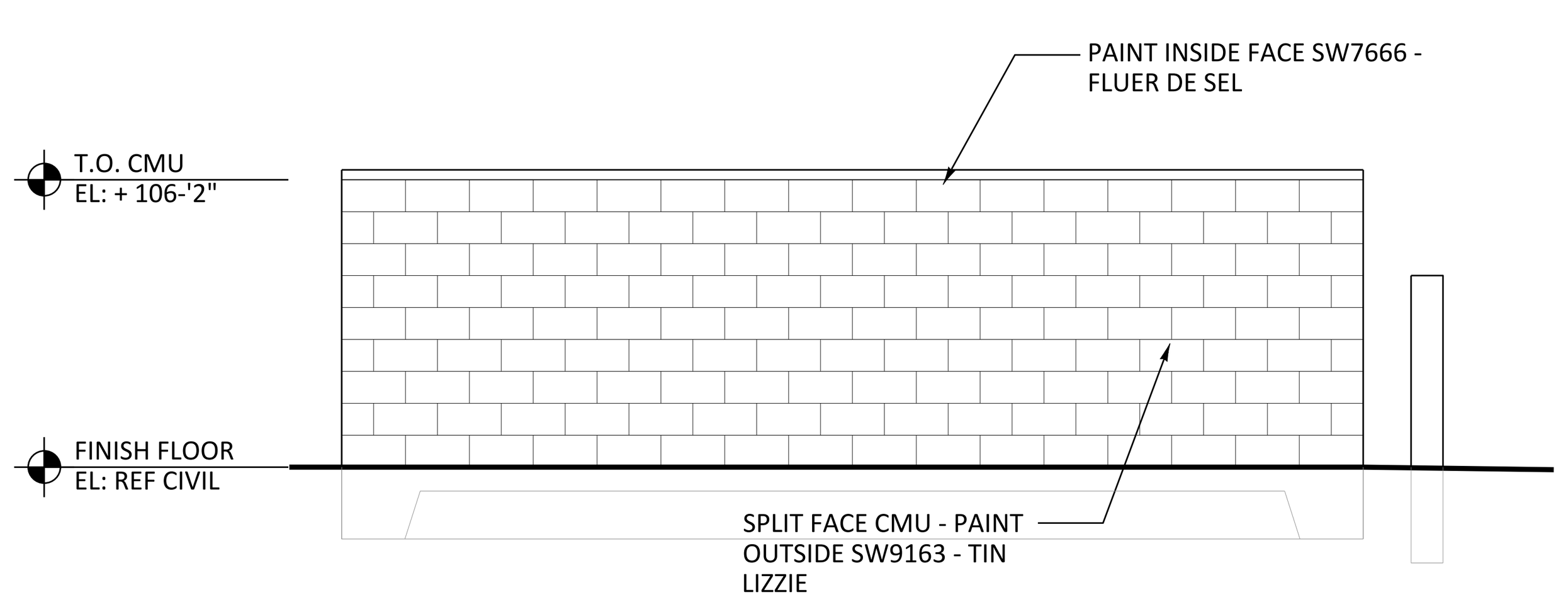
1 **CMU DUMPSTER ENCLOSURE**
SCALE: 1/4" = 1'-0"



4 **REAR ELEVATION**
SCALE: 1/4" = 1'-0"



3 **FRONT ELEVATION**
SCALE: 1/4" = 1'-0"



2 **SIDE ELEVATION**
SCALE: 1/4" = 1'-0"

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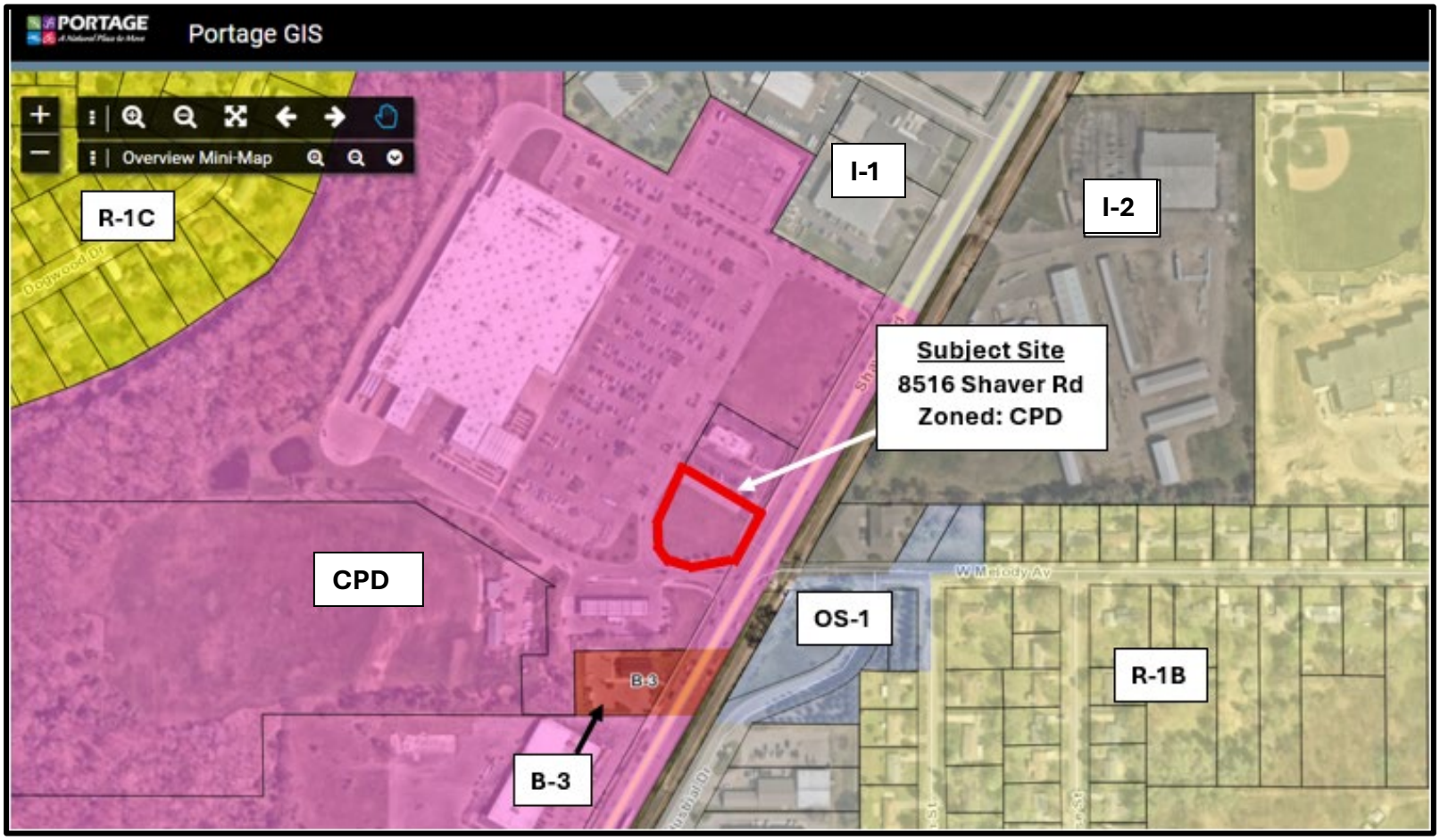
DUMPSTER ENCLOSURE

DRAWN: CG CHECKED: TM

SHEET NO:

A-5

City of Portage – Zoning Map



June 2, 2025 - Staff's Site Pictures

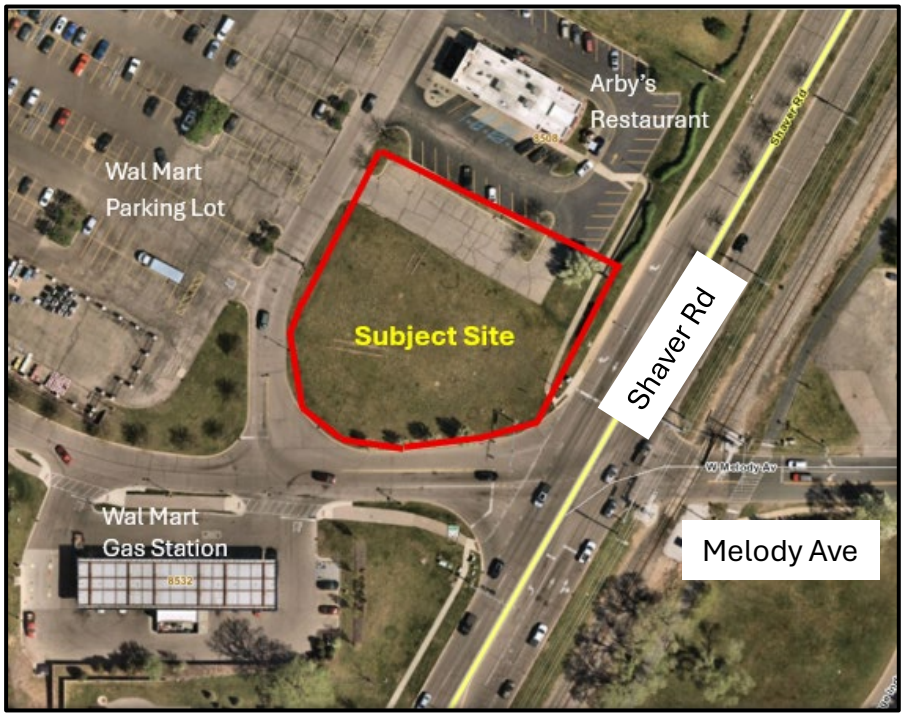


Figure 1: Looking west toward site. Arby's restaurant shown in background.

Figure 2: Looking north toward site. Wal Mart private interior drives.

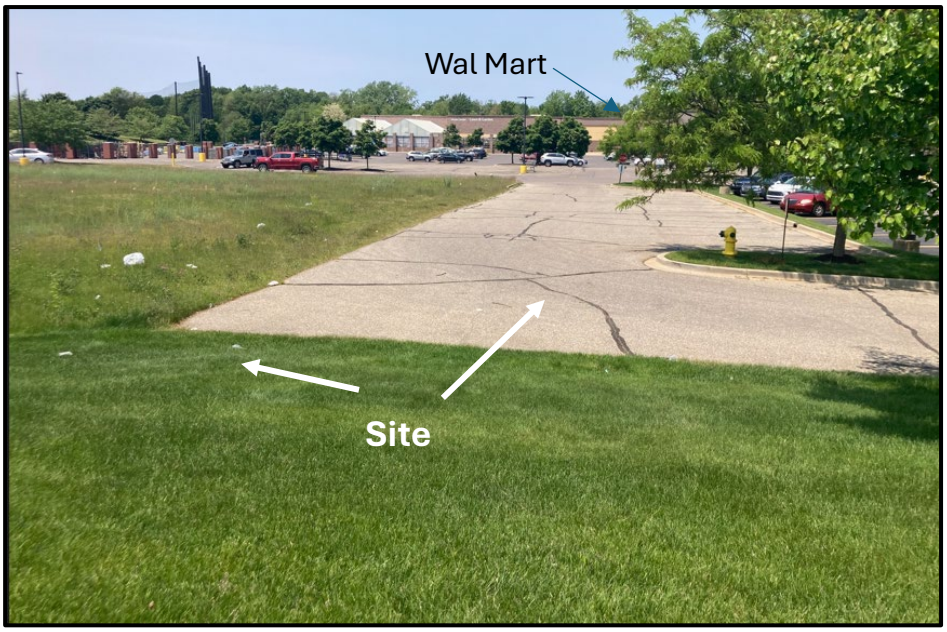


Figure 3: Looking west at site. Wal Mart shown in background.

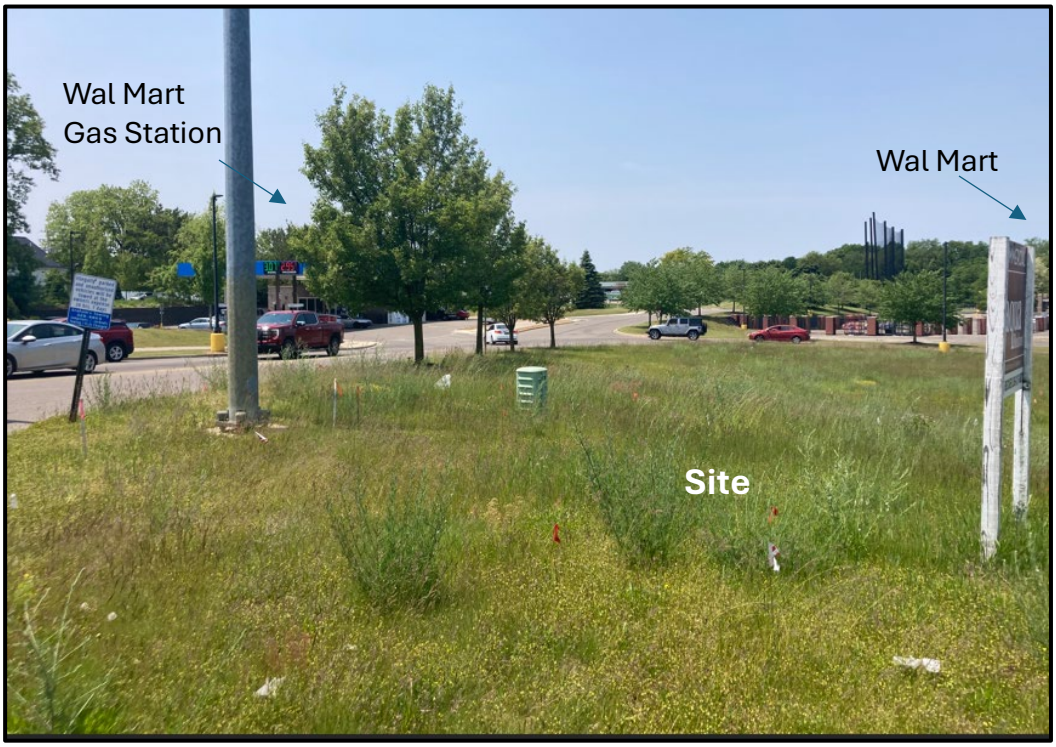


Figure 4: Looking west at site. Wal Mart Gas Station shown in background.

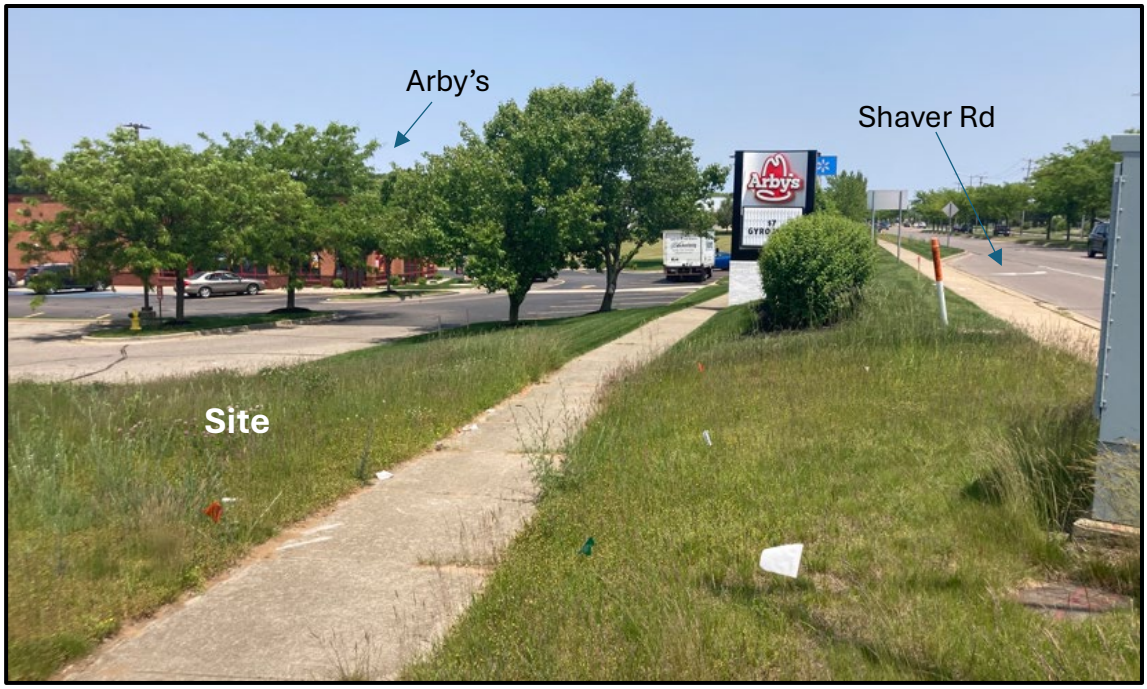


Figure 5: Looking north at site. Arby's Restaurant shown in background.