AGENDA
PLANNING COMMISSION PUBLIC HEARING/REGULAR MEETING
CITY OF FARMINGTON HILLS
NOVEMBER 19, 2026 at 7:30 P.M.
FARMINGTON HILLS CITY HALL – CITY COUNCIL CHAMBER
31555 W. ELEVEN MILE ROAD, FARMINGTON HILLS, MICHIGAN 48336
Cable TV: Spectrum – Channel 203; AT&T – Channel 99
YouTube Channel: https://www.youtube.com/user/FHChannel8
www.fhgov.com (248) 871-2540

1. Call Meeting to Order
2. Roll Call
3. Approval of Agenda

4. Public Hearing

A. SPECIAL APPROVAL SITE PLAN 63-10-2026

LOCATION:	31031 Drake Road
PARCEL I.D.:	22-23-05-230-002
PROPOSAL:	Temporary staging area for Great Lakes Water Authority 14 Mile 54-Inch Water Transmission Main Line Project within the RA-1: One Family Residential District
ACTION REQUESTED:	Special Approval Use
APPLICANT:	Jack Puscas, Project Manager, Ric-Man
OWNER:	Detroit Tennis & Squash Club

5. Regular Meeting

A. AMEND PUD 6, 1993, INCLUDING SITE PLAN 62-9-2026

LOCATION:	27614 Middlebelt Road
PARCEL I.D.:	22-23-13-101-003
PROPOSAL:	iONNA Electric Vehicle (EV) Charging Project to establish an EV charging business and install infrastructure within an existing shopping center parking lot in the B-2, Community Business District.
ACTION REQUESTED:	Set for Planning Commission Public Hearing
APPLICANT:	Samuel Perkins
OWNER:	Merchants Marketplace, LLC

B. PLANNED UNIT DEVELOPMENT (PUD) QUALIFICATION 1, 2026

LOCATION:	31525 W. Twelve Mile Road
PARCEL I.D.:	22-23-15-201-270
PROPOSAL:	Convert previously approved senior assisted living complex to multifamily residential in the ES, Expressway Service District.
ACTION REQUESTED:	Preliminary PUD Qualification
APPLICANT:	Acre Farmington, LLC, Saman Abdo
OWNER:	31525 Building, LLC

6. Approval of Minutes October 15, 2026

7. Public Comment

8. Commissioner/Staff Comments
9. Adjournment

Respectfully Submitted,

Tanji Grant, Planning Commission Secretary

Staff Contact:

Diane Mulville-Friel
City Planner
Planning and Community Development Department
(248) 871-2540
dmulville-friel@fhgov.com

NOTE: Anyone planning to attend the meeting who has need of special assistance under the Americans with Disabilities Act (ADA) is asked to contact the City Clerk's Office at (248) 871-2410 at least two (2) business days prior to the meeting, wherein arrangements/accommodations will be made. Thank you.

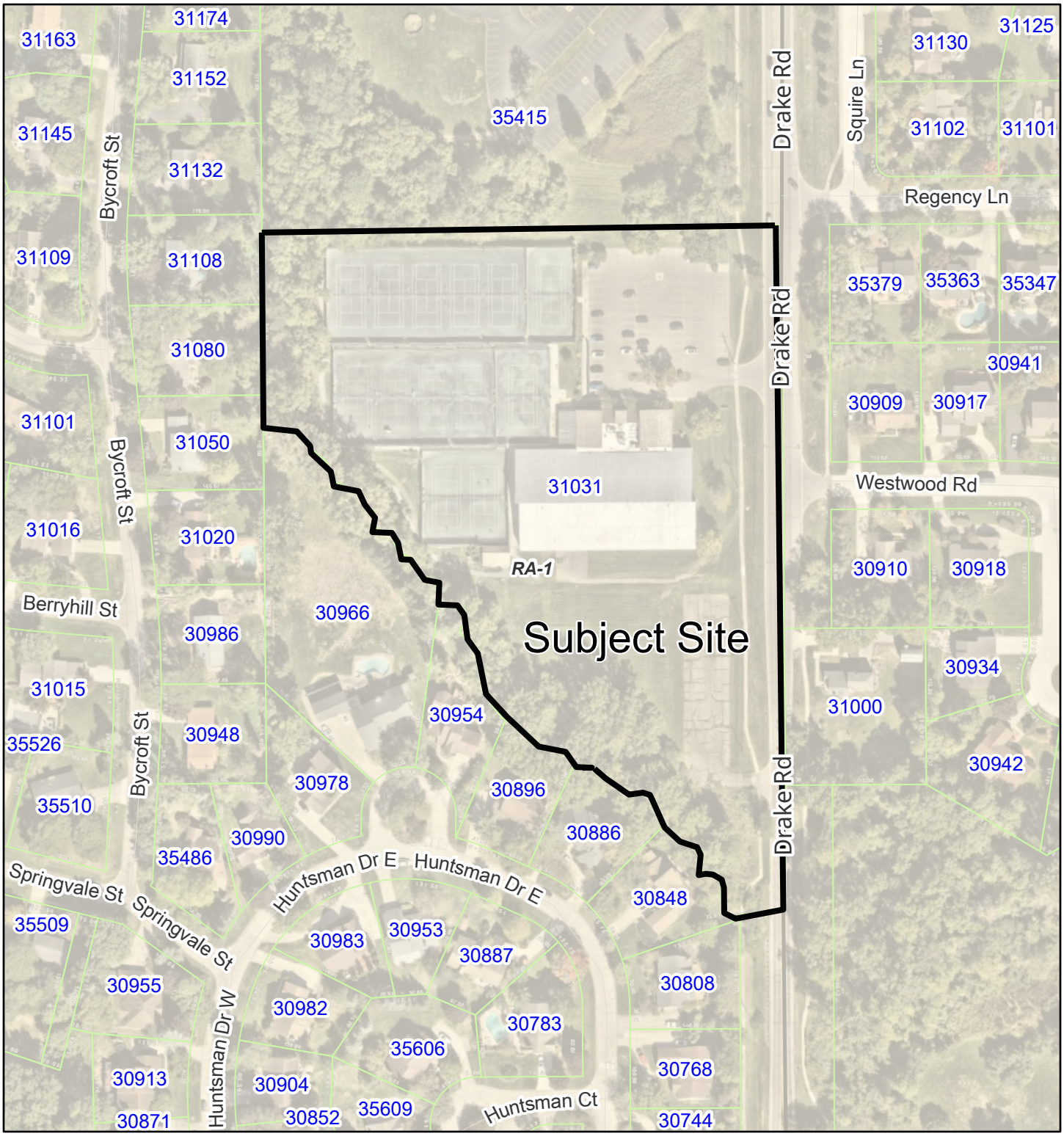
4. Public Hearing Meeting

A. SPECIAL APPROVAL SITE PLAN 63-10-2026

LOCATION:	31031 Drake Road
PARCEL I.D.:	22-23-05-230-002
PROPOSAL:	Temporary staging area for Great Lakes Water Authority 14 Mile 54-Inch Water Transmission Main Line Project within the RA-1: One Family Residential District
ACTION REQUESTED:	Planning Commission Public Hearing (Special Approval Use)
APPLICANT:	Jack Puscas, Project Manager, Ric-Man
OWNER:	Detroit Tennis & Squash Club

ZONING MAP

31031 DRAKE RD - ZONING MAP



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0 0.02 0.04 0.07 mi

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Zoning districts

- RA-1
- Tax Parcels

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

City of Farmington Hills, MI

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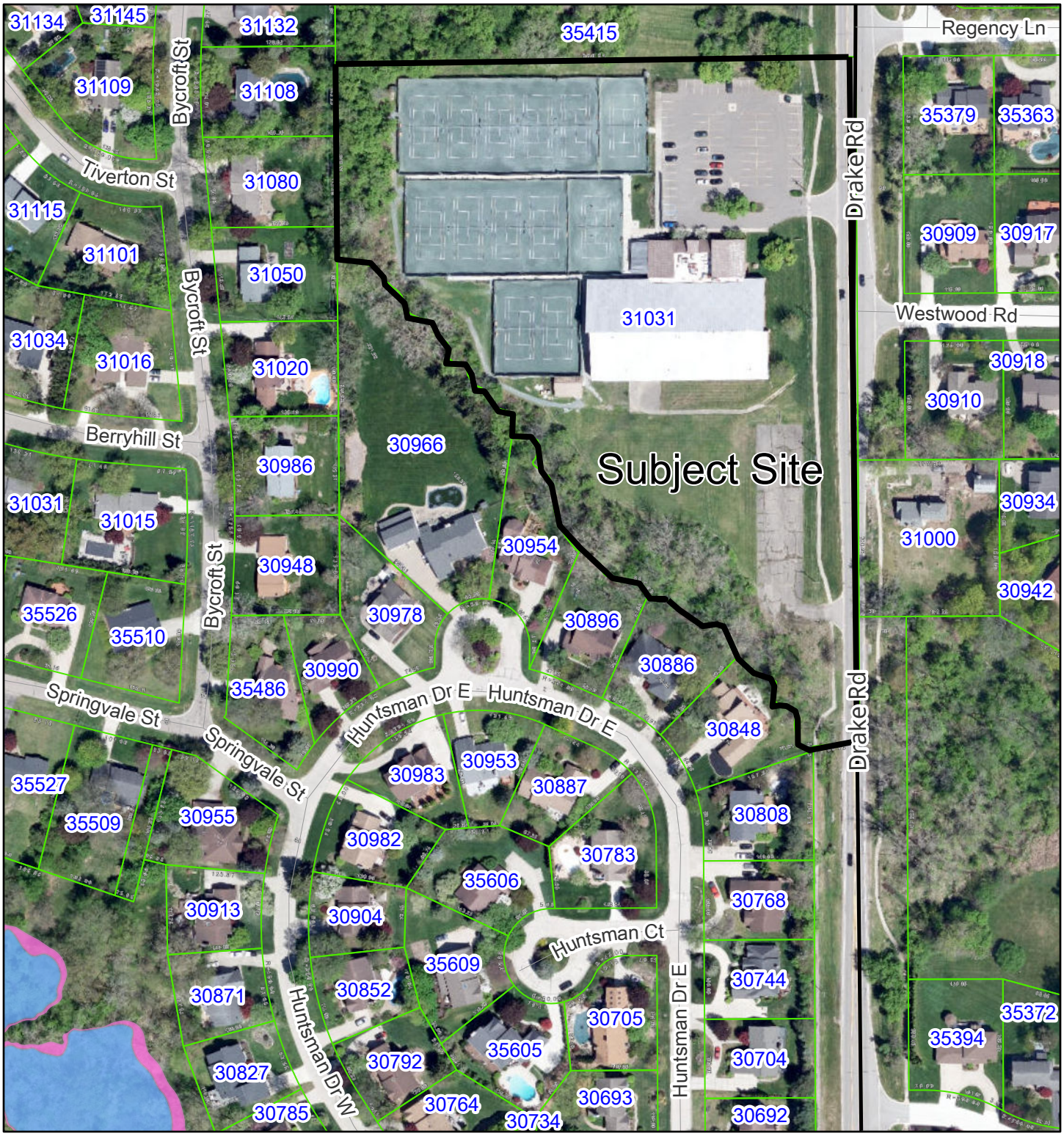
AERIAL MAP

31031 DRAKE RD - AERIAL MAP



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Tax Parcels

Flood Hazard Area

AE

500 yr floodplain

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Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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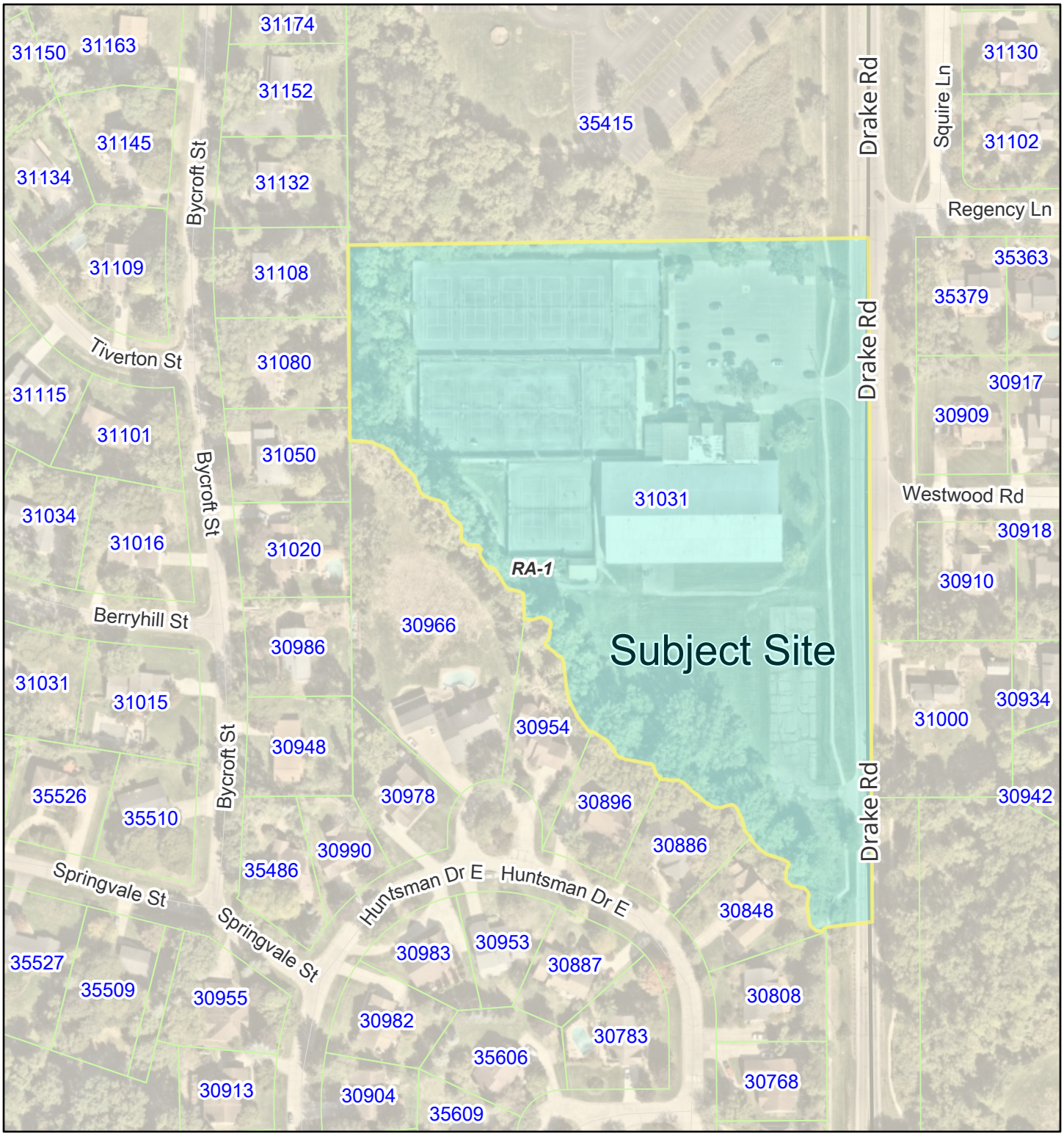
LOCATION MAP

31031 DRAKE RD - LOCATION MAP



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Zoning districts

RA-1

Tax Parcels

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RA-1 – One Family Residential District

34-3.1.4 RA-1 One Family Residential (20,000 sq ft)

A. INTENT

The one-family residential districts are designed to be the most restrictive of the residential districts. The intent is to provide for an environment of predominantly low-density, one-family detached dwellings along with other residentially related facilities which serve the residents in the district.

? **User Note:** For uses listed in **bold blue**, refer to Article 4, or click on use, for use-specific standards

B. PRINCIPAL PERMITTED USES

i. Site-built, one-family detached dwelling units
ii. Farms § 34-4.1
iii. Neighborhood parks
iv. Manufactured one-family detached dwelling units § 34-4.6
v. The following uses are permitted subject to the special conditions in Section 34-3.6
   a. Public, parochial or private elementary, intermediate or secondary schools offering courses in general education § 34-4.2
   b. Golf course, not including driving ranges or miniature golf courses § 34-4.3
   c. Churches § 34-4.4
   d. Nursery schools, day nurseries, and day care centers § 34-4.5
   e. Municipal buildings and uses not including any outdoor storage
   f. Publicly owned and operated libraries, community wide parks and recreational facilities
   g. Accessory buildings and uses customarily incidental to any principal permitted use.

C. SPECIAL APPROVAL USES

The following uses are permitted subject to the special conditions in Section 34-3.6

i. Public utility buildings, telephone exchange buildings, electric transformer stations and substations, and gas regulator stations § 34-4.8
ii. Private noncommercial recreational areas, institutional or community recreation centers, a nonprofit swimming pool club § 34-4.9
iii. Colleges, universities and other such institutions of higher learning, public and private § 34-4.10

D. ACCESSORY USES

i. Electric vehicle infrastructure § 34-4.55
ii. Private swimming pools § 34-4.11
iii. Private stables § 34-4.12
iv. Retail sale of farm goods § 34-4.13
v. Commercial vehicles § 34-4.14
vi. Home occupations § 34-4.15
vii. State-licensed day care homes § 34-4.16

Δ Ord. No. C-3-2021

RA-1 One Family Residential (20,000 sq ft) 34-3.1.4

E. DEVELOPMENT STANDARDS

Lot Size

Minimum lot area:	18,000 sq ft
Minimum average per subdivision	20,000 sq ft
Minimum lot width:	100 ft

Lot Coverage

Maximum lot coverage per unit: 35 %

Setbacks

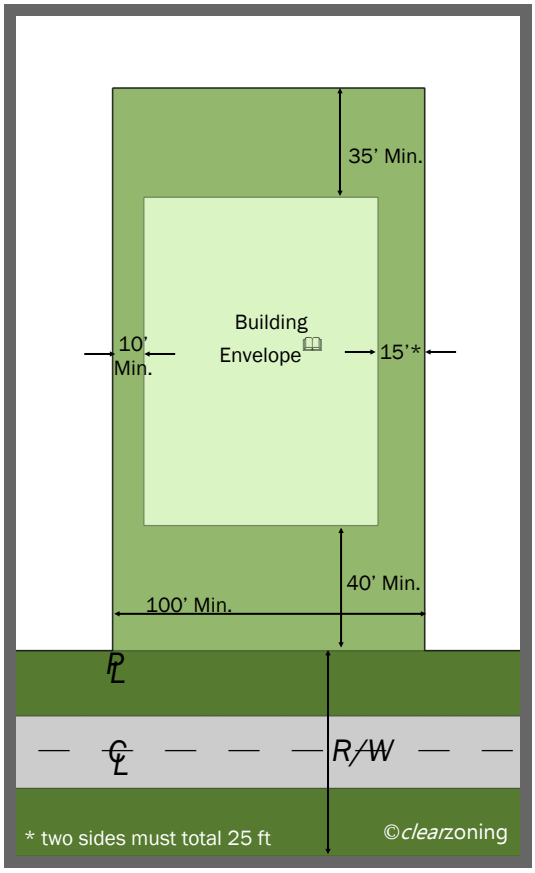
Minimum front yard setback:	40 ft
Minimum rear yard setback:	35ft
Minimum side yard setback:	10 ft one side 25 ft total two sides

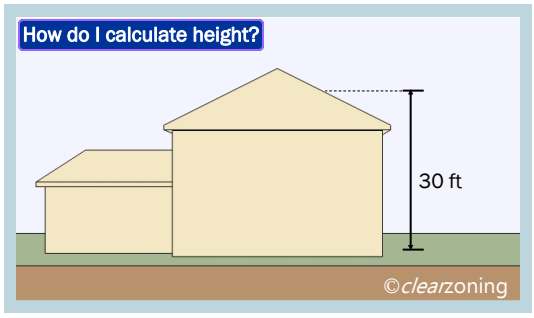
Building Height

Maximum building height: 30 ft

Floor Area

Total floor area minimum per unit:	1,150 sq ft
Ground floor area minimum per unit:	650 sq ft





The above drawings are not to scale.

NOTES

- For additions to the above requirements, refer to Section 34-3.5: B, D, E and U.

SELECTED REFERENCES

3. Zoning Districts
- General Exceptions § 34-3.26
- Subdivision Open Space Plan § 34-3.15
- Nuisance Factors § 34-3.16
- One-Family Clustering Option § 34-3.17

4. Use Standards
- Special Land Uses § 34-4.20
- Standards for Cellular Towers § 34-4.24.8
- One-Family Dwelling Standards § 34-4.59

5. Site Standards
- Accessory Buildings and Structures § 34-5.1
- Off-street Parking Requirements § 34-5.2
- Off-street Parking Space Layout Standards § 34-5.3
- Off-street Loading and Unloading § 34-5.4
- Signs § 34-5.5
- Acceleration-deceleration Passing Lanes § 34-5.6
- Storage of Recreational Equipment or Trailers § 34-5.7
- Flood Zone Controls § 34-5.8
- Entranceway Structures § 34-5.9
- Corner Clearance § 34-5.10
- Frontage on Public Street § 34-5.11
- Fences § 34-5.12
- Access to Major or Secondary Thoroughfares § 34-5.36
- Landscape Development § 34-5.14
- Walls and Berms § 34-5.15
- Exterior Lighting § 34-5.16
- Screening of Rooftop Equipment § 34-5.17
- Tree Protection, Removal & Replacement § 34-5.18

6. Development Procedures
- Site Plan Review § 34-6.1
- Notice of Public Hearing § 34-6.2
- Special Land Use and Special Approval Use Standards § 34-6.3

7. Admin and Enforcement
- Guarantee for Improvements § 34-7.2

CWA Review
November 5, 2026

Carlisle | Wortman
ASSOCIATES, INC.
117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: November 5, 2026

Special Land Use and Site Plan Review
for
The City of Farmington Hills

Case: SA 63-10-2026 - Temporary Staging Area – Detroit Tennis Club

Site: 31031 Drake Road (Parcel ID: 23-05-230-002)

Applicant: Ric-Man Construction

Application Date: October 8, 2026

Zoning: RA-1 One Family Residential District

Action Requested: Special Land Use site plan approval

PROJECT AND SITE DESCRIPTION

The applicant is requesting special land use approval to utilize the southern portion of the Detroit Tennis Club's property, located on Drake Road, as a temporary construction staging area associated with the Great Lakes Water Authority (GLWA) 14 Mile 54-Inch Water Transmission Main Line Project. The staging area will be used to store equipment, construction materials, and coordinate work for the project from November 2026 through April 2028. The applicants have provided a temporary lease agreement with the Detroit Tennis Club that authorizes their proposed use of the property. A temporary silt fence will be installed between the staging area and the areas adjacent to the tennis club and residential properties to the south. Access will be provided via an existing driveway on Drake Road. The applicant will also install a limestone gravel base and an office trailer, providing space for employee parking and work coordination for the project. A 500-gallon double-walled fuel tank will be stored adjacent to the Drake Road right-of-way. A temporary berm will be installed for containment.

The Detroit Tennis Club is approximately 8.8 acres in area located on the west side of Drake Road, south of 14 Mile Road and currently provides indoor and outdoor tennis courts, as well as off-street parking, for the Detroit Tennis Club (Figure 1). The staging area location currently consists of open space and a parking lot. The staging area will occupy approximately 50,000 sq. ft (Figure 2). The subject site is zoned RA-1, One Family Residential.

Benjamin R. Carlisle, *President* John L. Enos, *Vice President* Douglas J. Lewan, *Principal*
David Scurto, *Principal* Sally M. Elmiger, *Principal* R. Donald Wortman, *Principal* Craig Strong, *Principal*
Paul Montagno, *Principal* Megan Masson-Minock, *Principal* Laura Kreps, *Principal*
Richard K. Carlisle, *Past President/Senior Principal*

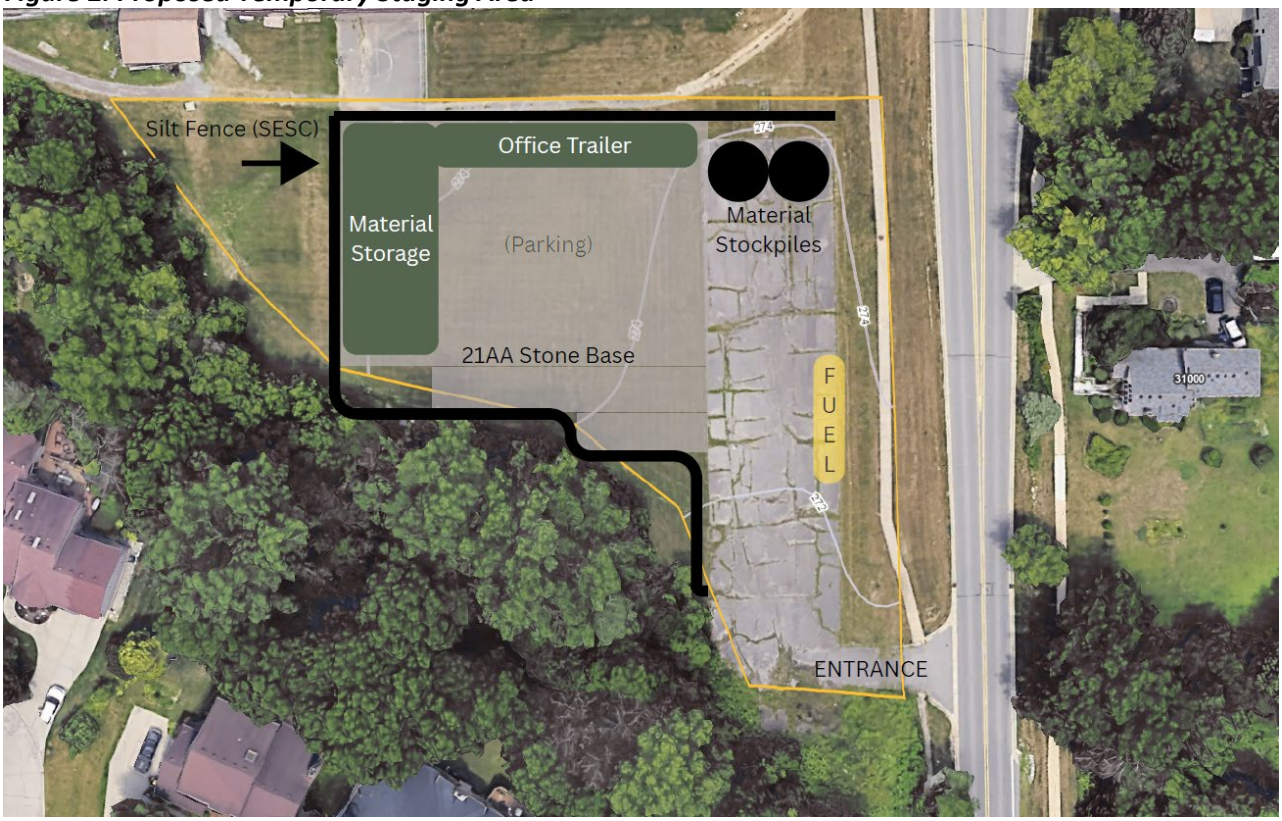
Figure 1. Aerial Photo of Subject Site and Approximate Lot Lines



Table 1. Adjacent Land Uses and Zoning

Direction	Zoning	Existing Land Use
North	RA-1, One Family Residential	Church
South	RA-1, One Family Residential	One family residential
East	RA-1, One Family Residential	One family residential
West	RA-1, One Family Residential	One family residential

Figure 2. Proposed Temporary Staging Area



SITE PLAN REVIEW STANDARDS

Section 34-4.20 establishes requirements for uses that possess unique characteristics that make them impractical to include in a specific use district classification. Uses listed in Section 34-4.20 may be permitted according to the standards listed in that Section and Section 34-6.3. A site plan shall be submitted in accordance with Section 34-6.1.

According to Section 34-4.20.4.C., temporary construction uses and structures not directly accessory to any existing use of the zoning lot, but necessary for the use or improvement of some other property or properties within the City for a permitted purpose, are permitted as a Special Land Use upon review and approval by the Planning Commission. Please see the Special Land Use Standards section of this review for additional comments.

DIMENSIONAL AND SUPPLEMENTAL DISTRICT REQUIREMENTS

The approximate setbacks of the temporary staging area structures and equipment are shown below. According to Section 34-4.20.4.C.iii, proposed setbacks must be approved by the Planning Commission as part of the special use review. Given the staging area's proximity to Drake Road, Planning Commission should determine if the entire staging area should be enclosed by a fence for additional security and visual screening. Please see the Special Land Use Standards section of this review for additional comments.

Proposed Setbacks	
Standard	**Proposed***
Front yard setback (Drake Rd planned ROW)	~6 ft. (storage tank and material stockpiles) ~65 ft. (office trailer)
Side yard setback	>100 ft. (southwest)
Rear setback	>100 ft. (west)

Items to be Addressed: *None.*

PARKING AND LOADING

The applicant indicates that employees will park in the center of the staging area. The submittal documents do not indicate how many spaces will be provided or the number of vehicles that will be regularly parked on-site. A loading and unloading area is not included on the site layout, though the applicant notes that such activities will take place on site and not within vehicular or pedestrian rights-of-way.

The applicant must provide additional information about the expected number of vehicles parked on site, the frequency of deliveries, and the types of delivery vehicles expected.

Items to be Addressed: *The applicant must provide additional information about the expected number of vehicles parked on site, the frequency of deliveries, and the types of delivery vehicles expected.*

SITE ACCESS AND CIRCULATION

An access drive from Drake Road on the southern portion of the site provides direct access to the proposed staging area. The southern access drive provides a separate means of ingress and egress from the northern access drive serving the tennis club on the property, avoiding conflicts with staff and visitors to the tennis club.

The staging area is immediately adjacent to an internal pedestrian walkway for the tennis club to the north and the public sidewalk on Drake Road. The staging area will be partially enclosed by a silt fence, but security/screening fencing details were not included in the plan. A yellow line is shown on the site plan which may correspond to fencing, but it is not labeled.

The applicant must confirm whether any security/screening fencing is proposed. If so, locations and details must be provided. In addition, the applicant must confirm that the adjacent walkway and sidewalk will remain unobstructed while the staging area is in use.

Additional information about vehicle access and circulation must be provided to demonstrate that construction and delivery vehicles will be able to navigate the site.

Items to be Addressed: 1) *The applicant must confirm whether any security/screening fencing is proposed. If so, locations and details must be provided.* ***2)*** *The applicant must confirm whether the tennis club's pedestrian walkway and the public sidewalk on Drake Road will remain unobstructed while the staging area is in use.* ***3)*** *Additional information about vehicle access and circulation must be provided to demonstrate that construction and delivery vehicles will be able to navigate the site.*

LANDSCAPING

No changes to existing landscaping are proposed.

Items to be Addressed: *None.*

EXTERIOR LIGHTING

The applicant proposes to use an existing pole-mounted lighting fixture adjacent to the pedestrian sidewalk on Drake Road for exterior lighting. No additional lighting is proposed.

Items to be Addressed: *None.*

SPECIAL LAND USE STANDARDS

Section 34-4.20.4.C. of the Zoning Ordinance establishes Planning Commission review standards for temporary construction uses that are not accessory to existing uses on the site as a special land use. Those standards, and our comments on the proposal according to those standards, are listed below.

i. The planning commission shall examine the proposed use and determine that the petitioner has adequately explored alternative locations and that the location proposed is the most reasonable.

   CWA Comments: *The applicant provided a lease agreement but did not indicate if alternative locations were explored or why this site is the most reasonable.* ***This information must be provided.***

ii. The planning commission shall examine the location of structures on the site and determine that they are the most appropriate, may require reasonable temporary screening of the activity proposed, may suggest the location of vehicular access to the site and make other recommendations which will assist in the protection of nearby uses during the time the construction use is in operation.

   CWA Comments: *The staging area will be accessed via an existing drive on Drake Road that is separate from the access drive to the tennis club facilities. A silt fence is proposed along all sides of the staging area except the perimeter along Drake Road. Existing vegetation provides screening from the residential properties on the south and west sides of the staging area, and a berm partially obscures the staging area from view from Drake Road.*

   The Planning Commission should determine *if the entire staging area should be enclosed by a fence for additional security, access control, or visual screening. The staging area is most visible from the north within the tennis club property. The existing berm along Drake Road will partially obscure the staging area from view from the east, but it will not prevent unauthorized access. Fencing may also help prevent pedestrian/vehicle conflicts.*

iii. All setbacks, land coverage, off-street parking, lighting and other requirements for protecting the public health, safety, peace, morals, comfort, convenience and general welfare of the inhabitants of the city shall be determined by the planning commission as being appropriate

to the site and surrounding area.

CWA Comments: *The on-site fuel storage tank is proposed on the eastern side of the staging area adjacent to the Drake Road berm. We recommend that the Planning Commission seek guidance from the Fire Department and City Engineer about the location of the proposed fuel storage tank and containment, and whether alternatives should be evaluated or required. The proposed containment measures are subject to the Fire Department and City Engineer's approval.*

*As previously discussed, t**he applicant must provide additional information** about the expected number of vehicles parked on site and the frequency of deliveries so the Planning Commission may assess the intensity of activity being proposed.*

iv. The act of granting approval of a use not otherwise permitted in a district shall in no way be construed as a change in the basic uses permitted in the district nor on the property wherein the use is permitted.

CWA Comments: *The proposed activity will not change the current use of the property. However, **the applicant must provide** detailed restoration plans (e.g., re-grading, re-seeding, or re-paving). A limestone gravel base will be installed within the staging area space that currently lacks hardscape. Gravel is not a permitted permanent parking lot surface material per Section 34-5.3.11 of the Zoning Ordinance. Parking lot design and construction is also subject to review and approval by the City Engineer.*

The property must be restored to conditions that comply with the site's approved site plan and applicable Zoning Ordinance requirements after the project is complete. While the project narrative and lease agreement indicate that the site will be restored, it does not include details. Required restoration activities may include re-grading and re-seeding lawn areas and re-paving the existing parking lot. The existing parking lot pavement appears to be in poor condition, which the construction activity will likely exacerbate.

In addition, the lease agreement indicates that the tenant will leave a pile of crushed stone material at the conclusion of the rental for the property owner's use. This activity is subject to applicable outdoor storage requirements and will require a separate review and permit.

v. The granting of permission for the use shall be made in writing stipulating all conditions as to length of time, nature of developed permitted and arrangements for removing the use at the termination of the period of time granted.

CWA Comments: *We recommend that **the Planning Commission incorporate these conditions** directly into a motion for the meeting minutes, and defer to the City Attorney regarding any additional required documentation.*

According to Section 34-4.20.1.A, the uses listed under Section 34-4.20 may be permitted subject to the special land use/special approval use standards listed under Section 34-6.3. Those standards, and our comments on the proposal according to those standards, are listed below.

1. Taking into consideration the size, location and character of the proposed land use, viewed within the context of surrounding land uses and land use planning for such area, the proposed use shall not be incompatible nor inharmonious, as determined by the application of generally accepted

planning standards and/or principles, with:

A. The surrounding uses; and/or

B. The orderly development of the surrounding neighborhood and/or vicinity.

CWA Comments: *As previously discussed, the proposed location appears to minimize the impact on tennis club operations.* ***The Planning Commission should determine*** *whether there are alternatives that would add greater separation between the staging area and adjacent facilities or residential properties across Drake Road.*

2. The proposed use shall be of a nature that will make vehicular and pedestrian traffic no more hazardous than is normal for the district involved, taking into consideration vehicular turning movements in relation to routes of traffic flow, proximity and relationship to intersections, adequacy of sight distances, location and access of off-street parking and provisions for pedestrian traffic, with particular attention to minimizing pedestrian-vehicle interfacing.

   CWA Comments: *We defer to the City Engineer and/or Fire Department as to whether alternative or additional traffic control measures should be implemented for the existing southern access drive on Drake Road. As previously mentioned,* ***the applicant must confirm*** *whether pedestrian walkways to the north and east of the staging area will be impacted by the proposed activities.*

3. The proposed use shall not unreasonably impact upon surrounding property in terms of noise, dust, fumes, smoke, air, water, odor, light and/or vibration, and shall not unreasonably impact upon a person perceiving the operation in terms of aesthetics. Where such concerns can be remedied by way of design, construction and/or use, the proposed use shall be designed, constructed and used so as to eliminate the effects of the use which would otherwise substantiate denial thereof, taking into consideration the location, size, intensity, layout and periods of operation of such use.

   CWA Comments: *The applicant indicates that they will use water as needed for dust control and that no additional lighting is proposed, and that they will protect adjoining property from runoff and debris.*

   The applicant must provide *additional details about the proposed methods for protecting stored materials, the types and quantities of materials being stored, and the expected height of material stockpiles. This information will assist the Planning Commission's determination as to whether any other measures are required to mitigate impacts on surrounding properties.*

   The project narrative indicates that the temporary staging area will be used from November 2026 through April 2028 while work for the 14 Mile Road water transmission main line project is underway and that the site will be restored when the work is completed. Work activity is proposed from 7:00 am to 7:00 pm. ***The applicant must confirm*** *the days of the week that work will be performed.*

4. The proposed use shall be such that the proposed location and height of buildings or structures and the proposed location, nature and height of walls, fences and landscaping will not interfere with or discourage the appropriate development and use of adjacent land and buildings or unreasonably affect their value.

CWA Comments: *The proposal is for a temporary activity associated with public infrastructure improvements. We do not anticipate any long-term negative impacts on the value of adjacent properties.*

5. The proposed use shall relate harmoniously with the physical and economic aspects of adjacent land uses as regards prevailing shopping habits, convenience of access by prospective patrons, continuity of development, and need for particular services and facilities in specific areas of the City.

   CWA Comments: *The staging area will enable an infrastructure project on 14 Mile Road that will improve the provision of public services in the area.*

6. The proposed use is so designed, located, planned and to be operated so that the public health, safety and welfare will be protected.

   CWA Comments: *Provided that any concerns identified by Fire Department and the City Engineer are addressed,* ***the Planning Commission should*** *determine whether any other measures are needed to project public health, safety, and welfare.*

7. The proposed use shall not cause substantial injury to the value of other property in the neighborhood in which it is to be located and will not be detrimental to existing and/or other permitted land uses in the zoning district.

   CWA Comments: *The applicants have indicated the location will be remediated when the project is complete. As previously discussed,* ***the applicant must provide*** *additional details about the scope of the remediation.*

8. The proposed use shall not result in an impairment, pollution and/or destruction of the air, water, natural resources and/or public trust therein.

   CWA Comments: *The applicants appear to be taking the necessary precautions to minimize any potential pollution. We defer to the Fire Department's evaluation of the location and safety measures proposed for the fuel storage tank.*

9. The proposed use shall not unreasonably burden the capacity of public services and/or facilities.

   CWA Comments: *The proposal will facilitate an improvement to public infrastructure.*

10. The proposed use shall have appropriate physical, visual and spatial characteristics based upon compatible design and architectural elements that relate harmoniously to the design characteristics of area development.

    CWA Comments: *None.*

SUMMARY

The Planning Commission must evaluate the proposal and issue a written decision (approval, conditional approval, or denial) stating specific findings based on two main sections of the Zoning Ordinance (Section 34-4.20.4.C and Section 34-6.3), while ensuring ten (10) specific operational issues are addressed. If

approved, the approval shall be made in writing stipulating all conditions as to length of time, nature of developed permitted and arrangements for removing the use at the termination of the period of time granted.

Per Section 34-4.20.4.C, the Commission must determine the following:

1. *Whether the petitioner has adequately explored alternative locations and that the location proposed is the most reasonable.* ***The applicant must provide*** *additional information to assist with this assessment.*

2. *Whether the location of structures on the site are the most appropriate, whether reasonable temporary screening is required, and whether the location of vehicular access to the site will assist in protection of nearby uses.* ***As part of this assessment****, the Commission should consider whether the entire staging area should be enclosed by a fence for additional security, access control, or visual screening.*

3. *Whether the setbacks, land coverage, off-street parking, lighting and other requirements for protecting public health, safety, and welfare are appropriate.* ***As part of this assessment****, the Commission should consider whether the location of the proposed fuel storage tank and containment measures are acceptable based on guidance from the Fire Department and/or City Engineer.*

4. *Whether granting approval of a use not otherwise permitted in a district shall in no way be construed as a change in the basic uses permitted in the district nor on the property wherein the use is permitted.*

The Planning Commission must also determine that the proposal meets the following criteria listed in Section 34-6.3:

1. *The proposed use shall not be incompatible nor inharmonious, as determined by the application of generally accepted planning standards and/or principles, with:*

    a. *The surrounding uses; and/or*

    b. *The orderly development of the surrounding neighborhood and/or vicinity.*

2. *The proposed use shall be of a nature that will make vehicular and pedestrian traffic no more hazardous than is normal for the district involved.* ***As part of this assessment****, the Commission should consider whether alternative or additional traffic control measures should be implemented for the existing southern access drive on Drake Road based on guidance from the Fire Department and/or City Engineer.*

3. *The proposed use shall not unreasonably impact upon surrounding property in terms of noise, dust, fumes, smoke, air, water, odor, light and/or vibration, and shall not unreasonably impact upon a person perceiving the operation in terms of aesthetics.* ***As part of this assessment****, the Commission should consider whether the proposed hours of operation minimize the impact on adjacent properties.*

4. *That the proposed use will not interfere with or discourage the appropriate development and use of adjacent land and buildings or unreasonably affect their value.*

5. *The proposed use shall relate harmoniously with the physical and economic aspects of adjacent land uses as regards prevailing shopping habits, convenience of access by prospective patrons, continuity of development, and need for particular services and facilities in specific areas of the City.*

6. *That the proposed use is so designed, located, planned and to be operated so that the public health, safety and welfare will be protected.*

7. *The proposed use shall not cause substantial injury to the value of other property in the neighborhood in which it is to be located and will not be detrimental to existing and/or other permitted land uses in the zoning district.*

8. *The proposed use shall not result in an impairment, pollution and/or destruction of the air, water, natural resources and/or public trust therein.*

9. *The proposed use shall not unreasonably burden the capacity of public services and/or facilities.*

10. *The proposed use shall have appropriate physical, visual and spatial characteristics based upon compatible design and architectural elements that relate harmoniously to the design characteristics of area development.*

In addition, the following items must be addressed to the Commission's satisfaction. All or some must be addressed as conditions of approval.

1) *The applicant must provide additional information about the expected number of vehicles parked on site, the frequency of deliveries, and the types of delivery vehicles expected.*

2) *The applicant must confirm whether any security/screening fencing is proposed. If so, locations and details must be provided.*

3) *The applicant must confirm whether the tennis club's pedestrian walkway and the public sidewalk on Drake Road will remain unobstructed while the staging area is in use.*

4) *Additional information about vehicle access and circulation must be provided to demonstrate that construction and delivery vehicles will be able to navigate the site.*

5) *The applicant must confirm whether they explored alternative locations and that the location proposed is the most reasonable.*

6) *The applicant must provide more details about how the property will be restored after the project is complete.*

7) *The property must be restored to conditions that comply with the site's approved site plan and applicable Zoning Ordinance requirements.*

8) *Any outdoor material storage proposed after the project is complete will require separate City review and approval.*

9) *The applicant must provide additional details about the proposed methods for protecting stored materials, the types and quantities of materials being stored, and the expected height of material stockpiles.*

10) *The applicant must confirm the days of the week that work will be performed.*

CARLISLE/WORTMAN ASSOC., INC.
Mike Auerbach, AICP
Senior Associate

CARLISLE/WORTMAN ASSOC., INC.
Arin Yu
Community Planner

Engineering Review

October 23, 2026

DEPARTMENT OF PUBLIC SERVICES
JACOB RUSHLOW, P.E., DIRECTOR

INTEROFFICE CORRESPONDENCE

DATE: October 23, 2026

TO: Nora Brock, Secretary to the Director of Planning and Community Development

FROM: Mike Freckelton, Civil Engineer III

SUBJECT: GLWA Temporary Staging Area – 31031 Drake Road (Detroit Tennis Club)
SA 63-10-2026
22-23-05-230-002

A review of the above referenced site plan received by the engineering office on October 15, 2026, has been performed. Please see the following comments.

1. A Soil Erosion and Sedimentation Control Permit will be required prior to any staging or other site use. Provide a separate SESC plan that meets the criteria of the City's Permit Application. Please note that final engineering approval will be provided upon an approved initial inspection of SESC measures on-site.
    a. Restoration measures for the disturbed areas should be shown/notated on the plans.

2. Ensure that all site drainage is maintained or improved with the placement of the 21AA stone area and temporary structures.

3. Any damage to existing pavement (drive approach or sidewalk) within right-of-way will be the responsibility of the contractor to restore.

4. Please note that according to the City Ordinance Section 18-164, construction activity is allowed from 7am to 7pm Monday through Saturday. Any work outside of these hours/days is prohibited unless special approval is obtained.

Feel free to reach out to our department with any questions or concerns.

Sincerely,

Mike Freckelton, PE
Civil Engineer III

Fire Review

October 21, 2026

FIRE

FARMINGTON HILLS

INTEROFFICE CORRESPONDENCE

Date: October 21, 2026

To: Planning Commission

From: Jason Baloga, Fire Marshal

Subject: SA 63-10-2026 GLWA Temporary Staging Area
31031 Drake Road (Detroit Tennis Club) – PID 22-23-32-326-057

The Fire Department has no objection to recommending approval of the plan as submitted contingent upon compliance with the following requirements:

1. During construction and operation, site access shall be maintained; roadways capable of supporting fire apparatus up to Twenty-five (25) tons shall be provided.

2. Above Storage Tank (AST) shall be installed according to the International Fire Code 2021 (IFC) and National Fire Protection Association (NFPA) requirements.

3. Protection from vehicle damage shall be provided for the AST. Jersey barriers or guard posts are acceptable. AST shall be placarded to indicate the product it contains.

4. A fire extinguisher no smaller than 2-A:20-B:C shall be provided near the fueling area.

5. The job trailer shall have smoke and Carbon Monoxide detection.

Jason Baloga, Fire Marshal

JB/ss

Narrative Description

RIC-MAN
41500 Mound Rd., Sterling Heights, MI 48314

October 5, 2026

SA 63-10-2026

Received
OCT 08 2026
City of Farmington Hills
Planning Dept.

City of Farmington Hills

31555 West Eleven Mile Road

Farmington Hills, MI 48336

Re: Detroit Tennis & Squash Club Special Land Use

To Whom It May Concern,

Ric-Man Construction would like to request the use of Detroit Tennis & Squash Club located at 31031 Drake Road temporarily for staging equipment, storing construction materials, and coordinating work associated with the GLWA 14 Mile 54-Inch Water Transmission Main Line Project. The site will operate from November 2026 through April 2028. The attached site plan identifies the storage areas, access points, parking, soil erosion controls, and limits of activity. We will maintain those controls throughout the use and restore the property when the work is complete.

Ric-Man will keep construction activity within the areas shown on the approved site plan. Materials and equipment will be stored in an orderly manner. The temporary use will end with the project, and we will remove stored materials and restore disturbed areas.

Trucks will use the entrance at the southernmost part of the property. We will keep loading, unloading, and employee parking on the site, and clear of public streets and sidewalks. Deliveries will be scheduled and directed to avoid unnecessary conflicts at the entrance.

Per City ordinances, work activity will be limited from 7am to 7pm. Water will be utilized to suppress dust. Debris will be contained, and tracked material will be cleaned promptly from paved areas. The only temporary lighting planned for the site is the existing light pole that is adjacent to paved area in the attached site plan.

Material stockpiles, temporary structures, and silt fencing will be placed and maintained as shown on the approved plan. We will keep the site orderly and protect adjoining property from runoff and debris. These measures are intended to limit visual and physical effects on neighboring uses during the temporary occupancy.

Workers and deliveries will enter through the designated access, with parking and routine operations contained on site. We will coordinate activities that could affect nearby businesses, residents, or access to services.

RIC-MAN
41500 Mound Rd., Sterling Heights, MI 48314

We will secure the work and storage areas, separate pedestrians from moving equipment, maintain emergency access, and follow the approved site safety and fire protection requirements. Fuels and other regulated materials will be stored and handled with appropriate containment.

We will document existing conditions where our work may affect adjoining property, maintain drainage and erosion controls, and respond promptly to reported damage. At the end of the use, we will remove temporary facilities and restore the site in accordance with the approved plan. These commitments are intended to avoid lasting adverse effects on neighboring properties.

We will install and maintain the required soil erosion and sediment controls, prevent construction materials and wash water from entering storm drains, and collect and dispose of waste properly. We will inspect the site after significant rainfall and correct failed controls.

The proposed operation will only take place within the limits of the attached site plan and will not rely on public streets for routine staging or parking. Temporary facilities and fencing will be limited to what the operation requires and arranged to fit the approved site plan. We will maintain a neat appearance throughout the project, remove temporary features when they are no longer needed, and restore the property at the end of the approved use.

We request review of the proposed temporary use based on the submitted site plan and these operating commitments. We will incorporate applicable conditions of approval into our site procedures and communicate them to employees and subcontractors.

Sincerely,

Jack Puscas

Jack Puscas

Ric-Man, Project Manager

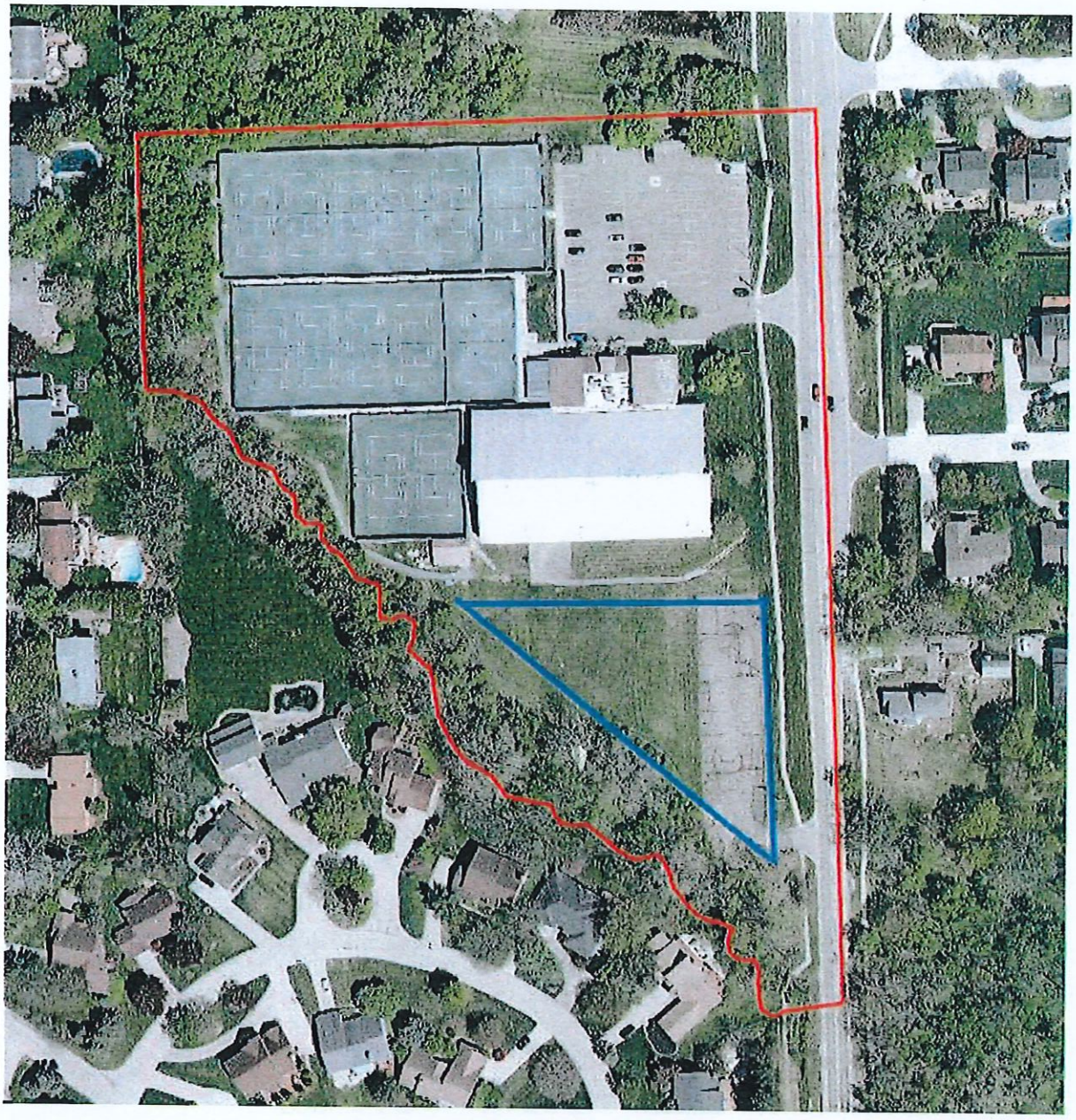
Office: (586) 739-5210 **Ric-Man.com** **Fax:** (586) 739-8290

Site Plan

Exhibit A

31031 Drake Road, Farmington Hills, MI 48331

Please Note: The approximate area of use is outlined in blue.



Silt Fence (SESC)

Office Trailer

Material Storage

(Parking)

Material Stockpiles

21AA Stone Base

FUEL

ENTRANCE

274

272

30910

31000

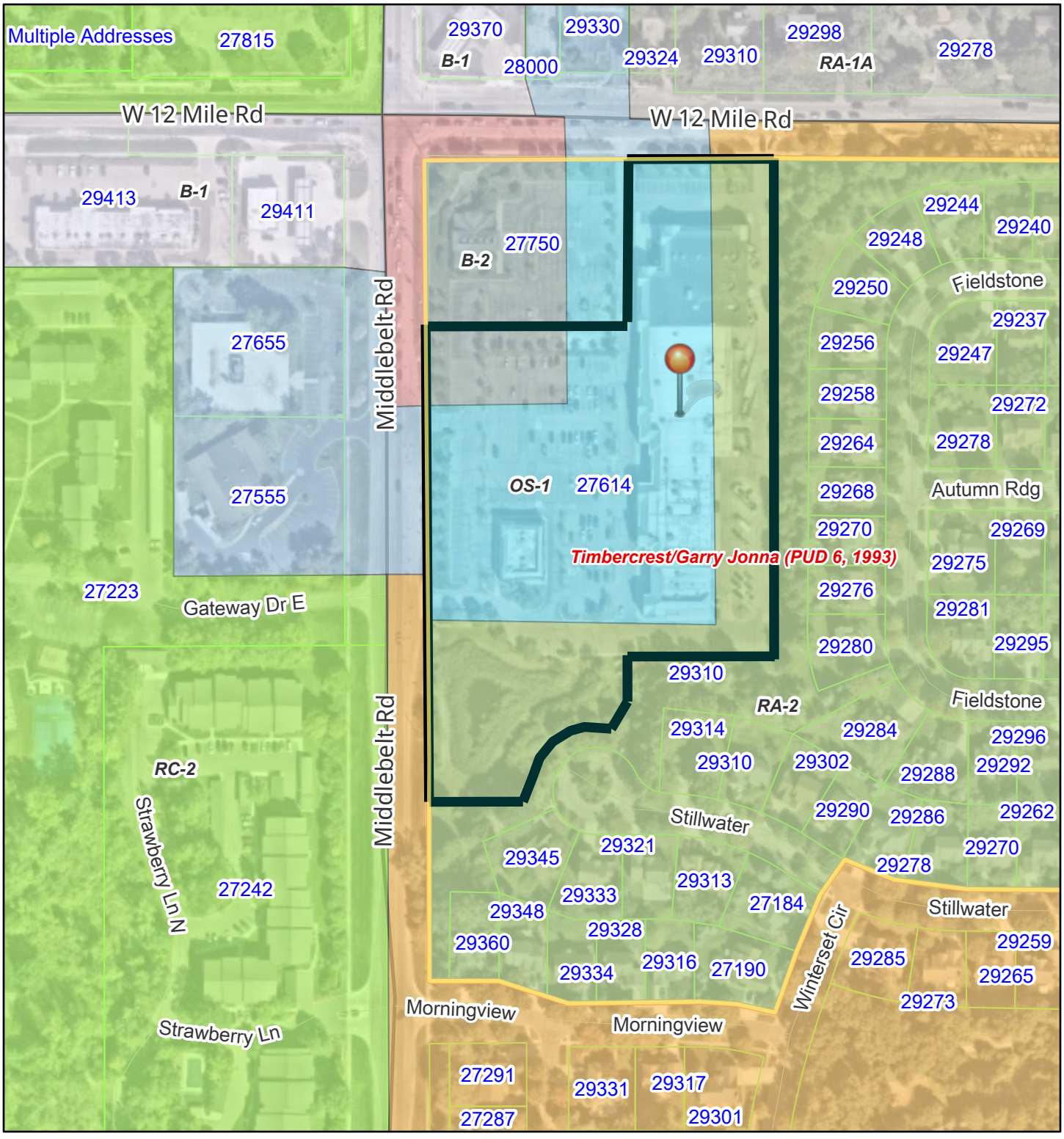
5. Regular Meeting

A. AMEND PUD 6, 1993 – INCLUDING SITE PLAN 62-9-2026

LOCATION:	27614 Middlebelt Road
PARCEL I.D.:	22-23-13-101-003
PROPOSAL:	iONNA Electric Vehicle (EV) Charging Project to establish an EV charging business and install infrastructure within an existing shopping center parking lot in the B-2, Community Business District.
ACTION REQUESTED:	Set for Planning Commission Public Hearing
APPLICANT:	Samuel Perkins
OWNER:	Merchants Marketplace, LLC

ZONING MAP

27640 Middlebelt Rd - Zoning Map



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Zoning districts

- B-1
- B-2
- OS-1
- RA-1A
- RA-2
- RC-2
- Planned Unit Development
- Tax Parcels

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

City of Farmington Hills, MI

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OS-1 – Office Service District

34-3.1.19

OS-1 Office Service District

A. INTENT

The OS-1 office service districts are designed to accommodate uses such as offices, banks and personal services which can serve as transitional areas between residential and nonresidential districts, and as other office areas to serve local needs. The districts also provide for personal services which are a convenience to persons working in office districts.

? **User Note:** For uses listed in **bold blue**, refer to Article 4, or click on use, for use-specific standards

B. PRINCIPAL PERMITTED USES

The following uses are permitted subject to the required conditions in **Section 34-3.9**

i. Office buildings for any of the following occupations: executive, administrative, professional, accounting, writing, clerical, stenographic, drafting, sales
ii. Medical offices including clinics
iii. Banks, credit unions, savings and loan associations, and similar uses with drive-in facilities as an accessory use only
iv. Sanitariums or convalescent homes
v. **Churches** § 34-4.4
vi. **Nursery schools, day nurseries, and day care centers** § 34-4.5
vii. Other uses similar to the above uses
viii. **Cellular antenna** § 34-4.24
ix. **Secondary use which is accessory to and located in the same building as a principal permitted use** § 34-4.23
x. Public offices, telephone exchange buildings and public utility offices, but not including storage yards, transformer stations, substations or gas regulator stations
xi. **Private clubs and lodge halls** § 34-4.18
xii. Accessory structures and uses customarily incident to any principal use permitted

C. SPECIAL APPROVAL USES

i. Reserved

D. ACCESSORY USES

i. **Electric vehicle infrastructure** § 34-4.55
ii. **Parking structures** § 34-4.61

OS-1 Office Service District

E. DEVELOPMENT STANDARDS

Lot Size

Minimum lot area:	Not specified

Setbacks

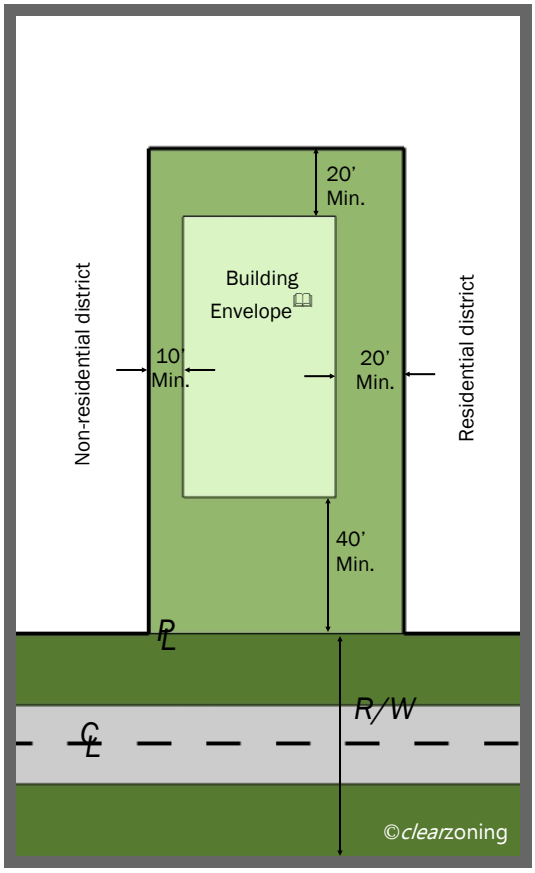
Minimum front yard setback:	40 ft
Minimum rear yard setback:	20 ft
Minimum side yard setback:	10 ft
Minimum from residential district:	20 ft
Minimum from side street:	25 ft

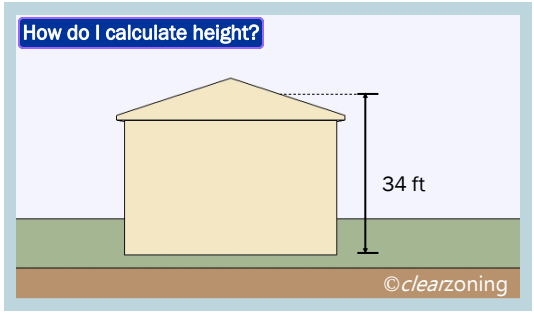
Building Height

Maximum building height:	34 ft
Maximum number of stories:	2

Open Space

Front yard open space required	50%





The above drawings are not to scale.

NOTES

- For additions to the above requirements, refer to Section 34-3.5: A, I, J, K, L, M, N, T and U.

Δ Ord. No. C-5-2025

SELECTED REFERENCES

3. Zoning Districts

- Office District Standards § 34-3.9
- General Exceptions § 34-3.26
- Planned Unit Development § 34-3.20

4. Use Standards

- Special Land Uses § 34-4.20
- Standards for Cellular Towers § 34-4.24.8

5. Site Standards

- Accessory Buildings and Structures § 34-5.1
- Off-street Parking Requirements § 34-5.2
- Off-street Parking Space Layout Standards § 34-5.3
- Off-street Loading and Unloading § 34-5.4
- Signs § 34-5.5
- Acceleration-deceleration Passing Lanes § 34-5.6
- Flood Zone Controls § 34-5.8
- Entranceway Structures § 34-5.9
- Corner Clearance § 34-5.10
- Frontage on Public Street § 34-5.11
- Fences § 34-5.12
- Access to Major or Secondary Thoroughfares § 34-5.13
- Landscape Development § 34-5.14
- Walls and Berms § 34-5.15
- Exterior Lighting § 34-5.16
- Screening of Rooftop Equipment § 34-5.17
- Tree Protection, Removal & Replacement § 34-5.18
- Pedestrian Access and Connectivity § 34-5.19

6. Development Procedures

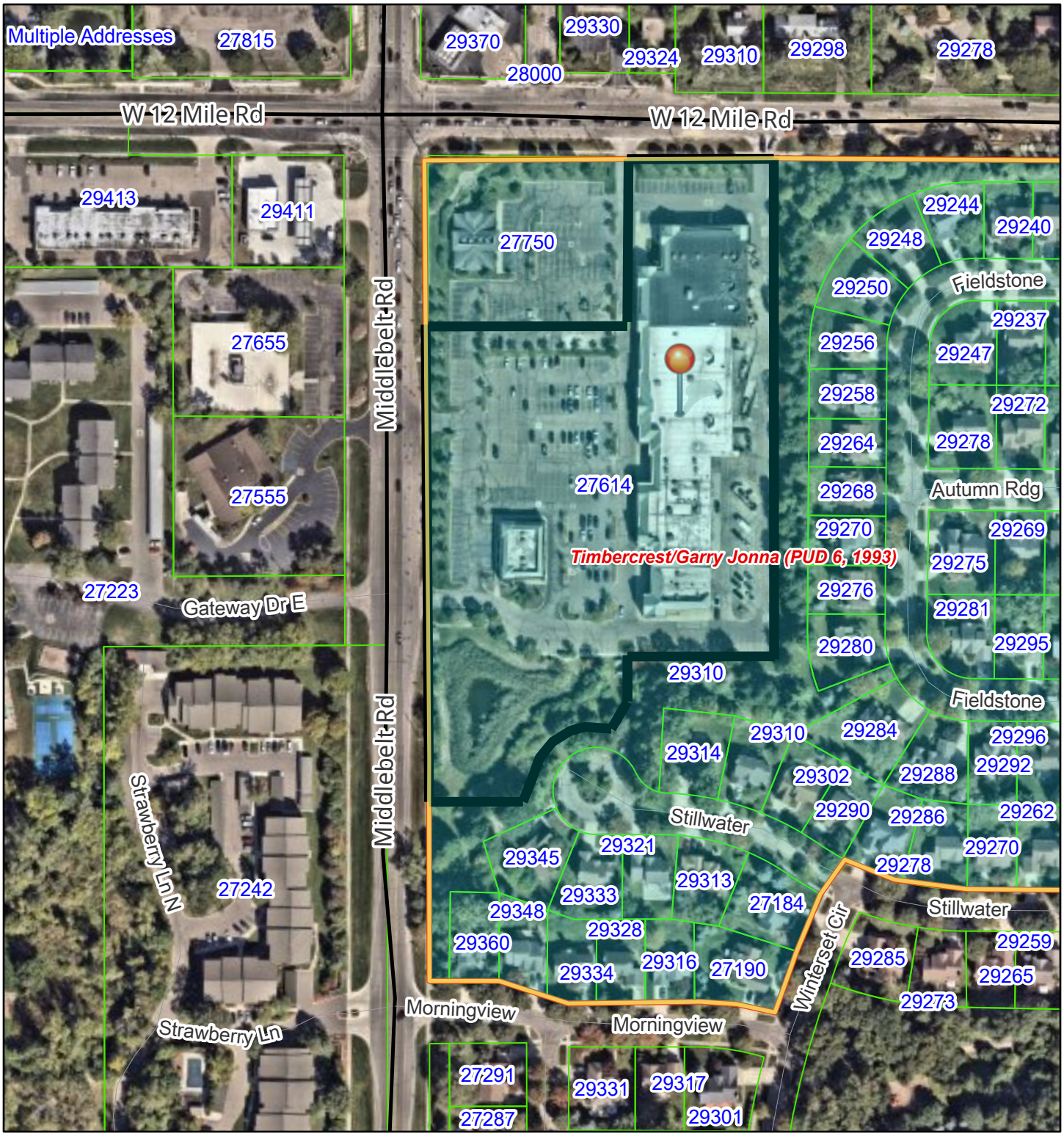
- Site Plan Review § 34-6.1

7. Admin and Enforcement

- Guarantee for Improvements § 34-7.2

AERIAL MAP

27640 Middlebelt Rd - Aerial Map



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Planned Unit Development

Tax Parcels

1:3,276

0 0.02 0.04 0.08 mi

0 0.03 0.07 0.13 km

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

City of Farmington Hills, MI

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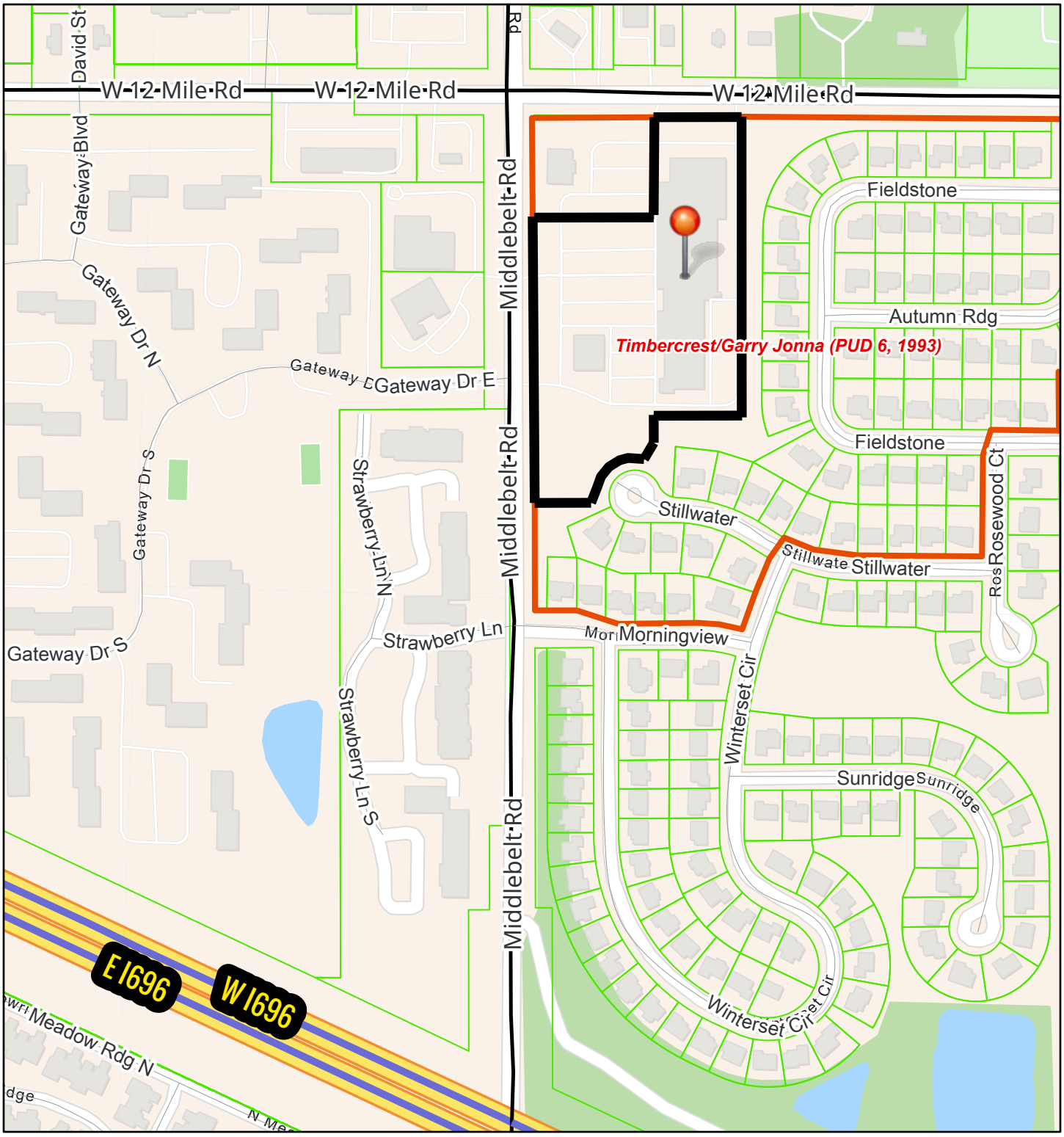
LOCATION MAP

27640 Middlebelt Rd - Location Map



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Planned Unit Development

Tax Parcels

1:5,460

0 0.03 0.07 0.13 mi

0 0.05 0.1 0.2 km

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

City of Farmington Hills, MI

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CWA Review
November 9, 2026

Carlisle | Wortman
ASSOCIATES, INC.

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

Date: November 9, 2026

PUD Amendment and Preliminary Site Plan Review
for
The City of Farmington Hills

Applicant: Kimley-Horn of Michigan, Inc.

Project Name: Amend PUD 6, 1993 - SP 62-9-2026 - Ionna EV Charging

Plan Date: September 17, 2026

Site: 27614 Middlebelt Road (22-23-13-101-003)

Zoning: B-2, Community Business (PUD)

Action Requested: PUD Amendment and Preliminary Site Plan Approval

PROJECT AND SITE DESCRIPTION

The applicant is requesting a PUD amendment and preliminary site plan approval to establish an electric vehicle (EV) charging business on the north side of the subject property, which is approximately 7.53 acres in area and is currently in use as a shopping center. The subject site is located at the southwest corner of the intersection of Middlebelt Road and 12 Mile Road, and is governed by the Timbercrest/Garry Jonna Planned Unit Development (PUD 6, 1993), dated October 6, 1994 (Figure 1).

The proposal will reconfigure seventeen (17) existing parking stalls into eight (8) EV charging stalls and three (3) general spaces, creating a net reduction of six (6) stalls (Figure 2). The electric vehicle (EV) charging spaces will be served by four (4) dual-cabled EV chargers. Additional proposed improvements include pavement resealing, landscaping, exterior lighting fixtures, pedestrian crosswalk, trash cans, and a pet waste station. The proposal will temporarily disturb 7,110 square feet of existing paved surface, including the drive aisle and several spaces to the south of the proposed EV spaces, to install underground infrastructure. No changes to the existing buildings or principal uses on the site are currently proposed.

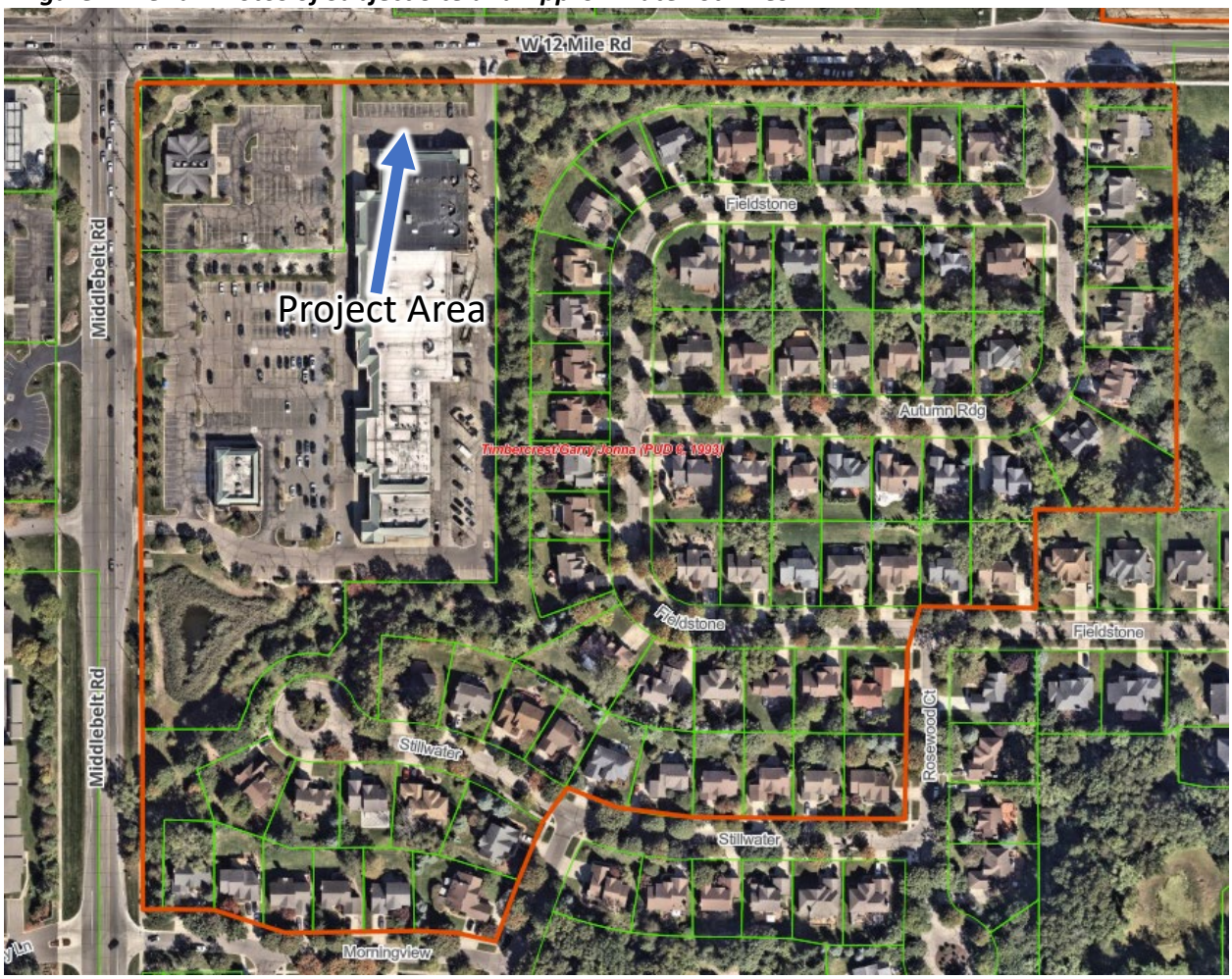
The City approved an amendment to the PUD Agreement on October 13, 2023. Paragraph 3(a) of the PUD Agreement states that the subject property may be developed in accordance with the B-2 District standards of the Zoning Ordinance, subject to the conditions of the PUD Agreement.

Benjamin R. Carlisle, *President* John L. Enos, *Vice President* Douglas J. Lewan, *Principal*
David Scurto, *Principal* Sally M. Elmiger, *Principal* R. Donald Wortman, *Principal* Craig Strong, *Principal*
Paul Montagno, *Principal* Megan Masson-Minock, *Principal* Laura Kreps, *Principal*
Richard K. Carlisle, *Past President/Senior Principal*

The proposed charging station qualifies as an additional principal use of the property. It will be independently owned and operated, and is not an accessory use to the existing shopping center or other businesses on site. Customers will be able to utilize the charging spaces for a fee. The project narrative indicates the facility operate twenty-four (24) hours per day, seven (7) days per week. While the applicants must confirm, it is our understanding that the facility will be a self-service operation and that no staff will be on site.

The applicant is requesting an amendment to the PUD Agreement so that their proposal may be permitted. Paragraph 3(a)(ii) of the Agreement prohibits uses "not contained within a building." As discussed above, the proposal is a new principal use that will be conducted outdoors. Paragraph 3(a)(iv) of the October 6, 1994 Agreement restricted public sales between 12:01 a.m. and 5:00 a.m. This restriction has expired, as it was limited to a 10-year term from the Agreement's recording date.

Figure 1. Aerial Photos of Subject Site and Approximate Lot Lines*



** Timbercrest/Garry Jonna PUD is outlined in red.*

Several property-related details shown on the site plan must be updated. The cover sheet must be updated to specify the address associated with parcel 22-23-13-101-003, which is 27614 Middlebelt. The cover sheet must also identify the entire PUD area. In addition, the survey included in the site plan shows improvements associated with an unrelated project. The survey and corresponding site plan sheets must

be updated to reflect the current property boundaries and existing/proposed conditions within the project area.

Figure 2. Proposed Locations of EV Charging Stations and Parking Space Reduction

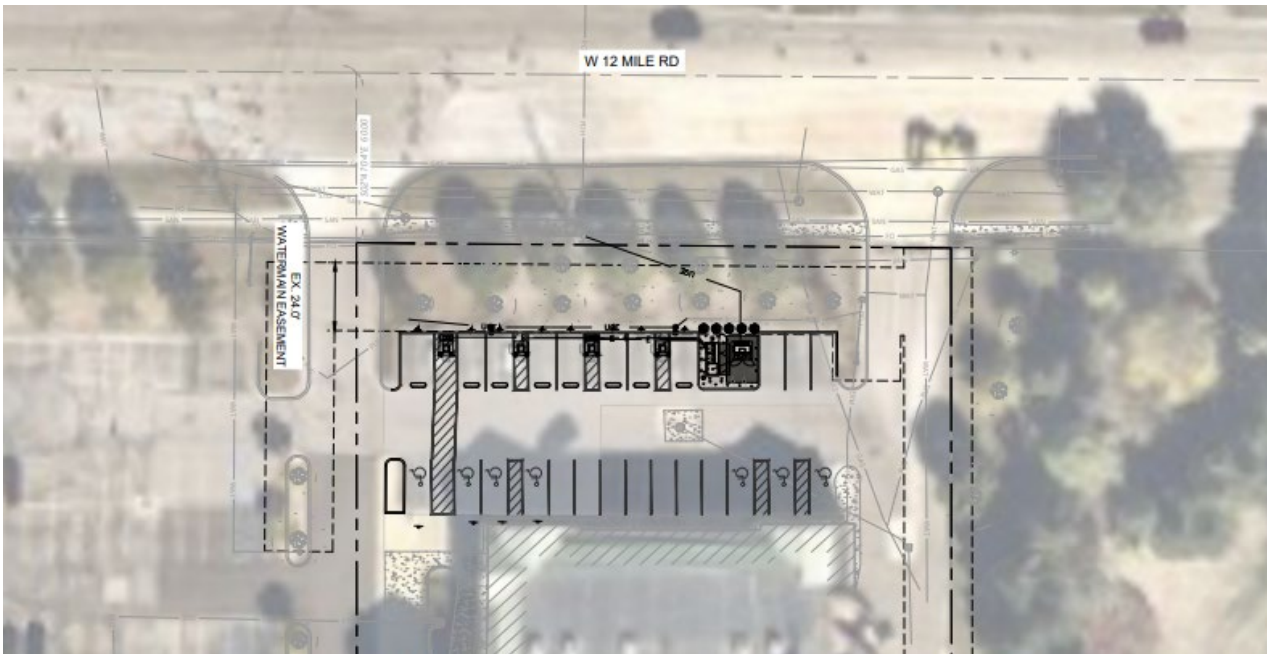


Table 1. Adjacent Land Uses and Zoning

Direction	Zoning	Existing Land Use
North	RA-1A One Family Residential	One-family residential, dental care
South	PUD, RA-2 One Family Residential	Timbercrest/Garry Jonna PUD, one-family residential
East	PUD, RA-2 One Family Residential	Timbercrest/Garry Jonna PUD, one-family residential
West	PUD, OS-1 Office Service	Timbercrest/Garry Jonna PUD, health care

Items to be Addressed: 1) *The cover sheet must be updated to specify the address associated with parcel 22-23-13-101-003, which is 27614 Middlebelt.* ***2)*** *The cover sheet must identify the entire PUD area.* ***3)*** *The survey and corresponding site plan sheets must be updated to reflect the current property boundaries and existing/proposed conditions within the project area.*

PUD REVIEW STANDARDS

According to Section 34-3.20.5.G of the Zoning Ordinance, the Planning Commission must determine if the proposed PUD amendment is minor or material (major) in nature. Minor amendments do not "violate the area and density requirements or to affect the overall character of the plan" and may be approved or denied by the Commission. If the Commission determines the amendment is "material in nature," it shall be reviewed by the Planning Commission and City Council in accordance with the provisions and procedures for final PUD approvals.

The current PUD Agreement prohibits uses "not contained within a building." In addition, Section 34-4.55, Electric Vehicle Infrastructure, only permits EV charging spaces "[w]hen accessory to the principal permitted use." The Zoning Ordinance does not allow EV charging stations as a principal permitted use.

Uses that are not permitted in a district that is the basis of a PUD may be allowed if they are specifically noted on a PUD plan per Section 34-3.20.3.B. While the scale and characteristics of the applicant's proposal may be appropriate at the subject site, adding a principal use that is prohibited under current PUD provisions and is not otherwise permitted in the Zoning Ordinance is "material in nature."

Final PUD plans require a public hearing and review before the Planning Commission who make a recommendation to the City Council for a final determination on the proposal. Final PUDs are evaluated according to the following criteria listed in Section 34-3.20.5.B.ii(b). Those criteria, and our comments on the applicant's proposal according to those criteria, are as follows.

1) "The proposed PUD adheres to the conditions for qualification of the PUD option and promotes the land use goals and objectives of the city."

   CWA Comments: *The subject site is designated Commercial on the Master Plan's Future Land Use Map. The goals for Commercial designated areas are "to improve the overall appearance and durability of commercial buildings." While the proposal does not involve building improvements, other Master Plan goals encourage the expansion of electric vehicle infrastructure in the City:*

   - *#15: "Prepare the City for the transition to electric vehicles."*
   - *#16: "Promote diverse transportation options."*
   - *#45: "Encourage electric vehicle charging at multi-family developments and businesses."*

   Page 97 of the plan also acknowledges that "[c]harging stations can be a draw to an area, particularly if charging capability is near major roads and other amenities such as dining, retail, or personal services."

   The Planning Commission must determine if any conditions are necessary to ensure the PUD amendment adheres to PUD's qualification conditions. To qualify for a PUD option, a proposal must meet at least one of the objectives listed in Section 34-3.20.2. Among those objectives, the proposal must "permanently establish land use patterns which are compatible or which will protect existing or planned uses." Residential uses are adjacent to the project area to the north and east. We recommend that the Commission assess whether any limits to the proposed 24/7 hours of operations or site lighting are necessary to ensure the charging station's operations are compatible with adjacent uses. For example, dimming the exterior lights between the hours of midnight and 6:00AM would meet the intent of Section 34-5.16.3.B.v.

   We also recommend that the Commission specify conditions that future EV charging stations within the site should be limited and/or subject to additional City review.

2) "All applicable provisions of this article and this article and this chapter shall be met. Insofar as any provision of this article shall be in conflict with the provisions of any other section of this chapter, the provisions of this article shall apply to the lands embraced within a PUD area."

CWA Comments: *Provided the items identified in this review are addressed, we expect the proposal will meet the Zoning Ordinance's PUD requirements and applicable development requirements.*

3) "There is, or will be at the time of development, an adequate means of disposing of sanitary sewage and of supplying the development with water and that the road system and storm water drainage system are adequate."

CWA Comments: *The proposal does not involve activities that will require municipal water or sanitary sewer. We defer to the City Engineer for comment about potential stormwater impacts.*

Items to be Addressed: 1) *The Planning Commission must determine if the proposed PUD amendment is minor or material in nature.* ***2)*** *If the Commission determines that the PUD amendment is material in nature, the Commission must evaluate it according to the Section 34-3.20.5.B.ii criteria.* ***3)*** *We recommend that the Commission assess whether any limits to the proposed charging station's operations or the future expansion of EV spaces within the site are appropriate.*

SITE PLAN REVIEW STANDARDS

The Planning Commission shall review and approve, approve with conditions, or deny all site plans according to the requirements listed in Section 34-6.1 of the Zoning Ordinance, Article III, Chapter 21 of the City of Farmington Hills General Code, as well as other applicable Zoning Ordinance requirements.

DIMENSIONAL AND SUPPLEMENTAL DISTRICT REQUIREMENTS

No new structures, buildings, or changes to the existing principal structures are proposed. The conditions applicable to the B-2 District and the proposed use are listed below.

Table 2. B-2 District Required Conditions (Section 34-3.10)

Standard	Required	Provided
Business establishments (34-3.10.1)	All business establishments shall be retail or service establishments dealing directly with consumers. All goods produced on the premises shall be sold at retail on the premises where produced.	Complies. The proposed use deals directly with consumers.
Enclosed buildings (34-3.10.2)	All business, servicing or processing, except for off-street parking, loading, unloading and those open air uses indicated as being permissible in 34-3.1.24.B.x through 34-3.1.24.B.xv, shall be conducted within completely enclosed buildings.	***Pending.*** The applicant is seeking to amend the PUD to allow for operation in the parking area.

Table 3. Notes to B-2 District Requirements

Standard	Required	Provided
Landscaping (34-3.5.2.A)	All yards abutting a street shall be landscaped with a landscape plan in accordance with Section 34-5.14.	See "Landscaping" section for additional comments.

Standard	Required	Provided
Parking (34-3.5.2.J)	Parking is permitted within the required front yard setback, provided the parking is set back a minimum of 10 ft.	Complies. No changes are proposed to the existing ~34 ft. parking setback on 12 Mile Road.
Loading & unloading (34-3.5.2.N)	Off-street loading and unloading requirements in Section 34-5.4.	N/A
Rooftop equipment (34-3.5.2.T)	Rooftop equipment screened in accordance with Section 34-5.17.	N/A
Yard abutting a street or freeway (34-3.5.2.U)	Landscaped area min. 10 ft. deep abutting a street or freeway within the setback.	Complies. The existing greenbelt is ~34 ft. deep on 12 Mile Road.

Table 4. Use Standards for Electric Vehicle Infrastructure (Section 34-4.55)

Standard	Required	Provided
Permitted locations (34-4.55.2.B)	When accessory to the principal permitted use, and when fees are collected for such use, EV charging stations are permitted in all non-single-family residential zoning districts.	***Pending.*** The applicant must receive approval to amend the PUD to allow for operation as principal use.
Parking (34-4.55.3.A.ii.)	Public EV charging stations are reserved for parking and charging EVs only.	Complies.
Lighting (34-4.55.3.B)	Site lighting shall be provided where an EV charging station is installed, unless charging takes place during daytime hours only.	See the "Exterior Lighting" section of this review for further comments.
Equipment (34-4.55.3.C)	Battery charging station outlets and connector devices shall be between 36 – 48 inches from the surface where mounted. Equipment mounted on pedestals, lighting posts, bollards, or other devices shall be designed and located as to not impede pedestrian travel.	***Pending.*** Applicant must confirm the height of the charging cables. Equipment is not located within pedestrian pathways.
	Adequate battery charging station protection, such as concrete-filled steel bollards, shall be used.	Complies. Steel bollards are proposed.

Standard	Required	Provided
Signage (34-4.55.3.D)	Information identifying voltage and amperage levels and any time of use, fees, or safety information.	***Pending.*** The product spec sheet for the proposed EV chargers indicates there is a user interface on the chargers. Applicant must confirm whether the required information will be displayed on the interface or by other means.
	Each EV charging station space shall be posted with City-approved signage indicating the space is only for electric vehicle charging purposes.	Proposed signage is provided on Sheet C6.2.
	A phone number or other contact information shall be provided on the equipment for reporting when it is not functioning or other problems are encountered.	***Pending.*** The applicant must confirm where this information will be provided.

Items to be Addressed: 1) *The applicant must confirm the height of the charging cables.* ***2)*** *The applicant must confirm whether information regarding voltage and amperage levels, time of use, fees, safety, and contact information will be displayed on the charger user interface or through additional signage.*

PARKING AND LOADING

The Project will repurpose seventeen (17) parking stalls north of the drive aisle into eight (8) EV charging stalls and three (3) general spaces, creating a net reduction of six (6) stalls. Standard EV and general stalls will be ten (10) feet wide, while the ADA EV stall will be twelve (12) feet wide. This 6-stall reduction accommodates essential utility infrastructure (a transformer and switchgear) and provides necessary clearance for EV charger maintenance and use..

The PUD Agreement requires a minimum of two hundred sixty-seven (267) parking spaces provided on site for the existing shopping center. Per Section 34-4.55.3.A.i of the Zoning Ordinance, EV charging spaces may be included in the calculation for minimum required parking spaces. The proposed installation of the EV charging stations and reduction of six (6) parking spaces results in a total of two hundred ninety-six (296) parking spaces, which meets the minimum requirement of the PUD Agreement.

As shown in Table 5, the proposed reconfiguration of the parking spaces meets the dimensional requirements in Sec. 34-5.3.3.A of the Zoning Ordinance.

Table 5. Minimum Off-Street Parking Dimensions (75 to 90 degrees)

Required Dimensions		Provided
Min. Space Width	9 ft.	Complies. 9 ft.
Min. Space Length	20 ft., max. 2 ft. overhang permitted	Complies. 20 ft. north of the drive aisle, 19 ft. south of the drive aisle with vehicle overhang.

Required Dimensions		Provided
Maneuvering Lane Width	20 ft.	Complies. 24.9 ft.

One (1) of the EV charging spaces is designed to be an ADA-compliant space. The existing seven (7) barrier-free spaces south of the drive aisle will be preserved.

The proposed use does not impact any existing loading or unloading spaces provided on the site, which are in the rear yard of the shopping center.

Items to be Addressed: *None.*

SITE ACCESS AND CIRCULATION

The site is accessible via two (2) access drives on 12 Mile Road and two (2) access drives on Middlebelt Road. No changes are proposed to the existing access drives.

Existing sidewalks on 12 Mile Road and Middlebelt Road provide pedestrian access to the site, as well as sidewalks from the adjacent residential neighborhood developed as part of the PUD. The applicant proposes to add 7-foot wide crosswalk striping in the parking area across the drive aisle to improve pedestrian connectivity to the existing building from the EV charging stations.

Items to be Addressed: *None.*

LANDSCAPING

The applicant proposes a row of plantings to screen the transformer and switchgear equipment from the 12 Mile Road right-of-way. Existing trees within the greenbelt will be preserved.

Table 6. Landscape Development Requirements (Section 34-5.14)

Item	Required	Provided	Compliance
Continuous curbing (34-5.14.3.C.iv)	Continuous curbing around landscaped areas.	6 in. curbing around greenbelt and parking islands on 12 Mile Road.	Complies.
Minimum number of canopy trees (34-5.14.4.C)	One (1) tree for each 2,800 sq. ft. of the paved surface area, min. two (2) trees.	~9,600 sq. ft. paved area / 2,800 = min. 3 trees required.	Complies. The applicant is preserving the existing seven (7) trees in the greenbelt on 12 Mile Road.
Parking lot screening from public thoroughfare (34-5.14.5)	All parking lots separated from a public thoroughfare by a planted hedge of small shrubs or by a masonry wall or berm with a min. height of 2 ft. Existing	Existing greenbelt with mature vegetation along 12 Mile Road.	Complies.

Item	Required	Provided	Compliance
	vegetation may meet this requirement.		

Table 7. Size and Spacing Requirements at Planting (Section 34-5.14)

Item	Required		Provided	Compliance
Narrow Evergreen Trees	Min. size at planting	5 ft. height	Not provided.	***Pending.*** Applicant must provide size of Emerald Green arborvitae at planting.
	Distance between plantings in a row	Max. 12 ft.	Approximately 5 ft.	Complies.

Items to be Addressed: *The applicant must provide the proposed size of the Emerald Green arborvitae plantings.*

EXTERIOR LIGHTING

The applicant proposes to install two (2) pole-mounted lighting fixtures in the greenbelt on 12 Mile Road adjacent to the EV charging stations to supplement the existing lighting for the parking area. The subject parking area is adjacent to residential uses to the north across 12 Mile Road, and to the east.

Table 11. Exterior Lighting Requirements (Section 34-5.16)

Standard	Required	Provided
Maximum height (34-5.16.3.A)	30 ft.	Complies. The applicant proposes a mounting height of 20 ft.
Sites abutting a residential district (34-5.16.3.B.iii)	Max. illumination of 1/3 fc. at the property line.	Complies. Illumination at property lines abutting residential uses are 0.0 fc.
	Fixtures within 50 ft. of a residential property line or public right-of-way boundary shall be fitted with a shielding reflector on the side facing the property line or boundary.	***Pending*** Product specifications, including shielding details, must be shown on the site plan.
Hours of operation (34-5.16.3.B.v)	Exterior lighting shall be reduced to no greater than 70% of maximum from midnight or one hour after close of business, whichever is later, and 6:00am or opening, whichever is earlier.	***Pending.*** The applicant must provide information on whether these standards can be met. The applicant proposes to operate the EV charging stations for public use twenty-four (24) hours a day, seven (7) days per week.

Standard	Required	Provided
Maximum illumination (34-5.16.3.C)	Average to minimum illumination ratio of 4:1.	Complies. Ratio of 2.8:1 at drive aisle, ratio of 1.6:1 at charging stations.
	2.5 lumens per sq. ft. of hardscape area	Complies. Approximately 0.8 lumens per sq. ft. of hardscape area.

Items to be Addressed: 1) *Lighting product specifications, including shielding details, must be shown on the site plan.* ***2)*** *The applicant must provide information as to whether the standards in Section 34-5.16.3.B.v can be met.*

DESIGN STANDARDS AND PUBLIC ART

The applicant is not requesting site plan approval for any new buildings or structures or improvements to existing structures at this time that require application of the design standards in Section 34-5.20.

The installation of public art in accordance with this Section 34-5.21 is required for any non-public construction or renovation project with a construction cost of two million dollars ($2,000,000.00) or more, in the Special Planning Areas described in the 2024 Master Plan as well as any projects developed using the PUD process. The subject site is not in one of the Special Planning Areas; however, it is in a PUD. The applicant must confirm whether construction costs will exceed $2,000,000.00.

Items to be Addressed: *The applicant must confirm whether construction costs will exceed $2,000,000.00.*

UTILITIES AND STORMWATER MANAGMENT

We defer to the City Engineer for comment on the proposed site utilities.

We note that the site plan indicates a 24-foot wide water main easement located within the greenbelt on 12 Mile Road, where the applicant proposes to install underground electrical equipment for the chargers. We recommend that the applicant verify with the City Engineer whether this poses any conflicts or issues.

SUMMARY

As required by Section 34-3.20.5.G, the Planning Commission must make the following determination about the proposed PUD amendment:

1) *Whether the proposed addition of an EV charging principal use is minor or material (major) in nature.*

If the Commission determines that the PUD amendment is material in nature, the Commission must evaluate it according to the following Section 34-3.20.5.B.ii criteria:

1) "The proposed PUD adheres to the conditions for qualification of the PUD option and promotes the land use goals and objectives of the city."

2) *"All applicable provisions of this article and this article and this chapter shall be met. Insofar as any provision of this article shall be in conflict with the provisions of any other section of this chapter, the provisions of this article shall apply to the lands embraced within a PUD area."*

3) *"There is, or will be at the time of development, an adequate means of disposing of sanitary sewage and of supplying the development with water and that the road system and storm water drainage system are adequate."*

We also recommend that the Commission assess whether conditions are necessary to ensure compliance with the Zoning Ordinance's PUD standards or other requirements, such as the following:

1) *Whether any limits to the proposed 24/7 hours of operations or site lighting are necessary to ensure the charging station's operations are compatible with adjacent uses.*

2) *Whether future EV charging stations within the site should be limited and/or subject to additional City review.*

In addition, the following site plan related items must be addressed to the Commission's satisfaction. The Commission may specify that all or some must be addressed as conditions of approval.

1) *The cover sheet must be updated to specify the address associated with parcel 22-23-13-101-003, which is 27614 Middlebelt.*

2) *The cover sheet must identify the entire PUD area.*

3) *The survey and corresponding site plan sheets must be updated to reflect the current property boundaries and existing/proposed conditions within the project area.*

4) *The applicant must confirm the height of the charging cables.*

5) *The applicant must confirm whether information regarding voltage and amperage levels, time of use, fees, safety, and contact information will be displayed on the charger user interface or through additional signage.*

6) *The applicant must provide the proposed size of the Emerald Green arborvitae plantings.*

7) *Lighting product specifications, including shielding details, must be shown on the site plan.*

8) *The applicant must provide information as to whether the exterior lighting standards regarding hours of operation in Section 34-5.16.3.B.v can be met.*

9) *The applicant must confirm whether construction costs will exceed $2,000,000.00.*

10) *Items identified by the City Engineer must be addressed.*

11) *Items identified by the City Fire Department must be addressed.*

CARLISLE/WORTMAN ASSOC., INC.
Mike Auerbach, AICP
Senior Associate

CARLISLE/WORTMAN ASSOC., INC.
Arin Yu
Community Planner

Engineering Review

October 23, 2026

FARMINGTON HILLS Michigan
DEPARTMENT OF PUBLIC SERVICES
JACOB RUSHLOW P.E., DIRECTOR

INTEROFFICE CORRESPONDENCE

DATE: October 23, 2026

TO: Diana Mulville-Friel, City Planner

FROM: ShonQuase Dawkins, Civil Engineer

SUBJECT: Ionna EV Charing
27614 Middlebelt Rd
22-23-13-101-003

This office has performed a preliminary review of the above reference plan submitted to the Planning Department on October 8, 2026. Below will provide our comments:

1. It appears that the proposed work entails removing and replacing existing pavement in kind at the same evaluation along with the installation of the charging station. As Such the Engineering Department has no objection as proposed.
2. Following Final Site plan approval, the plans must be submitted to the Engineering Department for Construction plan and permit review.

Fire Review

October 12, 2026

FIRE
FARMINGTON HILLS

INTEROFFICE CORRESPONDENCE

Date: October 12, 2026

To: Planning Commission

From: Jason Baloga, Fire Marshal

Subject: Site Plan 62-9-2026 (amend PUD 6-1993) Ionna EV Charging Project (27614 Middlebelt Road) #22-23-13-101-003

The Fire Department has no objection to approval, contingent upon compliance with the following:

1. The site shall accommodate Fire Apparatus with a 50-foot turning radius.

2. During a pre-submittal meeting, the Fire Department and proponent discussed the requirements of a Knox shunt trip switch to de-energize vehicle chargers and any solar or energy storage associated with off-peak kilowatt storage. The proponent was advised to have engineers set up a meeting with the Fire Marshal and electrical inspector to determine the Knox shunt trip location and function.

Jason Baloga, Fire Marshal

JB/ss

Narrative Description

Kimley»Horn

Project Narrative for iONNA MI-0002 Electric Vehicle Charging

To:	City of Farmington Hills Planning and Community Development Department 31555 W Eleven Mile Road Farmington Hills, MI 48336
From:	Kimley-Horn and Associates, Inc.
Date:	September 28, 2026

INTRODUCTION

iONNA is a joint venture of eight leading global automakers, including BMW, General Motors, Honda, Hyundai, Kia, Mercedes-Benz, Stellantis, and Toyota. iONNA's mission is to accelerate electric vehicle adoption by developing a nationwide network of reliable, convenient, and affordable fast charging infrastructure throughout the United States.

iONNA strategically develops charging sites near major transportation corridors and established commercial amenities to serve both local and interstate travelers. The proposed iONNA Electric Vehicle Charging Project (Project) at 27640 Middlebelt Road in Farmington Hills, Michigan, is designed as a low-impact secondary use that integrates seamlessly into the existing Merchants Marketplace Shopping Center. The Project requires minimal physical improvements, utilizes an already-developed commercial site, and is compatible with surrounding land uses.

The Project will serve shopping center patrons, nearby residents, employees, and travelers throughout the Farmington Hills area. EV charging customers typically remain onsite for approximately 20 to 40 minutes and often visit nearby retail, restaurant, and service businesses during that time. As a result, the Project is expected to increase customer activity within the shopping center while providing a valuable transportation service to the community.

This private investment in transportation infrastructure supports the continued adoption of electric vehicles and helps ensure Farmington Hills remains competitive in attracting residents, visitors, and businesses that increasingly rely on EV charging availability. The Project will be professionally maintained and operated by iONNA in a manner that is

compatible with surrounding uses while enhancing the long-term utility and attractiveness of the shopping center.

The ability to operate the charging facility 24 hours per day, 7 days per week is essential to the Project's intended function and public benefit. Approval of the requested PUD Amendment to permit 24/7 operation of the iONNA charging facility will allow the property to accommodate modern transportation infrastructure within an existing commercial development.

PROJECT DESCRIPTION

The Project site is located within an existing parking area approximately 60 feet south of W 12 Mile Road and approximately 325 feet east of Middlebelt Road. The Project includes the installation of four (4) dual-cabled Level 3 EV chargers, a transformer, switchgear and conduit to provide eight (8) rapid EV charging stalls within the City of Farmington Hills (City). The Project includes the reconfiguration of seventeen (17) existing parking stalls, the resealing of six (6) parking stalls, and disturbance of approximately 7,110 square feet (sf) of existing paved surfaces, which is required to provide for the installation of the EV charging units and associated electrical infrastructure. The proposed charging layout includes one (1) ADA-compliant EV charging stall, an additional crosswalk within the existing parking area, and landscaping and lighting improvements. EV charging parking stalls will be open to public use and would allow for parking of all vehicle types. Elements of the Project and its functionality are described below.

PROJECT ELEMENTS

The Project includes the installation of four (4) Level 3 EV chargers serving eight (8) parking stalls within an existing shopping center parking facility. In addition to the charging infrastructure, the Project includes landscaping improvements, lighting improvements, pedestrian connectivity improvements, ADA accessibility improvements, trash cans and a pet waste station.

The Project will require the temporary disturbance and reconfiguration of twenty-three (23) parking stalls and an associated drive aisle to accommodate the installation of underground utility infrastructure.

Utilizing seventeen (17) parking stalls north of the existing drive aisle, the Project will result in eight (8) EV charging stalls and three (3) general parking spaces with EV charging stalls and general parking stalls being installed at a width of ten (10) feet and the ADA EV

charging stall being installed at a width of twelve (12) feet. This is a net reduction of six (6) parking stalls within the shopping center parking lot. The removal of six (6) stalls north of the drive aisle is required for the placement of critical utility infrastructure (a transformer and switchgear) and provides adequate clearance for EV charger maintenance and use.

South of the impacted drive aisle, four (4) existing ADA-accessible parking stalls and two (2) standard parking stalls will be temporarily affected during construction and resealed upon completion of construction activities. There will be no parking stall reconfiguration or stall loss incurred south of the drive aisle; however, parking stall access would be temporarily impacted during construction activities. The work will also include removing and replacing existing ADA parking signage and a sidewalk area, both of which will be restored after construction The Project also includes the incorporation of an ADA-compliant EV charging stall that is twelve (12) feet in width and integrated with the existing pedestrian circulation network and crosswalk system, providing accessible access between the charging equipment, parking areas, and surrounding site amenities.

The charging facility will support both major EV charging cable standards, including six (6) charging stalls equipped with Combined Charging System (CCS) connectors and two (2) charging stalls equipped with North American Charging Standard (NACS) connectors. The EV chargers are designed for easy cable replacement, so IONNA can adjust the cable type depending on changes to the electric vehicle market. EV charging stalls will include "EV Charging Preferred" signage to indicate the parking stall is open for any vehicle to utilize as standard parking but that EV charging is preferred. EV charging payment would occur at the EV charger and would operate similarly to a typical gas station with multiple payment methods accepted. Guests would not be required to have an account or use an app for EV charger usage.

The Project will temporarily disturb approximately 1,000 sf of existing landscaping; however, impacted landscaping will be restored and additional landscaping improvements installed. New jurisdictionally approved landscaping will be provided to screen the transformer and switchgear equipment from W 12 Mile Road. The Project also includes four (4) new ten-foot-tall light poles installed behind the EV chargers to provide lighting for enhanced security and comfortable equipment use.

The Project also includes a pet waste station within the landscaped area to the north of the proposed EV charging stalls. The station will include pet waste disposal bags and a trash can. Operations and maintenance of the Project are further described below.

PROJECT SITE COMPATIBILITY

The Project site is located within the existing Merchants Marketplace Shopping Center and will be operated by iONNA, LLC pursuant to an agreement with the property owner. The proposed EV charging facility has been strategically located within the shopping center to provide convenient access from 12 Mile Rd while minimizing impact to existing site operations. The Project is designed to function as a complementary transportation amenity, and EV charging services will be available to shopping center patrons as well as the general public. The site location and design were developed in coordination with the property owner to ensure compatibility with existing uses and traffic patterns.

MAINTENANCE, CONSTRUCTION, AND HOURS OF OPERATION

Construction activities would last approximately six (6) to eight (8) weeks and would temporarily impact on site circulation. Implementation of the Project would require temporary drive aisle closures and temporary parking stall closures; however, existing circulation patterns would be restored upon completion of construction activities.

The Project will be operated and maintained by iONNA, LLC and will be available for public use twenty-four (24) hours per day, seven (7) days per week. Continuous operation is necessary to serve the transportation needs of EV drivers, including residents and interstate travelers who may require charging services outside of traditional business hours.

iONNA will implement a regular inspection and maintenance program to ensure the charging equipment, site amenities, landscaping and light fixtures remain in good working order. An irrigation plan has been prepared to support the long-term health of the proposed landscaping improvements. Prior to issuance of building permits, iONNA will establish agreements for landscape maintenance.. The pet waste station and other trash receptacles will be emptied and maintained by the landlord pursuant to an agreement with the property owner.

CONCLUSION

The proposed iONNA Electric Vehicle Charging Project was designed to integrate seamlessly into the existing site through thoughtful placement of charging infrastructure, enhanced pedestrian connectivity, ADA-accessible facilities, landscaping improvements, and lighting enhancements. The Project will expand public access to reliable fast charging, support the continued adoption of electric vehicles, and provide a valuable amenity for residents and interstate travelers visiting Farmington Hills. The Project will be regularly maintained and implemented in a compatible manner that is consistent with existing development. Approval of the requested PUD Amendment will allow the property to accommodate 24-hour electric vehicle charging operations, ensuring that charging services remain available whenever transportation needs arise.

Site Plan

IONNA SITE NUMBER: MI-0002

INSTALLATION OF ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

27640 MIDDLEBELT RD
FARMINGTON HILLS, MI 48334

SITE INFORMATION

PROPERTY OWNER:
JBL ASSET MANAGEMENT
CONTACT: STEFAN POGGIOLI
PHONE: (954) 369-1602
EMAIL: STEFAN@JBLMGMT.COM

POWER COMPANY:
DTE ENERGY
CONTACT: EFIONG ENIANG
PHONE: (313) 235-7154
EMAIL: EFIONG.ENIANG@DTEENERGY.COM

ENGINEER:
KIMLEY-HORN OF MICHIGAN INC.
CONTACT: QUINN DUFFY
PHONE: (503) 388-6349
EMAIL: QUINN.DUFFY@KIMLEY-HORN.COM

SURVEYOR:
WESTWOOD PROFESSIONAL SERVICES, INC.
CONTACT: JASON LEE PERKINS, P.L.S.
PHONE: (210) 265-8300
EMAIL: WESTWOODPS.COM

EV SITE ADDRESS:
27640 MIDDLEBELT RD
FARMINGTON HILLS, MI 48334

ASSESSOR PARCEL NUMBER (APN):
2313101003

COUNTY:
OAKLAND

LATITUDE (NAD83):
42.4982829

LONGITUDE (NAD83):
-83.3389492

BENCHMARK & BASIS OF BEARING

BENCHMARK: 784.52' (NAVD 88)

BASIS OF BEARING:
THE VERTICAL DATUM FOR THIS PROJECT SHALL BE THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD-88) AND THE HORIZONTAL DATUM SHALL BE THE NORTH AMERICAN DATUM OF 1983 (NAD-83) IN THE STATE PLANE OF MI STATE PLANE, SOUTH ZONE, US FOOT.

ZONING INFORMATION

PERMITTING JURISDICTION:	CITY OF FARMINGTON HILLS
ZONING CLASS:	COMMERCIAL
CURRENT USE; PROPOSED USE:	PARKING EV CHARGING/PARKING
OVERLAY DISTRICT:	NA

FLOOD HAZARD AREA NOTE

THE PROPERTY SHOWN HEREON IS LOCATED IN ZONE X, AN AREA DETERMINED TO BE 0.2% ANNUAL CHANCE FLOOD; ZONE A, & ZONE AE, AN AREA DETERMINED TO BE 1% ANNUAL CHANCE FLOOD, AS GRAPHICALLY SHOWN ON FIRM MAP COMMUNITY PANEL NUMBER 26125C0652F, EFFECTIVE DATE SEPTEMBER 29TH, 2006.

APPLICABLE CODES

ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES:

- 2021 MICHIGAN BUILDING CODE, AS ADOPTED BY THE CITY OF FARMINGTON HILLS
- 2023 NATIONAL ELECTRICAL CODE (NEC), AS ADOPTED BY THE CITY OF FARMINGTON HILLS
- 2021 MICHIGAN MECHANICAL CODE, AS ADOPTED BY THE CITY OF FARMINGTON HILLS
- 2021 MICHIGAN PLUMBING CODE, AS ADOPTED BY THE CITY OF FARMINGTON HILLS
- 2021 MICHIGAN COMMERCIAL ENERGY CODE, AS ADOPTED BY THE CITY OF FARMINGTON HILLS
- APPLICABLE NFPA STANDARDS AS REFERENCED BY THE ADOPTED CODES
- CITY OF FARMINGTON HILLS/ OAKLAND COUNTY CODE OF ORDINANCES

NOTE:
IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL.

CONTRACTOR NOTE

- CONTRACTOR SHALL COMPLETE INSTALL PER THE SIGNED AND THE SEALED SET OF DRAWINGS. ANY NECESSARY DEVIATIONS FROM THE DRAWINGS MUST BE SUBMITTED THROUGH AN RFI REQUEST PROCESS WITH ENGINEERING FOR AN APPROVAL PRIOR TO CONTRACTOR PROCEEDING WITH A DEVIATION OF THE SIGNED AND SEALED SET OF DRAWINGS.
- CONTRACTOR SHALL VERIFY ALL PLANS, EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE THEN IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

811 Know what's below. Call before you dig.

CAUTION!!
CONTRACTOR IS TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

AERIAL MAP

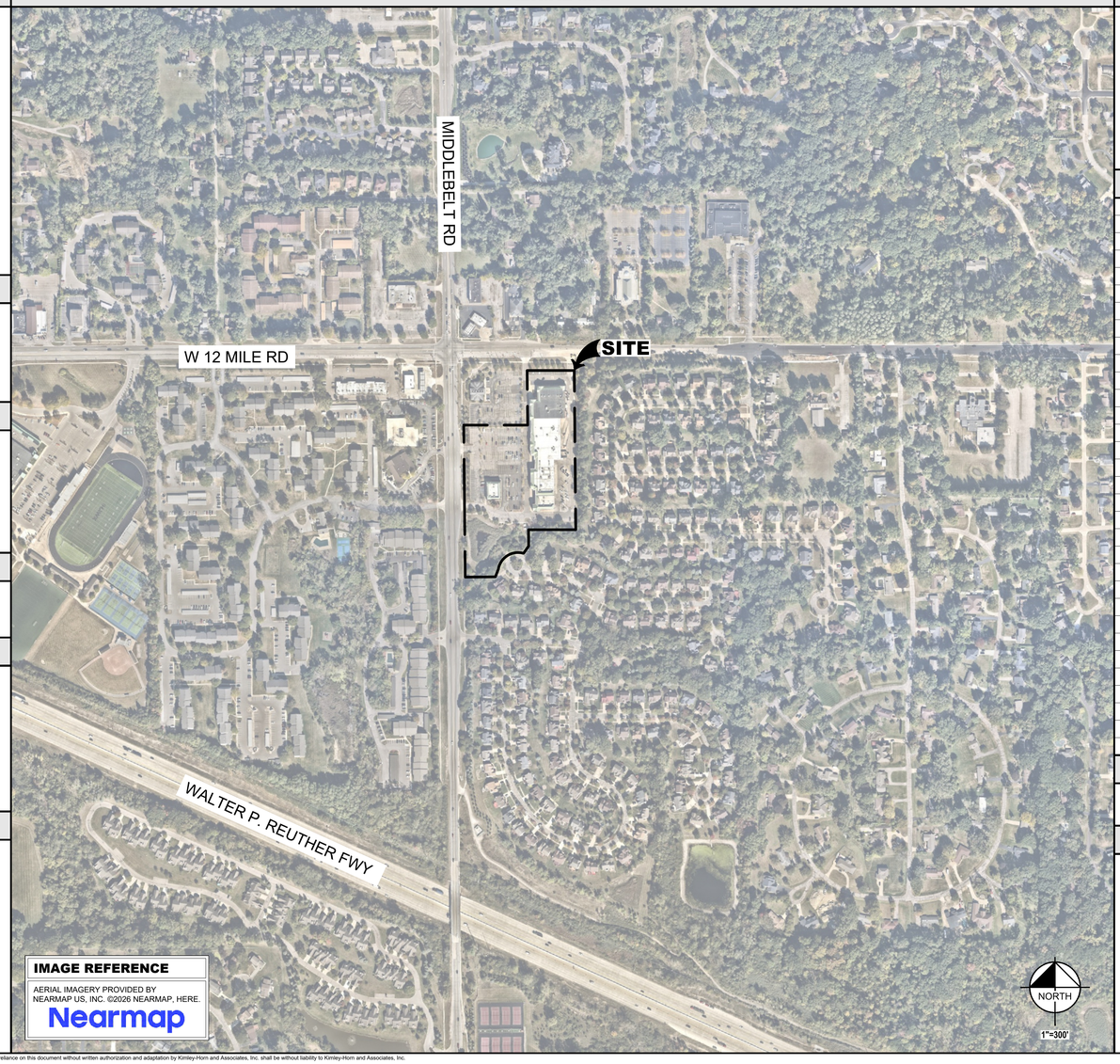


IMAGE REFERENCE
AERIAL IMAGERY PROVIDED BY NEARMAP US, INC. ©2026 NEARMAP, HERE.
Nearmap

PROJECT DESCRIPTION

THIS PLAN IS DEVELOPED WITH THE INTENT TO PROVIDE PUBLIC ELECTRIC VEHICLE (EV) CHARGING STATIONS AND AN ELEVATED LIT CANOPY AT THIS LOCATION. THE EXTENT OF DESIGN WITHIN THIS CONSTRUCTION DOCUMENT INCLUDES THE EV CHARGING STATIONS AND THEIR ACCOMPANYING CIVIL AND ELECTRICAL INFRASTRUCTURE.

- DEMOLITION OF EXISTING SURFACES FOR THE INSTALLATION OF EV CHARGERS AND LIT CANOPY.
- GRADING OF SURFACES ASSOCIATED WITH EVSE TO COMPLY WITH ADA REQUIREMENTS.
- INSTALL (1) UTILITY TRANSFORMER TO BE COORDINATED WITH LOCAL UTILITY COMPANY.
- INSTALL (1) SWITCHBOARD ASSEMBLY.
- INSTALL (4) 400KW ALPITRONIC HYC400 EV CHARGERS.
- INSTALL (8) EV SIGN POSTS.
- INSTALL (18) BOLLARDS.

DRAWING INDEX

SHEET NUMBER	SHEET TITLE
G0.0	COVER SHEET
G1.0	GENERAL NOTES
G2.0	CHARGER SPEC SHEETS
C1.0	ALTA SURVEY (BY OTHERS)
C1.1	ALTA SURVEY (BY OTHERS)
C2.0	SITE PLAN
C2.1	ENLARGED SITE PLAN
C2.2	FFE PLAN
C2.3	FINISH PLAN
C3.0	DEMOLITION PLAN
C3.1	EROSION AND SEDIMENT CONTROL PLAN
C4.0	GRADING PLAN
C5.0	E&S DETAILS
C6.0	CIVIL DETAILS
C6.1	CIVIL DETAILS
C6.2	CIVIL DETAILS
E1.0	ELECTRICAL NOTES
E2.0	ELECTRICAL SITE PLAN
E3.0	SINGLE LINE DIAGRAM
E4.0	ELECTRICAL DETAILS
E4.1	ELECTRICAL DETAILS
E6.0	LIGHTING PLAN
E6.1	LIGHTING DETAILS
L1.0	MATERIALS PLAN
L2.0	SOILS PLAN
L3.0	IRRIGATION NOTES
L3.1	IRRIGATION PLAN
L4.0	PLANTING NOTES
L4.1	PLANTING PLAN
L5.0	PLANTING DETAILS
L5.1	PLANTING DETAILS

FOR REFERENCE ONLY DRAWINGS

PROPERTY SURVEY / EXISTING CONDITIONS, SEE SHEET C1.0 - C1.1

ENGINEER(S) OF RECORD

CIVIL ENGINEER:
KIMLEY-HORN OF MICHIGAN INC.
CONTACT: MATT SELKIRK, P.E.
PHONE: (702) 623-4979
EMAIL: MATT.SELKIRK@KIMLEY-HORN.COM

ELECTRICAL ENGINEER:
KIMLEY-HORN OF MICHIGAN INC.
CONTACT: SARA KHAN, P.E.
PHONE: (331) 300-3447
EMAIL: SARA.KHAN@KIMLEY-HORN.COM

Kimley»Horn
3000 TOWN CENTER #2600,
SOUTHFIELD, MI 48075
Main: (313) 572-1560 | www.kimley-horn.com

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STIPULATION FOR REUSE

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IONNA™

27640 MIDDLEBELT RD
FARMINGTON HILLS, MI 48334
STORE NO.: MI-0002

EV STALLS: 8

KIMLEY-HORN PROJECT NO.: 296087121

PUBLIC EV

DOCUMENTS WITHOUT SIGNATURE AND REQUIRED SEAL OF AOR / EOR ARE NOT FOR CONSTRUCTION

CONSULTANTS

DRAFT
PRELIMINARY PLANS
NOT FOR CONSTRUCTION

No.	ISSUE BLOCK	DATE	BY
0			
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

DESIGNED BY:	QD
DRAWN BY:	FG
CHECKED BY:	MS
DOCUMENT DATE:	9/17/2026

SHEET TITLE
COVER SHEET

SHEET NUMBER
G0.0

This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

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GENERAL CONSTRUCTION NOTES

FOR THE PURPOSE OF CONSTRUCTION DRAWINGS, THE FOLLOWING DEFINITIONS SHALL APPLY:

1. GENERAL CONTRACTOR: TBD
2. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. GENERAL CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF WORK.
4. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES, AND APPLICABLE REGULATIONS.
5. UNLESS OTHERWISE NOTED PLANS ARE NOT TO BE SCALED. THESE PLANS ARE INTENDED TO BE A DIAGRAMMATIC OUTLINE ONLY UNLESS OTHERWISE NOTED. DIMENSIONS SHOWN ARE TO FINISH SURFACES UNLESS OTHERWISE NOTED. SPACING BETWEEN EQUIPMENT IS THE MINIMUM REQUIRED CLEARANCE. THEREFORE, IT IS CRITICAL TO FIELD VERIFY DIMENSIONS, SHOULD THERE BE ANY QUESTIONS REGARDING THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A CLARIFICATION FROM THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK. DETAILS ARE INTENDED TO SHOW DESIGN INTENT. MODIFICATIONS MAY BE REQUIRED TO SUIT JOB DIMENSIONS OR CONDITIONS AND SUCH MODIFICATIONS SHALL BE INCLUDED AS PART OF WORK AND PREPARED BY THE ENGINEER PRIOR TO PROCEEDING WITH WORK.
6. WORK PREVIOUSLY COMPLETED IS REPRESENTED BY LIGHT SHADED LINES AND NOTES. THE SCOPE OF WORK FOR THIS PROJECT IS REPRESENTED BY DARK SHADED LINES AND NOTES. CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY EXISTING CONDITIONS THAT DEVIATE FROM THE DRAWINGS PRIOR TO BEGINNING CONSTRUCTION.
7. THE CONTRACTOR SHALL PROVIDE WRITTEN NOTICE TO THE CONSTRUCTION MANAGER 48 HOURS (CONTRACTOR SHALL CONFIRM TIMELINE WITH IONNA) PRIOR TO COMMENCEMENT OF WORK.
8. THE CONTRACTOR SHALL PROVIDE UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
9. THE GENERAL CONTRACTOR SHALL MAINTAIN IN GOOD CONDITION ONE COMPLETE SET OF PLANS WITH ALL REVISIONS, ADDENDA, AND CHANGE ORDERS ON THE PREMISES AT ALL TIMES.
10. THE CONTRACTOR SHALL PROVIDE PORTABLE FIRE EXTINGUISHERS WITH A RATING OF NOT LESS THAN 2-A:10-B:C AND SHALL BE WITHIN 25 FEET OF TRAVEL DISTANCE TO ALL PORTIONS OF WHERE THE WORK IS BEING COMPLETED DURING CONSTRUCTION.
11. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. THE CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS SHALL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION, B) CONFINED SPACE, C) ELECTRICAL SAFETY, AND D) TRENCHING & EXCAVATION.
12. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED, CAPPED, PLUGGED OR OTHERWISE DISCONNECTED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
13. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION.
14. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE FEDERAL AND LOCAL JURISDICTION FOR EROSION AND SEDIMENT CONTROL.
15. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
16. THE SUBGRADE SHALL BE BROUGHT TO A SMOOTH UNIFORM GRADE AND COMPACTED TO 95 PERCENT STANDARD PROCTOR DENSITY UNDER PAVEMENT AND STRUCTURES AND 80 PERCENT STANDARD PROCTOR DENSITY IN OPEN SPACE. ALL TRENCHES IN PUBLIC RIGHT OF WAY SHALL BE BACKFILLED WITH FLOWABLE FILL OR OTHER MATERIAL PRE-APPROVED BY THE LOCAL JURISDICTION.
17. ALL BROCHURES, OPERATING AND MAINTENANCE MANUALS, CATALOGS, SHOP DRAWINGS, AND OTHER DOCUMENTS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR AT COMPLETION OF CONSTRUCTION AND PRIOR TO PAYMENT.
18. THE CONTRACTOR SHALL SUBMIT A COMPLETE SET OF AS-BUILT REDLINES TO THE GENERAL CONTRACTOR AND OWNER (IONNA) UPON COMPLETION OF PROJECT AND PRIOR TO FINAL PAYMENT.
19. INFORMATION SHOWN ON THESE DRAWINGS WAS OBTAINED FROM SITE VISITS AND/OR DRAWINGS PROVIDED BY THE SITE OWNER. CONTRACTORS SHALL NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
20. THE TERM "DESIGN ENGINEER" USED HEREIN SHALL MEAN THE ENGINEER WHO HAS SIGNED AND SEALED HIS/HER RESPECTIVE PLAN SHEETS AND IS IN RESPONSIBLE CHARGE OF THE ENGINEERING DESIGN ON THOSE SHEETS. THE TERM "CONTRACTOR" USED HEREIN SHALL MEAN ANY GENERAL CONTRACTOR OR SUBCONTRACTOR USING THESE PLANS.
21. THE DESIGN ENGINEER SHALL NOT PROVIDE, OBSERVE, COMMENT ON NOR ENFORCE ANY SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, IMPLEMENT, AND MAINTAIN ALL SAFETY MEASURES AND SHALL BE SOLELY RESPONSIBLE FOR ADHERENCE WITH ALL REGULATIONS AND CODES WITH ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS. THE CONTRACTOR AGREES THAT SHE/HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS AND SAFETY OF ALL PERSONS AND PROPERTY DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
22. THE DESIGN ENGINEER SHALL HAVE NO RESPONSIBILITY FOR ANY OF THE CONTRACTOR'S MEANS AND METHODS OF CONSTRUCTION, TECHNIQUES, EQUIPMENT CHOICE AND USAGE, SEQUENCE, SCHEDULE, SAFETY PROGRAMS, OR SAFETY PRACTICES, NOR SHALL THE DESIGN ENGINEER HAVE ANY AUTHORITY OR RESPONSIBILITY TO DIRECT OR STOP THE WORK OF ANY CONTRACTOR.
23. ANY CHANGES MADE BY THE CONTRACTOR TO THE CONTRACTUALLY AGREED UPON SCOPE, SCHEDULE AND/OR FEE, WITHOUT THE EXPRESS WRITTEN AUTHORIZATION OF THE OWNER, IS THE SOLE RESPONSIBILITY AND LIABILITY OF THE CONTRACTOR. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR DIRECTING, IMPLICITLY OR EXPLICITLY ANY SUCH CHANGES AND THE CONTRACTOR ASSUMES ALL RISK OF UNDERTAKING ANY SUCH CHANGES.
24. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE DESIGN ENGINEER AND OWNER, THEIR OFFICERS, AGENTS AND EMPLOYEES, HARMLESS FROM ANY AND ALL CLAIMS, DEMANDS, JUDGMENTS, LOSS, DAMAGES, COSTS, EXPENSES, FEES OR LIABILITY WHATSOEVER, REAL OR ALLEGED, IN CONNECTION WITH, IN WHOLE OR IN PART, DIRECTLY OR INDIRECTLY, THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE OR CONCURRENT NEGLIGENCE OF THE OWNER OR THE DESIGN ENGINEER.
25. IF THERE ARE ANY QUESTIONS REGARDING THESE PLANS, THE CONTRACTOR SHALL ISSUE A RFI IN WRITING FROM THE DESIGN ENGINEER AND THE OWNER, REQUESTING A CLARIFICATION BEFORE PERFORMING ANY RELATED OR IMPACTED WORK. ANY ELECTRONIC FILES ARE PROVIDED ONLY FOR THE CONVENIENCE OF THE RECEIVING PARTY AND ARE INTENDED SOLELY FOR THE EXCLUSIVE USE BY THAT PARTY FOR THE PURPOSES EXPRESSLY AUTHORIZED. IN ACCORDANCE WITH STANDARD INDUSTRY PRACTICE, ONLY PRINTED COPIES OF DOCUMENTS DESIGNATED AS "ISSUED FOR CONSTRUCTION", OR EQUIVALENT DESIGNATION, MAY BE RELIED UPON.
26. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PREPARING ITS BID, IN WHOLE AND IN PART, BASED UPON THE DESIGN SHOWN ON THESE PLANS. THE CONTRACTOR IS NOT AUTHORIZED TO USE ANY QUANTITIES SHOWN ON THESE PLANS WITHOUT THE EXPLICIT WRITTEN PERMISSION OF THE ENGINEER OF RECORD. THE DESIGN ENGINEER MAKES NO WARRANTY OR REPRESENTATION AS TO THE SUITABILITY OF ANY INFORMATION SHOWN HEREON FOR DETERMINING A CONTRACTOR BID.
27. ANYTHING MENTIONED IN THE SPECIFICATIONS, IF ANY, AND NOT SHOWN ON THE DRAWINGS, OR SHOWN ON THE DRAWINGS AND NOT MENTIONED IN THE SPECIFICATIONS, SHALL BE OF LIKE EFFECT AS IF SHOWN OR MENTIONED IN BOTH.
28. THE CONTRACTOR SHALL EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES AS NEEDED, SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY DUE TO THE ACTUAL LOCATION, SIZE, TYPE, OR CONDITION OF EXISTING FACILITIES DIFFERING FROM WHAT IS SHOWN ON THESE PLANS. THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR ALL DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ALL SUCH FACILITIES WHETHER NOTED ON THESE PLANS OR NOT. THE DESIGN ENGINEER ASSUMES NO LIABILITY FOR ANY DAMAGES SUSTAINED OR COST INCURRED BECAUSE OF THE OPERATIONS IN THE VICINITY OF EXISTING FACILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF ANY DAMAGE TO THE EXISTING IMPROVEMENTS AND REPLACEMENT TO THE SATISFACTION OF THE OWNER AND/OR AUTHORITY HAVING JURISDICTION AS NEEDED.
29. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES PRIOR TO STARTING WORK ADJACENT TO, ABOVE OR BELOW THEIR FACILITIES AND SHALL COORDINATE ALL WORK WITH UTILITY COMPANY REPRESENTATIVES.
30. THE CONTRACTOR SHALL VERIFY ALL EXISTING AND PROPOSED GRADING ELEMENTS BEFORE THE START OF CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY THE DESIGN ENGINEER OF ANY DISCREPANCIES.
31. UNLESS EXPLICITLY STATED OTHERWISE HEREIN, THE EARTHWORK QUANTITIES SHOWN ON THESE PLANS ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S) AS FINISHED GROUND, FINISHED SURFACE, AND FINISHED FLOOR ELEVATIONS. NO REPRESENTATIONS OF SUCH QUANTITIES OR A BALANCED SITE CONDITION ARE MADE BY THE ENGINEER OF RECORD. THE EARTHWORK QUANTITIES SHOWN ON THESE PLANS ARE FOR PERMITTING PURPOSES ONLY. UNLESS EXPLICITLY STATED OTHERWISE HEREIN, THEY HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, SUBSIDENCE, OVER-EXCAVATION AND RE-COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, STORMWATER QUALITY MEDIA SECTIONS, UTILITY PIPES, TRENCHING AND BEDDING MATERIALS, BUILDING OR WALL FOOTINGS, BUILDING SLABS THICKNESSES AND UNDERLYING BASE OR SAND LAYERS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE PAVEMENTS, ETC. THE CONTRACTOR IS NOT AUTHORIZED TO USE THE ESTIMATES HEREIN FOR BIDDING AND CONSTRUCTION PURPOSES WITHOUT THE EXPLICIT WRITTEN PERMISSION OF THE ENGINEER OF RECORD.
32. PROPOSED BUILDING PAD ELEVATIONS, IF SHOWN, ARE BASED ON INFORMATION AVAILABLE AT THE TIME OF PREPARATION OF THESE PLANS. CONTRACTOR SHALL CONFIRM SLAB STRUCTURAL SECTION THICKNESSES AND PAD PREPARATION REQUIREMENTS PRIOR TO GRADING FINISHED PADS.
33. THE CONTRACTOR SHALL THOROUGHLY CHECK COORDINATION OF CIVIL, ELECTRICAL, AND ALL OTHER PLANS PRIOR TO COMMENCING CONSTRUCTION. SHOULD DISCREPANCIES OR CONFLICTING INFORMATION BE FOUND ON ANY PLANS, OR IN ANY SPECIFICATIONS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND DESIGN ENGINEER IN WRITING BEFORE PROCEEDING WITH THE WORK IN QUESTION.
34. THE CONTRACTOR SHALL TAKE ALL NECESSARY STEPS TO PROTECT THE PROJECT PROPERTY FROM ANY EROSION AND SILTATION THAT RESULT FROM CONTRACTOR OPERATIONS, BY APPROPRIATE MEANS, OR BY SPECIFIC MEANS DESCRIBED IN THE PROJECT'S PLANS, SPECIFICATIONS OR STORM WATER POLLUTION PREVENTION REPORT, UNTIL SUCH TIME THAT THE PROJECT IS COMPLETED AND ACCEPTED FOR MAINTENANCE BY WHOMEVER IS TO BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND THE AGENCY HAVING JURISDICTION. THE DESIGN ENGINEER SHALL HAVE NO RESPONSIBILITY TO DIRECT THE CONTRACTOR REGARDING THE MEANS AND METHODS OF STORMWATER POLLUTION PREVENTION, SEQUENCE, OR SCHEDULE.
35. ALL SHOP DRAWINGS, RFIS AND ANY OTHER DOCUMENTS THAT REQUIRE DESIGN ENGINEER REVIEW SHALL BE SUBMITTED BY THE CONTRACTOR SUFFICIENTLY IN ADVANCE OF CONSTRUCTION OF THAT ITEM, TO ALLOW ADEQUATE REVIEW, COORDINATION AND RESPONSE. SAID DOCUMENTS ARE NOT A DIRECTION FROM THE DESIGN ENGINEER TO MODIFY THE CONTRACTORS SCOPE, SCHEDULE OR PRICE, AND THE CONTRACTOR WARRANTS NOT TO USE THEM AS SUCH.
36. THE CONTRACTOR SHALL ENSURE APPROPRIATE LICENSED PROFESSIONALS HAVE BEEN RETAINED BY THE CONTRACTOR TO PROVIDE ANY/ALL REQUIRED PROJECT CERTIFICATIONS AS MAY BE REQUIRED BY ANY AUTHORITY HAVING JURISDICTION. THE DESIGN ENGINEER WILL NOT PROVIDE ANY PROJECT CERTIFICATIONS UNLESS SPECIFICALLY RETAINED BY THE OWNER TO PROVIDE LIMITED SERVICES.
37. CONTRACTOR SHALL RETAIN A LICENSED SURVEYOR TO DOCUMENT ALL CHANGES TO THE APPROVED CONSTRUCTION DOCUMENTS DURING CONSTRUCTION. THE LICENSED SURVEYOR SHALL PREPARE A SIGNED AND SEALED "AS-BUILT" DRAWING UPON COMPLETION OF CONSTRUCTION. THE DESIGN ENGINEER IS NOT RESPONSIBLE FOR THE PREPARATION IN WHOLE OR IN PART OF THE "AS-BUILT" DRAWINGS.
38. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY MONUMENTATION AND BENCHMARKS WHICH WILL BE DISTURBED OR DESTROYED BY CONSTRUCTION. SUCH POINTS SHALL BE REFERENCED AND REPLACED WITH APPROPRIATE MONUMENTATION BY A LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AUTHORIZED TO PRACTICE LAND SURVEYING. A CORNER RECORD OR RECORD OF SURVEY, AS APPROPRIATE, SHALL BE FILED BY THE LICENSED LAND SURVEYOR OR REGISTERED CIVIL ENGINEER AS REQUIRED BY THE MOST CURRENT VERSION OF THE LAND SURVEYORS ACT.

SETBACK NOTE

CONTRACTOR TO VERIFY THAT LOCATIONS OF ALL PROPOSED EV ELECTRICAL EQUIPMENT AND INFRASTRUCTURE ARE IN COMPLIANCE WITH ALL LOCAL CODES, SETBACKS, AND BUFFERS.

CITY OF FARMINGTON HILLS STANDARD NOTES

1. NOTIFY THE CITY OF FARMINGTON HILLS ENGINEERING DIVISION (248) 871-2560 A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
2. ALL CONSTRUCTION MUST BE CONFORMING TO THE CURRENT STANDARDS AND SPECIFICATIONS ADOPTED BY THE CITY OF FARMINGTON HILLS.
3. UTILITIES TO BE UNDERGROUND.
4. CALL MISS DIG (1-800-647-7344 / 1-800-MISS DIG) A MINIMUM OF 72 HOURS PRIOR TO THE START OF CONSTRUCTION.
5. ALL SOIL EROSION AND SILT MUST BE CONTROLLED AND CONTAINED ON SITE.
6. ALL EXCAVATION UNDER OR WITHIN 3 FEET OF PUBLIC PAVEMENT, EXISTING OR PROPOSED, SHALL BE BACKFILLED AND COMPACTED WITH SAND (CLASS II MDOT).
7. THE CONTRACTOR IS RESPONSIBLE FOR ALL DAMAGE TO EXISTING UTILITIES.
8. PRIOR TO THE ISSUANCE OF AN OCCUPANCY PERMIT, ENGINEERING SITE INSPECTION IS REQUIRED.

TYPICAL ABBREVIATIONS

A	AMPERE	EX	EXISTING	IN	INCH	SS	STAINLESS STEEL
AC	ALTERNATING CURRENT	EGC	EQUIPMENT GROUNDING CONDUCTOR	KVA	KILOVOLT AMPERE	SSWR	SANITARY SEWER
ADA	AMERICANS WITH DISABILITIES ACT	ESMT	EASEMENT	KW	KILOWATT	TYP	TYPICAL
AHJ	AUTHORITY HAVING JURISDICTION	ESA	ENVIRONMENTAL SITE ASSESSMENT	LF	LINEAR FEET	UON	UNLESS OTHERWISE NOTED
AL	ALUMINUM	EMT	ELECTRIC METALLIC TUBING	LVE	LOW VOLTAGE ENCLOSURE	UV	ULTRAVIOLET
ART	ARTICLE	EQ	EQUAL	M	METER	V	VOLT
AUX	AUXILIARY	EQPT	EQUIPMENT	MAX	MAXIMUM	W	WATT
BAY	BAYONET FUSE	EV	ELECTRIC VEHICLE	MIN	MINIMUM	W/	WITH
BLDG	BUILDING STRUCTURE	EVCS	ELECTRIC VEHICLE CHARGING STATION	N	NEUTRAL	W/O	WITHOUT
BOL	BOLLARD	EVSE	ELECTRIC VEHICLE SUPPLY EQUIPMENT	NEC	NATIONAL ELECTRIC CODE	XFMR	TRANSFORMER
BOT	BOTTOM	EVSG	ELECTRIC VEHICLE SWITCH GEAR	NTS	NOT TO SCALE		
℄	CENTER LINE	E&S	EROSION AND SEDIMENT CONTROL	OC	ON CENTER		
CLF	CURRENT LIMITING FUSE	FFE	FINISHED FLOOR ELEVATION	PL	PROPERTY LINE		
CLR	CLEARANCE	FSC	FUTURE SERVICE CENTER	PVC	POLYVINYL CHLORIDE		
CONC	CONCRETE	GALV	GALVANIZED	RMC	RIGID METALLIC CONDUIT		
CU	COPPER	GND	GROUND	SCH	SCHEDULE		
DEMO	DEMOLITION	HDG	HOT DIPPED GALVANIZED	SJI	STEEL JOIST INSTITUTE		
DIST	DISTANCE	HT	HEIGHT	SPA	SPACING		
DC	DIRECT CURRENT	I	CURRENT	SQ	SQUARE		

GENERAL SITE WORK NOTES

PART 1 - GENERAL

CLEARING, GRUBBING, STRIPPING, EROSION CONTROL, SURVEY, LAYOUT, SUBGRADE PREPARATION AND FINISH GRADING AS REQUIRED TO COMPLETE THE PROPOSED WORK SHOWN IN THESE PLANS.

1. REFERENCES:
   - A. MDOT (STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION-CURRENT EDITION).
   - B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS).
   - C. OSHA (OCCUPATION SAFETY AND HEALTH ADMINISTRATION).
2. INSPECTION AND TESTING:
   - A. GENERAL CONTRACTOR SHALL PERFORM ALL WORK IN CONFORMANCE WITH THE PLANS AND SPECIFICATIONS. PERFORM INSPECTIONS BEFORE CONCEALING WORK WITH FOLLOW-ON ACTIVITIES (BACKFILL, CONCRETE POUR, ETC).
3. SITE MAINTENANCE AND PROTECTION:
   - A. PROVIDE ALL NECESSARY JOB SITE MAINTENANCE FROM COMMENCEMENT OF WORK UNTIL COMPLETION OF THE CONTRACT.
   - B. AVOID DAMAGE TO THE SITE AND TO EXISTING FACILITIES, STRUCTURES, TREES, AND SHRUBS DESIGNATED TO REMAIN. TAKE PROTECTIVE MEASURES TO PREVENT EXISTING FACILITIES THAT ARE NOT DESIGNATED FOR REMOVAL FROM BEING DAMAGED BY THE WORK.
   - C. KEEP SITE FREE OF ALL PONDING WATER.
   - D. PROVIDE EROSION CONTROL MEASURES IN ACCORDANCE WITH STATE DOT, LOCAL PERMITTING AGENCY AND EPA REQUIREMENTS.
   - E. PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNALS AND SIMILAR DEVICES NECESSARY TO PROTECT AGAINST THEFT FROM PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.
   - F. EXISTING UTILITIES: DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED BY THE OWNER OR OTHERS, EXCEPT WHEN PERMITTED IN WRITING BY THE CONSTRUCTION MANAGER AND THEN ONLY AFTER ACCEPTABLE TEMPORARY UTILITY SERVICES HAVE BEEN PROVIDED.
   - G. PROVIDE A MINIMUM 48-HOUR (CONTRACTOR SHALL CONFIRM TIMELINE WITH REPUBLIC SERVICES) NOTICE TO THE CONSTRUCTION MANAGER AND RECEIVE WRITTEN NOTICE TO PROCEED BEFORE INTERRUPTING ANY UTILITY SERVICE.
   - H. SOD PLANTED IN THE FALL MUST ESTABLISH ITS ROOTS BEFORE THE FIRST WINTER FROST. DETERMINE WHEN THE FIRST FROST USUALLY OCCURS, AND PLANT THE SOD NO LATER THAN ONE MONTH BEFORE THE FIRST FROST. IF THE CONSTRUCTION IS FINISHED LATER THAN ONE MONTH BEFORE THE FIRST FROST, USE STRAW UNTIL SOD CAN BE INSTALLED.

PART 2 - PRODUCTS

1. SUITABLE MATERIAL – SUITABLE MATERIAL ARE USED FOR GRADING AND BACKFILL. SUITABLE MATERIALS ARE ON SITE SOILS REMOVED FROM EXCAVATIONS THAT EXCLUDE FROZEN SOIL, ROOTS OR ORGANIC MATERIAL, DEBRIS, TRASH, REFUSE, OR PARTICLES SIZE GREATER THAN 3-INCH. SUITABLE SOILS HAVE MOISTURE CONTENTS THAT ALLOW THEM TO BE COMPACTED TO THE SAME DENSITY AS THE NATIVE SOILS.
2. UNSUITABLE MATERIAL – SOILS THAT ARE FROZEN, CONTAIN ROOTS OR ORGANIC MATERIAL, DEBRIS, TRASH, REFUSE, OR PARTICLES SIZES GREATER THAN 3-INCH. SOILS THAT ARE TOO WET OR TOO DRY TO BE COMPACTED TO THE SAME DENSITY AS THE NATIVE SOILS ARE UNSUITABLE.
3. GRANULAR BACKFILL – SHALL MEET THE FOLLOWING GRADATION

SIEVE SIZE	TOTAL PERCENT PASSING
1 1/2 INCH (37.5 MM)	100
No. 4 (4.75 MM)	30 TO 60
NO 200 (0.075 MM)	3 TO 15

4. GRANULAR BEDDING – WELL-GRADED SAND MEETING THE GRADATION REQUIREMENT OF ASTM C 33 FINE AGGREGATE.
5. CONTROLLED LOW STRENGTH MATERIAL (CLSM)– A SELF LEVELING AND SELF COMPACTING CEMENTITIOUS MATERIAL COMPOSED OF SAND, COARSE AGGREGATE, CEMENT, FLY ASH, WATER AND ADMIXTURES. CLSM SHALL BE EXCAVATABLE AND SHALL HAVE A DESIGNED UNCONFINED COMPRESSIVE STRENGTH OF BETWEEN 50 TO 100 PSI.
6. BACKFILL – PRODUCTS MEETING THE REQUIREMENTS OF SUITABLE MATERIAL, GRANULAR BEDDING, GRANULAR BACKFILL OR CLSM.
7. TOPSOIL – SOIL WITH AN ORGANIC CONTENT SUFFICIENT TO ALLOW VEGETATIVE GROWTH.

PART 3 - EXECUTION

1. GENERAL:
   - A. BEFORE STARTING GENERAL SITE PREPARATION ACTIVITIES, INSTALL EROSION AND SEDIMENT CONTROL MEASURES. THE WORK AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUCH CONDITION THAT IN THE EVENT OF RAIN THE SITE WILL BE DRAINED AT ALL TIMES.
   - B. BEFORE ALL SURVEY, LAYOUT, STAKING, AND MARKING, ESTABLISH AND MAINTAIN ALL LINES, GRADES, ELEVATIONS AND BENCHMARKS NEEDED FOR EXECUTION OF THE WORK. CONDUCT UTILITY LOCATE IN ACCORDANCE WITH THE ONE-CALL NOTIFICATION.
   - C. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE. REMOVE TREES, BRUSH, STUMPS, RUBBISH AND OTHER DEBRIS AND VEGETATION RESTING ON OR PROTRUDING THROUGH THE SURFACE OF THE SITE AREA TO BE CLEARED.
   - D. REMOVE THE FOLLOWING MATERIALS TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE ORIGINAL GROUND SURFACE: ROOTS, STUMPS, AND OTHER DEBRIS, BRUSH, AND REFUSE EMBEDDED IN OR PROTRUDING THROUGH THE GROUND SURFACE. RAKE, DISK OR PLOW THE AREA TO A DEPTH OF NO LESS THAN 6 INCHES, AND REMOVE TO A DEPTH OF 12 INCHES ALL ROOTS AND OTHER DEBRIS THEREBY EXPOSED.
   - E. REMOVE TOPSOIL MATERIAL COMPLETELY FROM THE SURFACE UNTIL THE SOIL NO LONGER MEETS THE DEFINITION OF TOPSOIL. AVOID MIXING TOPSOIL WITH SUBSOIL OR OTHER UNDESIRABLE MATERIALS. SUFFICIENT TOPSOIL MAY BE STOCKPILED ON SITE FOR USE DURING FINAL SITE GRADING.
   - F. EXCEPT WHERE EXCAVATION TO GREATER DEPTH IS INDICATED, FILL DEPRESSIONS RESULTING FROM CLEARING, GRUBBING AND DEMOLITION WORK COMPLETELY WITH SUITABLE MATERIAL.
   - G. REMOVE FROM THE SITE AND DISPOSE IN AN AUTHORIZED LANDFILL ALL DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS. BURNING WILL NOT BE PERMITTED.
   - H. PRIOR TO EXCAVATING, THOROUGHLY EXAMINE THE AREA TO BE EXCAVATED AND/OR TRENCHED TO VERIFY THE LOCATIONS OF FEATURES INDICATED ON THE DRAWINGS AND TO ASCERTAIN THE EXISTENCE AND LOCATION OF ANY STRUCTURE, UNDERGROUND STRUCTURE, OR OTHER ITEM NOT SHOWN THAT MIGHT INTERFERE WITH THE PROPOSED CONSTRUCTION. NOTIFY THE CONSTRUCTION MANAGER OF ANY OBSTRUCTIONS THAT WILL PREVENT ACCOMPLISHMENT OF THE WORK AS INDICATED ON THE DRAWINGS.
   - I. SEPARATE AND STOCK PILE ALL EXCAVATED MATERIALS SUITABLE FOR BACKFILL. ALL EXCESS EXCAVATED AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF OFF-SITE IN A LEGAL MANNER.
   - J. DURING EXCAVATION, THE CONTRACTOR SHALL PROVIDE SHORING, SHEETING, AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF EXCAVATION.
2. BACKFILL:
   - A. AS SOON AS PRACTICAL, AFTER COMPLETING CONSTRUCTION OF THE RELATED STRUCTURE, INCLUDING EXPIRATION OF THE SPECIFIED MINIMUM CURING PERIOD FOR CAST-IN-PLACE CONCRETE, BACKFILL THE EXCAVATION WITH APPROVED MATERIAL TO RESTORE THE REQUIRED FINISHED GRADE.
   - B. PRIOR TO PLACING BACKFILL AROUND STRUCTURES, ALL FORMS SHALL BE REMOVED AND THE EXCAVATION CLEANED OF ALL TRASH, DEBRIS, AND UNSUITABLE MATERIALS.
   - C. DO NOT PLACE FROZEN MATERIAL IN AS BACKFILL.
   - D. PLACE BACKFILL MATERIAL OR SELECT GRANULAR BACKFILL MATERIAL WHEN REQUIRED IN UNIFORM HORIZONTAL LAYERS OF NO GREATER THAN 8-INCHES LOOSE THICKNESS AND COMPACT TO THE SAME DENSITY AS NATIVE SOIL. WHERE HAND OPERATED COMPACTORS ARE USED, THE FILL MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 4 INCHES IN LOOSE DEPTH AND COMPACTED.
   - E. WHENEVER TESTING INDICATES THAT THE CONTRACTOR HAS NOT OBTAINED THE SPECIFIED DENSITY, THE SUCCEEDING LAYER SHALL NOT BE PLACED UNTIL THE REQUIREMENTS ARE MET UNLESS OTHERWISE AUTHORIZED BY THE CONSTRUCTION MANAGER. THE CONTRACTOR SHALL TAKE WHATEVER APPROPRIATE ACTION IS NECESSARY, SUCH AS DRYING, ADDING WATER, OR INCREASING THE COMPACTIVE EFFORT TO MEET THE COMPACTION REQUIREMENTS.
3. TRENCH EXCAVATION:
   - A. UTILITY TRENCHES SHALL BE EXCAVATED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE GENERAL CONTRACTOR. PROVIDE SHORING, SHEETING AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE TRENCH WALLS.
   - B. EXTEND THE TRENCH WIDTH A MINIMUM OF 6 INCHES BEYOND THE OUTSIDE EDGE OF THE OUTERMOST CONDUIT.
   - C. WHEN SOFT YIELDING, OR OTHERWISE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, EXCAVATE THE REQUIRED TRENCH TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE REQUIRED ELEVATION, THEN BACKFILL WITH 12" OF GRANULAR BEDDING MATERIAL.
4. TRENCH BACKFILL:
   - A. PROVIDE GRANULAR BEDDING MATERIAL OR FLOWABLE FILL IN ACCORDANCE WITH THE DRAWINGS AND THE UTILITY REQUIREMENTS.
   - B. NOTIFY THE GENERAL CONTRACTOR 24 HOURS IN ADVANCE OF BACKFILLING.
   - C. CONDUCT UTILIT

hyc400

Product data sheet 1/3

100 kW to 400 kW
DC-charging system
for EVs



Up to **97.5 %**
efficiency under full load

Up to **2x 600 A**
simultaneous output

50 kW
dynamic load management granularity

150 - 1000 V
output range

Bidirectional
future capability

All-in-one design for an ultra-compact footprint

Up to 4 simultaneous charge outputs

Power-Stack scalable architecture

Product data sheet HYC400UL / V1-1
© Alpitronic Americas LLC
5815 Westpark Drive, Charlotte, NC 28217
info@alpitronic.us

www.hypercharger.us

alpitronic hypercharger

hyc400

Product data sheet 2/3

Charging Interfaces

Connection options	CCS1, J3400 (NACS), CHAdeMO
Cable lengths	11.5 ft (3.5 m), 16.4 ft (5 m), 25 ft (7.5 m)
RFID system	ISO/IEC 14443A/B, ISO/IEC 15693, NFC
Network connections	Dual SIM, 4G LTE Modems 10/100 Base-T Ethernet
Energy management	Configurable static power limit, Dynamic Power limit via OCPP/Modbus
Network communications protocol	Open Charge Point Protocol (OCPP) 1.6 and 2.0.1 Modbus, API
Vehicle communications protocol	DIN 70121, ISO 15118, Autocharge, Plug and Charge, CHAdeMO 1.2

Electrical

AC nominal voltage (RMS)	480 V ±10%
AC nominal input current (RMS)	480 A
Input connection	3-Phase: L1, L2, L3, GND (no neutral)
Frequency	60 Hz
Power factor	> 0.99 at full load
THDi (Total harmonic distortion)	< 5% at full load
Conversion efficiency	up to 97.5% at full load
SCCR	65 kA
Surge protection	Type 1, In 20 kA, Imax 50 kA
Standby power consumption	43 W
DC output	100 kW (one Power-Stack), max. 300 A 200 kW (two Power-Stacks), max. 600 A 300 kW (three Power-Stacks), max. 900 A (600 A max. per cable) 400 kW (four Power-Stacks), max. 1200 A (600 A max. per cable)
Output voltage	150 - 1000 VDC

(1) Standard environmental conditions 60°F (20°C), 10 ft (3 m) distance
(2) See Manual for environmental derate
(3) Depending on the configuration

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alpitronic hypercharger

hyc400

Product data sheet 3/3

General

Operating temperature	-30°C up to +55°C (-22°F to 131°F)(2)
Storage/transport temperature	-40°C to 70°C (-40°F to 158°F)
Altitude	<4,000 m (< 13,000 ft)(2)
Humidity (in operation, storage)	Up to 95% non-condensing
Enclosure type	NEMA 3R (IP54) Indoor/Outdoor
Impact resistance (IEC 62262)	IK10
Noise emission	< 52 dBA(1)
Dimensions (H x W x D)	88 x 29 x 26 in (2185 x 732 x 663 mm)
Weight	1235 lbs up to 1965 lbs (560 kg up to 890 kg)(3)
Accessibility	Meets ADA requirements for height and reach
User interface	15.6" display, 4 buttons, RGB connector status
Multilingual system	GUI in 27 languages
Remote management	Access control, configuration, diagnostics, software updates

Configuration Options

Branding	Options for custom colors (powder coating), custom vinyl
CMS (Cable Management System)	Metal swing arm keeps 16.4 ft (5 m) off the ground
Payment system	Credit card reader optional (Payter/Nayax), EMV Chip, Tap to Pay

Compliance and Safety

NRTL	UL 2202, UL 2231-1, UL 2231-2 CSA C22.2 No. 346.22, No. 281.1-12, No. 281.2-12 File No. E515867
Metering	CTEP No. 5966-24
EMC	FCC 47CFR Part 15B (Class A)
Electrical safety	NEC (NFPA 70) Article 625
NEVI	Buy America, 100% US Steel

More Information:
www.hypercharger.us

alpitronic hypercharger

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3000 TOWN CENTER #2600,
SOUTHFIELD, MI 48075
Main: (313) 572-1560 | www.kimley-horn.com
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STORE NO.: MI-0002

EV STALLS: 8

KIMLEY-HORN PROJECT NO.: 296087121

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CONSULTANTS

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PRELIMINARY PLANS
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ISSUE BLOCK

DESIGNED BY:	QD
DRAWN BY:	FG
CHECKED BY:	MS
DOCUMENT DATE:	9/17/2026

SHEET TITLE
CHARGER SPEC SHEETS

SHEET NUMBER
G2.0

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VICINITY MAP

(NOT TO SCALE)



FARMINGTON HILLS, MICHIGAN, OAKLAND COUNTY

SURVEYOR'S GENERAL NOTES

1. This survey was prepared using Fidelity National Title Insurance Company, Commitment Number: 5000019203, having an effective date of September 24, 2025 at 12:00 am.
2. Elevations are based on **North American Vertical Datum of 1988 (NAVD 88)**.
3. The horizontal datum is the Michigan State Plane Coordinate System, South Zone NAD83(2011), International Foot. The average project combined grid factor is 1.0001025877 verified against OPUS-S solution.

TABLE A OPTIONAL ITEM NOTES

2. The address of the subject property is 27614 Middlebelt Road, Farmington Hills, Michigan 48334.
3. The foregoing property is located within Zone X (Unshaded) - (Areas determined to be outside the 0.2% annual chance floodplain.) according to FEMA FIRM Map Number 26125C0652F, Effective Date September 29, 2006.
4. Subject tract area is 6.878 acres, or 299,616 square feet.
5. Elevations and contours shown hereon are based on NAVD88, derived from on the ground survey displaying 1'-5' contour intervals. Site benchmarks are shown hereon.

6(b). The surveyed area of the subject tract is in the City of Farmington Hills City Limits, and is Zoned OS-1 (Office Service District) per the City of Farmington Hills Zoning Map. No zoning report provided by the client.

8. The surveyor has made a good faith effort to show all substantial, above ground, visible, and permanent features observed during the course of the survey as shown hereon, (within requested area only).
9. 112 total parking spaces were found on site, of which 6 are handicap spaces, and 106 regular spaces, (within requested area only).

11(a). Evidence of underground utilities existing on or serving the surveyed property as determined by found evidence, and on the ground markings, no plans provided at the time of survey.

11(b). A private utility marking request was made by the client. The underground utility lines shown hereon have been located from field survey information provided by BLVD, on 10/07/2025. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in service or abandoned, nor do we guarantee the accuracy or completeness of the markings and maps provided.

13. Names of adjoining owners are shown according to the Oakland County Appraisal District, shown hereon.
17. The surveyor is not aware of any proposed changes in street right of way lines, and there was no observable evidence of recent street or sidewalk construction or repairs at the time of survey, (within requested area only).
18. Any plottable offsite easements provided in the Title Insurance Commitment are shown hereon.

20(a). No evidence of soil borings were found on the subject property at the time of the survey, (within requested area only).

20(b). No wetland delineation markers were observed in the process at the time of the survey. The surveyor is not aware of any recent wetland delineations taking place on the subject property, (within requested area only).

LEGAL DESCRIPTION

PER TITLE COMMITMENT NO. 5000019203

An interest in land, said interest being over a portion of the following described parent parcel:

PARCEL 1:
Land situated in the City of Farmington Hills, County of Oakland, State of Michigan described as follows:

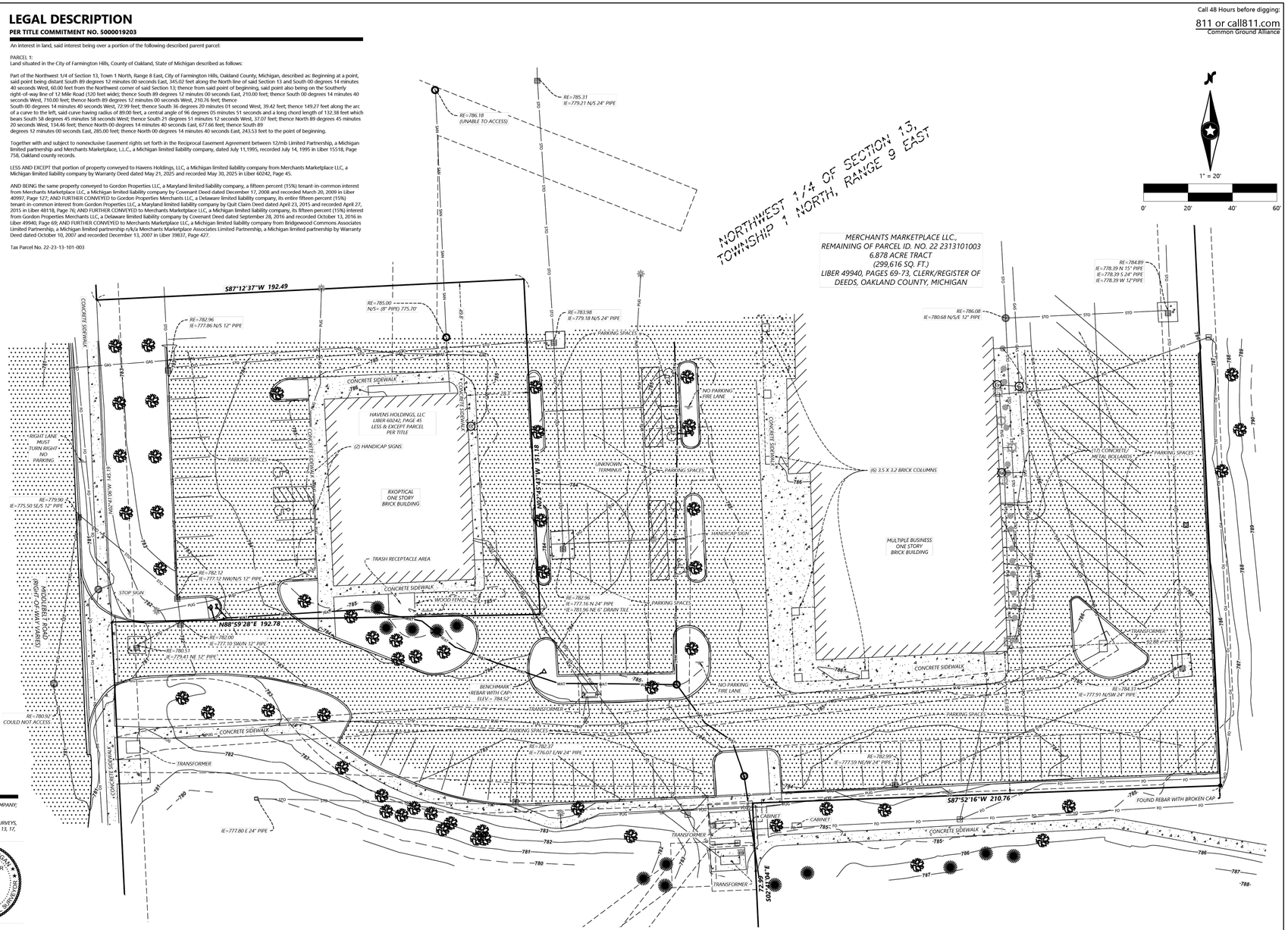
Part of the Northwest 1/4 of Section 13, Town 1 North, Range 8 East, City of Farmington Hills, Oakland County, Michigan, described as: Beginning at a point, said point being distant South 89 degrees 12 minutes 00 seconds East, 345.02 feet along the North line of said Section 13 and South 00 degrees 14 minutes 40 seconds West, 60.00 feet from the Northwest corner of said Section 13; thence from said point of beginning, said point also being on the Southerly right-of-way line of 12 Mile Road (120 feet wide); thence South 89 degrees 12 minutes 00 seconds East, 210.00 feet; thence South 00 degrees 14 minutes 40 seconds West, 710.00 feet; thence North 89 degrees 12 minutes 00 seconds West, 210.76 feet; thence South 00 degrees 14 minutes 40 seconds West, 72.99 feet; thence South 36 degrees 20 minutes 01 second West, 39.42 feet; thence 149.27 feet along the arc of a curve to the left, said curve having radius of 89.00 feet, a central angle of 96 degrees 05 minutes 51 seconds and a long chord length of 132.38 feet which bears South 58 degrees 45 minutes 58 seconds West; thence South 21 degrees 51 minutes 12 seconds West, 37.07 feet; thence North 89 degrees 45 minutes 20 seconds West, 134.46 feet; thence North 00 degrees 14 minutes 40 seconds East, 677.66 feet; thence South 89 degrees 12 minutes 00 seconds East, 285.00 feet; thence North 00 degrees 14 minutes 40 seconds East, 243.53 feet to the point of beginning.

Together with and subject to nonexclusive Easement rights set forth in the Reciprocal Easement Agreement between 12/mb Limited Partnership, a Michigan limited partnership and Merchants Marketplace, L.L.C., a Michigan limited liability company, dated July 11,1995, recorded July 14, 1995 in Liber 15518, Page 758, Oakland county records.

LESS AND EXCEPT that portion of property conveyed to Havens Holdings, LLC, a Michigan limited liability company from Merchants Marketplace LLC, a Michigan limited liability company by Warranty Deed dated May 21, 2025 and recorded May 30, 2025 in Liber 60242, Page 45.

AND BEING the same property conveyed to Gordon Properties LLC, a Maryland limited liability company, a fifteen percent (15%) tenant-in common interest from Merchants Marketplace LLC, a Michigan limited liability company by Covenant Deed dated December 17, 2008 and recorded March 20, 2009 in Liber 40997, Page 127; AND FURTHER CONVEYED to Gordon Properties Merchants LLC, a Delaware limited liability company, its entire fifteen percent (15%) tenant-in-common interest from Gordon Properties LLC, a Maryland limited liability company by Quit Claim Deed dated April 23, 2015 and recorded April 27, 2015 in Liber 48118, Page 76; AND FURTHER CONVEYED to Merchants Marketplace LLC, a Michigan limited liability company, its fifteen percent (15%) interest from Gordon Properties Merchants LLC, a Delaware limited liability company by Covenant Deed dated September 28, 2016 and recorded October 13, 2016 in Liber 49940, Page 69; AND FURTHER CONVEYED to Merchants Marketplace LLC, a Michigan limited liability company from Bridgewood Commons Associates Limited Partnership, a Michigan limited partnership n/k/a Merchants Marketplace Associates Limited Partnership, a Michigan limited partnership by Warranty Deed dated October 10, 2007 and recorded December 13, 2007 in Liber 39837, Page 427.

Tax Parcel No. 22-23-13-101-003



CERTIFICATION

TO: (i) FIDELITY NATIONAL TITLE INSURANCE COMPANY (II) IONNA LLC, A DELAWARE LIMITED LIABILITY COMPANY;

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 6(b), 8, 9,11(a)(b), 13, 17, 18, 20(a), AND 20(b) OF TABLE A THEREOF. THE FIELDWORK WAS COMPLETED ON OCTOBER 18, 2025

STATE OF MICHIGAN · CHRISTOPHER R. FOLEY · PROFESSIONAL SURVEYOR · 400107134 · LICENSED PROFESSIONAL SURVEYOR

CHRISTOPHER R. FOLEY, PS *DATE: 12/03/2025*
MICHIGAN STATE LICENSE NO. 4001071349
ChrisFoley@westwoodps.com

PROJECT:	72207.04
CHECKED:	CRF/ECO
DRAWN:	ARS/MWL
HORIZONTAL SCALE:	1" = 20'

INITIAL ISSUE:
REVISIONS:

PREPARED FOR:

Ionna LLC
Durham, NC

FARMINGTON HILLS
27614 MIDDLEBELT ROAD
FARMINGTON HILLS, MI 49002

Westwood
Phone (210) 265-8300 211 North Loop 1604 East, Suite 205
Toll Free (888) 937-5150 San Antonio, TX 78232
westwoodps.com
Westwood Professional Services, Inc.

ALTA/NSPS Land Title Survey
A 6.878 Acre Tract Situated in the Northwest Quarter of Section 13, Township 1 North, Range 9 East
Farmington Hills City, Oakland County, Michigan

PROJECT NUMBER: 0072207.04

SHEET NUMBER: 1 OF 2

DATE: 12/03/2025

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CONSULTANTS

DESIGNED AND PROVIDED BY OTHERS

No	ISSUE BLOCK	DATE	BY
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DESIGNED BY:	N/A
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DOCUMENT DATE:	9/17/2026

SHEET TITLE
ALTA SURVEY (BY OTHERS)

SHEET NUMBER
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VICINITY MAP

(NOT TO SCALE)



FARMINGTON HILLS, MICHIGAN,
OAKLAND COUNTY

SCHEDULE B, PART II - EXCEPTIONS

PER TITLE COMMITMENT NO. 5000019203

The following notes correspond to the numbering system of Schedule B, Part II - General Exceptions, and Special Exceptions of the above mentioned title commitment. Items 1-2, and 5-6 of the General Exceptions, and 7, 22, and of the Special Exceptions are not a survey related and are not addressed hereon.
SURVEYORS COMMENTS IN BOLD ITALICS

GENERAL EXCEPTIONS:

3. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the title that would be disclosed by an accurate and complete land survey of the Land. ***SUCH ITEMS, IF ANY, AS SHOWN***

4. Easements, or claims of easements, not shown by the Public Records. ***SUCH ITEMS, IF ANY, AS SHOWN***

SPECIAL EXCEPTIONS:

8. Agreement dated March 7, 1986, by and between Remington Woods Office Center, a Michigan co-partnership, Sisters of Mercy-Province of Detroit, Inc., a Michigan corporation and Pontiac Bloomfield Terraces Corporation, a Michigan non-profit corporation, recorded on February 6, 1990 in Liber 11251, Page 88.
   Amendment to Agreement recorded in Liber 11251, Page 117. ***BLANKET IN NATURE***

9. Agreement dated February 5, 1987, by and between Michigan National Bank of Detroit, a national banking association and the City of Farmington Hills, a public body corporate, recorded in Liber 11251, Page 167.
   Assignment of Easement from The City of Farmington Hills, a Municipal corporation assigned to the County of Oakland, a Michigan Constitutional corporation recorded in Liber 11550, Page 249. ***BLANKET IN NATURE***

10. City of Farmington Hills Timbercrest Planned Unit Development Agreement dated October 6, 1994, by and between The City of Farmington Hills, a Michigan municipal corporation and Jonna Realty Ventures, Inc., a Michigan corporation, recorded in Liber 15022, Page 616.
    Assignment of Right and Interests in and to Timbercrest Planned Unit Development Agreement from Jonna Realty Ventures, Inc., a Michigan corporation assigned to 12/MB Limited Partnership, a Michigan limited partnership dated December 12, 1994 and recorded in Liber 15355, Page 451. ***BLANKET IN NATURE***

11. Underground Easement (Right of Way) No. R-9102627-06 in favor of The Detroit Edison Company, a Michigan Corporation set forth in instrument recorded on February 23, 1995 in Liber 15262, Page 804. ***AS SHOWN***

12. Overhead Easement (Right of Way) No. R-9102627-06 in favor of The Detroit Edison Company, a Michigan Corporation set forth in instrument recorded on February 23, 1995 in Liber 15262, Page 806.
    LIES OUTSIDE OF SUBJECT PARCEL

13. Reciprocal Easement Agreement dated July 11, 1995, by and between 12/MB Limited Partnership, a Michigan limited partnership and Merchants Marketplace, L.L.C., a Michigan limited liability company, recorded on July 14, 1995 in Liber 15518, Page 758. ***BLANKET IN NATURE***

14. Easement in favor of Michigan Bell Telephone Company, a Michigan corporation set forth in instrument recorded on April 3, 1996 in Liber 16147, Page 56. ***AS SHOWN***

15. Easement in favor of Michigan Bell Telephone Company, a Michigan corporation, aka Ameritech Michigan set forth in instrument recorded on August 1, 1996 in Liber 16481, Page 235. ***AS SHOWN***

16. Easement in favor of Michigan Bell Telephone Company, a Michigan corporation, aka Ameritech Michigan set forth in instrument recorded on March 22, 2001 in Liber 22520, Page 734. ***AS SHOWN***

17. Easement in favor of The City of Farmington Hills, Oakland County, Michigan set forth in instrument recorded on March 13, 2003 in Liber 28342, Page 111. ***AS SHOWN***

18. Agreement for Storm Water Retention & Discharge Restriction System dated August 4, 1995, by and between Merchants Marketplace, L.L.C. and The City of Farmington Hills, a municipal corporation, recorded on April 15, 2003 in Liber 28812, Page 893. ***AS SHOWN***

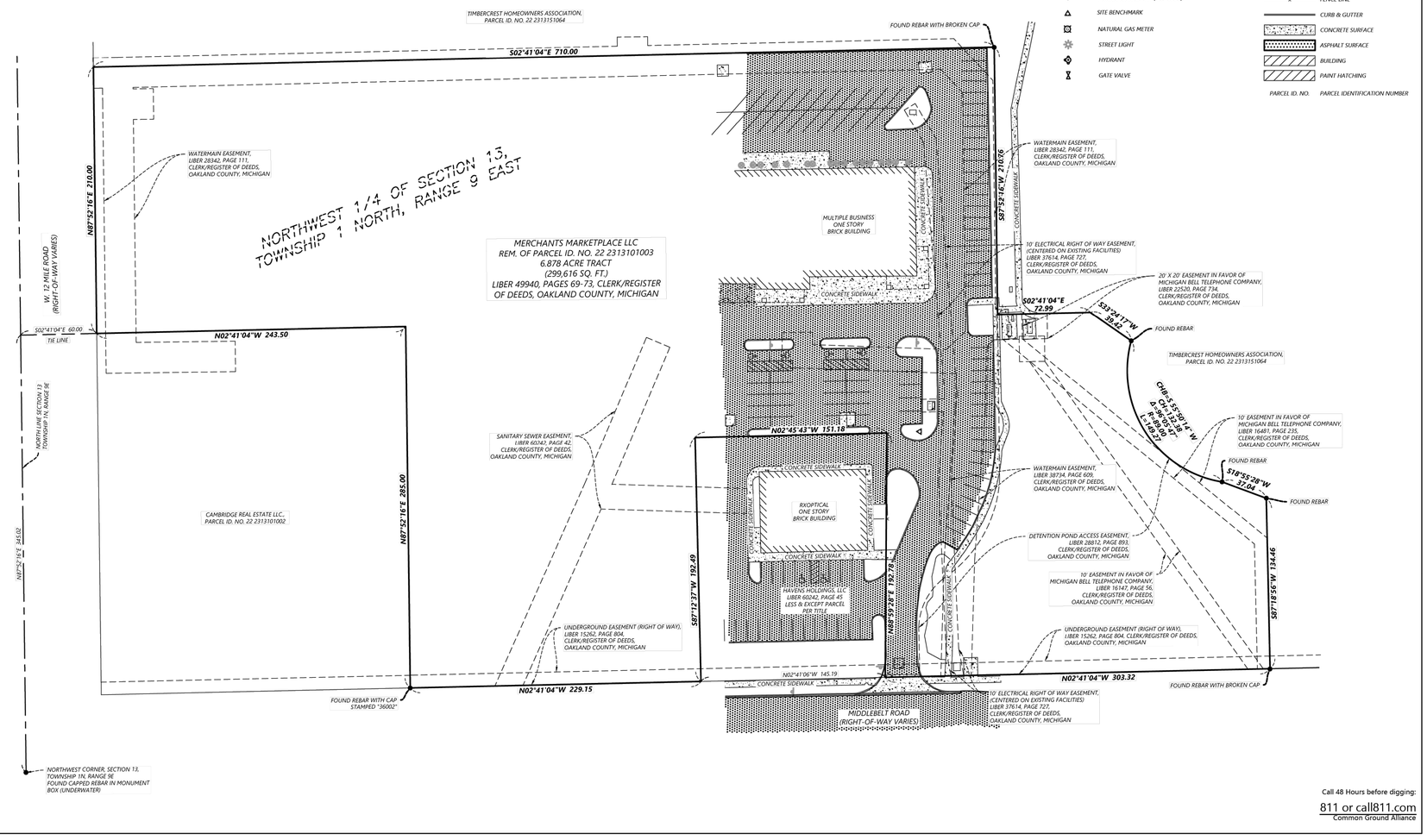
19. Detroit Edison Underground Easement (Right of Way) No. 642164-3 in favor of The Detroit Edison Company, a Michigan corporation set forth in instrument recorded on May 25, 2006 in Liber 37614, Page 727. ***AS SHOWN***

20. Easement in favor of The City of Farmington Hills set forth in instrument recorded on February 7, 2007 in Liber 38734, Page 609. ***AS SHOWN***

21. Lost Document Affidavit recorded on March 23, 2009 in Liber 40999, Page 389. ***BLANKET IN NATURE***

23. Easement in favor of City of Farmington Hills set forth in instrument recorded on May 30, 2025 in Liber 60242, Page 42. ***AS SHOWN***

24. Terms, provisions, covenants, conditions, restrictions, reservations, easements, charges, assessments and liens provided in a Deed or Covenants, Conditions and Restrictions recorded in Liber 60242, Page 49, but omitting any covenants or restrictions, if any, based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law. ***BLANKET IN NATURE***



LEGEND

SANITARY MANHOLE	STORM CULVERT
WATER MANHOLE	HANDICAPPED STALL
ELECTRIC METER	STD — STORM SEWER
NATURAL GAS METER	BOUNDARY LINE
FIBER OPTIC PEDESTAL	RIGHT-OF-WAY LINE
CURB STOP BOX	RIGHT-OF-WAY CENTER LINE
HAND HOLE/JUNCTION BOX (SEE LABEL)	EASEMENT LINE
CATCH BASIN	ADJACENT LINE
SIGN (SEE LABEL)	PUG — POWER UNDERGROUND
DECIDUOUS TREE WITH TRUNK DIAMETER IN INCHES	SAN — SANITARY SEWER
CONIFEROUS TREE WITH TRUNK DIAMETER IN INCHES	FO — FIBER OPTIC
STEEL/WOOD POST (SEE LABEL)	GAS — GAS LINE
FIBER OPTIC MANHOLE	WAT — WATERMAIN
FOUND MONUMENT (SEE LABEL)	X — FENCE LINE
SITE BENCHMARK	CURB & GUTTER
NATURAL GAS METER	CONCRETE SURFACE
STREET LIGHT	ASPHALT SURFACE
HYDRANT	BUILDING
GATE VALVE	PAINT HATCHING
PARCEL ID. NO.	PARCEL IDENTIFICATION NUMBER

1" = 40'

0' 40 80 120

Call 48 Hours before digging:
811 or call811.com
Common Ground Alliance

PROJECT:	72207.04
CHECKED:	CRF/ECO
DRAWN:	ARS/MWL
HORIZONTAL SCALE:	1" = 40'

INITIAL ISSUE:
REVISIONS:

PREPARED FOR:

Ionna LLC
Durham, NC

FARMINGTON HILLS
27614 MIDDLEBELT ROAD
FARMINGTON HILLS, MI 49002

Westwood
Phone (210) 265-8300 211 North Loop 1604 East, Suite 205
Toll Free (888) 937-5150 San Antonio, TX 78232
westwoodps.com
Westwood Professional Services, Inc.

ALTA/NSPS Land Title Survey

A 6.878 Acre Tract Situated in the Northwest Quarter of Section 13, Township 1 North, Range 9 East
Farmington Hills City, Oakland County, Michigan

PROJECT NUMBER: 0072207.04

SHEET NUMBER: 2 OF 2

DATE: 12/03/2025

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CONSULTANTS

DESIGNED AND PROVIDED BY OTHERS

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DESIGNED BY:	N/A
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CHECKED BY:	N/A
DOCUMENT DATE:	9/17/2026

SHEET TITLE
ALTA SURVEY (BY OTHERS)

SHEET NUMBER
C1.1



CIVIL SITE PLAN LEGEND

ITEM	DESCRIPTION
	RESTORE ASPHALT PAVEMENT
	CONCRETE PAD / RESTORE CONCRETE PAVEMENT
	STRIPED ISLAND
	PROPOSED LANDSCAPE AREA
	PARKING STRIPING (SEE PLANS FOR REVISED PARKING LAYOUT)
	SIGN POST

CONSTRUCTION NOTES

1. CONTRACTOR TO BORE AND / OR HAND-TRENCH CONDUIT AS REQUIRED PER NEC.
2. ALL EQUIPMENT SHALL BE INSTALLED PER CLIENT DESIGN STANDARDS.
3. CONTRACTOR TO RETURN ALL AREAS OF DISTURBANCE BACK TO EXISTING GRADE AND UP TO OR BETTER THAN EXISTING CONDITIONS.
4. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS NOTED OTHERWISE.

PAVEMENT MARKING NOTES

1. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OR OTHERWISE ESTABLISH A SURVEY OF THE EXISTING STRIPING IN ALL WORK AREAS IN ORDER TO ESTABLISH ALL EXISTING PAVEMENT MARKINGS WITH FULL COORDINATION OF NEW MARKINGS PROPOSED ON THIS PLAN.
2. UNLESS OTHERWISE INDICATED ON THIS PLAN, THE CONTRACTOR SHALL ESTABLISH PAVEMENT MARKINGS FOR ALL FIRE LANES, DIRECTIONAL ARROWS, STOP BARS, CURBS, SIDEWALK, LIGHT POLE BASES, SIGN BASES AND PARKING STALLS TO MATCH THE EXISTING SITE WITHIN THE REPAIR LIMITS.
3. CONTRACTOR TO USE APPROPRIATE PAINT COLORS TO MATCH THE EXISTING FEATURES. ADA BARRIER FREE AREAS TO COMPLY WITH ALL LOCAL AND FEDERAL ADA STANDARDS. PAVEMENT MARKINGS SHALL BE A HIGH QUALITY PAINT RECOMMENDED BY THE PAINT MANUFACTURER. PAINT COLORS SHALL CLOSELY MATCH THE FEDERAL STANDARD 595B COLOR NUMBER AS FOLLOWS: BLUE-COLOR 15180, WHITE-COLOR 37925 AND YELLOW-COLOR 33538.
4. IN AREAS NOT BEING RESURFACED BUT REQUIRING RESTRIPING, CONTRACTOR SHALL REMOVE EXISTING STRIPING BY EITHER SAND BLASTING, WATER BLASTING, OR BY ANOTHER APPROVED METHOD OF STRIPING REMOVAL. WHERE THE STRIPING REMOVAL CHANGES THE SURFACE TEXTURE OF THE EXISTING ASPHALT, CONTRACTOR SHALL SEAL COAT THE AREA PRIOR TO RESTRIPING. CONTRACTOR TO SUBMIT STRIPING REMOVAL METHOD TO PROPERTY MANAGER AND ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION.

ELECTRICAL NOTES

1. THE ELECTRICAL CONTRACTOR SHALL FIELD MODIFY THE ELECTRICAL TRENCH AS NECESSARY TO ENSURE NO CONFLICTS WITH EXISTING OR PROPOSED INFRASTRUCTURE, INCLUDING PROPOSED CHARGERS AND FOUNDATIONS, ELECTRICAL EQUIPMENT AND FOUNDATIONS, OR BOLLARD PROTECTION AND FOUNDATIONS. PLEASE NOTIFY THE ENGINEER OF RECORD IMMEDIATELY IF ANY CONFLICTS ARE IDENTIFIED.

CIVIL KEYNOTES

TAG	DESCRIPTION
1	PROPOSED LEVEL 3 DUAL PORT CHARGER ON CONCRETE PAD (CCS)
2	PROPOSED LEVEL 3 DUAL PORT CHARGER ON CONCRETE PAD (NACS)
3	PROPOSED EV PARKING SIGN
4B	PROPOSED VAN ACCESSIBLE EV PARKING SIGN PER DETAILS 6 AND 7, SHEET C6.2. SIGN POST PER DETAIL 10, SHEET C6.1.
5	PROPOSED ACCESS AISLE STRIPING
6	PROPOSED CCS PARKING MARKER
7	PROPOSED NACS PARKING MARKER
8	PROPOSED ELECTRICAL CONDUIT.
9	PROPOSED TRANSFORMER ON CONCRETE PAD.
10	PROPOSED 2000A SWITCHBOARD ON CONCRETE PAD.
11	PROPOSED 4" REMOVABLE BOLLARD PER DETAIL 9, SHEET C6.0.
12	PROPOSED PET WASTE STATION
13	TRASH/WINDOW WASH BIN
14	PROPOSED ACCESSIBLE STALL SYMBOL PER DETAIL 10, SHEET C6.2.
15	PROPOSED PARKING STALL MARKING
16	PROPOSED ACCESSIBLE PARKING SIGN PER DETAILS 6 AND 7, SHEET C6.2. SIGN POST PER DETAIL 10, SHEET C6.1.

SITE SUMMARY

PROPERTY AREA:	299,616 SF (6.878 AC)
AREA OF DISTURBANCE:	4,985 SF (0.12 AC)
PARKING	
EXISTING PARKING IMPACTED:	14 STALLS
PROPOSED PARKING:	8 STALLS
L3 NACS:	2 STALLS
ADA:	0 STALLS
STD:	2 STALLS
L3 CCS:	6 STALLS
ADA:	1 STALLS
STD:	5 STALLS

GRAPHIC SCALE IN FEET
0 15 30 60
SCALE: 1" = 30'
WHEN PRINTED AT FULL SIZE
(24"X36")

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CHECKED BY: MS
DOCUMENT DATE: 9/17/2026

SHEET TITLE
SITE PLAN

SHEET NUMBER
C2.0

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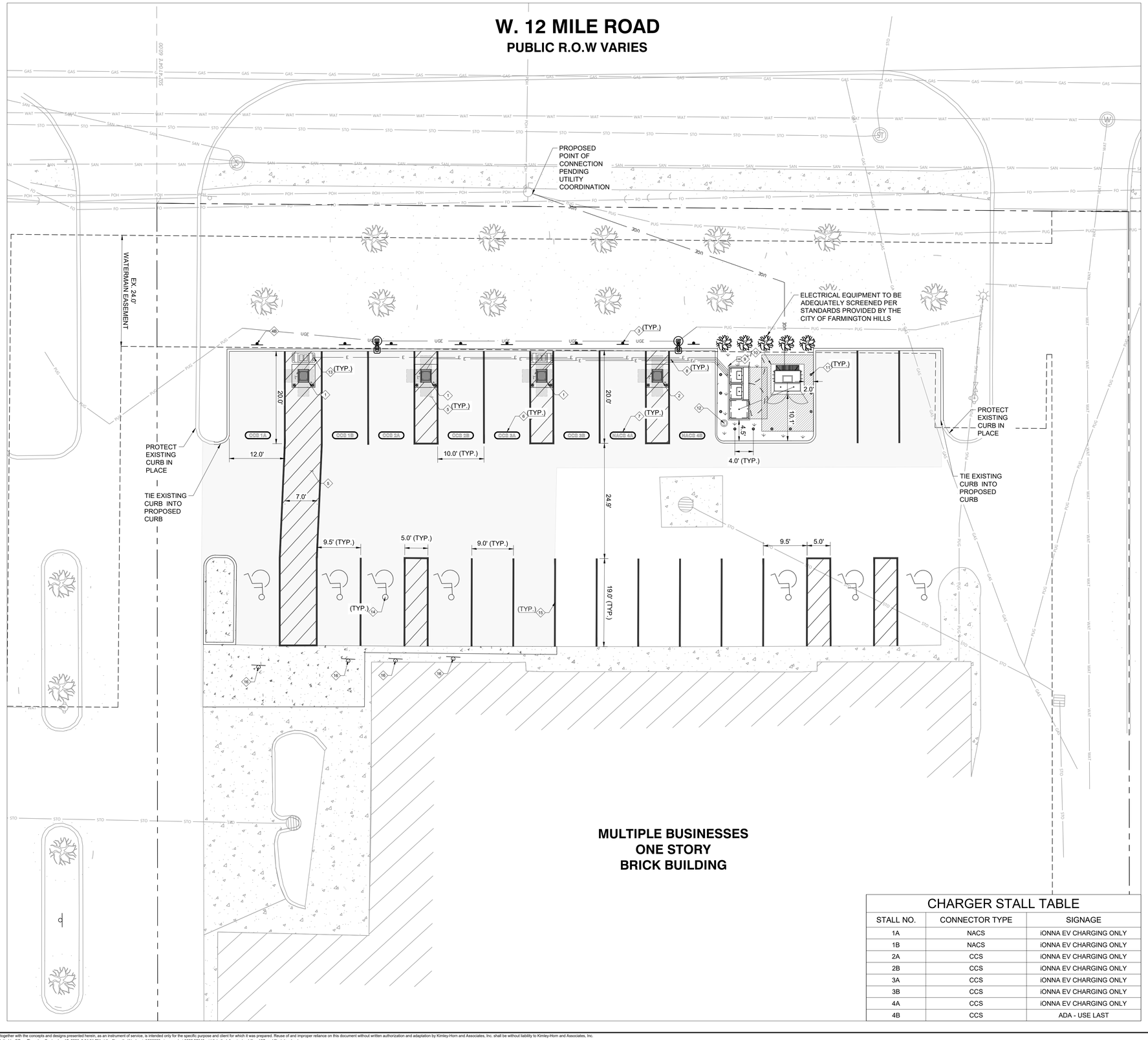

CIVIL SITE PLAN LEGEND

ITEM	DESCRIPTION
	RESTORE ASPHALT PAVEMENT
	CONCRETE PAD / RESTORE CONCRETE PAVEMENT
	STRIPED ISLAND
	PROPOSED LANDSCAPE AREA
	PARKING STRIPING (SEE PLANS FOR REVISED PARKING LAYOUT)
	SIGN POST

CONSTRUCTION NOTES

1. CONTRACTOR TO BORE AND / OR HAND-TRENCH CONDUIT AS REQUIRED PER NEC.
2. ALL EQUIPMENT SHALL BE INSTALLED PER CLIENT DESIGN STANDARDS.
3. CONTRACTOR TO RETURN ALL AREAS OF DISTURBANCE BACK TO EXISTING GRADE AND UP TO OR BETTER THAN EXISTING CONDITIONS.
4. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS NOTED OTHERWISE.

PAVEMENT MARKING NOTES

1. CONTRACTOR SHALL TAKE FIELD MEASUREMENTS OR OTHERWISE ESTABLISH A SURVEY OF THE EXISTING STRIPING IN ALL WORK AREAS IN ORDER TO ESTABLISH ALL EXISTING PAVEMENT MARKINGS WITH FULL COORDINATION OF NEW MARKINGS PROPOSED ON THIS PLAN.
2. UNLESS OTHERWISE INDICATED ON THIS PLAN, THE CONTRACTOR SHALL ESTABLISH PAVEMENT MARKINGS FOR ALL FIRE LANES, DIRECTIONAL ARROWS, STOP BARS, CURBS, SIDEWALK, LIGHT POLE BASES, SIGN BASES AND PARKING STALLS TO MATCH THE EXISTING SITE WITHIN THE REPAIR LIMITS.
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L3 CCS:	6 STALLS
ADA:	1 STALLS
STD:	5 STALLS

CHARGER STALL TABLE

STALL NO.	CONNECTOR TYPE	SIGNAGE
1A	NACS	iONNA EV CHARGING ONLY
1B	NACS	iONNA EV CHARGING ONLY
2A	CCS	iONNA EV CHARGING ONLY
2B	CCS	iONNA EV CHARGING ONLY
3A	CCS	iONNA EV CHARGING ONLY
3B	CCS	iONNA EV CHARGING ONLY
4A	CCS	iONNA EV CHARGING ONLY
4B	CCS	ADA - USE LAST

GRAPHIC SCALE IN FEET
0 5 10 20
SCALE: 1" = 10'
WHEN PRINTED AT FULL SIZE
(24"X36")

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EV STALLS: 8

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ENLARGED SITE PLAN

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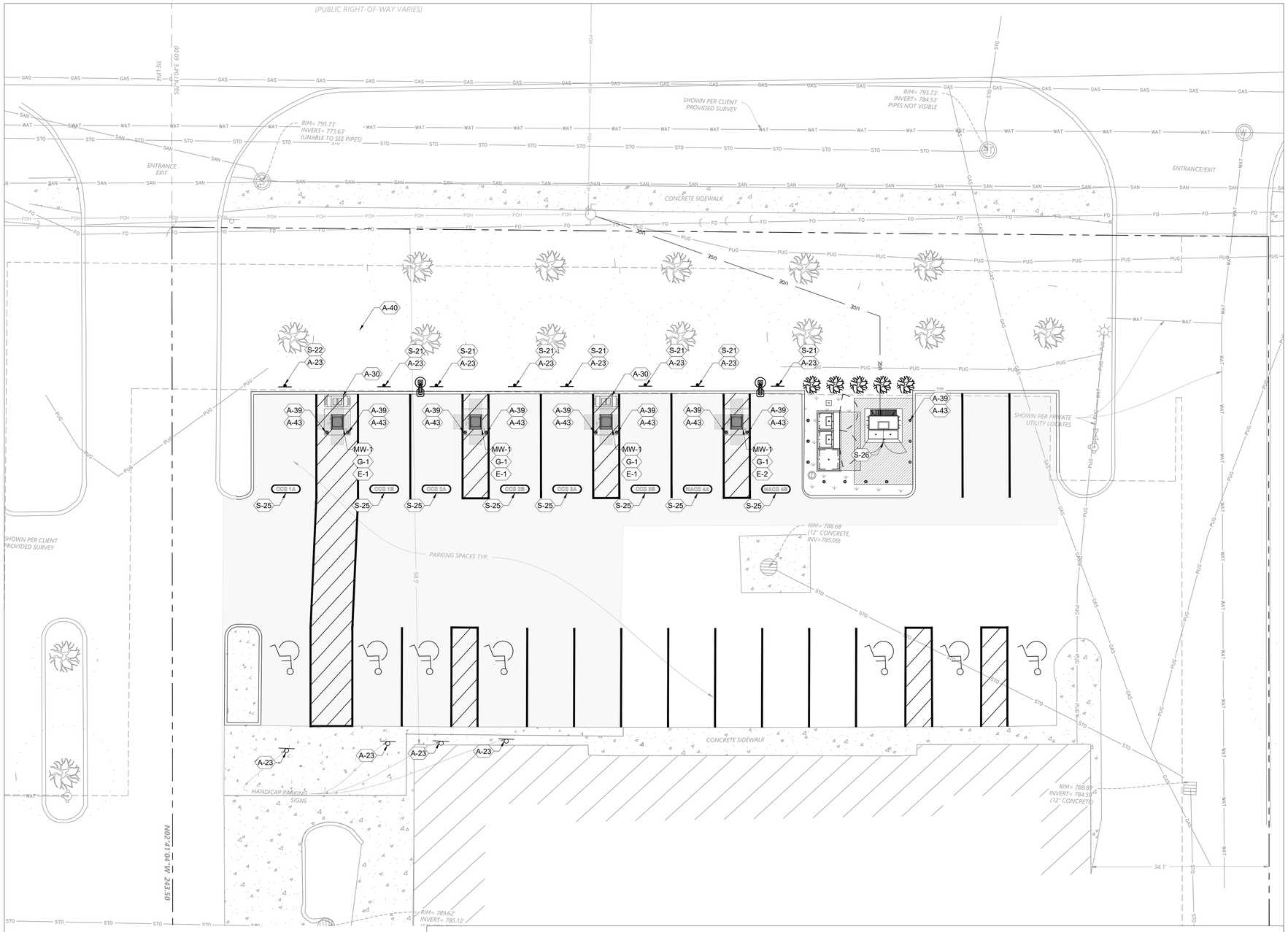

FF&E TABLE

ID	NAME	MFG	MODEL	NOTE	QTY
A-23	SIGNPOST - 7 FT	BY GC	SQUARE PRE PUNCHED 2X2	PAINT BLACK	12
A-30	TRASH / WC STATION-DOUBLE-IONNA	COMMERCIAL ZONE PRODUCTS	75810199	ORDER FOR IONNA SITES	2
A-39	BOLLARD SLEEVE - ORANGE	POSTGUARD.COM	ORANGE WITH WHITE TAPE	COORDINATE SIZE & LENGTH	18
A-40	PET WASTE STATION 2	ZERO WASTE USA	UPC 840431500409	ALUMINUM STATION & WASTE BAGS, MATTE BLACK	1
A-43	BOLLARD - SCREW IN	POSTGUARD.COM	4X32 POWDERCOATED BOLLARD	WITH ANCHOR BASE AND ANCHORS	18
E-1	DISPENSER-CCS	ALPITRONICS		DUAL CCS	3
E-2	DISPENSER-NACS	ALPITRONICS		DUAL NACS	1
G-1	DISPENSER FALK	BY VENDOR	BY VENDOR	FIELD APPLIED LABEL KIT, IDENTIFY ID, CHARGER ID, SITE ID	4
MW-1	TOP HAT SIGN	BY VENDOR	BY VENDOR	28"W X 3"D X 10"H POWDER COATED	4
S-21	EV PARKING ONLY	BUILD A SIGN	PER GC	USE APPROVED ARTWORK -	7
S-22	EV ACCESSIBLE PARKING	PER GC	PER GC	SELECT APPROPRIATE SIGN PER AHJ	1
S-25	PARKING MARKER	GRAPHIC VENDOR	GRAPHIC VENDOR	GC TO USE STENCIL AND COORDINATE WITH CHARGER GRAPHICS	8
S-26	EMERGENCY SHUTOFF SIGN	ULINE	S-24757P	LOCATED ON ELECTRICAL ENCLOSURE, IN VISIBLE LOCATION	1

GRAPHIC SCALE IN FEET
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SCALE: 1" = 10'
WHEN PRINTED AT FULL SIZE (24"X36")

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FFE PLAN

SHEET NUMBER
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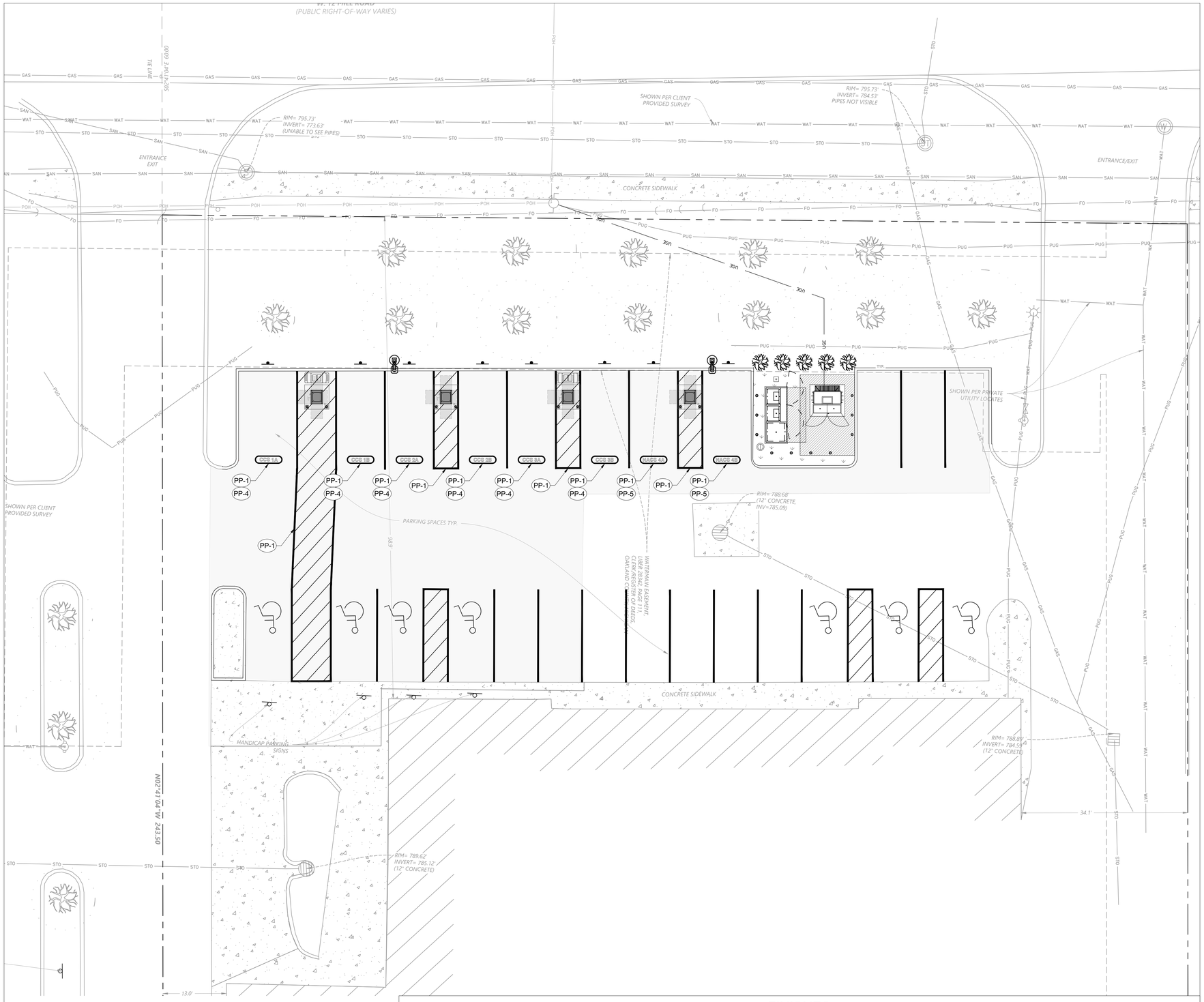

FINISHES

ID	NAME	MFG	MODEL	COLOR	NOTE
PP-1	TRAFFIC PAINT - WHITE	SHERWIN WILLIAMS	SEE PROD TABLE	SW-B97WD2434	
PP-4	TRAFFIC PAINT - SOFT DARK	SHERWIN WILLIAMS	SEE PROD TABLE	MATCH SW7605 GALE FORCE	PER CUSTOM SW SPEC
PP-5	TRAFFIC PAINT - ION ORANGE	SHERWIN WILLIAMS	SEE PROD TABLE	MATCH SW6886 INVIGORATE	PER CUSTOM SW SPEC

GRAPHIC SCALE IN FEET
0 5 10 20
SCALE: 1" = 10'
WHEN PRINTED AT FULL SIZE
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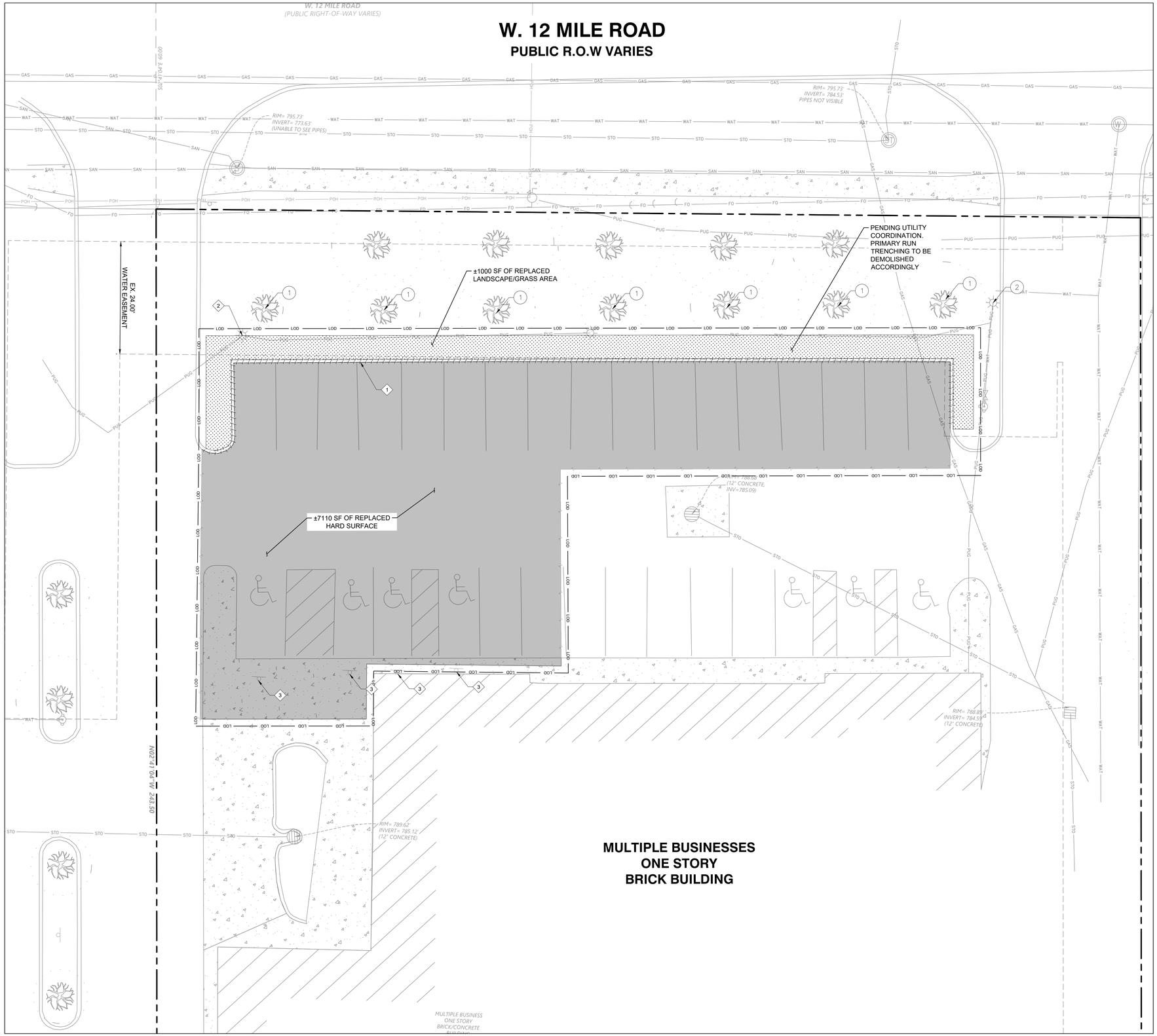

DEMOLITION PLAN LEGEND

ITEM	DESCRIPTION
	PROPERTY LINE
	CENTER LINE
	EASEMENT LINE
100	EXISTING GROUND CONTOUR
LOD	LIMITS OF DEMOLITION
	REMOVE EXISTING CURBING TO LIMITS SHOWN
	FULL-DEPTH CONCRETE PAVEMENT REMOVAL
	LANDSCAPED / PERVIOUS AREA REMOVAL
	EXISTING OBJECT TO BE REMOVED
	FULL-DEPTH CONCRETE REMOVAL

DEMOLITION NOTES

1. SEE ADDITIONAL DEMOLITION AND E&S NOTES ON SHEET G1.0.
2. THE CONTRACTOR SHALL CLEAR THE PROJECT SITE AREA WITHIN THE CONFINES OF THE DEMOLITION LIMIT LINE. THE CONTRACTOR SHALL DEMOLISH AND REMOVE FROM THE SITE ALL EXISTING UTILITY STRUCTURES, PLANTERS, TREES, AND ALL OTHER SITE FEATURES, UNLESS OTHERWISE NOTED ON THE PLAN.
3. DEMOLITION AND REMOVAL OF PAVEMENT INCLUDES PAVEMENT THICKNESS AS WELL AS BASE COURSE THICKNESS.
4. REMOVAL OF LANDSCAPING SHALL INCLUDE ROOTS AND ORGANIC MATERIAL.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS AND SHALL PAY ALL FEES NECESSARY FOR ENCROACHMENT, GRADING, DEMOLITION, AND DISPOSAL OF SAID MATERIALS AS REQUIRED BY PRIVATE, LOCAL AND STATE JURISDICTIONS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR A SITE INSPECTION TO FULLY ACKNOWLEDGE THE EXTENT OF DEMOLITION WORK.
7. THE CONTRACTOR SHALL VERIFY AND LOCATE ALL EXISTING ABOVE AND UNDERGROUND UTILITIES. LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND ARE SHOWN FOR GENERAL INFORMATION ONLY.
8. DAMAGE TO ANY EXISTING UTILITIES AND SERVICES TO REMAIN SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. CONTRACTOR SHALL REPAIR AND/OR REPLACE IN KIND.
9. EROSION CONTROL MEASURES SHALL BE IMPLEMENTED TO PREVENT DEBRIS AND UNSUITABLE MATERIALS FROM ENTERING STORM DRAINS, SANITARY SEWERS AND STREETS.
10. DUST CONTROL MEASURES SHALL BE IMPLEMENTED DURING DEMOLITION.
11. CONTRACTOR SHALL REMOVE DEMOLISHED MATERIALS FROM THE SITE AS WORK PROGRESSES.
13. ALL DEMOLITION SHALL COMPLY WITH CHAPTER 24 OF THE INTERNATIONAL FIRE CODE.
14. CONTRACTOR TO USE CARE IN HANDLING DEBRIS FROM SITE TO ENSURE THE SAFETY OF THE PUBLIC. HAUL ROUTE TO BE CLOSELY MONITORED FOR DEBRIS OR MATERIALS TRACKED ONTO ADJOINING ROADWAYS, SIDEWALKS, ETC. ROADWAYS AND WALKWAYS TO BE CLEARED DAILY OR AS NECESSARY TO MAINTAIN PUBLIC SAFETY.
15. CONTRACTOR TO INSTALL CHAIN LINK FENCE WITH MESH SCREEN TO PROTECT PUBLIC FROM ENTERING CONSTRUCTION AREA.
16. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION OF EXISTING FACILITIES.
17. ALL MATERIAL REMOVED FROM THIS SITE BY THE CONTRACTOR SHALL BE DISPOSED OF BY THE CONTRACTOR IN A LEGAL MANNER.
18. REFER TO THE TOPOGRAPHIC SURVEY FOR ADDITIONAL DETAILS OF EXISTING STRUCTURES, ETC., LOCATED WITHIN THE PROJECT SITE. UNLESS OTHERWISE NOTED, ALL EXISTING BUILDINGS, STRUCTURES, SLABS, CONCRETE, ASPHALT, DEBRIS PILES, SIGNS, AND ALL APPURTENANCES ARE TO BE REMOVED FROM THE SITE BY THE CONTRACTOR AND PROPERLY DISPOSED OF IN A LEGAL MANNER AS PART OF THIS CONTRACT. SOME ITEMS TO BE REMOVED MAY NOT BE DEPICTED ON THE TOPOGRAPHIC SURVEY. REFER TO THIS PLAN FOR THE LIMITS OF ASPHALT REMOVAL. IF ANY ITEMS ARE IN QUESTION, THE CONTRACTOR SHALL CONTACT THE OWNER PRIOR TO REMOVAL OF SAID ITEMS.
19. THE CONTRACTOR SHALL REFER TO THIS PLAN FOR DEMOLITION/PRESERVATION OF EXISTING TREES. ALL TREES NOT SPECIFICALLY SHOWN TO BE PRESERVED OR RELOCATED SHALL BE REMOVED AS A PART OF THIS CONTRACT. TREE PROTECTION FENCING SHALL BE INSTALLED AS NECESSARY PRIOR TO ANY DEMOLITION.
20. THE CONTRACTOR SHALL RETURN SIDEWALKS, LANDSCAPING, PLANTERS, IRRIGATION SYSTEMS, AND ANY OTHER FACILITIES DISTURBED BY THE WORK TO THE SAME OR BETTER CONDITION THAN EXISTED PRIOR TO THE COMMENCEMENT OF THE WORK.
21. ALL QUANTITIES LISTED IN DEMOLITION PLAN SHEET ARE ONLY APPROXIMATIONS. THE CONTRACTOR SHALL VERIFY ALL QUANTITIES BEFORE BIDDING.
22. TRENCHING IS TO BE USED EXCEPT IN HEAVY TRAFFIC AREAS, MAIN DRIVE AISLES AND ACROSS STORE ENTRANCE.
23. THE CONTRACTOR SHALL PROTECT EXISTING INFRASTRUCTURE IN PLACE WITHIN THE AREA OF IMPROVEMENTS.
24. ALL DIMENSIONS ARE TO THE FACE OF CURB UNLESS NOTED OTHERWISE.

EXISTING UTILITY NOTE

THE EXISTING UTILITIES SHOWN ON THIS PLAN ARE BASED UPON AVAILABLE RECORDS. THE CONTRACTOR MUST FIELD-DETERMINE THE LOCATION AND DEPTH OF ALL EXISTING UTILITIES PRIOR TO ANY CONSTRUCTION ACTIVITIES. REPORT DISCREPANCIES AND POTENTIAL CONFLICTS WITH PROPOSED INFRASTRUCTURE TO THE ENGINEER PRIOR TO INSTALLATION OF ANY PIPING.

DEMOLITION KEYNOTES

TAG	DESCRIPTION
1	REMOVE EXISTING CURB
2	DEMOLISH AND REMOVE LIGHT POLE
3	DEMOLISH AND REMOVE PARKING SIGN AND POST

PROTECTION KEYNOTES

TAG	DESCRIPTION
1	PROTECT-IN-PLACE EXISTING TREE
2	PROTECT-IN-PLACE EXISTING POLE

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SCALE: 1" = 10'
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DRAWN BY:	FG
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DOCUMENT DATE:	9/17/2026

SHEET TITLE
DEMOLITION PLAN

SHEET NUMBER
C3.0

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W. 12 MILE ROAD
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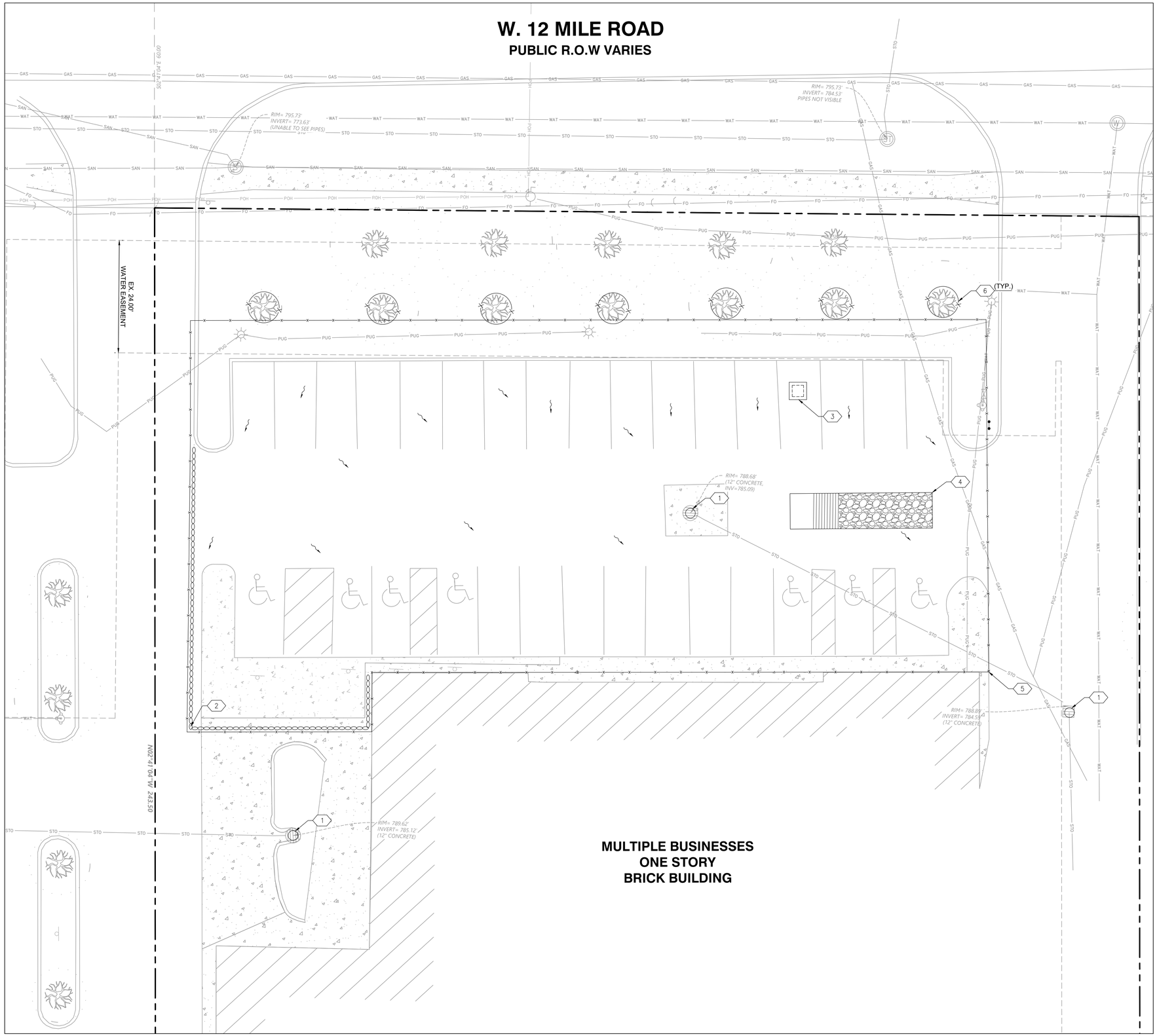

EROSION AND SEDIMENT CONTROL LEGEND

ITEM	DESCRIPTION
	EXISTING SURFACE FLOW DIRECTION
	CONSTRUCTION SIGN
	INLET SEDIMENT BARRIER
LOD	LIMITS OF DEMOLITION
	LINEAR SEDIMENT CONTROL CONSTRUCTION FENCE
	CONSTRUCTION ENTRANCE/EXIT
	TREE PROTECTION CIRCLE

E&S KEYNOTES

TAG	DESCRIPTION
1	INLET PROTECTION PER DETAIL 10, SHEET C5.0.
2	GRAVEL BAG/LINEAR EROSION CONTROL PER DETAIL 8, SHEET C5.0.
3	CONCRETE WASHOUT PER DETAIL 4, SHEET C5.0.
4	CONSTRUCTION ENTRANCE PER DETAIL 5, SHEET C5.0.
5	CHAIN LINK FENCE WITH GREEN SCREEN. CONTRACTOR TO MAINTAIN DURING GRADING & MOBILIZATION ACTIVITIES
6	TREE PROTECTION FENCING PER DETAIL 3, SHEET 5.0.

GRAPHIC SCALE IN FEET
0 5 10 20
SCALE: 1" = 10'
WHEN PRINTED AT FULL SIZE
(24"x36")

NORTH

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3000 TOWN CENTER #2600,
SOUTHFIELD, MI 48075
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SHEET NUMBER
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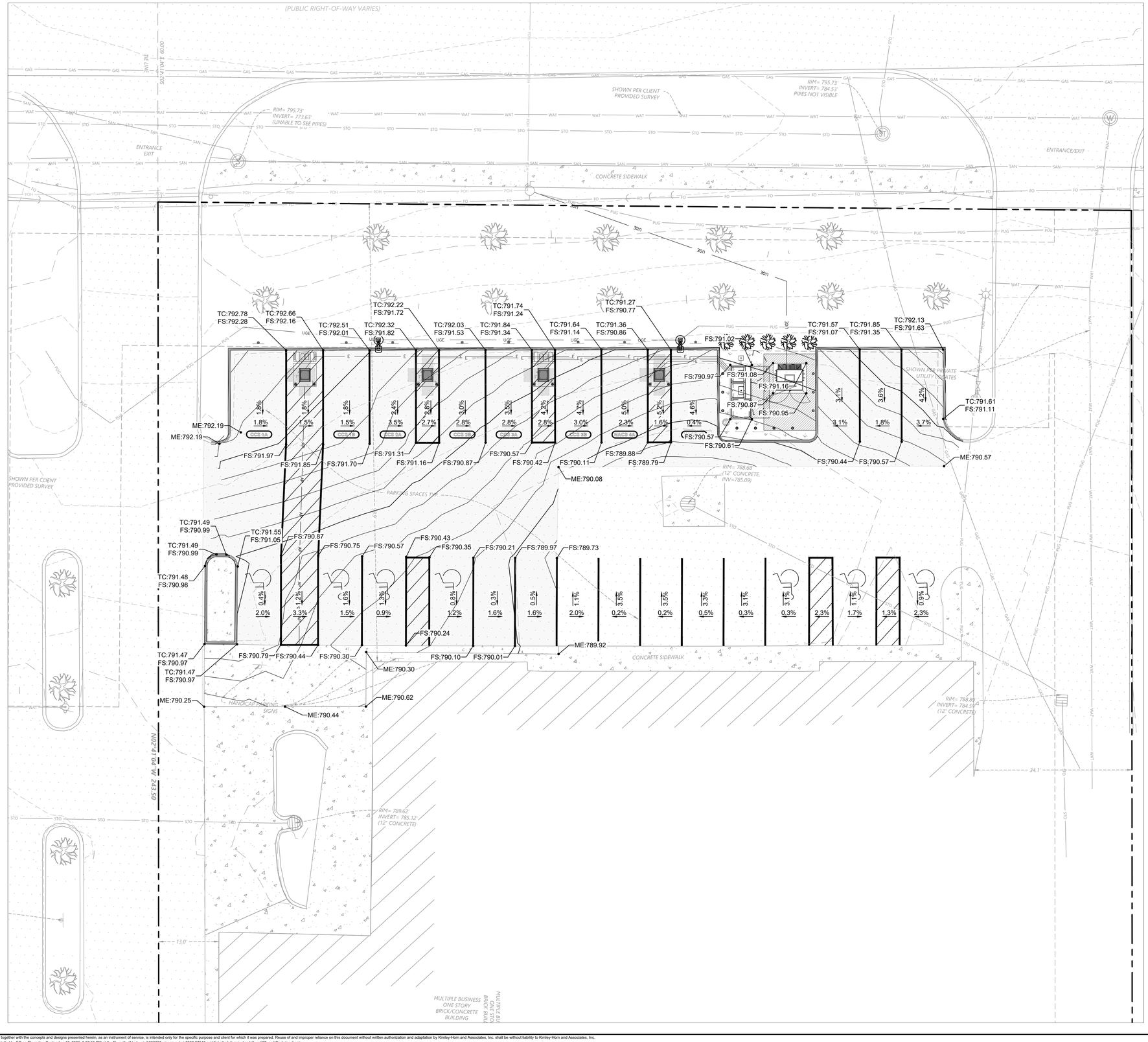

GRADING PLAN LEGEND

ITEM	DESCRIPTION
	PROPERTY LINE
	CENTER LINE
	EASEMENT LINE
AP	ACCESSIBLE PATH
(X.XX%)	EXISTING FLOW ARROW (DIRECTION AND SLOPE)
X.XX%	PROPOSED FLOW ARROW (DIRECTION AND SLOPE)
TC:XXX.XX FS:XXX.XX	PROPOSED FS/TC SPOT ELEVATION
TC:(XXX.XX) FS:(XXX.XX)	EXISTING FS/TC SPOT ELEVATION LABEL
FS:XXX.XX	PROPOSED SPOT ELEVATION (SEE SPOT ELEVATION NOTES BELOW)

SPOT ELEVATION NOTES

ALL SPOT ELEVATIONS ARE PAVEMENT SURFACE UNLESS OTHERWISE NOTED AS FOLLOWS:

FL FLOW LINE
FS FINISH SURFACE
TC TOP OF CURB

GRADING NOTES

1. ELECTRICAL SUBCONTRACTOR TO REFER TO ELECTRICAL DRAWINGS FOR ALL DISCIPLINE-SPECIFIC WORK.
2. SITE SUBCONTRACTOR TO VERIFY INSTALLATION PROXIMITY TO SLOPE AND INFORM THE ENGINEER IMMEDIATELY IF DISCREPANCIES ARE FOUND BEFORE CONSTRUCTION RESUMES.
3. THE LOCATIONS OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE SURVEY DONE BY WESTWOOD PROFESSIONAL SERVICES, INC. ON 12/03/2025 AND ARE GIVEN FOR THE CONVENIENCE OF THE SITE SUBCONTRACTOR. REFER TO SHEET C1.0 FOR MORE INFORMATION. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. PRIOR TO THE START OF ANY DEMOLITION ACTIVITY, THE SITE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES FOR ONSITE LOCATIONS OF EXISTING UTILITIES AND PERFORM A PRIVATE UTILITY LOCATE.
4. ALL SPOT ELEVATIONS REFLECT TOP OF PAVEMENT UNLESS OTHERWISE INDICATED.
5. CONTRACTOR TO ENSURE FLAT LEVEL GRADING OF CONCRETE PADS FOR EV CHARGING STATIONS, TRANSFORMER, AND SWITCHBOARD.

DISTURBANCE NOTES

FOR THE PURPOSE OF THIS PLAN, THE LIMITS OF DISTURBANCE (LOD) IS THE BOUNDARY WITHIN WHICH ALL CONSTRUCTION CLEARING, EXCAVATION, GRADING AND RELATED ACTIVITIES SHALL OCCUR.

ACCESSIBILITY NOTE

CONTRACTOR SHALL CONDUCT PRE-CONSTRUCTION ACCESSIBILITY SITE WALK WITH IONNA EV PM TO DETERMINE EXTENTS OF PAVEMENT REHAB REQUIRED TO PROVIDE COMPLIANT PATH OF TRAVEL FROM THE EV PARKING AREA TO THE STORE ENTRANCE.

PRELIMINARY EARTHWORK QUANTITIES

CUT: 0.18 CY

FILL: 63.05 CY

NET: 62.88 CY (FILL)

NOTE: THE ABOVE QUANTITIES ARE APPROXIMATE IN PLACE VOLUMES CALCULATED FROM THE EXISTING GROUND TO THE PROPOSED FINISHED GRADE. EXISTING GROUND IS DEFINED BY THE CONTOURS AND SPOT GRADES ON THE BASE SURVEY. PROPOSED FINISHED GRADE IS DEFINED AS THE FINAL GRADE AS INDICATED ON THE GRADING PLAN(S).

THE EARTHWORK QUANTITIES ABOVE ARE FOR PERMIT PURPOSES ONLY. THEY HAVE NOT BEEN FACTORED TO ACCOUNT FOR CHANGES IN VOLUME DUE TO BULKING, CLEARING AND GRUBBING, SHRINKAGE, OVER- EXCAVATION AND RE-COMPACTION, AND CONSTRUCTION METHODS. NOR DO THEY ACCOUNT FOR THE THICKNESS OF PAVEMENT SECTIONS, FOOTINGS, SLABS, REUSE OF PULVERIZED MATERIALS THAT WILL UNDERLIE NEW PAVEMENTS, ETC. THE CONTRACTOR SHALL RELY ON THEIR OWN EARTHWORK ESTIMATES FOR BIDDING PURPOSES.

GRAPHIC SCALE IN FEET
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SCALE: 1" = 10'
WHEN PRINTED AT FULL SIZE (24"x36")

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SHEET TITLE
GRADING PLAN

SHEET NUMBER
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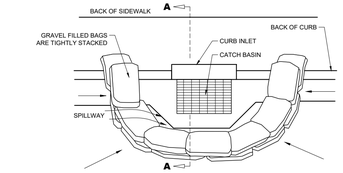
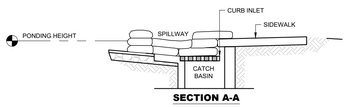


PLAN VIEW



SECTION A-A

NOTES:

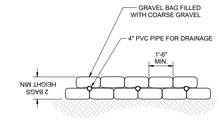
1. PLACE CURB TYPE SEDIMENT BARRIERS ON GENTLY SLOPING STREET SEGMENTS, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2. GRAVEL BAG MATERIAL: POLYPROPYLENE, POLYETHYLENE OR POLYMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.
3. GRAVEL BAG SHALL BE FILLED WITH 3/4" ROCK OR 1/4" PEA GRAVEL.
4. PLACE SEVERAL LAYERS OF SAND BAGS (1'-0" MINIMUM HIGH) OVERLAPPING THE BAGS AND PACKING THEM TIGHTLY TOGETHER.
5. LEAVE GAP OF ONE BAG ON THE TOP ROW TO SERVE AS A SPILLWAY.
6. PLACE FILTER FABRIC OVER WIRE MESH. FILTER FABRIC SHALL BE MANUFACTURED FROM UV RESISTANT POLYPROPYLENE, NYLON, POLYESTER, OR ETHYLENE FABRIC WITH AN EQUIVALENT OPENING SIZE NOT GREATER THAN 20 SIEVE AND WITH A MINIMUM FLOW RATE OF 40 GALLONS/MINUTE/SQ. FT.
7. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER

SCALE N.T.S. | 1



PLAN VIEW



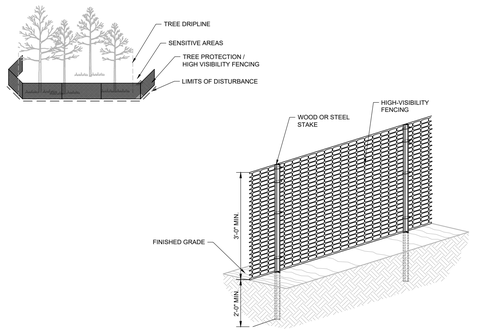
SECTION VIEW

NOTES:

1. GRAVEL BAG MATERIAL: POLYPROPYLENE, POLYETHYLENE OR POLYMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%
2. GRAVEL BAG SHALL BE FILLED WITH 3/4" ROCK OR 1/4" PEA GRAVEL.
3. PLACE SEVERAL LAYERS OF SAND BAGS (1'-0" MINIMUM HIGH) OVERLAPPING THE BAGS AND PACKING THEM TIGHTLY TOGETHER.
4. LEAVE GAP OF ONE BAG ON THE TOP ROW TO SERVE AS A SPILLWAY.
5. PLACE WIRE MESH OVER AND 1'-0" (MINIMUM) BEYOND THE INLET STRUCTURE.
6. PLACE FILTER FABRIC OVER WIRE MESH. FILTER FABRIC SHALL BE MANUFACTURED FROM UV RESISTANT POLYPROPYLENE, NYLON, POLYESTER, OR ETHYLENE FABRIC WITH AN EQUIVALENT OPENING SIZE NOT GREATER THAN 20 SIEVE AND WITH A MINIMUM FLOW RATE OF 40 GALLONS/MINUTE/SQ. FT.
7. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT.

DROP INLET SEDIMENT BARRIER

SCALE N.T.S. | 2

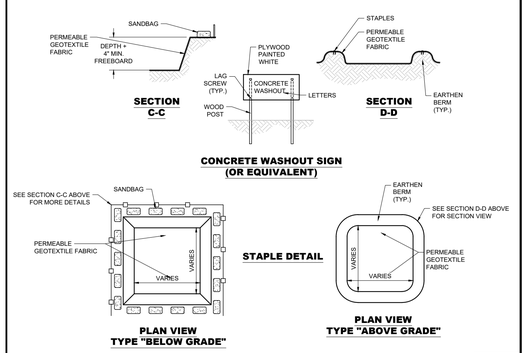


NOTES:

1. FURNISH AND INSTALL TEMPORARY HIGH-VISIBILITY FENCING AT THE TREE DRIPLINE OR CONSTRUCTION LIMITS AS SHOWN ON EROSION CONTROL PLANS PRIOR TO ANY LAND DISTURBANCE
2. WHEN POSSIBLE PLACE FENCE 25 FEET BEYOND THE DRIP LINE.

TREE PROTECTION

SCALE N.T.S. | 3



PLAN VIEW TYPE "BELOW GRADE"

PLAN VIEW TYPE "ABOVE GRADE"

CONCRETE WASHOUT

SCALE N.T.S. | 4



Use
Providing a stable gravel access approach eliminates the tracking of loose materials from the construction site onto public roadways. Current regulations require that all existing mud 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 leading 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 vegetative 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 discharging soil or debris from tires.

Related SESC Measures

Measurement and Payments
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 PDB

Gravel Access Approach

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

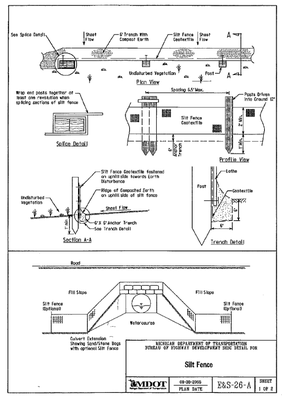
CONSTRUCTION ENTRANCE (MDOT)

SCALE N.T.S. | 5

STEEL PLATE DETAIL

TIRE WASH RACK

SCALE N.T.S. | 6



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 restricts 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 should 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 5.04) may be used to provide additional support for Silt Fence, installed at subject intervals as shown in the detail above.

Related SESC Measures
E & S 2 Disturbed Control
E & S 3.4 Vegetative Buffer Strips
E & S 5.01 Mulching
E & S 5.04 Sand and Stone Bags
E & S 5.05 Matting and Mulch Anchoring
E & S 5.06 Rock Check Dams and Deflection
E & S 5.10 Mulch Blankets and High Velocity Mulch Blankets.

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

Contract Item (Pay Item)	Pay Unit
Erosion Control, Inlet Protection	Each
Erosion Control, Silt Fence	Feet
Erosion Control, Bottomless, Sediment Removal	Cubic Yard
Erosion Control, Sand Bag	Each
Erosion Control, Stone Bag	Each

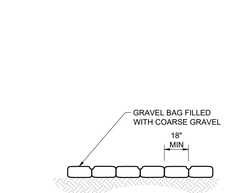
MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL PDB

Silt Fence

MDOT | 04-07-2008 PLAN DATE | E&S-26-A | SHEET 1 OF 2

SILT FENCE (MDOT)

SCALE N.T.S. | 7



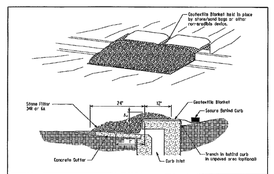
SECTION

NOTES:

1. GRAVEL BAG MATERIAL: POLYPROPYLENE, POLYETHYLENE OR POLYMIDE WOVEN FABRIC, MINIMUM UNIT WEIGHT 4 OUNCES PER SQUARE YARD, MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%
2. GRAVEL BAG SHALL BE FILLED WITH 3/4" ROCK OR 1/4" PEA GRAVEL.
3. INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT.

GRAVEL BAGS

SCALE N.T.S. | 8



Use
The Inlet Protection Geotextile and Stone is a recommended sedimentation control device in paved areas and some small drainage areas, especially useful where there is no cover or inlet as in the curb inlet shown.

Installation and Maintenance.
This device can be used on where inlets of curb openings where flows are normal. It consists of geotextile blanket and stone filler. The stone filler shall be either 24" or 12" MDOT 6A or 6A aggregate. The Geotextile Blanket must be trenched in or otherwise held in place behind the curb line.

This method of inlet protection is applicable at curb inlets where ponding in front of the structure is not likely to cause inconvenience or damage to adjacent structures and unprotected areas.

If the device is to be placed prior to the installation of the grate, a wire mesh should be placed over the opening to support the Geotextile Blanket and Stone.

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

Optional Measures
Trench in fabric behind curb in exposed areas if this will not result in exposing unstabilized area to accelerated flow velocities.

Related SESC Measures

Measurement and Payments
Payment for Inlet Protection Geotextile and Stone includes all labor and materials required to secure Geotextile fabric as shown and to maintain the device as necessary.

Contract Item (Pay Item)	Pay Unit
Erosion Control, Inlet Protection, Geotextile and Stone	Each

MICHIGAN DEPARTMENT OF TRANSPORTATION
BUREAU OF HIGHWAY DEVELOPMENT SESC DETAIL PDB

Inlet Protection Geotextile and Stone

MDOT | M-07-2005 PLAN DATE | E&S-30-A | SHEET 1 OF 1

INLET PROTECTION (MDOT)

SCALE N.T.S. | 10

NOT USED

SCALE N.T.S. | 11

NOT USED

SCALE N.T.S. | 12

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POST-INSTALLED ANCHOR NOTES

1. UNLESS OTHERWISE INDICATED ON PLANS, POST-INSTALLED ANCHORS SHOULD CONSIST OF THE FOLLOWING ANCHOR TYPES, OR APPROVED EQUAL:

CHARGER	5/8" EXPANSION ANCHORS, EMBED. 3.25", HILTI KB-TZ2 SS
SWITCHBOARD	1/2" EXPANSION ANCHORS, EMBED. 3.25", HILTI KB-TZ2 SS

2. SUBSTITUTION REQUESTS FOR ALTERNATE PRODUCTS MUST BE APPROVED IN WRITING BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO USE. CONTRACTOR SHOULD PROVIDE CALCULATIONS DEMONSTRATING THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERFORMANCE VALUES OF THE SPECIFIED PRODUCT. SUBSTITUTIONS WILL BE EVALUATED BY THEIR HAVING AN ICC ESR SHOWING COMPLIANCE WITH THE RELEVANT AND CURRENT BUILDING CODE.

FOUNDATIONS

1. FOUNDATIONS ARE DESIGNED USING PRESUMPTIVE SOIL VALUES IN ACCORDANCE WITH THE LOCAL BUILDING CODE REQUIREMENTS.
2. ALL FOOTING EXCAVATIONS SHOULD BE INSPECTED BY THE GENERAL CONTRACTOR'S GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE.
3. IBC PRESUMPTIVE VERTICAL BEARING CAPACITY: 1,500 PSF
4. IBC PRESUMPTIVE LATERAL BEARING CAPACITY: 100 PCF
5. CONTRACTOR SHOULD ENGAGE A GEOTECHNICAL TESTING LABORATORY LICENSED IN THE STATE OF THE PROJECT TO CONFIRM SOIL PREPARATION AND SPECIFY PROCEDURES AND SPECIFY COMPACTING REQUIREMENTS NECESSARY TO OBTAIN THE DESIGN SOIL PROPERTIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT ENGINEER OF RECORD IF ASSUMED SOIL PROPERTIES CANNOT BE OBTAINED ON SITE.

PROJECT GENERAL NARRATIVE AND REQUIREMENTS:

1. THESE CONSTRUCTION DOCUMENTS ARE SPECIFICALLY APPLICABLE TO FOUNDATIONS SUPPORTING THE COMPONENTS LISTED BELOW:

COMPONENT NAME	COMPONENT DIMENSIONS (WxHxD, FT)	COMPONENT WEIGHT (LBS)	EQUIVALENT UNIFORM AREA LOAD (PSF)
CHARGER	2.40x7.34x2.80	1,841	273.81
SWITCHBOARD (3 BAY)	11.17x8.00x4.17	3,269	70.18
SWITCHBOARD (4 BAY)	14.50x8.00x4.00	5,000	86.21

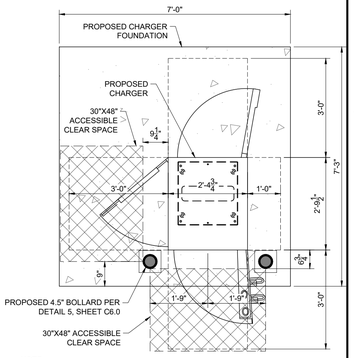
2. EQUIPMENT YIELDING MAXIMUM EQUIVALENT UNIFORM AREA LOAD WAS USED IN DESIGN OF EQUIPMENT PADS.
3. FOUNDATION DESIGN IS BASED ON THE DESIGN CRITERIA.
4. IF THE PROJECT IS LOCATED IN AN AREA CLASSIFIED AS SITE CLASS E OR F, A SITE-SPECIFIC GEOTECHNICAL ANALYSIS IS REQUIRED AND THE ENGINEER OF RECORD SHOULD BE CONTACTED IMMEDIATELY.
5. THE CONTRACTOR'S SCOPE OF WORK FOR THIS PROJECT SHOULD INCLUDE ALL COORDINATION, MATERIALS, LABOR, AND OVERHEAD NECESSARY FOR COMPLETION OF THE FOLLOWING:
   - A. ALL STRUCTURES ARE DESIGNED TO ACT AS A STRUCTURAL UNIT UPON COMPLETION. CONTRACTOR SHOULD DESIGN AND PROVIDE NECESSARY BRACING, TEMPORARY SUPPORTS, AND SHORING TO RESIST FORCES ON THE STRUCTURE DURING CONSTRUCTION.
   - B. VERIFY ALL DIMENSIONS AND ELEVATIONS PRIOR TO STARTING WORK. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
   - C. VERIFY LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO STARTING WORK.
   - D. CONTRACTOR MUST EXERCISE EXTREME CARE DURING THE EXCAVATION AND CONSTRUCTION FOR NEW STRUCTURE TO AVOID DAMAGE TO EXISTING STRUCTURES. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL MEANS AND METHODS REQUIRED TO FACILITATE CONSTRUCTION OF THE WORK AND ENSURING THE SAFETY, STABILITY AND INTEGRITY OF ADJACENT STRUCTURES AND FACILITIES.
   - E. CONTRACTOR MUST ENGAGE A GEOTECHNICAL ENGINEER TO FIELD VERIFY SOIL PARAMETERS NOTED IN THE FOUNDATION NOTES AND CONCRETE CLASS NOTED UNDER CONCRETE NOTES.

DESIGN CRITERIA:

1. DESIGN CRITERIA IS BASED ON THE CONTROLLING GEOGRAPHICAL LOADINGS CONSIDERING CLIENT-PROVIDED PROJECT LOCATIONS IN THE UNITED STATES.
2. THE DESIGN CRITERIA PERTAINING TO EACH SPECIFIC SITE WILL DIFFER FROM THE DESIGN CRITERIA LISTED BELOW. THE DESIGN CRITERIA LISTED BELOW IS CONSERVATIVE RELATIVE TO THE SITE SPECIFIC DESIGN WITH THE CONSIDERATION OF PROJECT GENERAL NARRATIVE AND REQUIREMENTS OF NOTE 4, ABOVE.
3. BUILDING CODE:
   2022 INTERNATIONAL BUILDING CODE
4. DESIGN LOADS
   - RISK CATEGORY = II
   - DEAD LOAD:
     - SELF WEIGHT OF MATERIAL
   - WIND:
     - DESIGN WIND SPEED (3 SEC. GUST) = TBD MPH (ULTIMATE)
     - WIND EXPOSURE = C
   - SEISMIC:
     - SEISMIC IMPORTANCE FACTOR, IE = 1.0
     - MAPPED SPECTRAL RESPONSE ACCELERATION PARAMETERS:
       - S_S = TBDg
       - S_1 = TBD
     - SITE CLASS = D, DEFAULT
     - DESIGN SPECTRAL RESPONSE ACCELERATION PARAMETERS:
       - S_{DS} = TBDg
       - S_{D1} = TBDg
     - SEISMIC DESIGN CATEGORY = TBD
     - RESPONSE MODIFICATION COEFFICIENT (Ra) = 3.0

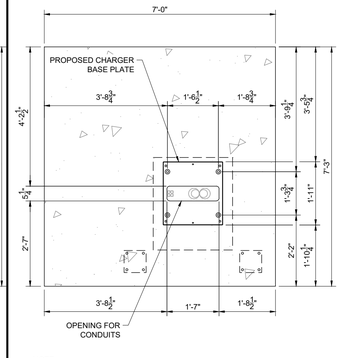
**NOTE: PRIOR TO CONSTRUCTION, SITE-SPECIFIC VALUES SHOULD BE DETERMINED FOR EACH PROPOSED PROJECT LOCATION. SHOULD SITE-SPECIFIC VALUES EXCEED THOSE NOTED ABOVE, THE ENGINEER OF RECORD SHOULD BE CONTACTED IMMEDIATELY.

STRUCTURAL NOTES — SCALE N.T.S. — 1



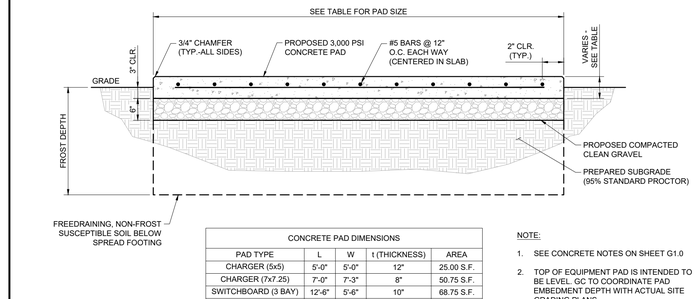
NOTE:
CONTRACTOR TO VERIFY DIMENSIONS WITH EQUIPMENT SUPPLIER PRIOR TO CONSTRUCTION.

EV CHARGER CLEARANCE DETAIL — SCALE N.T.S. — 2



NOTE:
CONTRACTOR TO VERIFY DIMENSIONS WITH EQUIPMENT SUPPLIER PRIOR TO CONSTRUCTION.

EV CHARGER OPENINGS DETAIL — SCALE N.T.S. — 3



CONCRETE PAD DIMENSIONS				
PAD TYPE	L	W	t (THICKNESS)	AREA
CHARGER (5x5)	5'-0"	5'-0"	12"	25.00 S.F.
CHARGER (7x7.25)	7'-0"	7'-3"	8"	50.75 S.F.
SWITCHBOARD (3 BAY)	12'-6"	5'-6"	10"	68.75 S.F.
SWITCHBOARD (4 BAY)	15'-6"	5'-0"	12"	77.50 S.F.

NOTE:
1. SEE CONCRETE NOTES ON SHEET G1.0
2. TOP OF EQUIPMENT PAD IS INTENDED TO BE LEVEL. GC TO COORDINATE PAD EMBEDMENT DEPTH WITH ACTUAL SITE GRADING PLANS.
3. CONTRACTOR SHALL VERIFY FROST DEPTH PRIOR TO CONSTRUCTION.

EQUIPMENT PAD — SCALE N.T.S. — 4



STANDARD SAFETY BOLLARDS - 11 Gauge						FIXED			REMOVABLE		
MODEL NO.	DIAM.	HEIGHT	MOUNTING PLATE DIM.	WT. (LBS.)	PRICE EACH 1	PRICE EACH 4+	ADD TO CART	PRICE EACH 1	PRICE EACH 4+	ADD TO CART
In5666		24"		18	$90	$85	1 ADD	$110	$105	1 ADD
In5118		36"		22	95	90	1 ADD	115	110	1 ADD
In2112	4.5"	42"	8 x 8"	24	110	105	1 ADD	130	125	1 ADD
In5066		48"		26	120	115	1 ADD	140	135	1 ADD
In4090		60"		34	140	135	1 ADD	160	150	1 ADD

SHIPS VIA UPS

HEAVY DUTY SAFETY BOLLARDS - 9 Gauge						FIXED			REMOVABLE		
MODEL NO.	DIAM.	HEIGHT	MOUNTING PLATE DIM.	WT. (LBS.)	PRICE EACH 1	PRICE EACH 4+	ADD TO CART	PRICE EACH 1	PRICE EACH 4+	ADD TO CART
In4970		36"		27	$110	$105	1 ADD	$130	$125	1 ADD
In4971	5.5"	42"	8 x 8"	43	125	120	1 ADD	145	140	1 ADD
In4291		48"		51	140	135	1 ADD	165	155	1 ADD
In4296		60"		67	170	160	1 ADD	190	180	1 ADD
In11163*	6.5"	42"	8 x 8"	52	155	145	1 ADD	180	170	1 ADD
In11164*		48"		59	175	166	1 ADD	200	190	1 ADD

* 7 Gauge — SHIPS VIA UPS

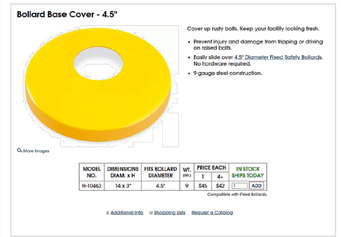
BOLLARD BASE COVERS - Compatible with Fixed Bollards						
MODEL NO.	DIMENSIONS DIAM. x H	FITS BOLLARD DIAMETER	WT. (LBS.)	PRICE EACH 1	PRICE EACH 4+	ADD TO CART
In10463	14 x 3"	4.5"				1 ADD
In10464	14 x 3"	5.5"	9	$45	$42	1 ADD
In11156	14 x 3"	6.5"				1 ADD

SHIPS VIA UPS

SAFETY BOLLARD ACCESSORIES					
MODEL NO.	DESCRIPTION	WT. (LBS.)	PRICE EACH 1	PRICE EACH 4+	ADD TO CART
In2121	Concrete Installation Kit (4 Anchors/Kit)	3	$23	$21	1 ADD
In6289	10' Steel Chain	5	18	17	1 ADD

SHIPS VIA UPS

SURFACE MOUNTED BOLLARD DETAIL — SCALE N.T.S. — 5



MODEL NO.	DIMENSIONS DIAM. x H	FITS BOLLARD DIAMETER	WT. (LBS.)	PRICE EACH 1	PRICE EACH 4+	IN STOCK SHIPS TODAY
In10463	14 x 3"	4.5"	9	$45	$42	1 ADD

Compatible with Fixed Bollards.

Additional Info | Shopping Tips | Request a Catalog

BOLLARD BASE COVER DETAIL — SCALE N.T.S. — 6

SPECIAL INSPECTIONS NOTES

THE FOLLOWING NOTES AND TABLES SHALL CONSTITUTE THE STATEMENT OF SPECIAL INSPECTIONS REQUIRED IN ACCORDANCE WITH SECTION 1704.3 OF THE INTERNATIONAL BUILDING CODE. THE LISTED INSPECTION REQUIREMENTS REPRESENT THE MINIMUM ACCEPTABLE LEVEL OF INSPECTION. WHERE THE BUILDING CODE OR LOCAL JURISDICTION REQUIRES A GREATER LEVEL OF INSPECTION, THOSE REQUIREMENTS TAKE PRECEDENCE.

THE CONTRACTOR SHALL READ AND UNDERSTAND THEIR DUTIES IN THE SPECIFICATION AND UNDER THE BUILDING CODE FOR SPECIAL INSPECTIONS AND COORDINATE AS NECESSARY THE OWNER'S RESPONSIBILITIES.

THE SPECIAL INSPECTORS SHALL BE PROVIDED BY THE OWNER AND SHALL USE STRUCTURAL DRAWINGS INCORPORATING ALL REVISIONS AND APPROVED SHOP DRAWINGS.

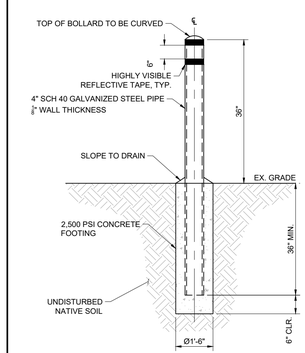
SPECIAL INSPECTION REPORTS ARE TO BE SUBMITTED PROMPTLY AND WITHIN 24 HOURS TO THE STRUCTURAL ENGINEER OF RECORD AND CONTRACTOR FROM THE TIME WHEN INSPECTIONS ARE PERFORMED.

THE GENERAL CONTRACTOR SHALL PROVIDE TIMELY NOTICE (MINIMUM 24 HOURS) TO THE SPECIAL INSPECTOR AND SUFFICIENT TIME FOR THE INSPECTOR TO PERFORM THEIR INSPECTION.

SCHEDULE OF SPECIAL INSPECTIONS:

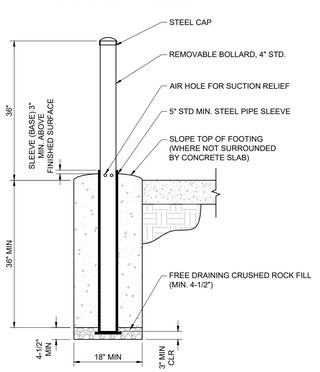
* THE DETAILS SHOWN ON THE CIVIL DETAILS SHEET (C6.0-C6.2) ARE EXEMPTS FROM SPECIAL INSPECTION PER IBC SECTION 1704.2, EXCEPTIOIN NUMBER 1 (CONSTRUCTION OF A MINOR NATURE).

SPECIAL INSPECTIONS NOTES — SCALE N.T.S. — 7

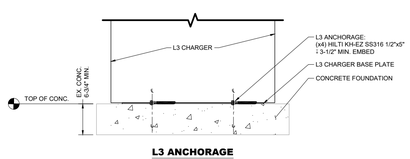


NOTES:
1. **THIS BOLLARD IS NOT RATED FOR VEHICULAR IMPACT.**

4" FIXED BOLLARD — SCALE N.T.S. — 8



4" REMOVABLE BOLLARD — SCALE N.T.S. — 9

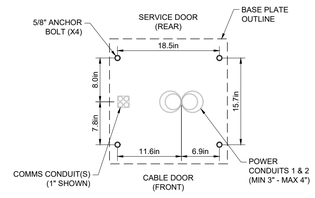


L3 ANCHORAGE

NOTE:
1. L3 ANCHORS MUST BE A MINIMUM OF 6" FROM EDGE OF EXISTING CONCRETE.

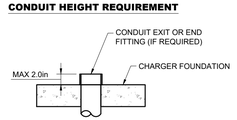
L3 CHARGER ANCHORAGE — SCALE N.T.S. — 10

HYC400 BASEPLATE DIMENSION AND CONDUIT ENTRY LOCATION



NOTE: TO MEET EQUIPMENT SPACE AND WIRE REQUIREMENTS, POWER CONDUITS MUST BE CENTERED EXACTLY TO THE B-PHASE AS SHOWN.

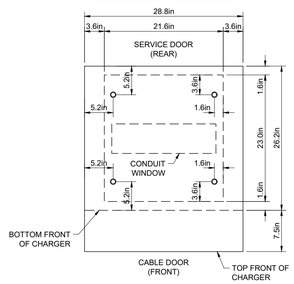
CONDUIT HEIGHT REQUIREMENT



NOTE: TO MEET BEND RADIUS REQUIREMENTS, TOP OF CONDUIT SHALL BE LESS THAN 2" ABOVE CHARGER FOUNDATION. IF REQUIRED, CONDUIT END FITTING SHOULD BE FLUSH WITH CONCRETE

HYC400 BASEPLATE DIMENSIONS AND CONDUIT WINDOW DETAILS — SCALE N.T.S. — 11

HYC400 BASEPLATE DIMENSION INSIDE CHARGER HOUSING



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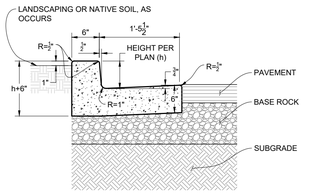
UNLESS NOTED OTHERWISE, THE FOLLOWING NOTES RELATING TO THE "SITE DETAILS" SHEETS SHALL GOVERN.

1. COMPRESSIVE STRENGTH OF CONCRETE FOUNDATION SHALL BE A MINIMUM OF 2,500 PSI AT 28 DAYS WITH MAXIMUM W/CM RATIO OF 0.45 AND AIR-CONTENT OF 5% +/- 1.5%.
2. MINIMUM YIELD STRENGTH OF REINFORCEMENT TO BE 60,000 PSI (ASTM-A615).
3. REFERENCE CIVIL AND ELEC. DRAWING FOR EQUIPMENT LAYOUT, LOCATION OF CONDUIT, ETC.
4. FINAL ANCHOR BOLT AND POLE DESIGN INCLUDING SIZE AND CONFIGURATION ARE BY MFR.
5. BEFORE STARTING ANY WORK, THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS ON THE SITE AND REPORT ANY DISCREPANCIES IMMEDIATELY TO THE ENGINEER.
6. NO GEOTECHNICAL ENGINEERING REPORT WAS PROVIDED BY THE OWNER. FOUNDATION DESIGN IS BASED ON A MINIMUM OF 1,500 PSF NET ALLOWABLE BEARING PRESSURE ON UNDISTURBED NATURAL SOIL OR COMPACTED FILL UNLESS OTHERWISE NOTED.
7. UNLESS OTHERWISE DIRECTED BY THE OWNER, ALL FOUNDATION WORK RELATED TO INSTALLATION OF REBAR SHALL BE INSPECTED BY OTHERS.
8. KIMLEY-HORN AND ASSOCIATES, INC. IS NOT RESPONSIBLE FOR THE DESIGN OF THE EQUIPMENT OR ANCHORAGE TO THE FOUNDATION. MANUFACTURER SHALL SUBMIT LOADS TO ENGINEER FOR RECORD KEEPING PURPOSES ONLY.
9. DESIGN IS BASED ON THE SPECIFIC EQUIPMENT SHOWN IN THESE DRAWINGS AND ILLUSTRATED ON THE CUT SHEETS.
10. ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE LOCAL DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
11. ALL FOUNDATIONS ARE TO INCLUDE COMPACTED SUBGRADE AND MINIMUM 6" COMPACTED STONE BASE UNLESS OTHERWISE SPECIFIED.

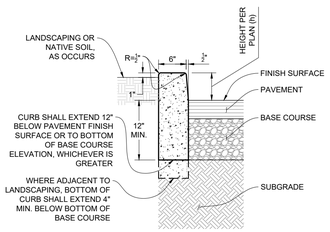
NOTE: BOLLARDS ARE NOT DESIGNED FOR FULL 6 KIP IMPACT LOADS UNLESS OTHERWISE NOTED AS "VEHICULAR RATED".

GENERAL NOTES | SCALE N.T.S. | 1



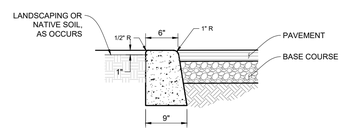
NOTES:
1. CONCRETE SHALL BE MINIMUM 3000 PSI AND SHALL NOT CONTAIN LESS THAN FIVE SACKS OF CEMENT PER CUBIC YARD (470 LBS/CY).
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED.
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT MAXIMUM 20' INTERVALS O.C..
4. WHERE CONCRETE PAVEMENT IS ADJACENT TO THE CURB & GUTTER THE JOINTS SHALL ALIGN WITH JOINTS IN THE PAVEMENT.
4. BASE ROCK AND SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL REPORT.

6" CONCRETE CURB AND GUTTER | SCALE N.T.S. | 2



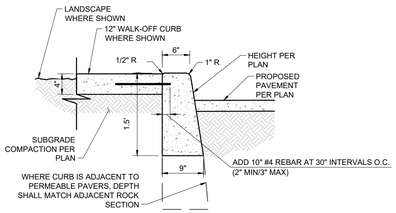
NOTES:
1. CONCRETE SHALL BE MINIMUM 3000 PSI AND SHALL NOT CONTAIN LESS THAN FIVE SACKS OF CEMENT PER CUBIC YARD (470 LBS/CY).
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED.
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT MAXIMUM 20' INTERVALS O.C..
4. WHERE CONCRETE PAVEMENT IS ADJACENT TO THE CURB & GUTTER THE JOINTS SHALL ALIGN WITH JOINTS IN THE PAVEMENT.
4. BASE ROCK AND SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL REPORT.

6" CONCRETE CURB | SCALE N.T.S. | 3



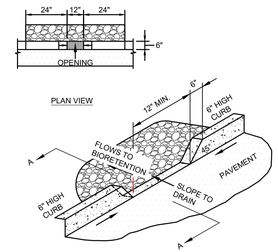
NOTES:
1. CONCRETE SHALL BE MINIMUM 3000 PSI AND SHALL NOT CONTAIN LESS THAN FIVE SACKS OF CEMENT PER CUBIC YARD (470 LBS/CY).
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED.
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT MAXIMUM 20' INTERVALS O.C..
4. WHERE CONCRETE PAVEMENT IS ADJACENT TO THE CURB & GUTTER THE JOINTS SHALL ALIGN WITH JOINTS IN THE PAVEMENT.
4. BASE ROCK AND SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL REPORT.

0" CONCRETE CURB (FLUSH) | SCALE N.T.S. | 4

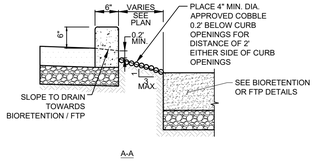


NOTES:
1. CONCRETE SHALL BE 3,000 PSI.
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED.
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT 15' INTERVALS O.C.
4. WHERE A WALK IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE WALK.

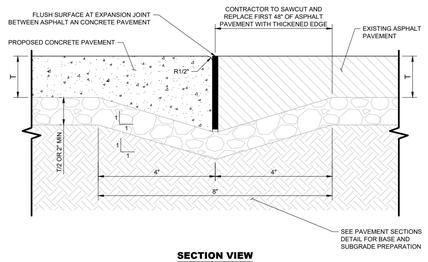
6" CONCRETE CURB WITH WALKOFF | SCALE N.T.S. | 5



CURB CUT | SCALE N.T.S. | 6



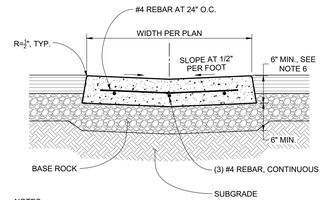
THICKENED EDGE AT ASPHALT & CONCRETE | SCALE N.T.S. | 7



SECTION VIEW

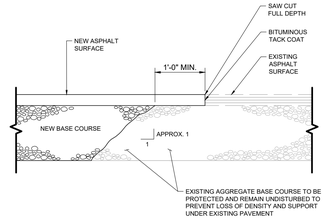
NOTES:
1. SEE PREVIOUS DESIGN OR GEOTECH REPORTS FOR PAVEMENT SECTION AND THICKNESS (T). IF NOT AVAILABLE CONTRACTOR TO FIELD VERIFY.
2. DETAIL APPLIES AT ALL PAVEMENT EDGE CONDITIONS AND PAVEMENT TRANSITIONS FROM ASPHALT TO CONCRETE.

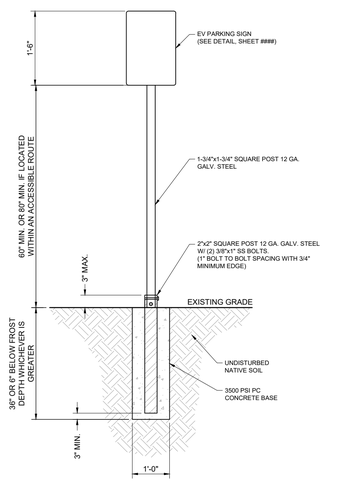
CONCRETE VALLEY GUTTER | SCALE N.T.S. | 8



NOTES:
1. CONCRETE SHALL BE MINIMUM 4000 PSI AND SHALL NOT CONTAIN LESS THAN SIX SACKS OF CEMENT PER CUBIC YARD (564 LBS/CY).
2. ISOLATION JOINTS SHALL BE PLACED ONLY AS SPECIFIED.
3. CONTRACTION JOINTS CONSISTING OF 1" DEEP SCORES SHALL BE PLACED AT MAXIMUM 20' INTERVALS O.C..
4. WHERE CONCRETE PAVEMENT IS ADJACENT TO THE CURB THE JOINTS SHALL ALIGN WITH JOINTS IN THE PAVEMENT.
5. BASE ROCK AND SUBGRADE SHALL BE PREPARED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL REPORT.
6. WHERE ADJACENT TO CONCRETE PAVEMENT, GUTTER THICKNESS SHALL BE GREATER OF THE OF ADJACENT PAVING THICKNESS OR 6 INCHES.

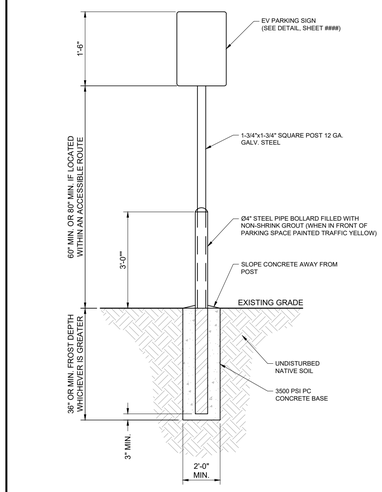
ASPHALT PAVEMENT JOINT | SCALE N.T.S. | 9





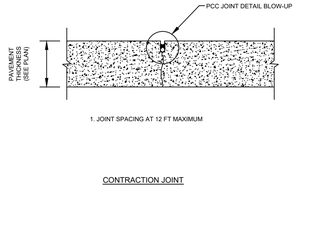
NOTES:
1. TO BE PLACED AT HEAD OF PARKING STALL.
2. POST MOUNTED OBJECTS PER ADA CODE SECTION 11B-307.3.
3. THIS DETAIL SHALL BE USED WHEN SIGN POST IS LOCATED OUTSIDE OF PARKING LOT PAVEMENT AND 2' MIN. CAR OVERHANG ZONE.

SIGN POST | SCALE N.T.S. | 10

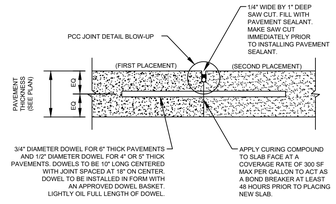


NOTES:
1. TO BE PLACED AT HEAD OF PARKING STALL.
2. POST MOUNTED OBJECTS PER ADA CODE SECTION 11B-307.3.
3. THIS DETAIL SHALL BE USED WHEN SIGN POST IS LOCATED IN PARKING LOT PAVEMENT, OR WITHIN 2' CAR OVERHEAD ZONE.
4. REFER TO NOTES FOR ASSUMED GEOTECHNICAL 164 PARAMETERS. THIS SIGN DESIGN ASSUMES ASCE 7-22 WIND SPEED AND AN EXPOSURE CATEGORY C. IF EITHER OF THESE GEOTECHNICAL PROPERTIES OR ASCE 7-22 WIND PARAMETERS DIFFER BASED ON LOCATION THE DESIGN MUST BE UPDATED BY A STRUCTURAL ENGINEER.

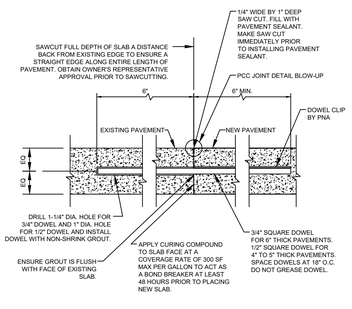
SIGN POST W/ BOLLARD | SCALE N.T.S. | 11



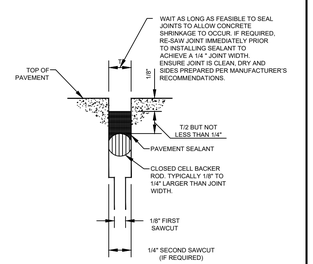
CONTRACTION JOINT



CONSTRUCTION JOINT



CONSTRUCTION JOINT TO EXISTING PAVEMENT

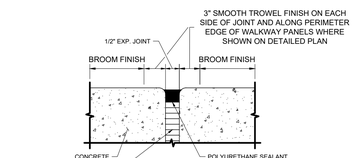


NOTES:
1. ENSURE JOINTS ARE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE JOINT SEALANT.
2. INSTALL CLOSED CELL BACKER ROD AFTER JOINTS HAVE BEEN CLEANED AND DRIED IN ACCORDANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.
3. INSTALL BACKER TOD AT CONSISTENT AND UNIFORM DEPTH.
4. JOINT SEALANT APPLICATION SHALL BE IN STRICT COMPLIANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.

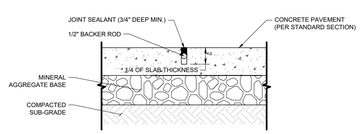
PCC JOINT DETAIL BLOW-UP (TYP.)

CONCRETE JOINT DETAILS | SCALE N.T.S. | 12

NOTES:
1. INSTALL SAWCUT JOINTS WITHIN 24 HOURS OF FINISHING CONCRETE.
2. INSTALL CONSTRUCTION JOINTS WHEN CONTINUOUS POUR OPERATIONS ARE SUSPENDED FOR MORE THAN 30 MINUTES.
3. INSTALL EXPANSION JOINTS @ 15' O.C. (225 S.F.) IN EACH DIRECTION AND AGAINST ASPHALT PAVEMENT AND STRUCTURES.



EXPANSION JOINT



CONTROL JOINT

CONCRETE JOINTS | SCALE N.T.S. | 13

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DOCUMENT DATE:	9/17/2026

SHEET TITLE
CIVIL DETAILS

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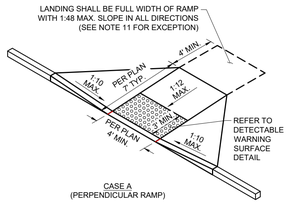
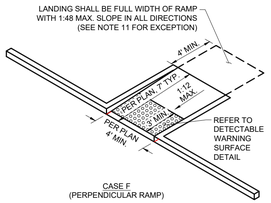
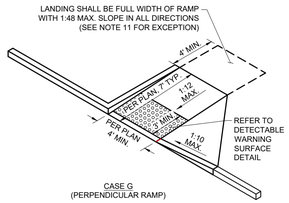


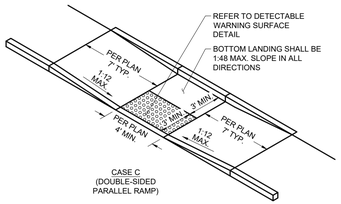
CASE A
(PERPENDICULAR RAMP)



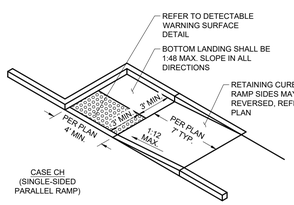
CASE F
(PERPENDICULAR RAMP)



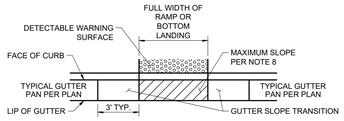
CASE G
(PERPENDICULAR RAMP)



CASE C
(DOUBLE-SIDED PARALLEL RAMP)



CASE CH
(SINGLE-SIDED PARALLEL RAMP)



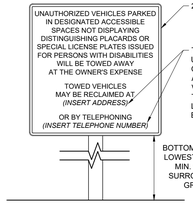
GUTTER PAN TRANSITION
(SEE NOTE 8)

NOTES:
1. ALL ACCESSIBLE COMPONENTS CONSTRUCTED AS PART OF THESE PLANS SHALL COMPLY WITH THE LOCAL, STATE, AND FEDERAL REGULATIONS WHICHEVER ARE MORE STRINGENT.
2. PUBLIC SIDEWALK CURB RAMPS CONSTRUCTED WITHIN A PUBLIC RIGHT- OF -WAY, SHALL MEET OR EXCEED LOCAL REGULATIONS.
3. CURB RAMPS SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN ON THE PLAN AND COMPLY WITH THE MINIMUM AND MAXIMUM REQUIREMENTS SHOWN IN THIS DETAIL.
4. CURB RAMP SURFACES (FLARES AND RAMP) SHALL BE SLIP RESISTANT WITH A BROOM FINISH AND HAVE A DIFFERENT TEXTURE FROM THE SURROUNDING PAVEMENT.
5. WATER PONDING WITHIN THE CURB RAMP LIMITS IS NOT ALLOWED.
6. GRADE BREAKS ARE NOT PERMITTED ALONG THE SURFACE OF RAMP RUNS AND TURNING SPACES.
7. THE CROSS SLOPE OF CURB RAMPS SHALL BE 1:48 MAXIMUM.
8. COUNTER SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO AND WITHIN 24 INCHES OF THE BOTTOM OF THE CURB RAMP SHALL NOT BE STEEPER THAN 1:20, EXCEPT WHERE ADJOINING THE ACCESS AISLE OF AN ACCESSIBLE PARKING STALL THE SLOPES SHALL NOT BE STEEPER THAN 1:48. WHERE NECESSARY GUTTER PAN SLOPES SHALL BE SOFTENED TO MEET THIS REQUIREMENT AND TRANSITION OVER A LENGTH OF 3' ON EITHER SIDE OF THE RAMP OR BOTTOM LANDING. GUTTER PAN TRANSITIONS SHALL MAINTAIN A CONSISTENT FLOWLINE GRADE.
9. THE ADJACENT SURFACES AT TRANSITIONS AT CURB RAMPS TO WALKS, GUTTERS, AND STREETS SHALL BE AT THE SAME LEVEL.
10. INSTALL 1/4" EXPANSION JOINT FILLER MATERIAL BETWEEN A NEW CURB RAMP AND EXISTING SIDEWALK.
11. A LANDING IS NOT REQUIRED AT THE TOP OF CASE A, F, & G RAMPS WHERE THEY FUNCTION AS PARALLEL RAMPS AND THE PATH OF TRAVEL IS LIMITED TO SAME THE DIRECTION AS THE RUNNING SLOPE OF THE RAMP.

ACCESSIBLE RAMP | SCALE N.T.S. | 1

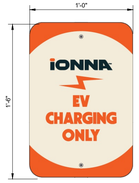
NOTES:
1. SIGNS SHALL CONFORM WITH THE MOST CURRENT MICHIGAN MUTCD STANDARDS.
2. SIGNS SHALL BE WALL-MOUNTED OR MOUNTED ON A POST. REFER TO SIGN POST DETAIL FOR MORE INFORMATION.
3. SITE ENTRY SIGNAGE SHALL BE POSTED EITHER IN A CONSPICUOUS PLACE AT EACH ENTRANCE TO THE OFF-STREET PARKING FACILITY OR AT A LOCATION IMMEDIATELY ADJACENT TO ON-SITE ACCESSIBLE PARKING AND VISIBLE FROM EACH PARKING SPACE.

SITE ENTRY SIGNAGE



ACCESSIBLE VAN STALL SIGNAGE DETAIL | SCALE N.T.S. | 5

NOTES:
1. SIGNS SHALL CONFORM WITH THE MOST CURRENT MICHIGAN MUTCD STANDARDS.
2. SIGNS SHALL BE WALL-MOUNTED OR MOUNTED ON A POST. REFER TO SIGN POST DETAIL FOR MORE INFORMATION.
3. PARKING IDENTIFICATION SIGNS SHALL BE VISIBLE FROM EACH PARKING SPACE. SIGNS SHALL BE LOCATED IMMEDIATELY ADJACENT TO THE PARKING SPACE OR WITHIN THE PROJECT PARKING SPACE WIDTH AT THE HEAD END OF THE PARKING SPACE.



EV CHARGING SIGN (ION-PS-12X18-EV)

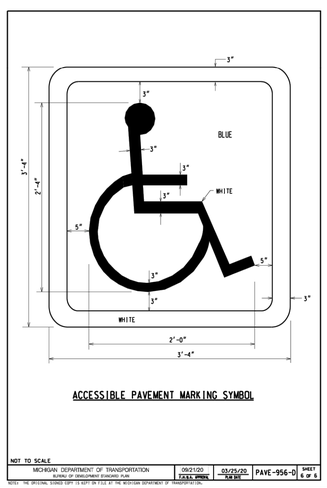


USE LAST EV CHARGING SIGN (ION-PS-12X18-ADA-EV)

EV SIGNAGE | SCALE N.T.S. | 6

NOTES:
1. PROPOSED ASPHALT 5.0% MAX. TRANSITION SLOPE TO EXISTING GRADE, UNLESS OTHERWISE SHOWN ON PLANS.
2. CREATE A SMOOTH TRANSITION TO MATCH EXISTING GRADE. SEE PLAN FOR APPROXIMATE REMOVE, REGRADE, AND REPLACE LIMITS.
3. SURFACE COURSE SHALL BE INSTALLED AT THE SAME TIME AS ADJACENT PAVEMENT REPAIR SURFACE COURSES.
4. IF AGGREGATE BASE COURSE IS NOT PRESENT CONTRACTOR TO NOTIFY ENGINEER OF RECORD IMMEDIATELY.
5. THE AGGREGATE BASE COURSE SHALL BE INSPECTED BY THE TESTING AGENCY, OWNER OR DESIGN CONSULTANT AFTER ASPHALT REMOVAL AND BASE PREPARATION, PRIOR TO ASPHALT REPLACEMENT.

PAVEMENT SECTIONS | SCALE N.T.S. | 9



ACCESSIBLE PAVEMENT MARKING SYMBOL

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03/25/20 R&D DIR.
PAVE-956-D
SHEET 6 OF 6
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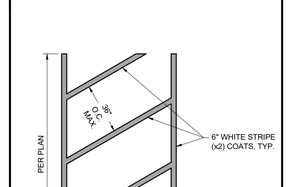
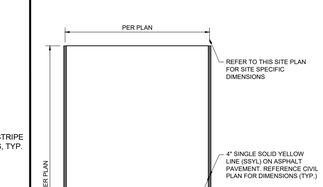
ACCESSIBLE STALL SYMBOL PAVEMENT MARKING | SCALE N.T.S. | 10



NOTES:
1. MARKINGS FOR STREET SHALL BE ACCORDING TO LOCAL CODE REQUIREMENTS AND AS OUTLINED IN SECTION 3B.18 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS.
2. MARKINGS WITHIN PRIVATE PARKING LOT SHALL BE PER THIS DETAIL.
3. THESE MARKINGS ARE TO BE PAINTED RETROREFLECTIVE WHITE.

PAVEMENT STRIPING | SCALE N.T.S. | 2

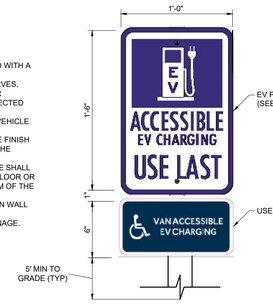
ACCESS AISLE STRIPING | SCALE N.T.S. | 3



STANDARD EV STALL

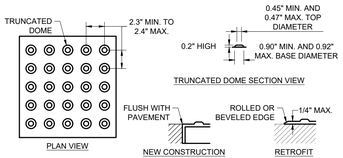
EV PARKING STRIPING | SCALE N.T.S. | 4

NOTES:
1. SIGN SHALL COMPLY WITH ADA/IBC.
2. STALL SIGNAGE SHALL BE RETROFLECTORIZED WITH A MINIMUM AREA OF 70 SQ. INCHES.
3. SIGN SHALL BE VISIBLE FROM THE EVCS IT SERVES.
4. SIGN SHALL BE PERMANENTLY POSTED EITHER IMMEDIATELY ADJACENT OR WITHIN THE PROJECTED VEHICLE SPACE.
5. SIGN SHALL BE LOCATED AT THE END OF THE VEHICLE SPACE.
6. SIGN SHALL BE 60 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE MEASURED TO THE BOTTOM OF THE SIGN.
7. SIGNS LOCATED WITHIN AN ACCESSIBLE ROUTE SHALL BE 80 INCHES MINIMUM ABOVE THE FINISHED FLOOR OR GROUND SURFACE MEASURED TO THE BOTTOM OF THE SIGN.
8. SIGNS MAY ALSO BE PERMANENTLY POSTED ON WALL AT THE INTERIOR END OF THE VEHICLE SPACE.
9. IONNA SHALL SUPPLY THE VEHICLE STALL SIGNAGE.



NOTES:
1. SIGNS SHALL CONFORM WITH THE MOST CURRENT MICHIGAN MUTCD STANDARDS.
2. SIGNS SHALL BE WALL-MOUNTED OR MOUNTED ON A POST. REFER TO SIGN POST DETAIL FOR MORE INFORMATION.
3. ACCESSIBLE PARKING IDENTIFICATION SIGNS SHALL BE VISIBLE FROM EACH ACCESSIBLE PARKING SPACE. SIGNS SHALL BE LOCATED IMMEDIATELY ADJACENT TO THE PARKING SPACE OR WITHIN THE PROJECT PARKING SPACE WIDTH AT THE HEAD END OF THE PARKING SPACE.
4. SITE ENTRY SIGNAGE SHALL BE POSTED EITHER IN A CONSPICUOUS PLACE AT EACH ENTRANCE TO THE OFF-STREET PARKING FACILITY OR AT A LOCATION IMMEDIATELY ADJACENT TO ON-SITE ACCESSIBLE PARKING AND VISIBLE FROM EACH PARKING SPACE.

ACCESSIBLE VAN STALL SIGNAGE DETAIL | SCALE N.T.S. | 7



NOTES:
1. DETECTABLE WARNING SURFACES SHALL COMPLY WITH ADA/IBC AND BE CAST-IN-PLACE FLUSH WITH FINISHED SURFACE IN NEW CONSTRUCTION APPLICATIONS OR SURFACE APPLIED IN RETROFIT APPLICATIONS WITH VERTICAL OR BEVELED EDGES COMPLYING WITH ADA/IBC.
2. CONTRACTOR SHALL REFERENCE MANUFACTURERS GUIDELINES FOR INSTALLATION OF DETECTABLE WARNING SURFACE.
3. DETECTABLE WARNING SURFACES AT CURB RAMPS SHALL EXTEND A MINIMUM 36" DEPTH AND THE FULL WIDTH OF THE RAMP OR TURNING SPACE LESS 2 INCHES MAXIMUM ON EACH SIDE AND SHALL BE LOCATED SO THE EDGE NEAREST THE CURB IS 6" MINIMUM AND 8" MAXIMUM FROM THE DEMARCATION LINE AT THE FACE OF CURB BETWEEN THE CURB AND THE GUTTER, STREET, OR HIGHWAY.
4. DETECTABLE WARNING SURFACE MAY HAVE TO BE CUT TO ALLOW REMOVAL OF UTILITY COVERS WHILE MAINTAINING DETECTABLE WARNING WIDTH AND DEPTH.
5. COLOR SHALL BE YELLOW AND APPROXIMATE COLOR 33538 OF SAE AMS-STD-595A PER ADA/IBC.

TRUNCATED DOMES | SCALE N.T.S. | 8

SCALE N.T.S. | 11

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GENERAL NOTES

1. AT ALL TIMES THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITION OF JOB SITE, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY AND FOR ALL NECESSARY INDEPENDENT ENGINEERING REVIEWS OF THESE CONDITIONS. THE ENGINEERS JOB SITE REVIEW IS NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTORS SAFETY MEASURES.
2. THE CONTRACTOR SHALL MAKE AN EXAMINATION OF THE SITE AND COMPARE THE SITE WITH THE DRAWINGS AND SPECIFICATIONS AND SATISFY HIMSELF AS TO CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL ASCERTAIN AND CHECK THE LOCATIONS OF ANY EXISTING STRUCTURES OR EQUIPMENT WHICH MAY AFFECT WORK THAT HAS TO BE PERFORMED, NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE IN CONTRACTOR'S BEHALF FOR ANY EXPENSE TO WHICH THE CONTRACTOR MAY BE PUT DUE TO FAILURE OR NEGLECT BY CONTRACTOR TO MAKE SUCH EXAMINATION.
3. ALL WORK SHALL BE COORDINATED WITH THE OWNER TO MAINTAIN CONTINUITY OF SERVICE AND MAXIMUM UTILIZATION OF THE OWNERS FACILITY.
4. ELECTRICAL WORK SHALL CONFORM TO THE NEC AND CURRENT ISSUES OF ALL NFPA, IBC, IFC, ANSI, OSHA, ASTM, NEMA, AND OTHER NATIONALLY PUBLISHED CODES OR STANDARDS SHALL APPLY TO THIS WORK UNLESS LOCAL JURISDICTION SUPERSEDES. THE MOST STRINGENT CODES SHALL APPLY.
5. NOTHING IN THE DRAWINGS OR SPECIFICATIONS IS INTENDED TO ALLOW A VIOLATION OF ELECTRICAL WORKING SPACE AROUND ELECTRICAL EQUIPMENT REQUIREMENT. ANY DEVIATION FROM THIS REQUIREMENT SHALL BE APPROVED IN WRITING, BY THE ENGINEER. THE CONTRACTOR SHALL RELOCATE ANY EQUIPMENT IN VIOLATION OF THE ELECTRICAL CODE AT HIS OWN COST.
6. PROVIDE PHENOLIC NAMEPLATE WITH WHITE LETTERING ON BLACK BACKGROUND FOR EACH ELECTRICAL EQUIPMENT. PROVIDE PERMANENT MEANS OF ATTACHMENT THAT WILL NOT VIOLATE NEMA RATING OR EQUIPMENT WARRANTY.
7. REFER TO THE DRAWINGS FOR LOCATIONS AND SPACE REQUIREMENTS OF ELECTRICAL EQUIPMENT. COORDINATE THE INSTALLATION OF ELECTRICAL EQUIPMENT WITH OTHER TRADES.
8. CONTRACTOR SHALL SECURE AND PAY FOR ELECTRICAL TRADE SPECIFIC CONSTRUCTION PERMITS, LICENSES, GOVERNMENTAL AND INSPECTION FEES NECESSARY FOR THE EXECUTION OF THE WORK, UNLESS OTHERWISE DIRECTED.
9. ELECTRICAL CONTRACTOR SHALL PROVIDE COMPLETE ELECTRICAL INSTALLATION IN ACCORDANCE WITH ESTABLISHED TECHNIQUES AND ACCEPTED PRACTICES AND ALL LOCAL, STATE, AND NATIONAL CODES HAVING JURISDICTION.
10. ELECTRICAL REQUIREMENTS SUCH AS CONDUIT ROUTING AND LOCATIONS OF ELECTRICAL DEVICES (RECEPTACLES, SWITCHES, FLOOR OUTLETS, CONDUIT STUBS, ETC.) SHOWN ON THESE PLANS ARE DIAGRAMMATIC AND SUBJECT TO VERIFICATION BY ELECTRICAL CONTRACTOR FOR THE INTERFACING OF THE ELECTRICAL WORK WITH THE INSTALLATION. CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS TO CLEAR THE OTHER FACILITIES EXCEPT AS SHOWN DIMENSIONED ON THE ARCHITECTURAL DRAWINGS OR AS APPROVED BY THE ARCHITECT.
11. ELECTRICAL EQUIPMENT SHOWN OR SPECIFIED FOR THIS PROJECT HAS BEEN GENERALLY SELECTED BASED ON DIMENSIONS TO FIT THE SPACE. THE CONTRACTOR SHALL VERIFY EQUIPMENT DIMENSIONS AND/OR ANY INTERFERENCES PRIOR TO ORDERING THE EQUIPMENT.
12. MANUFACTURER'S RECOMMENDATIONS FOR CONDUCTOR SIZING, CIRCUIT BREAKER OR FUSE RATING OF ELECTRICALLY OPERATED EQUIPMENT MAY DIFFER FROM THOSE INDICATED ON DRAWINGS. CONTRACTOR SHALL CONFIRM RATINGS PRIOR TO ORDERING EQUIPMENT.
13. ALL EMPTY OR SPARE CONDUIT NOTED SHALL HAVE PULL ROPES OR WIRES INSTALLED, TENSILE STRENGTH MINIMUM OF 200 FT/LBS.
14. CONTRACTOR SHALL PROVIDE PULL BOX(S) AS REQUIRED TO COMPLY WITH NEC 352.26 & NEC 356.26.
15. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDERWRITER'S LABORATORIES OR OTHER APPROVED NRTL, AND SHALL BEAR THEIR LABEL. ALL CONTROL PANELS SHALL BE SO LISTED AS AN ASSEMBLY.
16. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, FEES AND EQUIPMENT SPECIFIED. INDICATED OR IMPLIED IN THESE DOCUMENTS TO ACCOMPLISH THE CONSTRUCTION IN A PROFESSIONAL, WORKMANLIKE MANNER. ANY DISCREPANCIES BETWEEN THE CONSTRUCTION TASKS INDICATED AND LOCAL CODES AND/OR ORDINANCES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE GENERAL CONTRACTOR AND/OR OWNER FOR RESOLUTION BEFORE PROCEEDING WITH THE WORK AT ISSUE.
17. ANY WORK INSTALLED INCORRECTLY, OR BEFORE APPROVAL HAS BEEN OFFICIALLY GRANTED FOR THOSE ITEMS AT ISSUE, SHALL BE CORRECTED BY THE ELECTRICAL CONTRACTOR AT NO CHARGE TO OWNER/ARCHITECT/CLIENT.
18. ALL MATERIALS AND EQUIPMENT FURNISHED BY THE CONTRACTOR SHALL BE NEW AND COMPLETELY SERVICEABLE UNLESS OTHERWISE SPECIFIED.
19. CONTRACTOR SHALL COORDINATE ROUGH-IN AND FINAL CONNECTION REQUIREMENTS WITH THE OWNER, EQUIPMENT SUPPLIERS, GENERAL CONTRACTOR AND OTHER BUILDING TRADES BEFORE PROCEEDING WITH ANY FURTHER RELATED WORK. INSTALLATIONS SHALL BE IN FULL ACCORDANCE WITH EQUIPMENT MANUFACTURER'S RECOMMENDATIONS AND REQUIRED CODES. CONFLICTS AND INTERFERENCES SHALL BE RESOLVED IMMEDIATELY, BEFORE ANY INSTALLATION BEGINS.
20. FINAL ACCEPTANCE OF WORK IN PLACE SHALL BE SUBJECT TO APPROVAL BY OWNER'S REPRESENTATIVE AND ARCHITECT/ENGINEER. INSTALLATION APPROVAL SHALL BE BASED ON APPROVED SUBMITTALS, SHOP DRAWINGS AND LOCAL INSPECTION.
21. CONTRACTOR SHALL SUBMIT "FOR RECORD" MARKUP DRAWINGS WITHIN TWO (2) WEEKS AFTER DATE OF NOTIFICATION OF FINAL APPROVAL OF WORK-IN-PLACE. CONTRACTOR'S FINAL INVOICE WILL NOT BE PAID WITHOUT COMPLETE DOCUMENTATION.
22. CONTRACTOR SHALL WARRANT ALL WORKS FOR A PERIOD OF ONE (1) YEAR FROM DATE OF ACCEPTANCE OF WORK-IN-PLACE. CONTRACTOR SHALL REPAIR OR REPLACE ANY DEFECTIVE WORK INCLUDING MATERIALS AND EQUIPMENT AT NO ADDITIONAL COST TO THE OWNER WITHIN WARRANTY PERIOD.
23. THE CONTRACTOR SHALL PROVIDE ALL FUSES AND OVERLOAD HEATER ELEMENTS REQUIRED FOR THIS CONTRACT INSTALLATION INCLUDING ANY FUSES BLOWN DURING INITIAL TESTING.
24. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES TO ALL PAVING. IF DAMAGE OCCURS DURING CONSTRUCTION, ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OWNER TO PATCH, PAINT AND REPAIR TO MATCH EXISTING CONDITIONS.
25. CONDUIT AND WIRE SCHEDULE FOR NEW EQUIPMENT ARE GENERALLY INDICATIVE. CONTRACTOR SHALL REFER TO MANUFACTURER AND SUPPLIER OF EQUIPMENT FOR DETAILED WIRING DIAGRAM AND VERIFY THE EXACT ROUTING AND CONDUCTOR SIZE.
26. THE CONTRACTOR SHALL REFER TO MANUFACTURER AND SUPPLIER OF ELECTRICAL CONTROL EQUIPMENT FOR EXACT WIRING INTERCONNECTION.
27. ALL CONDUCTORS SHALL BE ALUMINUM OR COPPER STRANDED, AND HAVE INSULATION TEMPERATURE RATING 90°C, UNLESS OTHERWISE NOTED.
28. IDENTIFICATION OF GROUNDED CONDUCTORS SHALL BE IN ACCORDANCE WITH NEC 200.6. IDENTIFICATION OF EQUIPMENT GROUNDING CONDUCTORS SHALL BE IN ACCORDANCE WITH NEC 250.19. IDENTIFICATION OF UNGROUNDED CONDUCTORS IS REQUIRED FOR MULTIWIRE CIRCUITS AND SHALL BE AS FOLLOWS:

SYSTEM	480Y/277V	208Y/120V	120/240V 1-PHASE
PHASE A	BROWN	BLACK	BLACK (LINE 1)
PHASE B	ORANGE	RED	RED (LINE 2)
PHASE C	YELLOW	BLUE	
NEUTRAL	GRAY	WHITE	

29. USE WIRE IDENTIFICATION COLOR CODE PER SPECIFICATIONS BELOW.

COLOR	DESCRIPTION
LT. BLUE	INTRINSICALLY SAFE CIRCUITS
GREEN	EQUIPMENT GROUNDING CONDUCTOR
YELLOW	CONTROL CIRCUITS SUPPLIED FROM EXTERNAL POWER SOURCE, INTERLOCKS

30. THE ELECTRICAL DESIGN AND EQUIPMENT RATINGS ARE BASED ON ELECTRICAL SYSTEM STUDIES WHICH MAY INCLUDE: LOAD FLOW, SHORT CIRCUIT, ARC FLASH, RELAY COORDINATION, GROUNDING, AND CABLE SIZING.

ACCEPTANCE TESTING

THE FOLLOWING TESTS SHALL BE PERFORMED PRIOR TO ENERGIZATION OF THE SYSTEM WHEN APPLICABLE:
TEST RESULTS SHALL BE MADE AVAILABLE TO THE ENGINEER OF RECORD OR BUILDING OFFICIAL UPON REQUEST.

1. GROUND-FAULT PROTECTION EQUIPMENT
   - 1.1. VERIFY PICKUP AND TIME DELAY SETTINGS ARE IN ACCORDANCE WITH SETTINGS PROVIDED BY THE ENGINEER OR EQUIPMENT MANUFACTURER
2. ELECTRICAL TESTS SWITCHBOARDS, PANELBOARDS, MOTOR CONTROL CENTERS AND OTHER EQUIPMENT RATED 1000 AMPERES OR MORE, OR OVER 1000 VOLTS.
   - 2.1. RELAY PICKUP CURRENT BY CURRENT INJECTION AT THE SENSOR AND OPERATION OF THE CIRCUIT INTERRUPTING DEVICE
   - 2.2. TEST RELAY TIMING.
   - 2.3. TEST PRIMARY CONTROL VOLTAGE AT NOT MORE THAN 57 PERCENT OF ITS RATED VOLTGROUNDED CONDUCTOR INSULATION RESISTANCE
   - 2.4. VERIFICATION OF CONTINUITY OF EQUIPMENT GROUNDING SYSTEM.
   - 2.5. INSULATION RESISTANCE TEST ON EACH BUS AND PROTECTIVE DEVICE, PHASE-TO-PHASE AND PHASE-TO-GROUND.
   - 2.6. DIELECTRIC VOLTAGE-WITHSTAND TEST ON EACH BUS AND PROTECTIVE DEVICE, PHASE-TO-PHASE AND PHASE-TO-GROUND.
   - 2.7. CONTROL POWER TRANSFORMER, CONTROL POWER CIRCUITS AND POTENTIAL CIRCUITS.
   - 2.8. CONTROL AND PROTECTIVE DEVICES FOR PROPER OPERATION.
3. ELECTRICAL TESTS ON TRANSFORMERS RATED 100 KVA OR MORE SINGLE PHASE AND 300 KVA OR MORE THREE PHASE.
   - 3.1. INSULATION RESISTANCE TEST ON EACH WINDING. TEST WINDING-TO-WINDING AND WINDINGS-TO-GROUND.
   - 3.2. TURNS-RATIO TEST FOR EACH WINDING AT ALL TAP SETTINGS.
   - 3.3. CONTROL POWER TRANSFORMER, CONTROL POWER CIRCUITS AND POTENTIAL CIRCUITS.
   - 3.4. CONTROL AND PROTECTIVE DEVICES FOR PROPER OPERATION.
4. CONDUCTORS THAT SUPPLY EQUIPMENT RATED AT 1000 AMPERES OR MORE, OR OVER 1000 VOLTS
   - 4.1. INSULATION RESISTANCE TEST ON EACH CONDUCTOR, PHASE-TO-PHASE AND PHASE-TO-GROUND.
   - 4.2. DC HIGH-POTENTIAL TEST ON EACH CONDUCTOR, PHASE-TO-PHASE AND PHASE-TO-GROUND.
   - 4.3. ELECTRICAL TESTS ON EMERGENCY AND STANDBY POWER SYSTEMS: SWITCHBOARDS, PANELBOARDS, DISTRIBUTION BOARDS, POWER SOURCE, CONDUCTORS, CONTROL AND PROTECTIVE DEVICES FOR PROPER OPERATION.
   - 4.4. PHASE ROTATION TEST
   - 4.5. INSULATION RESISTANCE TEST ON FEEDER CONDUCTORS AND EQUIPMENT, PHASE-TO-PHASE AND PHASE-TO-GROUND
   - 4.6. CONDUCT OPERATIONAL TEST ON SYSTEM UNDER LOAD CONDITIONS.

QUALITY ASSURANCE NOTES

1. FOLLOW AND ADHERE TO ALL MANUFACTURERS INSTALLATION INSTRUCTIONS.
2. ALL BACKFILL AND COMPACTION SHALL COMPLY WITH GEOTECH REPORT.
3. ALL ELECTRICAL TERMINATIONS SHALL BE TORQUED TO MANUFACTURERS' SPECIFICATIONS. WHERE THEY ARE NOT SPECIFIED, REFER TO UL STANDARDS 486A AND 486B. FINAL TORQUE TEST DOCUMENTATION SHALL BE PROVIDED TO OWNER OR HIS REPRESENTATIVE, WITH ONE OR THE OTHER IN WITNESS AT RANDOM TIMES.
4. LINE AND LOAD CONDUCTORS SHALL BE BRACED AND SUPPORTED (LASHED, HELD FIRMLY IN PLACE) IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S SPECIFICATIONS AND NECA/IBEW APPROVED INSTALLATION PRACTICES.

EQUIPMENT SPECIFICATIONS

THE FOLLOWING EQUIPMENT SPECIFICATION AND SUBMITTALS SHALL BE PROVIDED TO AND APPROVED BY THE ENGINEER OF RECORD PRIOR TO INSTALLATION:

- ELECTRICAL EQUIPMENT INCLUDING: SWITCHGEAR, PANELBOARDS, AND SAFETY SWITCHES.
- CONDUCTORS AND CABLES INCLUDING: LOW VOLTAGE CABLES, AND CONTROL CABLES
- PROTECTIVE DEVICES INCLUDING: CIRCUIT BREAKERS, FUSES, RELAYS, AND PROTECTION SETTINGS.
- ELECTRIC VEHICLE CHARGING STATIONS
- LIGHTING (IF APPLICABLE)

ABBREVIATIONS

A, AMPS	AMPERES
AB	ANCHOR BOLT
A/C	AIR CONDITIONER
AC	ALTERNATING CURRENT
AF	AMPERE FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CURRENT
AL	ALUMINUM
AS	AMPERE SWITCH
AT	AMPERES TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CB	CIRCUIT BREAKER
CC	CENTER TO CENTER
CCS1/CCS2	COMBINED CHARGING SYSTEM TYPE 1/2
CEC	CALIFORNIA ELECTRICAL CODE
CHAdeMO	CHArge de MOve (EV CHARGING STANDARD)
CKT	CIRCUIT
℄	CENTER LINE
CLG	CEILING
CLR	CLEAR
CO	CONDUIT ONLY WITH PULL ROPE
CONC	CONCRETE
CU	COPPER
DB	DIRECT BURIAL
DC	DIRECT CURRENT
DIA	DIAMETER
DN	DOWN
DP	DISTRIBUTION PANEL
DWG	DRAWING
EM	EMERGENCY
EGC	EQUIPMENT GROUNDING CONDUCTOR
EMT	ELECTRICAL METALLIC TUBING
EPO	EMERGENCY POWER OFF
EQ	EQUAL
EQUIP	EQUIPMENT
EV	ELECTRIC VEHICLE
(E)	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPERES
(F)	FUTURE
GEC	GROUNDING ELECTRODE CONDUCTOR
GND	GROUND
GALV	GALVANIZED
GRS	GALVANIZED RIGID STEEL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
HH	HANDHOLE
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATION, AIR CONDITIONING
HZ	HERTZ
IMC	INTERMEDIATE METAL CONDUIT
ISC	INTERRUPTING SHORT CIRCUIT
IG	ISOLATED GROUND
INST	INSTANTANEOUS
JB	JUNCTION BOX
KAIC	KILO AMPERES INTERRUPTION CAPACITY
KCMIL	KILO CIRCULAR MILS
KV	KILOVOLTS
KVA	KILOVOLT-AMPERES KW KILO WATTS
KWH	KILO WATT-HOURS
LCP	LIGHTING CONTROL PANEL
LTG	LIGHTING
MAX	MAXIMUM
MCC	MOTOR CONTROL CENTER
MCB	MAIN CIRCUIT BREAKER
MCP	MOTOR CIRCUIT PROTECTOR
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MSB	MAIN SWITCHBOARD
MSG	MAIN SWITCHGEAR
MV	MEDIUM VOLTAGE
MVA	MEGA VOLT AMPERES
(N)	NEW
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NRTL	NATIONAL RECOGNIZED TESTING LABORATORY
NTS	NOT TO SCALE
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OH	OVERHEAD
PH, Ø	PHASE
PB	PUSHBUTTON
PDU	POWER DISTRIBUTION UNIT
PNL	PANEL
POCC	POINT OF COMMON CONNECTION
PV	PHOTOVOLTAIC
PVC	POLYVINYL CHLORIDE
RELT	REDUCED ENERGY LET THROUGH
(R)	EXISTING TO BE REMOVED
(RE)	NEW LOCATION OF RELOCATED DEVICE
(RL)	EXISTING TO BE RELOCATED
SCA	SHORT CIRCUIT AVAILABLE
SEC	SECONDARY
SPECS	SPECIFICATIONS
STD	STANDARD
STP	SHIELDED TWISTED PAIR
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
TBD	TO BE DETERMINED
TD	TIME DELAY
TEL	TELEPHONE
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
UPB	UNDERGROUND PULLBOX
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS
VA	VOLT-AMPERES
VFD	VARIABLE FREQUENCY DRIVE
VFI	VACUUM FUSED INTERRUPTER
VP	VAPORPROOF
W	WATTS, WIRE
WH	WATER HEATER
WP	WEATHERPROOF
WT	WATERTIGHT
XFMR	TRANSFORMER
XLPE	CROSS-LINKED POLYETHYLENE
XP	EXPLOSION PROOF

SYMBOLS

(M)	METER
	GROUND
	TRANSFORMER
	LOW VOLTAGE CIRCUIT BREAKER
	LOW VOLTAGE DRAW OUT CIRCUIT BREAKER
	CURRENT TRANSFORMER (CT)
	POTENTIAL TRANSFORMER (PT)
	FUSE
	SWITCH

ELECTRICAL SCOPE OF WORK RESPONSIBILITIES

	SCOPE	BY UTILITY	BY CUSTOMER
PRIMARY	PRIMARY TRENCHING		X
	INSTALL PRIMARY CONDUIT		X
	INSTALL PULL ROPE		X
	INSTALL PRIMARY FEEDERS	X	
	PROVIDE ROAD CUTS/ROAD BORES		X
	PAVEMENT REPLACEMENT		X
TRANSFORMER	INSTALL TRANSFORMER PAD		X
	PROVIDE TRANSFORMER	X	
	INSTALL TRANSFORMER	X	
	INSTALL CONNECTIONS - PRIMARY	X	
	INSTALL CONNECTIONS - SECD		X
SWITCHBOARD	PROVIDE METER	X	
	INSTALL METER		X
	LAND SECONDARY FEEDERS		X
SECONDARY	SECONDARY TRENCHING		X
	INSTALL SECONDARY CONDUIT		X
	INSTALL PULL ROPE		X
	INSTALL SECONDARY FEEDERS		X
	PROVIDE SECONDARY FEEDERS		X
	PROVIDE ROAD CUTS/ROAD BORES		X
	PAVEMENT REPLACEMENT		X

PENDING UTILITY CONFIRMATION

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SHEET TITLE
ELECTRICAL NOTES

SHEET NUMBER
E1.0

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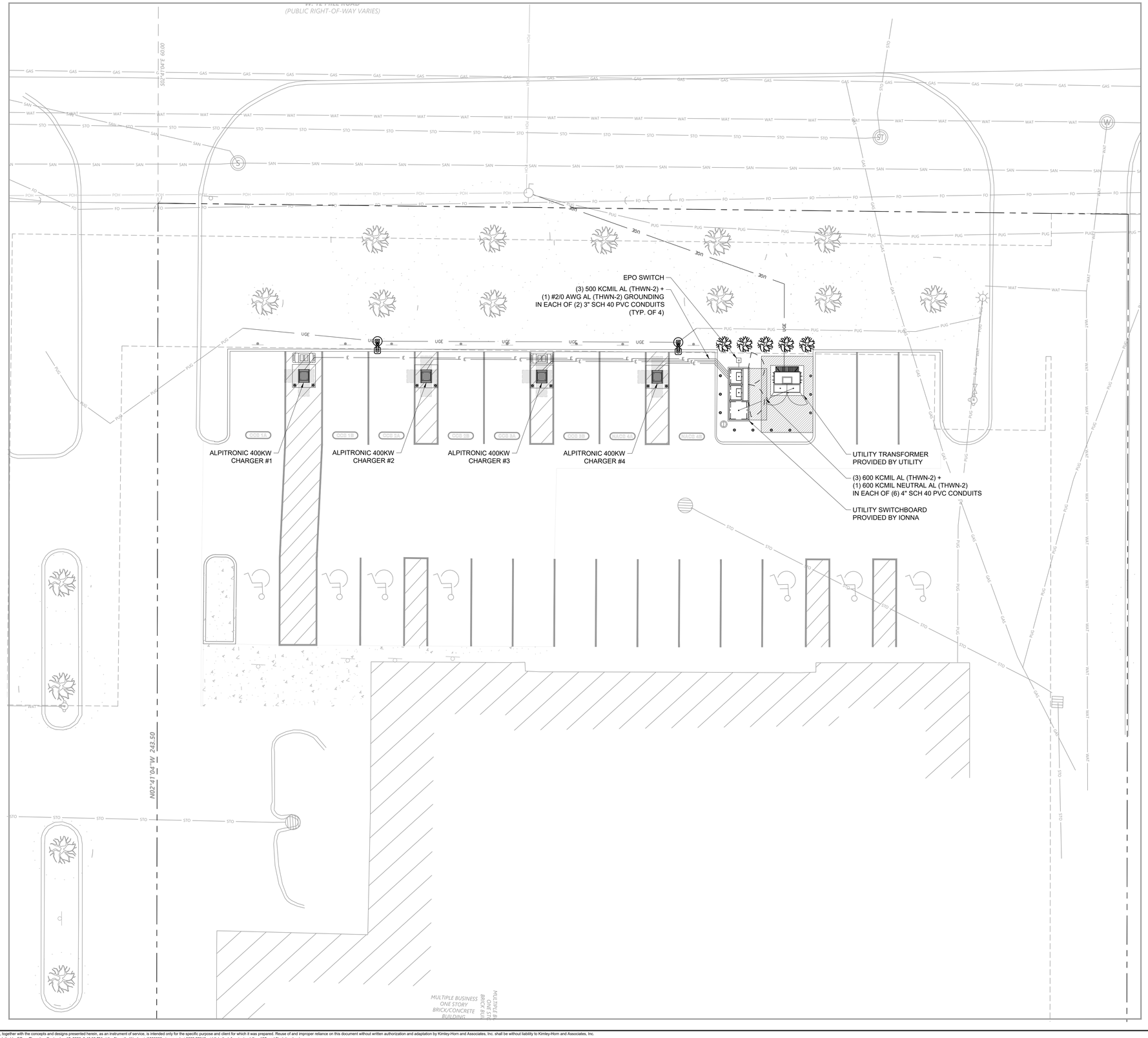

ELECTRICAL SITE PLAN LEGEND

ITEM	DESCRIPTION
	MEDIUM VOLTAGE TRANSFORMER - PAD MOUNTED
	480V LV SWITCHBOARD - PAD MOUNTED
	L3 DC FAST CHARGER - PAD MOUNTED
	ELECTRICAL EQUIPMENT MIN. REQUIRED CLEAR SPACE
E	UNDERGROUND EV POWER CONDUIT
	UNDERGROUND UTILITY POWER CONDUIT
OHE	OVERHEAD UTILITY POWER LINE
	CONDUIT STUB-UP FOR FUTURE EVCS
	Ø6" EMBEDDED BOLLARD

ELECTRICAL SITE PLAN NOTES

1. UTILITY CONNECTION TO BE MADE UNDER DTE ENERGY STANDARDS. CONFIRM FINAL UTILITY DESIGN PRIOR TO CONSTRUCTION. ALL WORK PERFORMED REGARDING THE ELECTRICAL SERVICE SHALL MEET ALL DTE STANDARDS AND SPECIFICATIONS.
2. ALL ELECTRICAL WORK AND RELATED ACTIVITIES PERFORMED ONSITE SHALL BE DONE IN ACCORDANCE WITH NEC 2023 AND ALL STANDARDS BEING ENFORCED BY ALL APPLICABLE JURISDICTIONAL REQUIREMENTS AT TIME OF CONSTRUCTION.
3. NO PART OF THIS DRAWING OR SPECIFICATION IS INTENDED TO ALLOW A VIOLATION OF PHYSICAL WORKING SPACE REQUIREMENTS AROUND ELECTRICAL EQUIPMENT AS REQUIRED PER NEC 110.26.
4. CONDUIT ROUTING IS ONLY DIAGRAMMATICAL. INSTALLATION OF CONDUIT SHALL BE COORDINATED TO AVOID INTERFERING WITH UNDERGROUND INFRASTRUCTURE. CONDUIT ROUTING AND CABLE TRENCH DETAILS TO BE APPROVED BY ENGINEER. HAND DIG AROUND ALL EXISTING UTILITIES. CONDUIT SHALL BE HAND DUG TRENCH IN AREAS WITH EXISTING UNDERGROUND UTILITIES.
5. CONTRACTOR TO LOCATE JUNCTION BOX OR APPROVED ALTERNATIVE FOR SITE SPECIFIC RUN LENGTHS AND BENDS PER NEC 314.26, 352.26, AND 356.26. JUNCTION BOXES SHALL BE TRAFFIC RATED WHERE SUBJECT TO VEHICULAR TRAFFIC. MINIMUM OF 1 FOOT OF CONCRETE REQUIRED AROUND ALL JUNCTION BOXES.
6. SEE SHEET E3.0 FOR CONDUIT AND CONDUCTOR SIZES AND QUANTITIES.

ESTIMATED CONDUIT AND CONDUCTOR LENGTHS

FROM	TO	CONDUIT LENGTH PER SET (2)	TOTAL CONDUIT LENGTH (3)	TOTAL CONDUCTOR LENGTH (4)
UTILITY TRANSFORMER	SWITCHBOARD 'EV'	20'	120'	480'
SWITCHBOARD 'EV'	EVCS #1	105'	210'	630'
	EVCS #2	75'	150'	450'
	EVCS #3	50'	100'	300'
	EVCS #4	25	50'	150'
TOTAL LENGTHS			630'	2010'

CONDUIT TABLE NOTES

1. CONDUCTOR AND CONDUIT LENGTHS ARE ESTIMATED VALUES BASED ON DIAGRAMMATIC CONDUIT PATHS. CONTRACTOR TO FIELD VERIFY CONDUIT PATHS AND LENGTHS WITH PHYSICAL MEASUREMENTS AFTER REVIEWING ANY POTENTIAL OBSTRUCTIONS. COMMUNICATIONS CABLING AND CONDUIT NOT INCLUDED IN THE ESTIMATES ABOVE. GROUND WIRE NOT INCLUDED IN THE TABLE ABOVE.
2. CONDUIT LENGTH PER SET IS THE HORIZONTAL DISTANCE OF THE CONDUIT PATH IS ADDITIONAL FOOTAGE FOR TRANSITIONS AND EQUIPMENT TERMINATIONS.
3. TOTAL CONDUIT LENGTH IS THE CONDUIT LENGTH PER SET MULTIPLIED BY THE NUMBER OF SETS FOR EACH RUN.
4. TOTAL CONDUCTOR LENGTH IS THE CONDUCTOR LENGTH PER SET MULTIPLIED BY THE NUMBER OF CONDUCTORS PER SET AND THE NUMBER OF PARALLEL SETS.

CONSTRUCTION NOTES

1. SEE ADDITIONAL ELECTRICAL NOTES AND SPECIFICATIONS ON SHEET E1.0.
2. CONTRACTOR TO BORE OR HAND TRENCH CONDUIT AS REQUIRED PER NEC.
3. ALL EQUIPMENT SHALL BE INSTALLED PER CLIENT DESIGN STANDARDS. SEE APPLICABLE STANDARDS ON SHEET E4.1.
4. LOW VOLTAGE SWITCHBOARD (277/480V-3PH). CONDUITS STUBBED TO THIS LOCATION SHALL BE GROUPED TOGETHER TO SUPPORT SWITCHBOARD CONFIGURATION (SECONDARY ENTRANCE WINDOW AND DISTRIBUTION WINDOWS). REFER TO ELECTRICAL SHEETS FOR PROPOSED AMPACITY RATINGS OF SWITCHBOARD EQUIPMENT.
5. PAD MOUNTED TRANSFORMER (277/480V-3PH SECONDARY). CONDUITS STUBBED TO THIS LOCATION SHALL BE GROUPED TOGETHER TO SUPPORT TRANSFORMER CONFIGURATION (SECONDARY ENTRANCE WINDOW AND PRIMARY WINDOW). REFER TO ELECTRICAL SHEETS FOR PROPOSED RATINGS OF TRANSFORMER EQUIPMENT.
6. THE ELECTRICAL CONTRACTOR SHALL FIELD MODIFY THE ELECTRICAL TRENCH AS NECESSARY TO ENSURE NO CONFLICTS WITH EXISTING OR PROPOSED INFRASTRUCTURE, INCLUDING PROPOSED CHARGERS AND FOUNDATIONS, ELECTRICAL EQUIPMENT AND FOUNDATIONS, OR BOLLARD PROTECTION AND FOUNDATIONS. PLEASE NOTIFY THE ENGINEER OF RECORD IMMEDIATELY IF ANY CONFLICTS ARE IDENTIFIED.

EV GENERAL NOTES

1. CONTRACTOR SHALL ROUTE A MAXIMUM OF 2 CIRCUITS IN A CONDUIT FROM LV PANELBOARD TO CHARGING STATION LOCATIONS. REFERENCE CONDUIT AND CONDUCTOR SCHEDULE ON SHEET E3.0 FOR CONDUIT SIZING.
2. ONGOING UTILITY COORDINATION, PRIMARY FAULT CURRENT VALUES HAVE NOT BEEN RECEIVED FROM THE UTILITY AND THUS FAULT CALCULATIONS TO VERIFY EQUIPMENT A.I.C. RATINGS ARE BASED ON INFINITE BUS CALCULATIONS. CURRENT VALUES ON EQUIPMENT PANEL SCHEDULES ARE ESTIMATES ONLY AND WILL BE FINALIZED FOR PERMIT SET.

GRAPHIC SCALE IN FEET
0 5 10 20
1" = 10'
WHEN PRINTED AT FULL SIZE
(24"x36")

NORTH

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SHEET TITLE
ELECTRICAL SITE PLAN

SHEET NUMBER
E2.0

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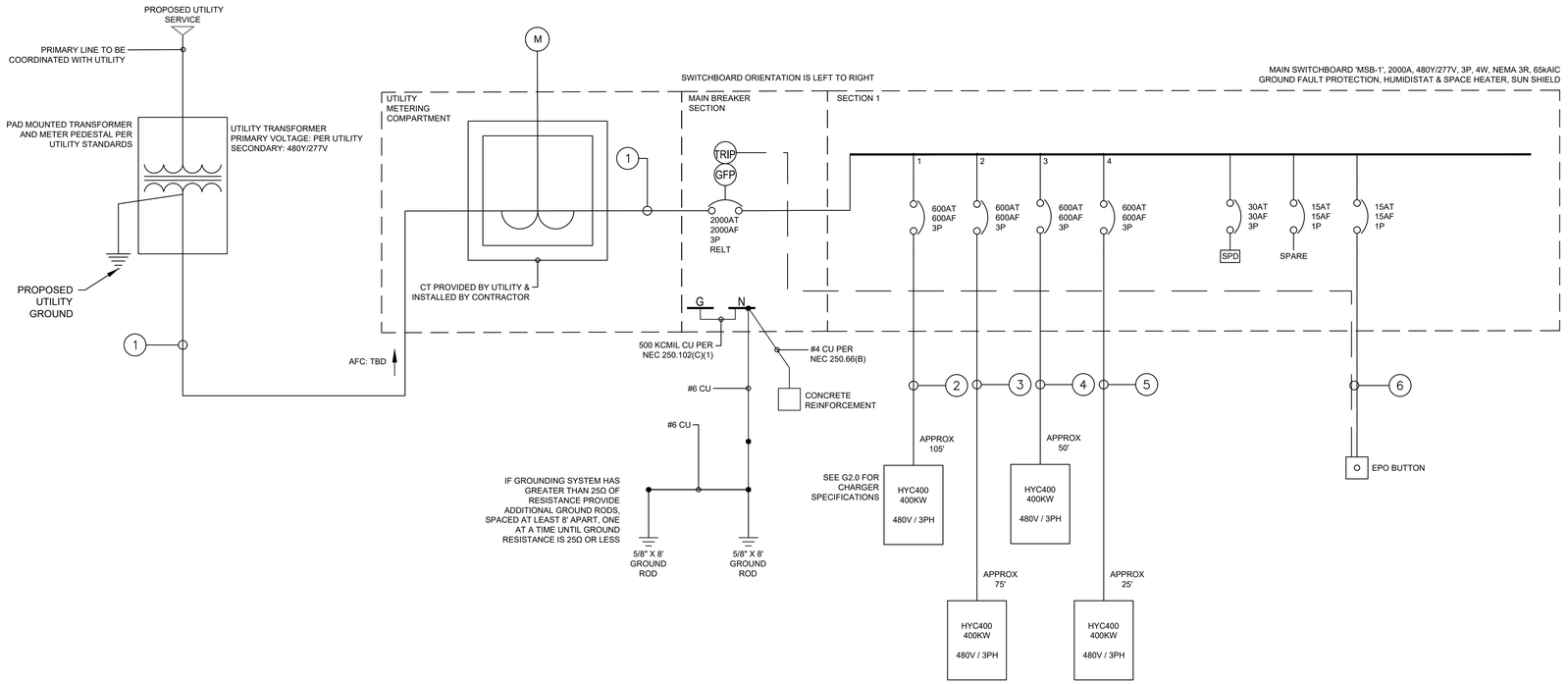
SINGLE LINE DIAGRAM NOTES

1. METER PLACEMENT, CT CABINET, AND FINAL SWITCH BOARD/DISTRIBUTION DESIGN TO BE COORDINATED ACCORDING TO UTILITY REQUIREMENTS. CONTRACTOR TO PROVIDE METER SOCKET (METER ENCLOSURE) PER LISTED ON THE UTILITY'S APPROVED METER ENCLOSURE LIST.
2. THE MAIN CIRCUIT BREAKER IN THIS SWITCHBOARD SHALL BE 100% RATED.
3. PROVIDE GROUND FAULT PROTECTION (GFP) FOR EQUIPMENT PER NEC ARTICLE 230.95.
4. SEE UTILITY POWER MANUAL FOR ADDITIONAL INFORMATION.
5. THIS SERVICE EQUIPMENT SHALL BE FIELD MARKED IN COMPLIANCE WITH ALL REQUIREMENTS STATED IN NEC ARTICLES 110.24(A) AND 230.70(B).
6. WHEN REQUIRED BY LOCAL AHJ "BREAK GLASS IN CASE OF FIRE" SWITCH IS TO BEPROVIDED BY EC. SWITCH SHALL BE EQUIVALENT TO PILLA ST120SN3RSL-EMERGENCY SHUT DOWN: EMERGENCY BREAK GLASS STATION, LEGEND: "EMERGENCY SHUT-DOWN", NO PUSH BUTTON, AUTO-RELEASE WHEN GLASS BROKEN, SURFACE MOUNT NEMA 3R ENCLOSURE, FITS 1-6 CONTACT BLOCKS OR EQUIVALENT.
7. PER NEC 625.42 IONNA IS SUPPLYING AUTOMATIC LOAD MANAGEMENT SYSTEM FOR THIS SITE.
8. ALL CONDUITS ABOVE GROUND OR SUBJECT TO DAMAGE SHALL BE RIGID GALVANIZED STEEL. ALL CONDUITS UNDERGROUND SHALL BE PVC SCHEDULE 40.
9. INSTALLATION SHALL BE IN ACCORDANCE WITH LATEST ADOPTED NATIONAL ELECTRICAL CODE AND BUILDING CODE, CHAPTER 27. THE AHJ HAS FINAL JURISDICTIONAL AUTHORITY ON CODE APPLICATION AND COMPLIANCE.
10. ALL EQUIPMENT SHALL BE INSTALLED BY CONTRACTOR UNLESS OTHERWISE NOTED. ALL MATERIAL SHALL BE IN NEW CONDITION AND APPROVED BY THE ENGINEER.
11. ALL EQUIPMENT SHALL BE UL LISTED.
12. ALL SWITCHBOARDS AND PANELBOARDS SHALL HAVE ARC FLASH WARNING LABELS WITH APPLICABLE INCIDENT ENERGY LEVELS, WORKING DISTANCES, AND REQUIRED PPE IN ACCORDANCE WITH NFPA 70E.
13. EXPOSED NON-CURRENT CARRYING METAL PARTS OF EQUIPMENT AND ENCLOSURES SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.134 AND 250.136.



1 ELECTRICAL SINGLE LINE DIAGRAM

CONDUIT AND WIRING SCHEDULE

ID	FROM	TO	CONDUCTORS
①	PROPOSED UTILITY TRANSFORMER (BY OTHERS)	PROPOSED 480V SWITCHBOARD	(3) 600 KCMIL AL (THWN-2) + (1) 600 KCMIL NEUTRAL AL (THWN-2) IN EACH OF (6) 4" SCH 40 PVC CONDUITS APPROX 20'
②	PROPOSED 480V SWITCHBOARD	PROPOSED HYC400 POWER CABINET	(3) 500 KCMIL AL (THWN-2) + (1) #2/0 AWG AL (THWN-2) GROUNDING IN EACH OF (2) 3" SCH 40 PVC CONDUITS APPROX 105'
③	PROPOSED 480V SWITCHBOARD	PROPOSED HYC400 POWER CABINET	(3) 500 KCMIL AL (THWN-2) + (1) #2/0 AWG AL (THWN-2) GROUNDING IN EACH OF (2) 3" SCH 40 PVC CONDUITS APPROX 80'
④	PROPOSED 480V SWITCHBOARD	PROPOSED HYC400 POWER CABINET	(3) 500 KCMIL AL (THWN-2) + (1) #2/0 AWG AL (THWN-2) GROUNDING IN EACH OF (2) 3" SCH 40 PVC CONDUITS APPROX 55'
⑤	PROPOSED 480V SWITCHBOARD	PROPOSED HYC400 POWER CABINET	(3) 500 KCMIL AL (THWN-2) + (1) #2/0 AWG AL (THWN-2) GROUNDING IN EACH OF (2) 3" SCH 40 PVC CONDUITS APPROX 30'
⑦	PROPOSED 480V SWITCHBOARD	EPO SWITCH	CONTRACTOR WILL USE CONDUCTORS PER MANUFACTURE

WIRE AND CONDUIT SCHEDULE NOTES

1. CONDUIT SIZE INDICATED ON SCHEDULE ARE MINIMUM REQUIRED SIZES. LARGER SIZES MAY BE INSTALLED AS NEEDED.

2 WIRE AND CONDUIT SCHEDULE

IONNA SITE ELECTRICAL INFORMATION		
SITE ZIP CODE:	48309	
UTILITY NAME:	DTE ENERGY	
UTILITY CONTACT:	MARQUITA LOWE	
UTILITY CONTACT (PN):	(313) 235-4213	
UTILITY CONTACT (EM):	MARQUITA.LOWE@DTEENERGY.COM	
IONNA QUANTITY OF CHARGERS:	4	
IONNA LOAD FLA (A):	1920	
IONNA LOAD (60% MANAGED) (A):	1153	
REQUESTED UTILITY XFMR SIZING (KVA):	1000	
UTILITY XFMR CONFIGURATION	DELTA-WYE	
UTILITY SCA:	ESTIMATED @ 5% Z= 24.056	
UTILITY METERING SEQUENCE:	HOT	
UTILITY XFMR SEC CONDUCTOR:	6 SETS OF 600 KCMIL AL	
UTILITY XFMR SEC CONDUIT:	4"	
CHARGER FEEDER CONDUCTOR:	2 SETS OF 500 KCMIL AL	
CHARGER FEEDER CONDUIT:	3"	

3 UTILITY INFORMATION

Panel Schedule												
PANEL 'MSB-1', LOCATION: Farmington Hills, VOLTAGE: 480Y/277, PHASE: 3, WIRE: 4, HERTZ: 60												
Main AIC: 65K, Branch AIC: 65K, Enclosure: (NEMA 3R)												
2000 Amp Frame, Ground Fault Protection, Humidistat, Space Heater, Sun Shield												
Description of Load Served	Breaker		A/Phase			CKT No.	CKT No.	A/Phase			Breaker		Description of Load Served
	Amp	Pole	A	B	C			A	B	C	Amp	Pole	
EVCS DUAL PORT DISPENSER #1	600	3	480.0			1	2	480.0			600	3	EVCS DUAL PORT DISPENSER #2
				480.0		3	4		480.0				
					480.0	5	6			480.0			
EVCS DUAL PORT DISPENSER #3	600	3	480.0			7	8	480.0			600	3	EVCS DUAL PORT DISPENSER #4
				480.0		9	10		480.0				
					480.0	11	12			480.0			
SPACE						13	14	-			15	1	EPO SWITCH
SPACE						15	16		-		30	3	SPD
SPACE						17	18			-			
SPACE						19	20	-					
SPACE						21	22		-		15	1	SPARE
SPACE						23	24						SPACE
	Total A/Phase:		1920.0	1920.0	1920.0								

NOTES:
1. CONNECTED KVA (NEW): 1596.3
2. DEMAND KVA (NEW): 957.8 SEE NOTE 1 BELOW

LOAD SUMMARY NOTE

1. ELECTRIC VEHICLE CHARGING LOADS ARE PART OF AUTOMATIC LOAD MANAGEMENT SYSTEM PER NEC 625.42. CHARGING LOADS WILL BE LIMITED TO THE VALUES SHOWN IN THE PANEL SCHEDULE AND THE TOTAL LOAD SHALL NOT EXCEED MAIN CIRCUIT BREAKER LONG TIME SETTING RATING OF SWITCHBOARD 'MSB-1' NOR THE UTILITY TRANSFORMER.

4 SWITCHBOARD LOAD SCHEDULE

PENDING UTILITY DESIGN

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SINGLE LINE DIAGRAM

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GENERAL NOTES

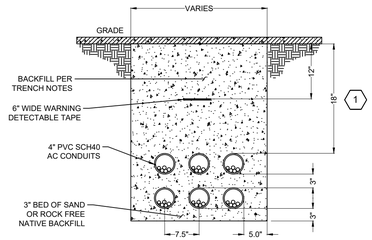
1. INSTALL 4 MIL. THICK, NON-METALLIC, RED COLORED, 6" WIDE WARNING TAPE OVER CENTERLINE OF THE DUCT AND BELOW THE BASE COURSE ALONG THE ENTIRE LENGTH OF TRENCH. TAPE SHOULD BE MARKED WITH "CAUTION BURIED ELECTRIC LINE BELOW". PAYMENT FOR THE FURNISHING AND INSTALLATION OF THE WARNING TAPE SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR THE PIPE. PROVIDE DETECTABLE DUCT WARNING TAPE 12" BELOW FINISH GRADE OR PAVEMENT DIRECTLY ABOVE DUCTS.
2. INSTALL ELECTRONIC MARKER AT A MINIMUM CLEARANCE OF 6-INCHES, WHERE POSSIBLE. INSTALL MARKER ON OR ABOVE CONCRETE JACKETS, IF APPLICABLE.
3. ALL DUCTS SHALL BE PVC SCHEDULE 40, UNLESS OTHERWISE NOTED.

TRENCH NOTES

1. TRENCH BACKFILL SHOULD BE CONTROLLED LOW STRENGTH MATERIAL (SLURRY) WITH MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 150 PSI OR NATIVE BACKILL TESTED TO CONFIRM A MAXIMUM RHO VALUE OF 90.
2. COMPACTION MEANS AND METHODS SHALL BE DETERMINED BY TRENCHING CONTRACTOR. SLURRY TO HAVE A COMPACTION OF 100% AND NATIVE BACKFILL TO HAVE A MINIMUM COMPACTION OF 80% IN LANDSCAPED AREAS AND 90% FOR DRIVE AREAS.
3. TRENCH CONSTRUCTION SHALL COMPLY WITH OSHA REQUIREMENTS.
4. PROVIDE MIN 12" SEPARATION FROM ANY EXISTING UTILITIES, IF APPLICABLE.
5. SOILS CONSISTING OF ROCKS NO LONGER THAN 0.5" IN DIAMETER SHALL BE CONSIDERED ROCK FREE.
6. CONTRACTOR SHALL HAND DIG AROUND ALL UTILITIES.

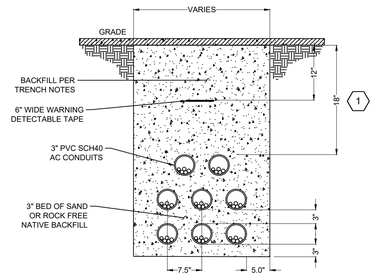
(1) MINIMUM BURIAL DEPTH IS 24" UNDER STREETS, DRIVEWAYS AND PARKING LOTS AND 18" MINIMUM DEPTH UNDER LANDSCAPING AREA PER NEC TABLE 300.5.

STANDARD TRENCH NOTES — SCALE N.T.S. — 1



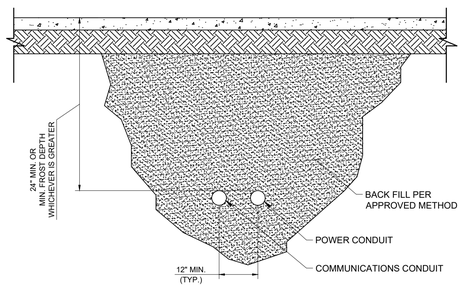
SEE SINGLE-LINE DIAGRAM FOR CONDUIT QUANTITIES AND CONDUCTOR SIZES

TRENCH DETAIL - TRANSFORMER TO SWITCHBOARD — SCALE N.T.S. — 2



EACH CHARGING STATION RECEIVES (2) 3" CONDUITS - SEE SINGLE-LINE DIAGRAM FOR CONDUIT QUANTITIES AND CONDUCTOR SIZES

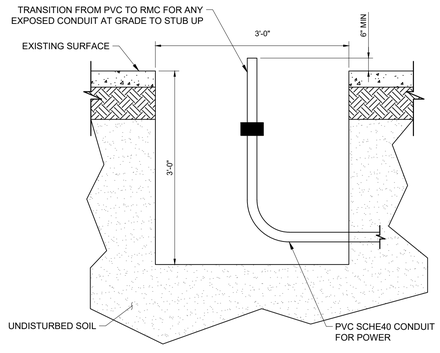
TRENCH DETAIL - SWITCHBOARD TO CHARGER — SCALE N.T.S. — 3



NOTES:

1. EXACT CONDUIT DIAMETERS MAY VARY UPON INSTALLATION. CONDUIT SIZES PER CONDUIT SCHEDULE.
2. SEE ELECTRICAL ONE LINE FOR CONDUIT QUANTITIES.

BORE SECTION DETAIL — SCALE N.T.S. — 4



NOTE:

1. EXACT CONDUIT DIAMETERS MAY VARY UPON INSTALLATION. CONDUIT SIZES PER CONDUIT SCHEDULE.

BORE PIT DETAIL — SCALE N.T.S. — 5

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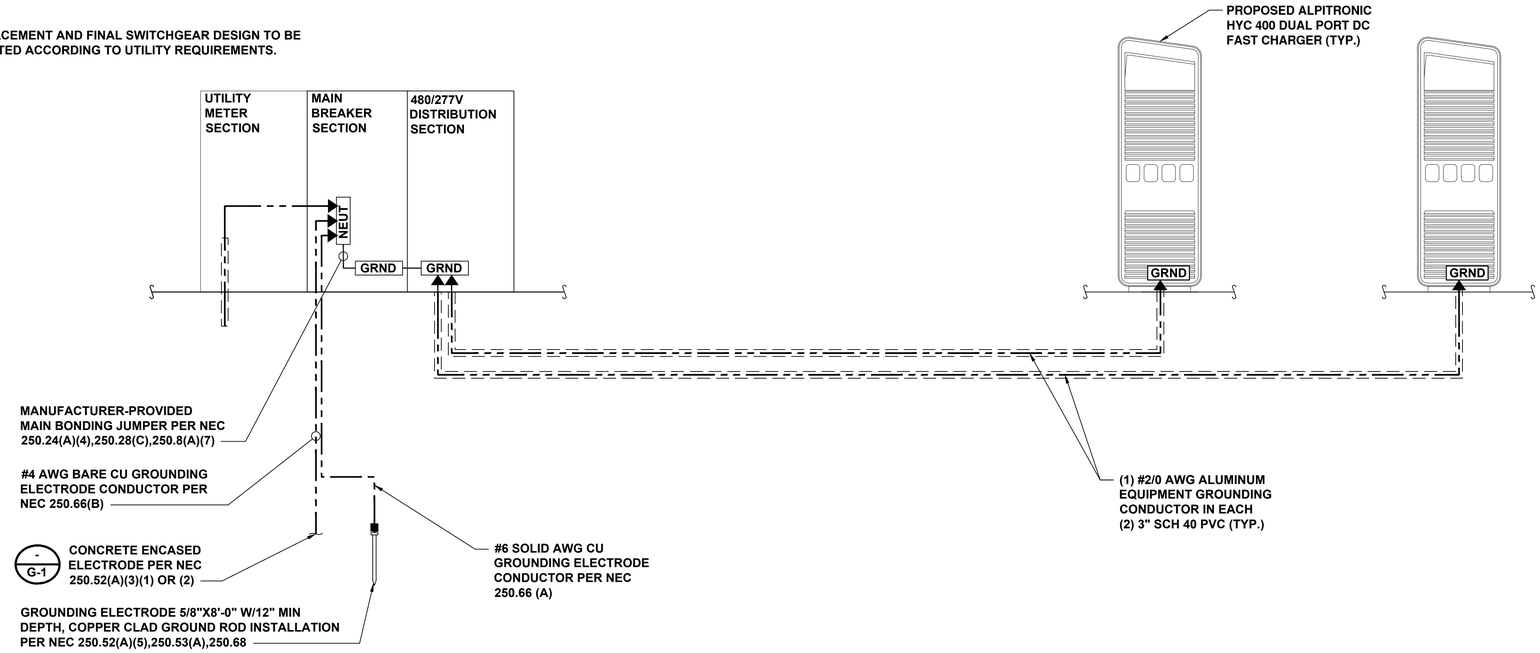
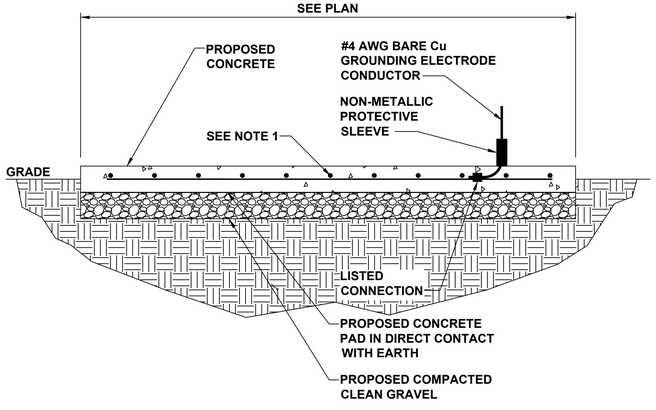
NOTE:
1. METER PLACEMENT AND FINAL SWITCHGEAR DESIGN TO BE COORDINATED ACCORDING TO UTILITY REQUIREMENTS.



GROUNDING SCHEMATIC

SCALE N.T.S. 1

NOTE
1. REBAR BONDED TOGETHER WITH STEEL TIE WIRES OR EXOTHERMIC WELDING



CONCRETE ENCASED ELECTRODE DETAIL

SCALE N.T.S. 2

CADWELD CONNECTIONS
OR ENGINEER APPROVED EQUAL

CABLE TO REBAR TEE CONNECTION HORIZONTAL CABLE TAP TO VERTICAL REBAR TYPE RJ	**HORIZONTAL SPLICE** SPLICE OF HORIZONTAL CABLES TYPE SS	**PARALLEL HORIZONTAL CONDUCTORS** PARALLEL THROUGH CONNECTION OF HORIZONTAL CABLES TYPE PT
BURNDY CONNECTIONS OR ENGINEER APPROVED EQUAL	**HORIZONTAL STEEL SURFACE** TO FLAT STEEL SURFACE OR HORIZONTAL PIPE TYPE HS	**PARALLEL HORIZONTAL CONDUCTORS** PARALLEL DEAD END TAP OR HORIZONTAL THRU CONDUCTOR TYPE PC
BOND JUMPER FIELD FABRICATED GREEN STRANDED INSULATED TYPE 2-YA-2	**VERTICAL PIPE** CABLE DOWN AT 45° TO RANGE OF VERTICAL PIPES TYPE VS	**VERTICAL STEEL SURFACE** CABLE DOWN AT 45° TO VERTICAL STEEL SURFACE INCLUDING PIPE TYPE VS
COPPER LUGS TWO HOLE - LONG BARREL LENGTH TYPE YA-2	**HORIZONTAL TEE** TEE OF HORIZONTAL RUN AND TAP CABLES TYPE TA	**THROUGH CABLE TO GROUND ROD** THROUGH CABLE TO TOP OF GROUND ROD TYPE GT

CADWELD CONNECTION DETAIL

SCALE N.T.S. 3

NOTES:

1. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
2. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. 2023 NEC 250.121(A) EXCEPTION: A WIRE-TYPE EQUIPMENT GROUNDING CONDUCTOR INSTALLED IN COMPLIANCE WITH 250.6(A) AND THE APPLICABLE REQUIREMENTS FOR BOTH THE EQUIPMENT GROUNDING CONDUCTOR AND THE GROUNDING ELECTRODE CONDUCTOR IN PARTS II, III, AND VI OF THIS ARTICLE SHALL BE PERMITTED TO SERVE AS BOTH AN EQUIPMENT GROUNDING CONDUCTOR AND A GROUNDING ELECTRODE CONDUCTOR.

GROUNDING NOTES

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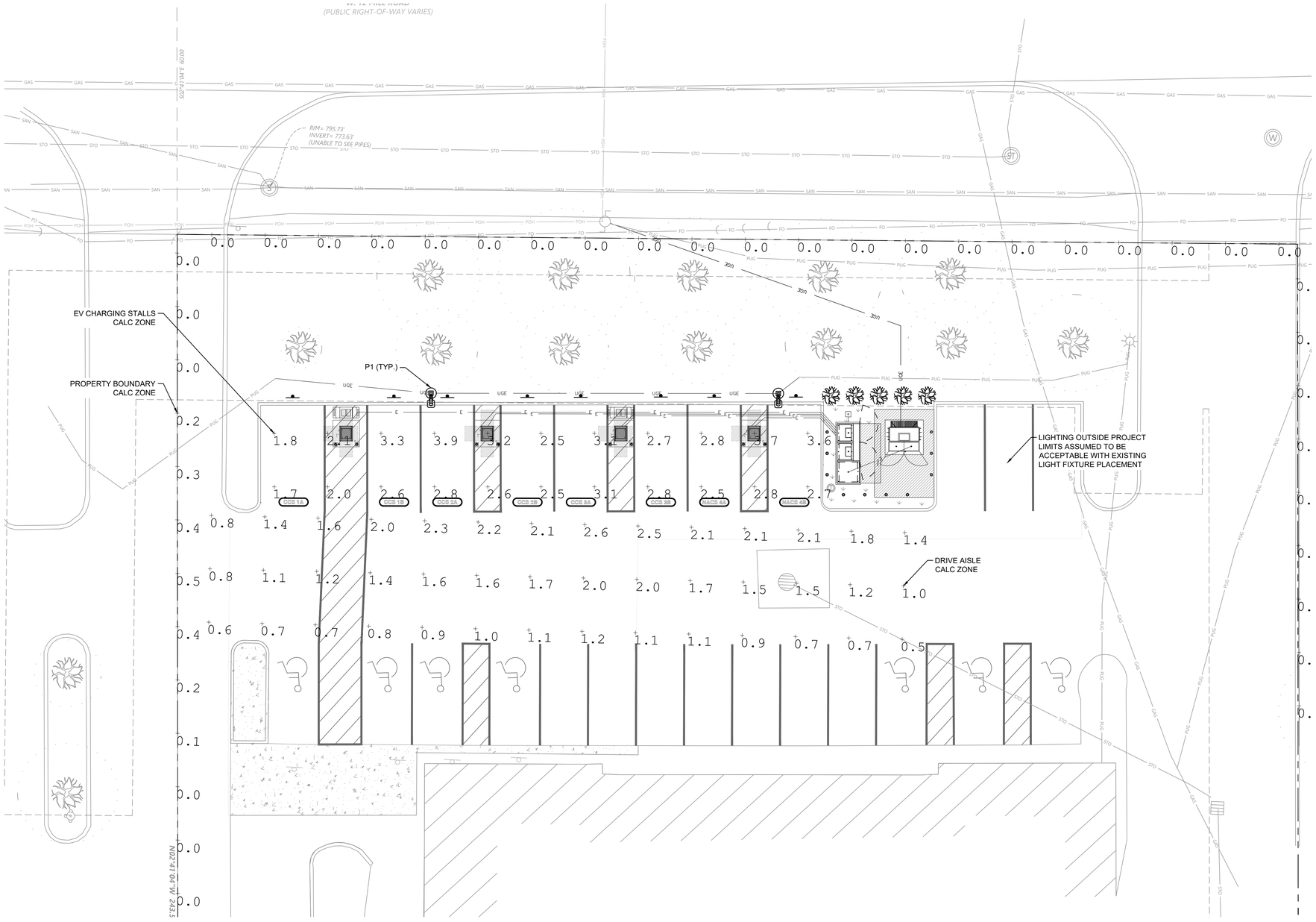

LUMINAIRE SCHEDULE

SYMBOL	LABEL	QTY	ARRANGEMENT	DESCRIPTION	MH	TOTAL ARR. WATTS	TOTAL ARR. LUMENS	LLF	BUG RATING
	P1	2	Single	VSR-1-T6-64L-7-30K-HSS-SINGLE	20'	136	7,752	0.95	B0-U0-G2

CALCULATION SUMMARY

LABEL	CALC TYPE	UNITS	AVERAGE	MAX	TARGET MAX	MIN	AVG/MIN	MAX/MIN
DRIVE AISLE	ILLUMINANCE	FC	1.4	2.6	10.0	0.5	2.8	5.2
EV CHARGING STALLS	ILLUMINANCE	FC	2.8	3.9	10.0	1.7	1.6	2.3
PROPERTY BOUNDARY	ILLUMINANCE	FC	0.0	0.5	0.5	0.0	N.A.	N.A.

DESIGN SPECIFICATIONS BASED ON FARMINGTON HILLS, MI DESIGN STANDARDS AND GUIDELINES: CHAPTER 2 SEC. 35-48.-EXTERIOR LIGHTING

GRAPHIC SCALE IN FEET
0 5 10 20
SCALE: 1" = 10'
WHEN PRINTED AT FULL SIZE
(24"X36")

NORTH

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NLS LIGHTING

VSR-1

SITE LIGHTING



LED WATTAGE CHART

	32L	48L	64L
700 milliamps	71w	104w	137w
1050 milliamps	106w	156w	205w

FORM AND FUNCTION
- Sleek, low profile housing
- Engineered for optimum thermal management
- Low depreciation rate
- Optical system designed for:
  - Parking Lots
  - Commercial Applications

CONSTRUCTION
- Die Formed heavy duty Aluminum
- Corrosion resistant external hardware
- One-piece silicone gasket ensures IP-65 seal for electronics compartment
- Two-piece silicone Micro Optic system ensures IP-67 level seal around each PCB

BUY AMERICAN
To ensure the latest BAA/TAA/BABA Standards are being met, please select BAA, TAA, or BABA in the options section. Please contact the factory before placing an order for any NLS products requesting BAA (Buy American Act), TAA (Trade American Act), or BABA (Build America, Buy America).

REV: 10.18.24

1

Project Name: | Type:

VSR-1 ORDERING GUIDE

Cat#
- Value Series Round 1 **(VSR-1)**

Light Dist.
- Type 2 **(T2)**
- Type 3 **(T3)**
- Type 4 **(T4)**
- Type 5 **(T5)**

# of LEDs
- 32 **(32L)**
- 48 **(48L)**
- 64 **(64L)**

Miliamps
- 700 **(7)**
- 1050 **(1)**

Kelvin
- Amber 586-600nM **(AMBER)** [4, 5, 10]
- 2700K, 70 CRI **(27K7)** [5]
- 2700K, 80 CRI **(27K8)** [4, 5]
- 3000K, 70 CRI **(30K7)** [5]
- 3000K, 80 CRI **(30K8)** [4, 5]
- 3500K, 80 CRI **(35K8)**
- 4000K, 70 CRI **(40K7)**
- 4000K, 80 CRI **(40K8)** [1]
- 5000K, 70 CRI **(50K7)**
- 5000K, 80 CRI **(50K8)** [1]

Volts
- 120-277 **(UNV)**
- 347-480 **(HV)**

Mounting
- Direct Pole 6" Arm Single D180 **(DPS6)** [2]
- Direct Pole 10' Arm D90, 180, 1120, Quad **(DPS10)** [2]
- Wall Mount **(WM)** [2]

Color
- Bronze Textured **(BRZ)**
- White Textured **(WHT)**
- Smooth White Gloss **(SWT)**
- Silver Metallic **(SVR)**
- Black Textured **(BLK)**
- Smooth Black Gloss **(SBK)**
- Graphite Textured **(GPH)**
- Grey Textured **(GRY)**
- Green Textured **(GRN)**
- Hunter Green Textured **(HGN)**
- Custom **(CS)**

Controls Options
- Nema 7-Pin Receptacle **(PE7)**
- Photocell + Receptacle **(PCR)**
- Receptacle + Shorting Cap **(PER)**
- FSP-211 with Motion Sensor/Photocell 8' + Below Heights **(FSP211-8)** [4, 11]
- 9'-20' Heights **(FSP211-20)** [4, 11]
- 21'-40' Heights **(FSP211-40)** [4, 11]
- FSP-221 with Motion Sensor/Photocell 9'-20' Heights **(FSP221-20)** [11]
- 21'-40' Heights **(FSP221-40)** [12]
- Custom Controls Integration **(CCI)** [1]
- Button Type Photocell **(PC)** [1]

Options
- Bird Spikes **(BS)**
- Marine Grade Finish **(MGF)**
- Quick Mount Bracket **(QMB)**
- Retrofit Mount Bracket **(RQMB)**
- Round Pole Adaptor 3"-4" Pole **(RPA4)**
- Round Pole Adaptor 5"-6" Pole **(RPA5)**
- Rotated Optic Left **(ROL)**
- Rotated Optic Right **(ROR)**
- Automotive House Side Shield **(AHS)**
- House Side Shield **(HSS)**
- Buy American Act **(BAA)** [9]
- Trade Agreement Act **(TAA)** [9]
- Build America Buy American **(BABA)** [9]

NOTES:
1. Consult Factory for Lead Time. Consult Factory for 90 CRI Requests.
2. For Round Pole Specify RPA4 or RPA5
3. Includes 6" Bolt On Arm
4. Universal Voltage 120-277
5. 3000K or lower, with fixed mounting options only, must be selected to meet International Dark-Sky Association certification.
6. Please contact Factory for Custom Control Integration requests (nLight, NX, WaveLinx, Crestron, DMX/RDM, Synapse, Casambi, Dali II, Avi-On, or other control systems)
7. Turtle Safe
8. Consult factory for all BAA/TAA/BABA requests
9. Consult Factory for Lead Time
10. Not Available above 700mA
11. FSP-211, 120V/277V, 230-240VAC (single phase), 50/60 Hz
12. FSP-221, 100 - 347VAC (single phase) or 208/230/480VAC (phase-to-phase)

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2

NLS VSR-1 LIGHT FIXTURE

SCALE N.T.S. | 1

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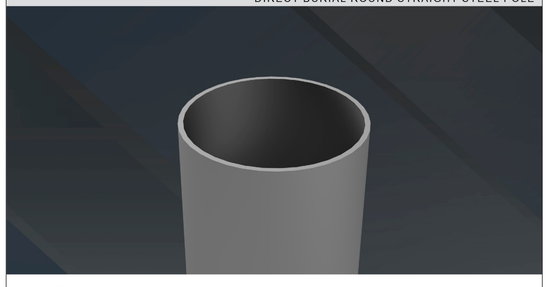
DBRSSP

DIRECT BURIAL ROUND STRAIGHT STEEL POLE



HEIGHT ABOVE GRADE
10' - 24'

POLE SHAFT
The pole shaft material is a weldable grade hot rolled commercial quality steel tubing with a minimum yield of 46,000 psi. Conforms to ASTM A500 Grade B Standards. Poles have ground lug welded inside hand-hole opposite side of the hand-hole.

Direct Burial poles can be ordered with optional coupling (specify height), optional hand hole (specify height), or optional Slot for conduit ingress and egress (specify height). When poles are ordered with a three-way combination of Coupling, Hand Hole and Ground Lug, then the Ground Lug is positioned at 90 degrees to the Hand Hole and the Coupling is opposite the Hand Hole. When the pole is ordered with Hand Hole only, the Ground Lug is at 180 to the Hand Hole.

POLE CAP
All poles come with a removable polymer pole cap installed. All pole caps are black finish. Aluminum Pole Cap option is painted to match pole.

FINISH
All poles are treated with shot blast media for a near white finish, power blasted with 100 psi prior to powder coat application. Electrostatically applied AAMA 2604 polyester powder coat with a 3 to 5 mil thickness for maximum adherence.

MARINE GRADE FINISH
All poles are washed through a 5-stage cleaning system with a deionized rinse, a 3 to 5 mils zinc rich durable polyester primer powder coat, followed by a 3 to 5 mils super durable AAMA 2604 polyester powder coat finish.

Recommended for applications near the coastline or in demanding environments.

GALVANIZED FINISH
All poles are Hot Dipped Galvanized in a multi stage process. Galvanizing Specification, Zinc (Hot Dipped Galvanized) per ASTM A 123/A 123M – 02

Zinc coatings on threaded materials shall conform to specification A 153 /A 153M. The coating shall be continuous and reasonably smooth and uniform in thickness and in weight.

Galvanizing Adherence - The Zinc coating shall withstand handling consistent with the nature and thickness of the coating and normal use of the article without peeling or flaking.

Provides the most protection against the elements in coastal and harsh environments.

GALVANIZED UNDER POWDER
Galvanized Under Powder (GUP) adheres to above galvanized specification, and the second stage is a light sand blast on the outside of the pole, third stage is a 3-5 mils AAMA 2604 polyester powder coat finish for maximum adherence.

VIBRATION DAMPENER
The Vibration Dampener is factory installed and consists of a rugged galvanized chain coated with heavy duty polyester tubing that is factory secured at the bottom 2-3rds of the pole and can optionally be secured in the field by a contractor at the base during installation.

BUY AMERICAN
To ensure the latest BAA/TAA/BABA Standards are being met, please select BAA, TAA, or BABA in the options section. Please contact the factory before placing an order for any NLS products requesting BAA (Buy American Act), TAA (Trade American Act), or BABA (Build America, Buy America).

4" 5"

REV: 12.17.24

1

Project Name: | Type:

DBRSSP ORDERING GUIDE

Cat#
- Direct Burial Round Straight Steel Pole **(DBRSSP)**

Height Above Grade
- 10' **(10)**
- 12' **(12)**
- 14' **(14)**
- 16' **(16)**
- 18' **(18)**
- 20' **(20)**
- 22' **(22)**
- 24' **(24)**

Pole Dimension
- 4" Round **(4R)**
- 5" Round **(5R)**

Gauge
- .120 Wall Thickness **(11G)**
- .180 Wall Thickness **(7G)**
- .25 Wall Thickness **(250)**

Mounting
- Single **(SGL)**
- Double **(D-90)** **(D-180)**
- Triple **(T-90)** **(T-120)**
- Quad **(QD)**
- No Drill **(ND)** *Tenon Option
- **Tenon**
- 2-3/8" Round **(T2R)**
- 3" Round **(T3R)**
- 3-1/2" Round **(T312R)**
- 4-1/2" Round **(T412R)**

Color
- Bronze Textured **(BRZ)**
- White Textured **(WHT)**
- Smooth White Gloss **(SWT)**
- Silver Metallic **(SVR)**
- Black Textured **(BLK)**
- Smooth Black Gloss **(SBK)**
- Graphite Textured **(GPH)**
- Grey Textured **(GRY)**
- Green Textured **(GRN)**
- Hunter Green Textured **(HGN)**
- Custom **(CS)**

Options
- GFI Kit **(GFI20A)** [4, 6, 9] *20 Amp Weather Proof Receptacle*
- GFI Provision Only **(PROV)** [4, 7]
- Galvanized **(GLV)**
- Galvanized Under Powder **(GUP)**
- 1/2" Coupling **(COUP)** [4] *Specify Location
- Vibration Dampener **(VD)**
- Anti-Rotation Rod **(ARR)**

Options
- Hand Hole **(HH)** [4] *Specify Location
- Slot **(S)**
- Marine Grade Finish **(MGF)**
- Square Base Cover **(SBC)**
- Round Base Cover **(RBC)** *Consult Factory for Pricing
- UL Certified with label **(UL)** [1]
- Aluminum Pole Cap **(APC)** [1]
- Buy American Act **(BAA)** [8]
- Trade Agreement Act **(TAA)** [8]
- Build America Buy American **(BABA)** [8]

NOTES:
1. Aluminum Pole Cap must be selected for UL Certified Pole Option
2. Consult Factory
3. Standard weatherproof cover comes standard with option. For lockable cover requests, please contact factory
4. Specify the Height (in feet) from ground level and degree orientation from wire access slot
5. 120V Only

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2

LIGHT POLE SPECIFICATIONS

SCALE N.T.S. | 2

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DOCUMENT DATE: 9/17/2026

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LIGHTING DETAILS

SHEET NUMBER
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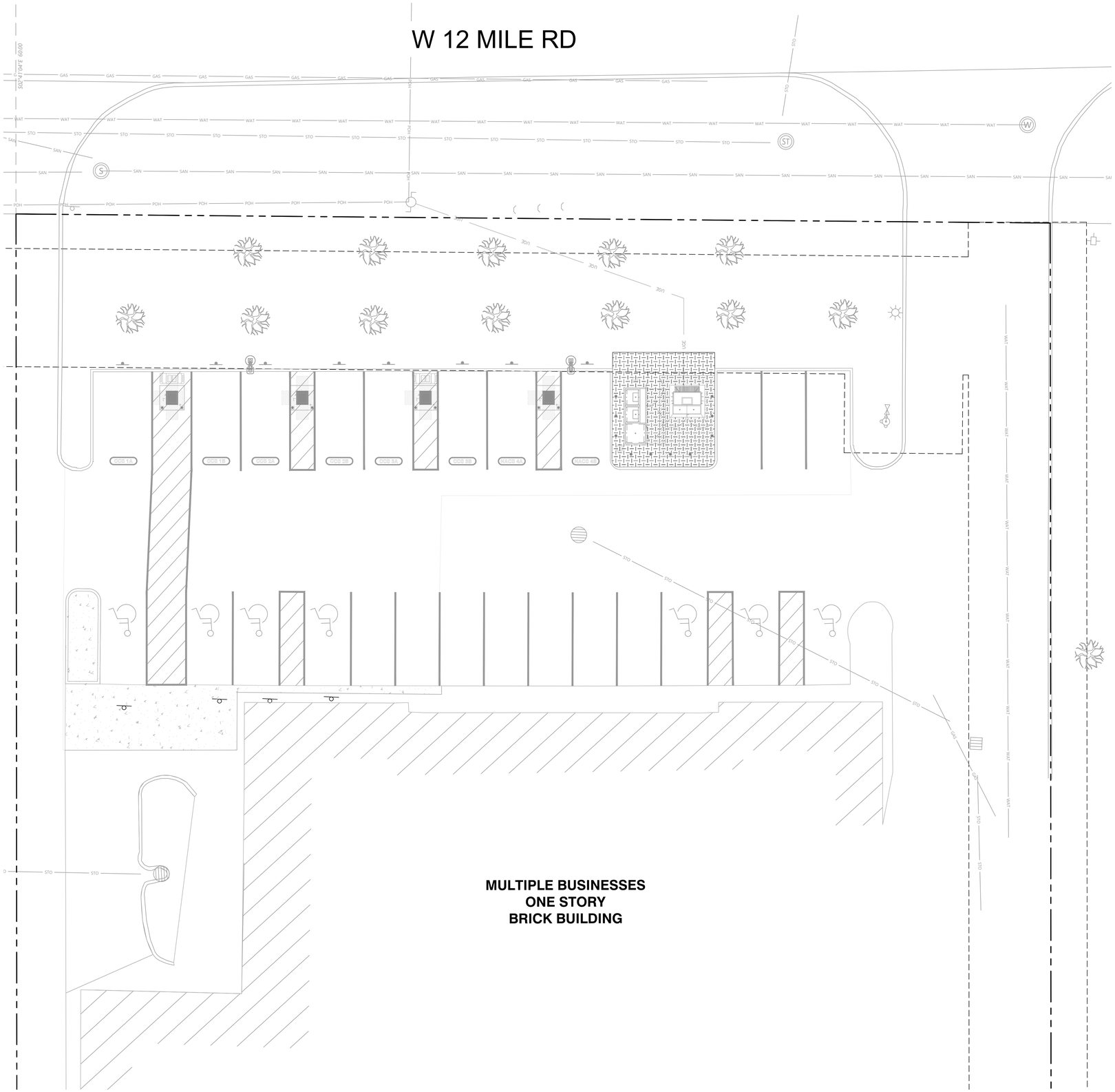

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	QTY
32 EXTERIOR IMPROVEMENTS		
	MEDIUM BARK WOOD MULCH OR APPROVED EQUAL, APPLIED AT 3" DEPTH	3.53 CY

GRAPHIC SCALE IN FEET
0 5 10 20
SCALE: 1" = 10'
WHEN PRINTED AT FULL SIZE
(24"X36")

NORTH

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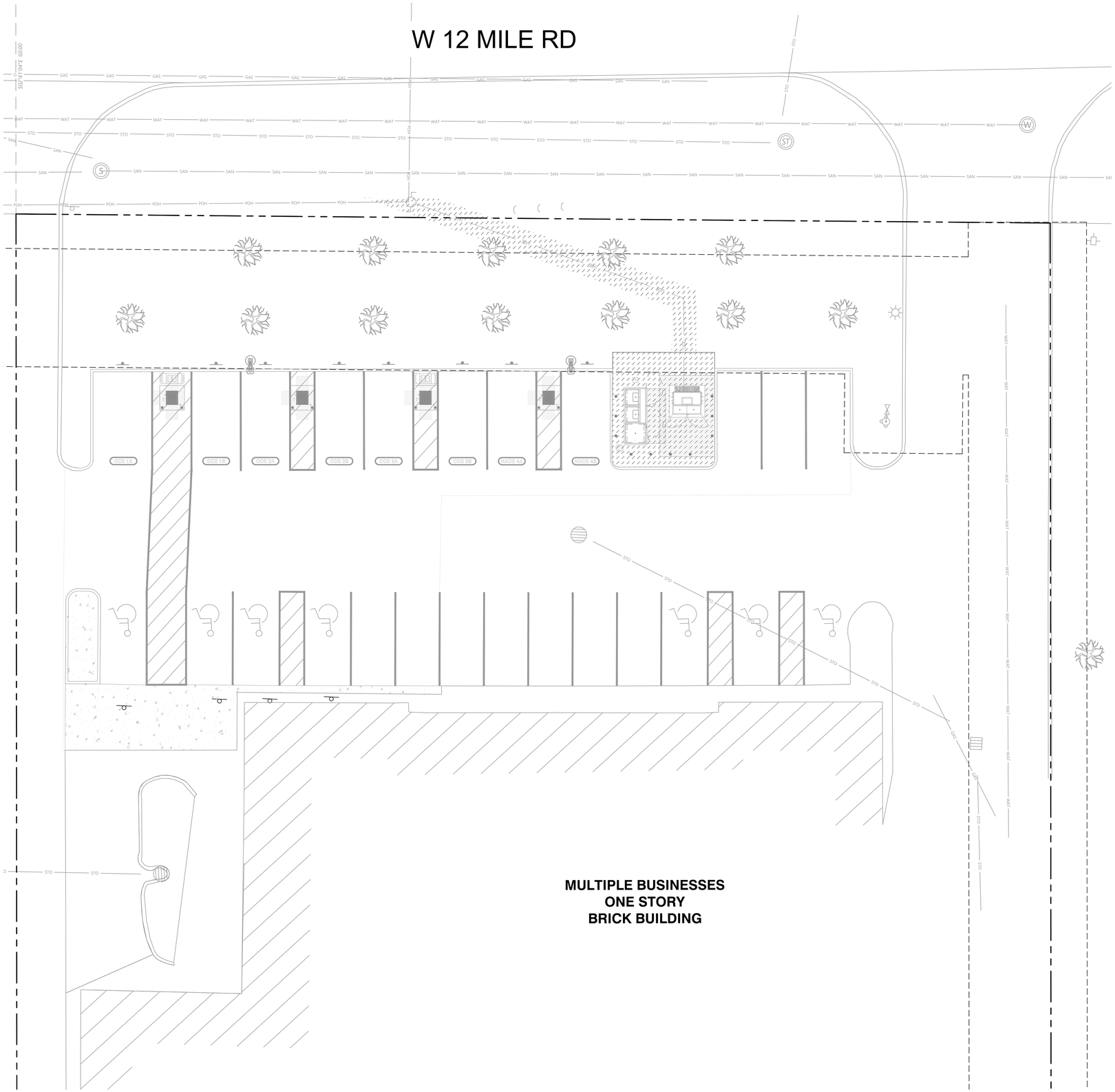

REFERENCE NOTES SCHEDULE

SYMBOL	DESCRIPTION	QTY
	SOIL PREPARATION - TURF: 6" OF IMPORTED TOPSOIL AMENDED WITH NATIVE SOIL	6.58 CY
32 EXTERIOR IMPROVEMENTS		
	SOIL PREPARATION - SHRUBS: 12" OF IMPORTED TOPSOIL AMENDED WITH NATIVE SOIL	14.1 CY

GRAPHIC SCALE IN FEET
0 5 10 20
SCALE: 1" = 10'
WHEN PRINTED AT FULL SIZE
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IRRIGATION SPECIFICATIONS

1. SCOPE OF WORK

1.1. THE WORK CONSISTS OF: FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT AS SHOWN ON THESE PLANS.

1.2. INSTALL THE IRRIGATION SYSTEM TO PROVIDE 100% UNIFORM COVERAGE INCLUDING ANY CHANGES MADE IN THE LAYOUT DUE TO FIELD CONDITIONS. ALL FIELD CHANGES SHALL BE IN ACCORDANCE WITH THESE PLANS. ANY SYSTEMS THAT REQUIRE FIELD ADJUSTMENT TO PROVIDE FULL AND UNIFORM COVERAGE SHALL BE MADE PRIOR TO FINAL ACCEPTANCE AT THE DIRECTION OF THE OWNER'S REPRESENTATIVE AT NO ADDITIONAL COST.

1.3. SECURE ANY AND ALL NECESSARY PERMITS FOR THE WORK PRIOR TO COMMENCEMENT OF OPERATIONS ON-SITE. SEND COPIES OF THE PERMIT(S) TO THE OWNER'S REPRESENTATIVE. FOR WORK LOCATED IN THE R.O.W., CONFORM TO THE STANDARDS AND SPECIFICATIONS OF THE AGENCY HAVING JURISDICTION.

1.4. WORK SHALL BE COORDINATED WITH OTHER TRADES TO PREVENT CONFLICTS.

2. PROTECTION OF EXISTING AND PROPOSED SITE ELEMENTS

2.1. ALL EXISTING SITE ITEMS, ALREADY COMPLETED OR ESTABLISHED AND DESIGNATED TO REMAIN SHALL BE PROTECTED FROM DAMAGE BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. ALL DAMAGE RESULTING FROM THE CONTRACTOR'S WORK SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER, AT NO COST TO THE OWNER.

2.2. MAINTAIN ALL NECESSARY BMP DEVICES THROUGHOUT THE DURATION OF ALL CONSTRUCTION ACTIVITIES.

2.3. WHERE APPLICABLE, SUBMIT A DETAILED PROJECT SPECIFIC WORK ZONE TRAFFIC CONTROL PLAN IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AGENCY STANDARDS UNLESS THE WORK REQUIRES NOTHING MORE THAN A DIRECT APPLICATION OF DOT STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION.

2.4. LOCATE ALL UTILITIES, WHETHER PUBLIC OR PRIVATE, PRIOR TO CONSTRUCTION ACTIVITIES. THE INFORMATION AND DATA SHOWN WITH RESPECT TO UTILITIES IS APPROXIMATE. THE OWNER AND DESIGN PROFESSIONAL SHALL NOT BE RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF ANY SUCH INFORMATION OR DATA. THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR; REVIEWING AND CHECKING ALL SUCH INFORMATION AND DATA; LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION; THE SAFETY AND PROTECTION THEREOF; AND REPAIRING ANY DAMAGE RESULTING FROM THE WORK. THE COST OF ALL WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT PRICE. NOTIFY ANY AFFECTED UTILITY COMPANIES OR AGENCIES IN WRITING AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. NOTIFY THE LANDSCAPE ARCHITECT IN WRITING WHEN ANY CONFLICT BETWEEN UTILITIES AND THESE PLANS EXIST PRIOR TO INSTALLATION.

3. SUBMITTALS

3.1. SUBMIT FULL AND COMPLETE SHOP DRAWINGS OF ALL IRRIGATION EQUIPMENT AS SHOWN ON THESE PLANS TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION.

3.2. SUBMIT PRODUCT DATA SHEETS FOR ALL IRRIGATION EQUIPMENT TO BE INSTALLED TO OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO INSTALLATION. THE IRRIGATION SYSTEM, AS SHOWN ON THESE PLANS, HAS BEEN DESIGNED AND CALCULATED WITH THE EQUIPMENT AS SPECIFIED. SUBMIT ANY REQUEST FOR PRODUCT SUBSTITUTION(S) IN WRITING. IF APPROVED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY NECESSARY MODIFICATION(S) AS A RESULT OF PRODUCT SUBSTITUTIONS TO THE IRRIGATION SYSTEM IN THE SHOP DRAWINGS TO MEET THE DESIGN INTENT OF THESE PLANS.

4. EQUIPMENT LIST

4.1. ALL QUANTITIES ARE PROVIDED FOR CONVENIENCE ONLY. CONFIRM ALL QUANTITIES PER PLAN PRIOR TO BIDDING AND CONSTRUCTION.

5. POINT OF CONNECTION

5.1. FIELD VERIFY ALL POINT OF CONNECTION SOURCE INFORMATION INCLUDING STATIC PSI AND GPM AVAILABLE PRIOR TO CONSTRUCTION. NOTIFY OWNER'S REPRESENTATIVE IN WRITING IF DISCREPANCIES BETWEEN THE FLOW AND PRESSURE AS LISTED IN THE CRITICAL ANALYSIS AND THE FIELD CONDITIONS EXIST.

5.2. COORDINATE INSTALLATION OF ANY METERS AND BACKFLOW ASSEMBLIES WITH THE AGENCY HAVING JURISDICTION AND OWNER'S REPRESENTATIVE.

6. MAINLINE INSTALLATION

6.1. INSTALL ALL MAINLINES AND LATERALS UNDER PAVEMENT WITHIN SLEEVES. WHERE VALVE CONTROL LINES PASS THROUGH A SLEEVE WITH OTHER MAIN OR LATERAL LINES, CONTAIN WIRES WITHIN A SEPARATE, SMALLER CONDUIT.

6.2. INSTALL COLOR CODED METAL DETECTABLE MARKING TAPE WHICH CLEARLY NOTES: "CAUTION: IRRIGATION LINE BURIED BELOW" ABOVE THE FULL LENGTH OF THE IRRIGATION MAINLINE.

6.3. WHERE MAINLINE RUNS PARALLEL TO PAVEMENT OR CURBING, OFFSET THE MAINLINE 24" FROM THE EDGE OF PAVEMENT OR CURB.

6.4. PERFORM HYDROSTATIC PRESSURE TESTING AS FOLLOWS:

6.4.1. AFTER FLUSHING, AND THE INSTALLATION OF VALVES CONDUCT THE FOLLOWING TESTS IN THE SEQUENCE LISTED BELOW. FURNISH ALL EQUIPMENT; MATERIALS AND LABOR NECESSARY TO PERFORM THE TESTS. CONDUCT ALL TESTS IN THE PRESENCE OF THE OWNER'S REPRESENTATIVE. NOTIFY THE OWNER'S REPRESENTATIVE FORTY-EIGHT (48) HOURS IN ADVANCE OF TESTING.

6.4.2. PERFORM WATER PRESSURE TESTS ON ALL PRESSURE MAIN LINES BEFORE ANY COUPLINGS, FITTINGS, VALVES AND THE LIKE ARE CONCEALED.

6.4.3. IMMEDIATELY PRIOR TO TESTING, PURGE ALL IRRIGATION LINES OF ALL ENTRAPPED AIR OR DEBRIS BY ADJUSTING CONTROL VALVES AND INSTALLING TEMPORARY CAPS FORCING WATER AND DEBRIS TO BE DISCHARGED FROM A SINGLE OUTLET.

6.4.4. TEST ALL PRESSURE MAIN LINE AT 150 PSI FOR A MINIMUM OF FOUR (4) HOURS WITH AN ALLOWABLE LOSS OF 5 PSI. PRESSURE AND GAUGES SHALL BE READ IN PSI, AND CALIBRATED SUCH THAT ACCURATE DETERMINATION OF POTENTIAL PRESSURE LOSS CAN BE ASCERTAINED.

6.4.5. RE-TEST AS REQUIRED UNTIL THE SYSTEM MEETS THE REQUIREMENTS. REPAIR ANY LEAKS, WHICH OCCUR DURING TEST PERIOD, IMMEDIATELY FOLLOWING THE TEST.

6.4.6. PROVIDE DOCUMENTATION STATING THE WEATHER CONDITIONS, DATE, THE START TIME AND INITIAL WATER PRESSURE READINGS, THE FINISH TIME AND FINAL WATER PRESSURE READINGS AND THE TYPE OF EQUIPMENT USED TO PERFORM THE TEST. THE DOCUMENTATION MUST BE SIGNED BY A WITNESS ACCEPTABLE TO THE OWNER, VERIFYING ALL OF THE ABOVE-MENTIONED CONDITIONS.

6.4.7. SUBMIT A WRITTEN REPORT OF THE PRESSURE TESTING RESULTS WITH THE OTHER ABOVE REQUIRED INFORMATION TO THE OWNER'S REPRESENTATIVE FOR APPROVAL.

7. IRRIGATION VALVES AND WIRING

7.1. LOCATE ALL VALVES, SPLICES WITHIN CONTROL LINES, QUICK COUPLERS, AND HOSE BIBBS WITHIN VALVE BOXES. PROVIDE PURPLE VALVE BOX LIDS FOR SYSTEMS UTILIZING A NON-POTABLE WATER SOURCE.

7.2. NUMBER THE TOP OF ALL VALVE BOX LIDS WITH MINIMUM 1" HEIGHT BLACK LETTERS TO CORRESPOND TO THE VALVE DESIGNATIONS.

7.3. WHEN POSSIBLE, LOCATE ALL VALVES IN PLANTING BEDS A MINIMUM OF 24" FROM BACK OF CURB OR EDGE OF PAVEMENT, UNLESS OTHERWISE NOTED.

7.4. SEPARATE IRRIGATION ZONES FOR HIGH AND LOW WATER USE REQUIREMENTS AND OPERATED ON DIFFERENT WATERING CYCLES. AT NO TIME SHALL MULTIPLE IRRIGATION HEAD TYPES BE LOCATED ON THE SAME VALVE UNLESS NOTED OTHERWISE.

7.5. INSTALL ALL DRIP ZONES WITH A FLUSH VALVE AND AIR RELIEF VALVE. IN THE EVENT THAT A DRIP ZONE HAS MORE THAN ONE HIGH OR LOW POINT, MORE THAN ONE AIR RELIEF VALVE OR FLUSH VALVE WILL BE REQUIRED FOR THAT ZONE.

7.6. FOLLOW MANUFACTURER'S SPECIFICATIONS FOR ALL WIRING FOR CONNECTION OF THE VALVES TO THE CONTROLLER. ALL WIRE RUNS SHALL BE CONTINUOUS WITH SPLICING OCCURRING IN VALVE BOXES ONLY. WIRE CONNECTIONS SHALL BE MADE USING DBR/Y-6 CONNECTIONS OR APPROVED EQUAL.

7.7. INSTALL VALVE CONTROL WIRING IN THE SAME TRENCH AS THE MAINLINE WHERE PRACTICAL.

7.8. FOR NON TWO-WIRE SYSTEMS, RUN TWO (2) SPARE VALVE CONTROL WIRES FROM THE CONTROLLER ALONG THE ENTIRE MAINLINE TO LAST REMOTE CONTROLLED VALVE ON EACH AND EVERY LEG OF MAINLINE.

8. PIPES AND SLEEVING

8.1. DO NOT INSTALL IRRIGATION SYSTEM THROUGH PRESERVED PLANT COMMUNITIES, DRIPLINE OF EXISTING TREES, OR WITHIN WETLANDS UNLESS SPECIFICALLY NOTED OTHERWISE.

8.2. LOCATE ALL IRRIGATION LINES WITHIN LANDSCAPED AREAS WHENEVER POSSIBLE. ALL LINES UNDER PAVEMENT MUST BE SLEEVED.

8.3. SIZE ALL PIPE SLEEVES TWO PIPE SIZES GREATER THAN THE PIPE / CUMULATIVE SUM OF THE PIPES IT CARRIES.

8.4. SLEEVES UNDER EXISTING PAVEMENT MUST BE DIRECTIONAL BORE UNLESS APPROVED BY OWNER IN WRITING.

8.5. SOLVENT CEMENTS SHALL COMPLY WITH ASTM D2564.

9. CONTROLLER AND SENSORS

9.1. COORDINATE WITH OWNER'S REPRESENTATIVE FOR FINAL CONTROLLER AND RAIN SENSOR LOCATIONS. THE CONTROLLER SHALL BE PLACED IN A LOCKING CABINET APPROPRIATE FOR ITS LOCATION. (INDOOR VS. OUTDOOR USE)

9.2. LOCATE THE AUTOMATIC RAIN SENSOR SHUTOFF DEVICE IN AN AREA THAT IS UNOBSTRUCTED BY TREES, ROOF OVERHANGS, OR ANY OTHER OVERHEAD OBJECT. THE SENSOR SHALL NOT BE PLACED WITHIN THE SPRAY ZONE OF ANY SPRINKLER HEAD, INCLUDING OFF-SITE IRRIGATION. CONTRACTOR SHALL LOCATE SENSOR WITHIN CLOSE PROXIMITY TO THE IRRIGATION CONTROLLER.

10. CLEANUP

10.1. UPON COMPLETION OF ALL WORK AND BEFORE FINAL ACCEPTANCE, REMOVE ALL MATERIAL, EQUIPMENT, AND DEBRIS RESULTING FROM HIS WORK. ALL PAVED AREAS SHALL BE CLEANED AND THE SITE LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER'S REPRESENTATIVE.

11. AS-BUILT IRRIGATION PLANS

11.1. PROVIDE "AS-BUILT" DRAWINGS OF THE FINAL INSTALLATION TO OWNER'S REPRESENTATIVE PRIOR TO FINAL ACCEPTANCE OF WORK. INCLUDE THE FOLLOWING ON THE AS-BUILT DRAWINGS AT A MINIMUM:
- CONTROLLER LOCATION
- CONNECTION ASSEMBLY
- MAINLINE ROUTING
- PIPE SLEEVING
- VALVE(S)
- COLORIZED ZONING DIAGRAM

11.2. LOCATE ALL SLEEVES UTILIZED BY THE IRRIGATION CONTRACTOR WHETHER INSTALLED BY THE IRRIGATION CONTRACTOR OR NOT ON THE "AS-BUILT" DRAWINGS. THE DEPTH BELOW FINISH GRADE, TO THE NEAREST FOOT OF EACH END OF THE SLEEVE SHALL BE NOTED AT EACH SLEEVE LOCATION ON THE "AS-BUILT" DRAWINGS.

12. FINAL INSPECTION AND ACCEPTANCE OF WORK

12.1. MINIMIZE IRRIGATION OVERTHROW TO IMPERVIOUS AND NATURAL AREAS THROUGH FIELD ADJUSTMENTS TO INDIVIDUAL HEADS.

12.2. PROGRAM CONTROLLER TO IRRIGATE ALL ZONES WITHIN APPLICABLE WATERING WINDOWS AND PROVIDE WATERING SCHEDULE TO OWNER'S REPRESENTATIVE.

12.3. EQUIPMENT TO BE FURNISHED TO OWNER PRIOR TO ACCEPTANCE OF WORK:

- TWO (2) SETS OF KEYS FOR EACH AUTOMATIC CONTROLLER.
- TWO (2) 48 INCH TEE WRENCHES FOR OPERATING GATE VALVES (WHEN INSTALLED AS PART OF WORK).
- THREE (3) SETS OF SPECIAL TOOLS REQUIRED FOR REMOVING, DISASSEMBLING AND ADJUSTING EACH TYPE OF - SPRINKLER AND VALVE SUPPLIED ON THIS PROJECT.
- FIVE (5) EXTRA SPRINKLER HEADS, NOZZLES, SHRUB ADAPTERS, NOZZLE FILTER SCREENS, FOR EACH TYPE USED ON THE PROJECT.
- TWO (2) QUICK COUPLER KEYS TO MATCH MANUFACTURER TYPE OF QUICK COUPLER.

12.4. UPON COMPLETION OF ALL WORK, A FINAL INSPECTION SHALL BE PERFORMED BY THE OWNER AND/OR OWNER'S REPRESENTATIVE. THE IRRIGATION SYSTEM, CONSTRUCTION AND ALL OTHER INCIDENTAL WORK PERTAINING TO THIS CONTRACT SHALL BE INSPECTED FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. ANY ITEMS FOUND TO NOT BE IN COMPLIANCE SHALL BE CORRECTED AT NO COST TO THE OWNER.

13. WARRANTY

13.1. THE CONTRACTOR SHALL WARRANTEE ALL WORKMANSHIP AND MATERIALS FOR A PERIOD OF 1 YEAR FOLLOWING THE ACCEPTANCE OF THE WORK.

13.2. ANY PART OF THE IRRIGATION WORK THAT FAILS OR IS DEFECTIVE SHALL BE REPLACED OR RECONSTRUCTED AT NO COST TO THE OWNER INCLUDING BUT NOT LIMITED TO: RESTORING GRADES THAT HAVE SETTLED IN TRENCHES AND EXCAVATIONS RELATED TO THE WORK. RECONSTRUCTION SHALL INCLUDE ANY PLANTINGS, SOIL, MULCH OR OTHER PARTS OF THE CONSTRUCTED LANDSCAPE THAT MAY BE DAMAGED DURING THE REPAIR OR THAT RESULTS FROM SOIL SETTLEMENT.

13.3. THE DATE OF ACCEPTANCE OF THE WORK AND START OF THE GUARANTEE PERIOD SHALL BE DETERMINED BY THE OWNER, UPON THE FINDING THAT THE ENTIRE IRRIGATION SYSTEM IS INSTALLED AS DESIGNED AND SPECIFIED, AND FOUND TO BE OPERATING CORRECTLY, SUPPLYING WATER EVENLY TO ALL PLANTING AND/OR LAWN AREAS.

13.4. NEITHER THE FINAL ACCEPTANCE NOR ANY PROVISION IN THE CONTRACT DOCUMENTS SHALL RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR FAULTY MATERIALS OR WORKMANSHIP. REMEDY ANY DEFECTS WITHIN A PERIOD OF 7 DAYS (S) FROM THE DATE OF NOTIFICATION OF A DEFECT.

14. ABBREVIATIONS

GPM - GALLONS PER MINUTE
GPH - GALLONS PER HOUR
PSI - POUNDS PER SQUARE INCH

LATERAL PIPE SIZING REQUIREMENTS

MAXIMUM FLOW	MINIMUM PIPE SIZE
10 GPM	3/4"
16 GPM	1"
26 GPM	1-1/4"
35 GPM	1-1/2"
55 GPM	2"
80 GPM	2-1/2"
120 GPM	3"

PIPE SIZES ILLUSTRATED IN THE ABOVE CHART ARE MINIMUM ACCEPTABLE SIZES. PIPE SIZES INDICATED ON PLAN ARE FOR CONVENIENCE ONLY. FIELD SIZE ALL LATERAL PIPING TO KEEP ALL FRICTION LOSS VELOCITIES BELOW 5.0 FPS.

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SHEET TITLE
IRRIGATION NOTES

SHEET NUMBER
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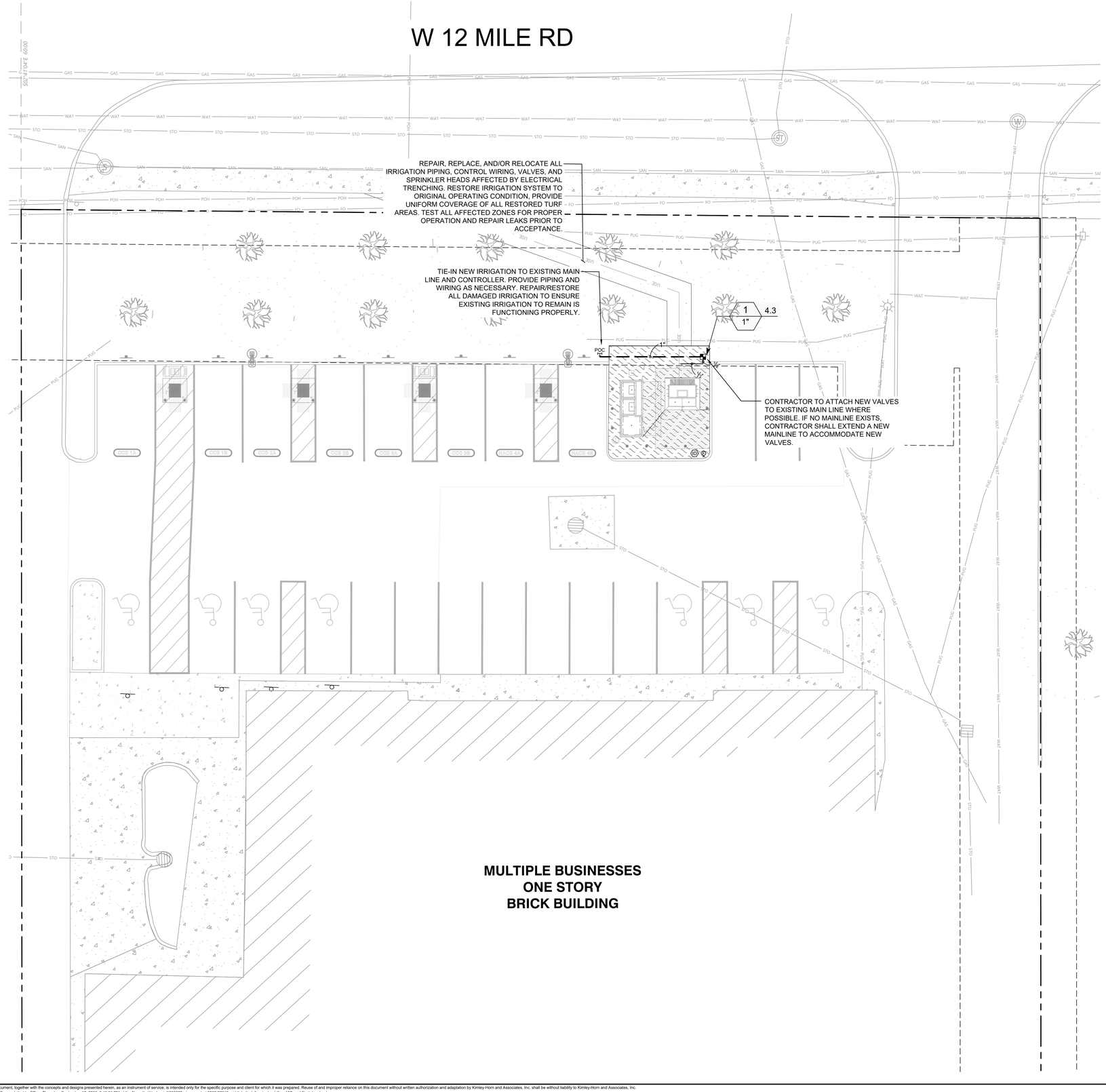

IRRIGATION NOTES

1. SEE SHEET L5.0 FOR IRRIGATION DETAILS.
2. CONNECT NEW IRRIGATION VALVES TO EXISTING MAINLINE AND CONTROLLER.
3. IRRIGATION POINT OF CONNECTION (POC), VERIFY LOCATION WITH OWNER. BASIS OF DESIGN ASSUMED 65 PSI AT THE POC. CONTRACTOR TO CONFIRM AND VERIFY PRESSURE PRIOR TO INSTALLATION OF IRRIGATION SYSTEM. IF THERE IS A DISCREPANCY IN PSI, A RFI SHOULD BE GENERATED TO DOCUMENT THE DESIGN CHANGE.
4. MAIN LINE, LATERALS, AND VALVES SHOWN FOR CLARITY. INSTALL PIPING AND VALVES WITHIN THE PROPERTY LINE, 6" B.O.C WHEN POSSIBLE , AND IN GREEN SPACE.
5. COORDINATE/DISCUSS PROJECT LIMITS WITH GENERAL CONTRACTOR TO ENSURE ALL IRRIGATION EQUIPMENT IS INSTALLED WITHIN PROJECT AREA.
6. WATERING REQUIREMENTS ARE APPROXIMATE PER SEASON AND SHOULD BE ADJUSTED TO REFLECT SEASONAL FLUCTUATIONS IN AVERAGE PRECIPITATION.
7. ALL PLANTS TO RECEIVE APPROPRIATE ADDITIONAL 15% HIGHER WATERING DURING INSTALLATION PERIOD IN ORDER TO ESTABLISH HEALTHY AND DEEP ROOT GROWTH.
8. MODIFY ZONES PER REVISED CHANGES. CAP LINES AND HEADS WHERE NECESSARY.
9. EXISTING IRRIGATION TO REMAIN. CONTRACTOR TO ADD, REPLACE, OR REMOVE HEADS/NOZZLES/DRIPLINE AS NEEDED TO PROVIDE COMPLETE COVERAGE.
10. DO NOT REMOVE EXISTING SLEEVED LINES UNDER PAVEMENT (TYP.).
11. HYDROBORE BELOW EXISTING CONCRETE SIDEWALK TO INSTALL IRRIGATION SLEEVING AND LATERAL LINES. PROTECT EXISTING SIDEWALK, CURB, AND GUTTER.

IRRIGATION SCHEDULE

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
	HUNTER ICZ-101-25 DRIP CONTROL ZONE KIT. 1IN. ICV GLOBE VALVE WITH 1IN. HY100 FILTER SYSTEM. PRESSURE REGULATION: 25PSI. FLOW RANGE: 2 GPM TO 20 GPM. 150 MESH STAINLESS STEEL SCREEN.	1
F	HUNTER AFV-B 1/2IN. AUTOMATIC FLUSH VALVE WITH 3/4IN. BARB CONNECTION. REMOVABLE TOP FOR DIAPHRAGM MAINTENANCE.	1
ID	HUNTER ECO-ID ECO-ID: 1/2IN. FPT CONNECTION WITH 12 PSI-70 PSI OPERATING PRESSURE. SPECIFY WITH HUNTER SJ SWING JOINT.	1
	AREA TO RECEIVE DRIPLINE HUNTER HDL-04-12-CV HDL-04-12-CV: HUNTER DRIPLINE W/ 0.4 GPH EMITTERS AT 12" O.C. CHECK VALVE. DARK BROWN TUBING WITH TAN STRIPING. DRIPLINE LATERALS SPACED AT 12" APART, WITH EMITTERS OFFSET FOR TRIANGULAR PATTERN. INSTALL WITH HUNTER PLD BARBED OR PLD-LOC FITTINGS.	642.4 SF

SYMBOL	MANUFACTURER/MODEL/DESCRIPTION	QTY
POC	POINT OF CONNECTION 1 1/2"	1
	IRRIGATION LATERAL LINE: PVC SCHEDULE 40	6.0 LF
	IRRIGATION MAINLINE: PVC SCHEDULE 40	21.2 LF

Valve Callout
Valve Number
Valve Flow
Valve Size

GRAPHIC SCALE IN FEET
0 # ## ##
SCALE: ########
WHEN PRINTED AT FULL SIZE
(24"X36")

NORTH

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LANDSCAPE SPECIFICATIONS

1. SCOPE OF WORK

1.1. THE WORK CONSISTS OF: FURNISHING ALL LABOR, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, AND ANY OTHER APPURTENANCES NECESSARY FOR THE COMPLETION OF THIS PROJECT AS SHOWN ON THESE PLANS.

1.2. WORK SHALL INCLUDE MAINTENANCE AND WATERING OF ALL CONTRACT PLANTING AREAS UNTIL CERTIFICATION OF ACCEPTANCE BY THE OWNER.

1.3. WORK SHALL BE COORDINATED WITH OTHER TRADES TO PREVENT CONFLICTS.

2. PROTECTION OF EXISTING AND PROPOSED SITE ELEMENTS

2.1. PROTECT ALL EXISTING SITE ITEMS, ALREADY COMPLETED OR ESTABLISHED AND DESIGNATED TO REMAIN FROM DAMAGE BY THE CONTRACTOR UNLESS OTHERWISE SPECIFIED. ALL DAMAGE RESULTING FROM THE CONTRACTOR'S WORK SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER, AT NO COST TO THE OWNER.

2.2. MAINTAIN ALL NECESSARY BMP DEVICES THROUGHOUT THE DURATION OF ALL CONSTRUCTION ACTIVITIES.

2.3. WHERE APPLICABLE, SUBMIT A DETAILED PROJECT SPECIFIC WORK ZONE TRAFFIC CONTROL PLAN IN ACCORDANCE WITH THE APPROPRIATE REGULATORY AGENCY STANDARDS UNLESS THE WORK REQUIRES NOTHING MORE THAN A DIRECT APPLICATION OF DOT STANDARD PLANS FOR ROAD AND BRIDGE CONSTRUCTION.

2.4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL UTILITIES, WHETHER PUBLIC OR PRIVATE, PRIOR TO CONSTRUCTION ACTIVITIES. THE INFORMATION AND DATA SHOWN WITH RESPECT TO EXISTING UTILITIES IS APPROXIMATE. THE OWNER AND DESIGN PROFESSIONAL SHALL NOT BE RESPONSIBLE FOR THE ACCURACY AND COMPLETENESS OF ANY SUCH INFORMATION OR DATA. THE CONTRACTOR SHALL HAVE FULL RESPONSIBILITY FOR; REVIEWING AND CHECKING ALL SUCH INFORMATION AND DATA; LOCATING ALL UTILITIES PRIOR TO CONSTRUCTION; THE SAFETY AND PROTECTION THEREOF; REPAIRING ANY DAMAGE RESULTING FROM THE WORK. THE COST OF ALL WILL BE CONSIDERED AS HAVING BEEN INCLUDED IN THE CONTRACT PRICE. THE CONTRACTOR SHALL NOTIFY ANY AFFECTED UTILITY COMPANIES OR AGENCIES IN WRITING AT LEAST 48 HOURS PRIOR TO BEGINNING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE LANDSCAPE ARCHITECT IN WRITING WHEN ANY CONFLICT BETWEEN UTILITIES AND THESE PLANS EXIST PRIOR TO PLANTING.

2.5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL UNAUTHORIZED CUTTING OR DAMAGE TO PLANT MATERIAL EXISTING OR OTHERWISE. THIS SHALL INCLUDE COMPACTION AND SPILLING OF ANY DELETERIOUS MATERIALS WITHIN THE DRIP-LINE OF EXISTING TREES TO REMAIN. PLANT MATERIAL KILLED OR DAMAGED THAT IS MISSHAPEN AND/OR UNSIGHTLY SHALL BE REPLACED WITH LIKE SIZE AND KIND TO THE SATISFACTION OF THE OWNER OR REGULATORY AGENCY AT THE COST TO THE CONTRACTOR.

2.6. SEE TREE MITIGATION PLAN AND NOTES, IF APPLICABLE.

3. SUBMITTALS

3.1. SUBMIT MATERIAL SAMPLES LISTED BELOW FOR APPROVAL, ON SITE OR AS DETERMINED BY THE OWNER. UPON APPROVAL, DELIVERY OF MATERIALS MAY COMMENCE.

MATERIAL	SAMPLE SIZE
MULCH	ONE (1) GALLON PLASTIC BAG
SOIL MIXTURE	ONE (1) GALLON PLASTIC BAG
PLANTS	ONE (1) OF EACH VARIETY (OR TAGGED IN NURSERY)

3.2. SUBMIT TESTING RESULTS OF SOIL MIXTURE AS PER SECTION 6 BELOW.

4. PLANT MATERIALS

4.1. ALL PLANT MATERIAL SHALL CONFORM TO THE SPECIFICATIONS INDICATED ON THE DRAWINGS AND SHALL BE IN ACCORDANCE WITH GRADES AND STANDARDS FOR NURSERY PLANTS. ALL MATERIALS SHALL BE SUBJECT TO APPROVAL BY THE OWNER OR OWNER'S REPRESENTATIVE. NO SUBSTITUTIONS SHALL BE MADE WITHOUT WRITTEN PERMISSION FROM THE LANDSCAPE ARCHITECT AND OWNER.

4.2. ALL TREE SPECIES INSTALLED SHALL BE MATCHED IN SIZE AND SHAPE UNLESS NOTED OTHERWISE.

4.3. PLANTS SHALL BE SUBJECT TO INSPECTION AND APPROVAL AT THE PLACE OF GROWTH, UPON DELIVERY TO THE SITE, DURING PROGRESS OF THE WORK AND/OR AFTER COMPLETION. REJECTED PLANTS SHALL BE REMOVED AND REPLACED IMMEDIATELY.

5. DIGGING AND HANDLING

5.1. PROTECT ROOTS OR ROOT BALLS OF PLANTS AT ALL TIMES FROM SUN, DRYING WINDS, WATER AND FREEZING, AS NECESSARY UNTIL PLANTING. NO PLANT MATERIAL SHALL BE HANDLED BY STEMS.

6. SOIL MIXTURE (PLANTING MEDIUM, PLANTING MIX, TOPSOIL MIX)

6.1. TEST EXISTING SOIL AND AMEND AS NECESSARY IN ACCORDANCE WITH THE GUIDELINES BELOW:

6.2. SOIL MIXTURE (PLANTING MEDIUM FOR PLANT PITS) SHALL CONSIST OF TWO PARTS OF TOPSOIL AND ONE PART SAND, AS DESCRIBED BELOW. SUBMIT SAMPLES AND PH TESTING RESULTS OF SOIL MIXTURE FOR OWNER'S REPRESENTATIVE APPROVAL PRIOR TO PLANT INSTALLATION OPERATIONS COMMENCE.

6.3. TOPSOIL FOR USE IN PREPARING SOIL MIXTURE FOR BACKFILLING PLANT PITS SHALL BE FERTILE, FRIABLE, AND OF A LOAMY CHARACTER; REASONABLY FREE OF SUBSOIL, CLAY LUMPS, BRUSH WEEDS AND OTHER LITTER; FREE OF ROOTS, STUMPS, STONES LARGER THAN 2" IN ANY DIRECTION, AND OTHER EXTRANEOUS OR TOXIC MATTER HARMFUL TO PLANT GROWTH. IT SHALL CONTAIN THREE (3) TO FIVE (5) PERCENT DECOMPOSED ORGANIC MATTER AND HAVE A PH BETWEEN 5.5 AND 7.0.

6.4. SAND SHALL BE COARSE, CLEAN, WELL-DRAINING, NATIVE SAND.

6.5. PLANT TREES IN THE EXISTING NATIVE SOIL ON SITE, UNLESS DETERMINED TO BE UNSUITABLE - AT WHICH POINT THE CONTRACTOR SHALL CONTACT OWNER'S REPRESENTATIVE TO DISCUSS ALTERNATE RECOMMENDATION PRIOR TO PLANTING.

7. WATER

7.1. PROVIDE WATER NECESSARY FOR PLANTING ESTABLISHMENT AND MAINTENANCE. WATER SHALL BE OF SATISFACTORY QUALITY TO SUSTAIN ADEQUATE PLANT GROWTH AND SHALL NOT CONTAIN HARMFUL, NATURAL OR MAN-MADE ELEMENTS DETRIMENTAL TO PLANTS.

7.2. WATERING/IRRIGATION RESTRICTIONS MAY APPLY - REFER TO PROPERTY'S JURISDICTIONAL AUTHORITY.

8. FERTILIZER

8.1. PROVIDE FERTILIZER APPLICATION SCHEDULE TO OWNER, AS APPLICABLE TO SOIL TYPE, PLANT INSTALLATION TYPE, AND SITE'S PROPOSED USE. SUGGESTED FERTILIZER TYPES SHALL BE ORGANIC OR OTHERWISE NATURALLY-DERIVED.

8.2. FERTILIZER RESTRICTIONS MAY APPLY - REFER TO PROPERTY'S JURISDICTIONAL AUTHORITY.

9. MULCH

9.1. MOISTEN MULCH MATERIAL AT THE TIME OF APPLICATION TO PREVENT WIND DISPLACEMENT, AND APPLIED AT A MINIMUM DEPTH OF THREE (3) INCHES. CONTRACTOR SHALL CLEAR MULCH FROM WITHIN A SIX (6) INCH RADIUS AROUND TRUNK / STEM FLARE.

9.2. PROVIDE A THREE (3) INCH MINIMUM LAYER OF SPECIFIED MULCH OVER THE ENTIRE AREA OF EACH PLANTING BED AND TREE RING (SIX (6) FOOT DIAMETER MINIMUM).

10. CONTAINER GROWN STOCK

10.1. CONTAINER GROWN PLANTS SHALL HAVE BEEN GROWN IN IT'S CONTAINER SUFFICIENTLY LONG ENOUGH FOR THE NEW FIBROUS ROOTS TO HAVE DEVELOPED SO THAT THE ROOT MASS WILL RETAIN ITS SHAPE AND HOLD TOGETHER WHEN REMOVED FROM THE CONTAINER.

10.2. INSUFFICIENT OR POORLY STRUCTURED ROOT SYSTEMS ARE NOT ACCEPTABLE AND WILL BE REJECTED.

10.3. ROOTS PLUS GROWER (RPG) PRODUCTS SHALL BE USED WHERE SPECIFIED.

11. MATERIALS LIST

11.1. ALL QUANTITIES ARE PROVIDED FOR CONVENIENCE ONLY. CONTRACTOR SHALL CONFIRM ALL QUANTITIES PER PLAN PRIOR TO BIDDING AND CONSTRUCTION.

12. FINE GRADING

12.1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINE GRADING WHICH CONSISTS OF FINAL FINISHED GRADING (INCLUDING ADDITIONAL SOIL MIXTURE AS NEEDED) FOR LAWN AND PLANTING AREAS THAT HAVE BEEN ROUGH GRADED BY OTHERS. FINISH GRADE SHALL ACCOUNT FOR THICKNESS OF SOD AND/OR MULCH DEPTH.

12.2. ALL PLANTING AREAS SHALL BE GRADED AND MAINTAINED FOR POSITIVE DRAINAGE TO SURFACE/SUBSURFACE STORM DRAIN SYSTEMS. AREAS ADJACENT TO BUILDINGS SHALL SLOPE AWAY FROM THE BUILDINGS. REFER TO CIVIL ENGINEER'S PLANS FOR FINAL GRADES, IF APPLICABLE.

13. PLANTING PROCEDURES

13.1. CLEAN WORK AND SURROUNDING AREAS OF ALL RUBBISH OR OBJECTIONABLE MATTER DAILY. REMOVE ALL MORTAR, CEMENT, AND TOXIC MATERIAL FROM THE SURFACE OF ALL PLANT BEDS. DO NOT MIX THESE MATERIALS WITH THE SOIL. SHOULD THE CONTRACTOR FIND SUCH SOIL CONDITIONS BENEATH THE SOIL WHICH WILL IN ANY WAY ADVERSELY AFFECT THE PLANT GROWTH, IMMEDIATELY CALL IT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.

13.2. LOCATE, MAINTAIN AND PROTECT ALL UTILITIES ABOVE AND BELOW GROUND. CALL TO LOCATE UTILITIES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

13.3. NOTIFY LANDSCAPE ARCHITECT IN WRITING IMMEDIATELY IF CONFLICT(S) EXIST WITH PROPOSED TREE LOCATIONS AND EXISTING OVERHEAD POWER LINES IN ACCORDANCE WITH SETBACK REQUIREMENTS.

13.4. NOTIFY LANDSCAPE ARCHITECT IN WRITING IMMEDIATELY IF CONFLICT(S) EXIST WITH PROPOSED TREE LOCATIONS AND EXISTING / PROPOSED LIGHT POLES. TREES INSTALLED IN CONFLICT WITH LIGHT POLES ARE SUBJECT TO RELOCATION AT THE EXPENSE OF THE CONTRACTOR.

13.5. REMOVE ALL EXISTING AND IMPORTED DELETERIOUS MATERIAL AND SUB-BASE FROM ALL LANDSCAPE PLANTING AREAS TO A MINIMUM DEPTH OF 36" OR TO NATIVE SOIL. CONTRACTOR IS RESPONSIBLE TO BACKFILL THESE PLANTING AREAS TO ROUGH FINISHED GRADE AS NEEDED WITH CLEAN SOIL MIXTURE.

13.6. FURNISH NURSERY'S CERTIFICATE OF COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS. COMPLY WITH APPLICABLE FEDERAL, STATE, COUNTY, AND LOCAL REGULATIONS GOVERNING LANDSCAPE MATERIALS AND WORK.

13.7. EXCAVATE ALL PLANTING PITS IN ACCORDANCE WITH LANDSCAPE DETAILS PROVIDED. TEST ALL TREE PITS WITH WATER BEFORE PLANTING TO ASSURE PROPER DRAINAGE PERCOLATION IS AVAILABLE. IF POOR DRAINAGE EXISTS, NOTIFY LANDSCAPE ARCHITECT IMMEDIATELY IN WRITING. NO ALLOWANCE WILL BE MADE FOR LOST PLANTS DUE TO IMPROPER DRAINAGE. CONTRACTOR SHALL ENSURE ELIMINATION OF ALL AIR POCKETS AROUND ROOTS.

13.8. SET TREES AND SHRUBS STRAIGHT AT AN ELEVATION THAT, AFTER SETTLEMENT, THE PLANT CROWN WILL STAND ONE (1) TO TWO (2) INCHES ABOVE GRADE. EACH PLANT SHALL BE SET IN THE CENTER OF THE PIT. PLANTING SOIL MIXTURE SHALL BE BACK FILLED, THOROUGHLY TAMPED AROUND THE BALL, AND SETTLED BY WATER (AFTER TAMPING).

13.9. DO NOT COVER TOP OF BALL WITH SOIL MIXTURE. ALL BURLAP, ROPE, WIRES, BASKETS, ETC., SHALL BE REMOVED FROM UPPER ONE THIRD (1/3) OF ROOT BALLS.

13.10. ALL SUCKER GROWTH AND BROKEN OR BADLY DAMAGED BRANCHES SHALL BE REMOVED WITH A CLEAN CUT IN ACCORDANCE WITH ANSI A-300.

13.11. SHRUBS AND GROUND COVER PLANTS SHALL BE SPACED IN ACCORDANCE WITH THE DRAWINGS, LANDSCAPE DETAILS AND AS INDICATED ON THE PLANT LIST.

13.12. TREE GUYING AND BRACING SHALL BE INSTALLED BY THE CONTRACTOR IN ACCORDANCE WITH THE PLANS TO INSURE STABILITY AND MAINTAIN TREES IN A PLUMB AND UPRIGHT POSITION.

13.13. FAILURE TO FOLLOW THE ABOVE PLANTING PROCEDURE SHALL MAKE THE CORRECTIVE MEASURES THE RESPONSIBILITY OF THE CONTRACTOR.

14. LAWN SEEDING

14.1. THE WORK CONSISTS OF LAWN BED PREPARATION, SOIL PREPARATION, AND SEEDING NECESSARY TO PRODUCE A TURF GRASS LAWN ACCEPTABLE TO THE OWNER.

14.2. ALL AREAS THAT ARE TO BE SEEDED SHALL BE CLEARED OF ANY ROUGH GRASS, WEEDS, AND DEBRIS TO A MINIMUM DEPTH OF THREE (3) INCHES. PROVIDE ONE (1) INCH OF TOPSOIL ACROSS ENTIRE LAWN BED AND MIX THROUGHLY INTO TOP FOUR (4) INCHES OF SOIL TO BRING THE GROUND TO AN EVEN GRADE. THE ENTIRE SURFACE SHALL BE ROLLED WITH A ROLLER WEIGHING NOT MORE THAN ONE-HUNDRED (100) POUNDS PER FOOT OF WIDTH. DURING THE ROLLING, ALL DEPRESSIONS CAUSED BY SETTLEMENT SHALL BE FILLED WITH ADDITIONAL TOPSOIL AND THE SURFACE SHALL BE REGRADED AND ROLLED UNTIL PRESENTING A SMOOTH AND EVEN FINISH TO THE REQUIRED GRADE.

14.3. HAND RAKE LAWN BED UNTIL ALL BUMPS AND DEPRESSIONS ARE REMOVED. WET PREPARED AREA THOROUGHLY.

14.4. SEED ALL AREAS THAT ARE NOT PAVED OR PLANTED AS DESIGNATED ON THE DRAWINGS WITHIN THE CONTRACT LIMITS, UNLESS SPECIFICALLY NOTED OTHERWISE.

14.5. THE SEED SHALL BE CERTIFIED TO MEET USDA SPECIFICATIONS, ABSOLUTELY TRUE TO VARIETAL TYPE, AND FREE FROM WEEDS, FUNGUS, INSECTS AND DISEASE OF ANY KIND.

14.6. SEED PANELS SHALL BE LAID TIGHTLY TOGETHER SO AS TO MAKE A SOLID SEEDED LAWN AREA. SOD SHALL BE LAID UNIFORMLY AGAINST THE EDGES OF ALL CURBS AND OTHER HARDSCAPE ELEMENTS, PAVED AND PLANTED AREAS.

14.7. IMMEDIATELY FOLLOWING SEED LAYING, ROLL LAWN AREAS WITH A LAWN ROLLER AND THEN THOROUGHLY IRRIGATED.

14.8. IF, IN THE OPINION OF THE OWNER, TOP-DRESSING IS NECESSARY AFTER ROLLING TO FILL THE VOIDS BETWEEN THE SEED PANELS AND TO EVEN OUT INCONSISTENCIES IN THE SEED, CLEAN SAND, AS APPROVED BY THE OWNER'S REPRESENTATIVE, SHALL BE UNIFORMLY SPREAD OVER THE ENTIRE SURFACE OF THE SEED AND THOROUGHLY WATERED IN. FERTILIZE INSTALLED SEED AS ALLOWED BY PROPERTY'S JURISDICTIONAL AUTHORITY.

14.9. DURING DELIVERY, PRIOR TO, AND DURING THE PLANTING OF THE LAWN AREAS, THE SOD PANELS SHALL AT ALL TIMES BE PROTECTED FROM EXCESSIVE DRYING AND UNNECESSARY EXPOSURE OF THE ROOTS TO THE SUN. ALL SEED SHALL BE STACKED SO AS NOT TO BE DAMAGED BY EXCESSIVE HEAT AND MOISTURE.

14.10. WITHIN THE CONTRACT LIMITS, PRODUCE AND MAINTAIN A DENSE, WELL ESTABLISHED LAWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR AND RE-SEEDING OF ALL ERODED, SUNKEN OR BARE SPOTS UNTIL CERTIFICATION OF ACCEPTANCE BY THE OWNER'S REPRESENTATIVE. REPAIRED SODDING SHALL BE ACCOMPLISHED AS IN THE ORIGINAL WORK (INCLUDING REGRADING IF NECESSARY).

15. CLEANUP

15.1. UPON COMPLETION OF ALL PLANTING WORK AND BEFORE FINAL ACCEPTANCE, REMOVE ALL MATERIAL, EQUIPMENT, AND DEBRIS RESULTING FROM HIS WORK. ALL PAVED AREAS SHALL BE CLEANED AND THE SITE LEFT IN A NEAT AND ACCEPTABLE CONDITION AS APPROVED BY THE OWNER'S REPRESENTATIVE.

16. PLANT MATERIAL MAINTENANCE

16.1. ALL PLANT MATERIAL SHALL BE MAINTAINED BY WATERING, CULTIVATING, SPRAYING, AND ALL OTHER OPERATIONS (SUCH AS RE-STAKING OR REPAIRING GUY SUPPORTS) AS NECESSARY TO INSURE HEALTHY AND VIGOROUS GROWING CONDITIONS BY THE CONTRACTOR UPON DELIVERING TO THE SITE AND UNTIL FINAL ACCEPTANCE OF WORK.

17. FINAL INSPECTION AND ACCEPTANCE OF WORK

17.1. ALL PLANT BEDS SHALL BE KEPT FREE OF NOXIOUS WEEDS UNTIL FINAL ACCEPTANCE OF WORK. PRIOR TO FINAL INSPECTION, TREAT ALL PLANTING BEDS WITH AN APPROVED PRE-EMERGENT HERBICIDE PER MANUFACTURER RECOMMENDATIONS. (AS ALLOWED BY JURISDICTIONAL AUTHORITY)

17.2. PROVIDE WATERING/IRRIGATION SCHEDULE FOR ALL PLANT MATERIAL TO OWNER. OBSERVE ALL APPLICABLE WATERING RESTRICTIONS AS SET FORTH BY THE PROPERTY'S JURISDICTIONAL AUTHORITY.

17.3. UPON COMPLETION OF ALL WORK, A FINAL INSPECTION SHALL BE PERFORMED BY THE OWNER AND/OR OWNER'S REPRESENTATIVE. ALL PLANTING, CONSTRUCTION AND ALL OTHER INCIDENTAL WORK PERTAINING TO THIS CONTRACT SHALL BE INSPECTED FOR COMPLIANCE WITH THE CONTRACT DOCUMENTS. ANY ITEMS FOUND TO NOT BE IN COMPLIANCE SHALL BE CORRECTED AT THE COST OF THE CONTRACTOR.

18. WARRANTY

18.1. THE LIFE AND SATISFACTORY CONDITION OF ALL PLANT MATERIAL INSTALLED BY THE LANDSCAPE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A MINIMUM OF ONE (1) CALENDAR YEAR COMMENCING AT THE TIME OF CERTIFICATION AND ACCEPTANCE OF THE WORK BY THE OWNER AND/OR OWNER'S REPRESENTATIVE.

18.2. ANY PLANT NOT FOUND IN A HEALTHY GROWING CONDITION THROUGHOUT THE WARRANTY PERIOD SHALL BE REMOVED FROM THE SITE AND REPLACED AS SOON AS WEATHER CONDITIONS PERMIT. ALL REPLACEMENTS SHALL BE PLANTS OF THE SAME KIND AND SIZE AS SPECIFIED IN THE PLANT LIST. THEY SHALL BE FURNISHED, PLANTED AND MULCHED AS SPECIFIED AT NO ADDITIONAL COST TO THE OWNER. ANY REPLACED PLANT MATERIAL SHALL BE SUBJECT TO A NEW ONE (1) YEAR WARRANTY.

18.3. IN THE EVENT THE OWNER DOES NOT CONTRACT WITH THE CONTRACTOR FOR LANDSCAPE AND IRRIGATION MAINTENANCE, THE CONTRACTOR SHOULD VISIT THE PROJECT SITE PERIODICALLY DURING THE ONE (1) YEAR WARRANTY PERIOD TO EVALUATE MAINTENANCE PROCEDURES BEING PERFORMED BY THE OWNER. CONTRACTOR SHALL NOTIFY THE OWNER IN WRITING OF MAINTENANCE PROCEDURES OR CONDITIONS WHICH THREATEN VIGOROUS AND HEALTHY PLANT GROWTH.

19. ABBREVIATIONS

B&B -	BALLED AND BURLAPPED
BR -	BARE ROOT
CAL -	CALIPER
CT -	CLEAR TRUNK
DBH -	DIAMETER AT BREAST HEIGHT
FG -	FIELD GROWN
FTG -	FULL TO GROUND
GW -	GREY WOOD
HO -	HARDENED OFF
OA -	OVERALL HEIGHT
RPG -	ROOTS PLUS GROWER

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SHEET TITLE
PLANTING NOTES

SHEET NUMBER
L4.1

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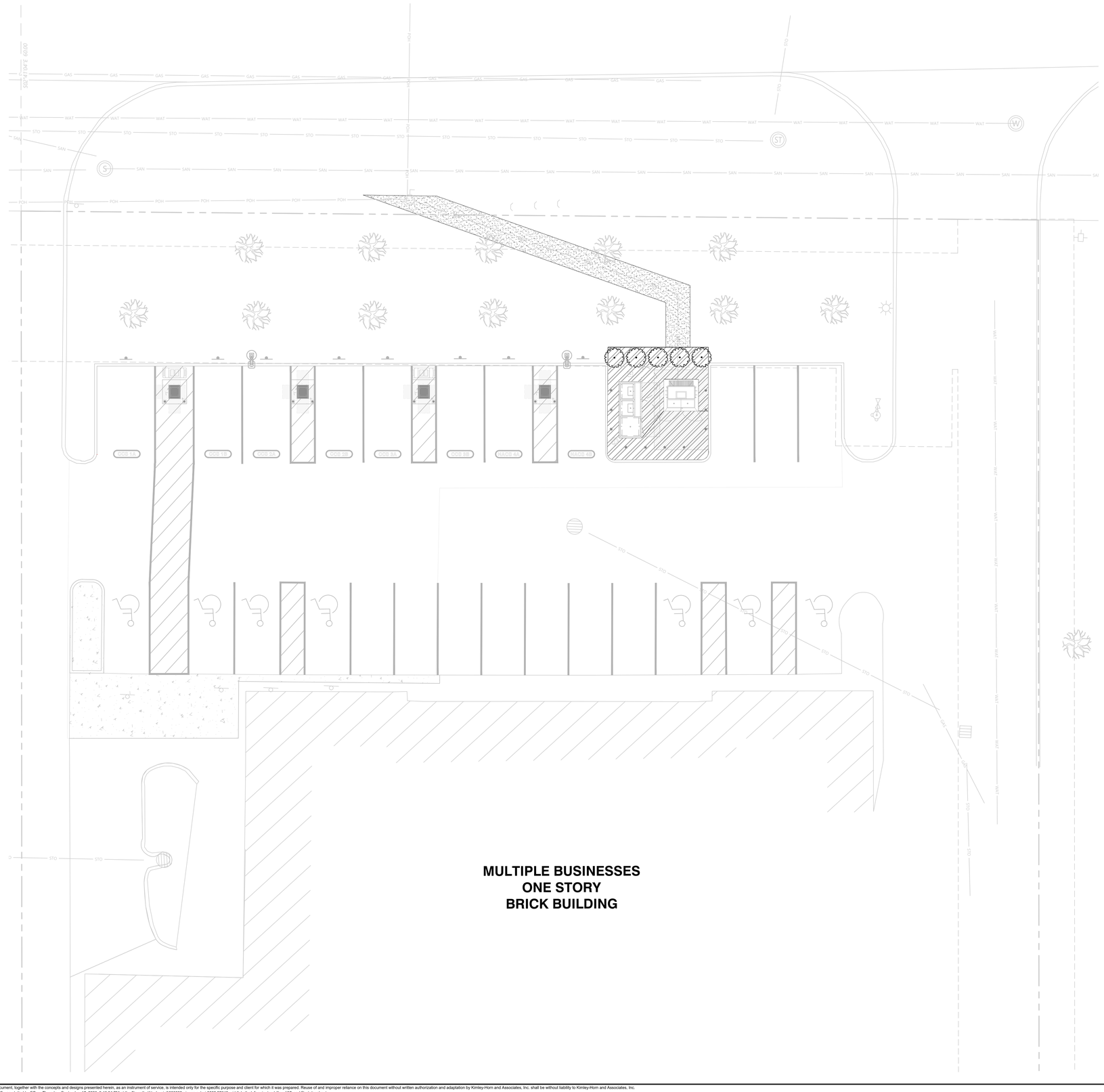

MULTIPLE BUSINESSES
ONE STORY
BRICK BUILDING

PLANT SCHEDULE

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	CONT	SIZE
SHRUBS					
	5	THUJA OCCIDENTALIS 'EMERALD GREEN'	EMERALD GREEN ARBORVITAE	3 GAL	

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	CONT	SPACING
GROUND COVERS					
	176	JUNIPERUS HORIZONTALIS 'BLUE RUG'	BLUE RUG JUNIPER	4" POT	18" OC
	355 SF	TURF SEED	TO MATCH EXISTING	HYDROSEED	

GRAPHIC SCALE IN FEET
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WHEN PRINTED AT FULL SIZE
(24"X36")

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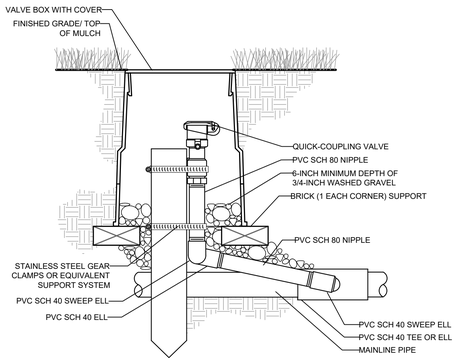
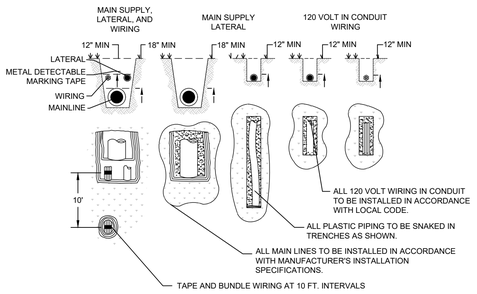


NOTE:

FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE.

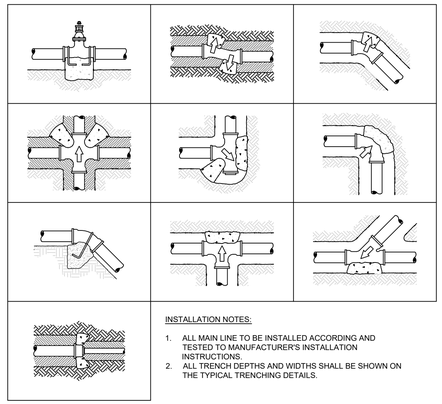
1 TYPICAL QUICK COUPLER

1/2" = 1'-0" KHA-PLT-01



2 TYPICAL TRENCHING

1/2" = 1'-0" KHA-PLT-04

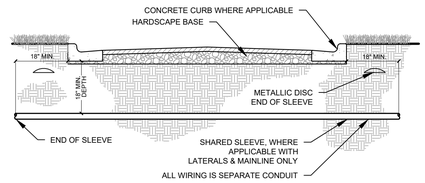


INSTALLATION NOTES:

1. ALL MAIN LINE TO BE INSTALLED ACCORDING AND TESTED TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. ALL TRENCH DEPTHS AND WIDTHS SHALL BE SHOWN ON THE TYPICAL TRENCHING DETAILS.

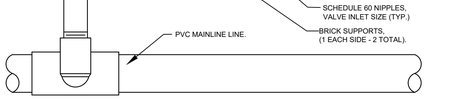
3 TYPICAL THRUST BLOCK

1/2" = 1'-0" KHA-PLT-11



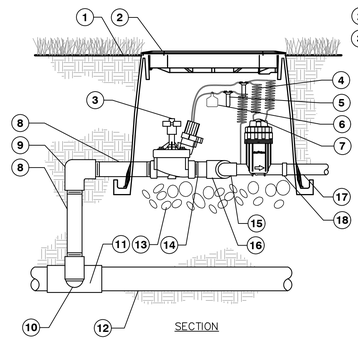
4 TYPICAL SLEEVING

1/2" = 1'-0" KHA-PLT-16



5 REMOTE CONTROL VALVE

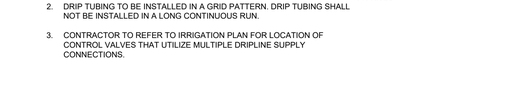
1/2" = 1'-0" KHA-PLT-22



1. FINISH GRADE/TOP OF MULCH
2. VALVE BOX WITH LOCKING COVER
3. REMOTE CONTROL VALVE
4. 30-INCH LINEAR LENGTH OF WIRE, COILED
5. WATERPROOF CONNECTION
6. ID TAG
7. PRESSURE REGULATING QUICK CHECK BASKET FILTER
8. PVC SCH 80 NIPPLE (LENGTH AS REQUIRED)
9. PVC SCH 40 ELL
10. PVC SCH 80 NIPPLE (2-INCH LENGTH, HIDDEN) AND PVC SCH 40 ELL
11. PVC SCH 40 TEE OR ELL
12. MAINLINE PIPE
13. 6-INCH MINIMUM DEPTH OF 3/4-INCH WASHED GRAVEL
14. PVC SCH 80 NIPPLE, CLOSE
15. PVC SCH 40 ELL
16. PVC SCH 40 TEE
17. LATERAL PIPE
18. PVC SCH 40 FEMALE ADAPTOR

6 DRIP CONTROL VALVE

1" = 30' KHA-PLT-23



NOTE:

1. DRIP TUBING TO BE ROUTED IN THE PLANT MATERIAL BED WITH AT MAXIMUM LATERAL SPACING OF 16 INCHES.
2. DRIP TUBING TO BE INSTALLED IN A GRID PATTERN. DRIP TUBING SHALL NOT BE INSTALLED IN A LONG CONTINUOUS RUN.
3. CONTRACTOR TO REFER TO IRRIGATION PLAN FOR LOCATION OF CONTROL VALVES THAT UTILIZE MULTIPLE DRIPLINE SUPPLY CONNECTIONS.

7 TYPICAL DRIPLINE

3/4" = 1'-0" KHA-PLT-25

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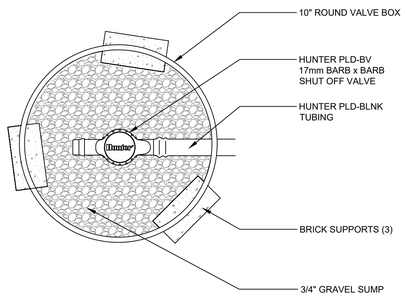

8 MANUAL FLUSH VALVE

1 1/2" = 1'-0" KHA-PLT-26

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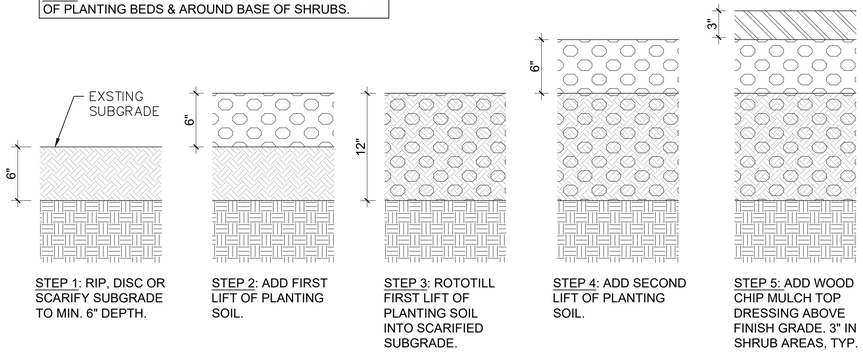
NOTE: TAPER MULCH TO MEET FINISH GRADE AT EDGE OF PLANTING BEDS & AROUND BASE OF SHRUBS.



STEP 1: RIP, DISC OR SCARIFY SUBGRADE TO MIN. 6" DEPTH.

STEP 2: ADD FIRST LIFT OF PLANTING SOIL.

STEP 3: ROTOTILL FIRST LIFT OF PLANTING SOIL INTO SCARIFIED SUBGRADE.

STEP 4: ADD SECOND LIFT OF PLANTING SOIL.

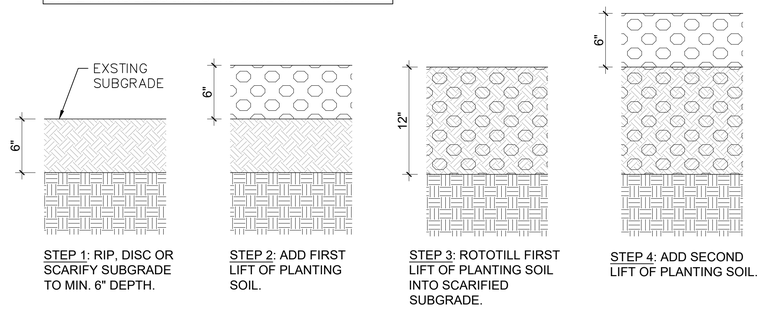
STEP 5: ADD WOOD CHIP MULCH TOP DRESSING ABOVE FINISH GRADE. 3" IN SHRUB AREAS, TYP.

1 SOIL PREPARATION - SHRUB AREAS

1/8" = 1'-0"

KHA-PLT-03

NOTE: TAPER MULCH TO MEET FINISH GRADE AT EDGE OF PLANTING BEDS & AROUND BASE OF SHRUBS.



STEP 1: RIP, DISC OR SCARIFY SUBGRADE TO MIN. 6" DEPTH.

STEP 2: ADD FIRST LIFT OF PLANTING SOIL.

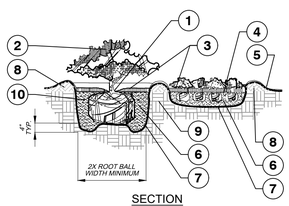
STEP 3: ROTOTILL FIRST LIFT OF PLANTING SOIL INTO SCARIFIED SUBGRADE.

STEP 4: ADD SECOND LIFT OF PLANTING SOIL.

2 SOIL PREPARATION - TURF

1/8" = 1'-0"

KHA-PLT-27



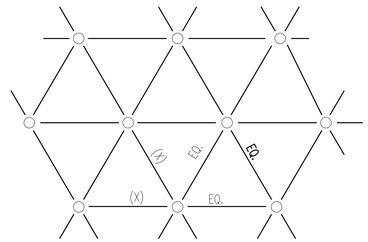
SECTION

1. TOP OF ROOTBALLS TO BE PLANTED AT GRADE OR SLIGHTLY ABOVE SURROUNDING SOIL. 2" DIA. CLEAR OF MULCH AT TRUNK FLARE.
2. PRUNE ALL SHRUBS TO ACHIEVE A UNIFORM MASSHEIGHT.
3. 3" MULCH LAYER AS SPECIFIED.
4. EXCAVATE ENTIRE BED SPECIFIED FOR GROUNDCOVER BED.
5. FOR CONDITIONS WITH FINISHED GRADE OF 4:1 MAX SLOPE ON ALL SIDES (SEE GRADING PLAN).
6. PREPARED PLANTING SOIL AS SPECIFIED. (SEE LANDSCAPE NOTES) NOTE: WHEN GROUND- COVERS AND SHRUBS USED IN MASSES, ENTIRE BED TO BE AMENDED WITH PLANTING SOIL MIX AS SPECIFIED.
7. SCARIFY PLANT OPENING SIDES AND BOTTOM.
8. 4" HIGH BERM FIRMLY COMPACTED.
9. UNDISTURBED NATIVE SOIL.
10. FERTILIZER TABLETS (MAX 3" DEEP)

3 SHRUB/GROUNDCOVER PLANTING

1" = 20'

KHA-PLT-08



DISTANCE (X) AS SPECIFIED IN THE PLANT SCHEDULE

4 PLANT SPACING DIAGRAM

1/2" = 1'-0"

KHA-PLT-07

NOTES:

A. CONTRACTOR SHALL ASSURE PERCOLATION OF ALL PLANTING AREAS PRIOR TO INSTALLATION.

B. WHEN SHRUBS ARE PRUNED IN MASSES, PRUNE ALL SHRUBS TO ACHIEVE UNIFORM MASS / HEIGHT.

C. ALL SHRUBS AND GROUNDCOVERS SHALL BE PLUMB VERTICALLY, UNLESS OTHERWISE DIRECTED BY PROJECT LANDSCAPE ARCHITECT.

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IONNA LLC Site Incident Response and Escalation Procedure

IONNA LLC Site Incident Response and Escalation Procedure

Document Type: Standard Operating Procedure (SOP)
Owner: IONNA Facilities Team
Applies to: All operational IONNA charging sites

1. **Purpose**
   This Standard Operating Procedure (SOP) establishes IONNA's process for responding to emergencies, safety incidents and equipment failures at all operational IONNA charging locations.

   The objectives are to:
   1. Maintain public safety
   2. Mitigate operational risks and minimize environmental impact
   3. Ensure timely coordination with emergency responders and service providers
   4. Safely and efficiently restore site operations
   5. Define resolution ownership, escalation paths, and communication responsibilities

2. **Scope**
   This SOP applies to all operational IONNA charging facilities following commissioning and commencement of commercial operations (known internally as "Go Live")

3. **Exceptions**
   Emergency situations vary significantly in scope and complexity. IONNA reserves the right to modify response actions, escalation paths, and vendor engagement procedures as necessary to protect public safety and restore site operations.

4. **Roles and Responsibilities:**

   1. **Emergency Services**
      Throughout the life cycle of the charging site, from construction to commissioning, local first responders maintain authority over emergency situations including, but not limited to:
      1. Fire
      2. Medical Emergencies
      3. Public Safety Concerns
      4. Traffic Incidents
      5. Hazardous Materials

   2. **General Contractor (during construction)**
      Prior to site commissioning, and throughout the construction life cycle, the General Contractor is responsible for:
      1. Managing and maintaining the construction site
      2. Coordinating emergency response

3. **IONNA Facilities Team (after commissioning)**

A charging site is considered "live" after site commissioning and commencement of commercial operations. Once the site is live, IONNA maintains a Facilities team to monitor all site operations. The Facilities Team is responsible for:

1. Managing and maintaining the facility
2. Coordinating emergency response
3. Engaging maintenance vendors and service providers
4. Restoring site operations after an incident
5. Maintaining cleanliness and sanitation of site

4. **IONNA Tier 2 Support Team (after commissioning)**

Charger maintenance and/or repairs are solely the responsibility of IONNA's Tier 2 Support Team. Examples of charger-specific incidents include but are not limited to:

1. Major/Minor vandalism
2. Cable replacement/maintenance/management
3. Payment system failures
4. Charging session errors
5. System repairs/ part replacement

5. Emergency Response Procedure

Step 1: Incident Identification

Upon notification of an incident, the receiving party shall:

1. Assess the nature and severity of the event
2. Initiate the appropriate escalation pathway
3. Coordinate with the appropriate teams to resolve the issue and restore safety.

Examples of emergencies include but are not limited to:

1. Vehicle crash/incident
2. Vehicle Fire
3. Electrical Fire
4. Battery Thermal Event and/or Leakage
5. Water Main Break
6. Significant Equipment Damage due to automobile collision
7. Utility Failure resulting in a safety hazard
8. Significant Vandalism affecting public safety
9. Severe Weather Damage

Emergency Notification can come from the following sources:

1. Internal system notification
   a. Chargers will directly notify Tier 2 team if vandalism is detected.

2. Direct calls from customers/technicians/individuals
    a. Information regarding the emergency or hazard will be related to a Customer Service Representative (CSR) who will then escalate appropriately.
3. Technicians can be onsite any day of the week for the following:
    a. Charger maintenance
    b. Charger repair
    c. Part replacement
    d. Facility cleaning
4. Social media post from customers
    a. Historically customers have informed Ionna of issues/complaints via social media such as, but not limited to: Plugshare, Instagram, and Twitter.

Step 2: Emergency Services Notification
In the event of a site emergency, the Ionna Facilities team will immediately contact local emergency services and coordinate an appropriate response plan to resolve the issue and restore safety.

1. Contact local emergency services (911 or equivalent)
2. Provide site address, incident details, and advise on resolution.

Step 3: Site Stabilization
Once emergency responders have resolved immediate hazards and the site is secure, the IONNA Facilities team will do the following:

1. Coordinate with appropriate stakeholders, vendors and emergency responders to secure the site and prevent further hazards.
2. Isolate damaged equipment and initiate repair
3. Coordinate with property owner and key stakeholders
4. Document site conditions

Step 4: Site Restoration and Repair
The Facilities Team will coordinate repair, remediation and restoration activities in cooperation with the property owner, service providers, utilities and local authorities. IONNA will coordinate the appropriate service providers, including but not limited to:

1. Electrical Contractors
2. Janitorial Staff
3. General Maintenance Providers
4. Environmental Remediation Contractors
5. Utility Companies
6. Equipment Manufacturers

Step 5: Incident Closure and Follow-Up
After repair, remediation, and restoration activities are complete, the Facilities Team shall confirm that the site is safe for public use, verify that affected equipment is operational, update the incident record with the final resolution, notify key stakeholders of the site status, and identify any corrective or preventive actions requiring follow-up.

6. Incident Documentation

The responding team shall document the following, to be shared with key stakeholders when requested:

1. Date and time of occurrence
2. Description of incident
3. Immediate action taken
4. Involved Agencies and/or Vendors
5. Corrective actions implemented
6. Resolution status

7. Escalation Matrix

Any employee, contractor, vendor, or representative of IONNA may immediately contact emergency services if there is a reasonable belief that a threat to life safety, public safety, or the environment exists.

Emergency situations do not require prior approval before contacting local authorities.

Incident Type	Initial Contact	Secondary Contact	External Escalation	Priority
Fire or smoke	Emergency Services (911)	Ionna Facilities Team	Property Owner	Critical
Medical Emergency	Emergency Services (911)	Ionna Facilities Team	Property Owner	Critical
Battery Leak or Thermal Event	Emergency Services (911)	Tier 2 Support	Facilities Team	Critical
Electrical Hazard	Ionna Facilities Team	Utility Provider	Property Owner	High
Water Main break or flooding	Ionna Facilities Team	Utility Provider	Property Owner	High
Utility Outage	Ionna Facilities Team	Utility Provider	Property Owner	High
Major Vandalism	Tier 2 Support	Facilities Team	Local Law Enforcement	High
Charger failure and/or damage	Tier 2 Support	Facilities Team	Service Provider	High
Janitorial Issue	Facilities Team	Janitorial Vendor	Maintenance Vendor	Low
Landscaping or General Maintenance	Facilities Team	Maintenance Vendor	Independent Contractor	Low

8. Contact Information

IONNA Facilities Team : + 1 (833) 466 2474 / facilities@ionna.com

IONNA Tier 2 Support : + 1 (833) 466 2474 / facilities@ionna.com

Emergency Services : 911

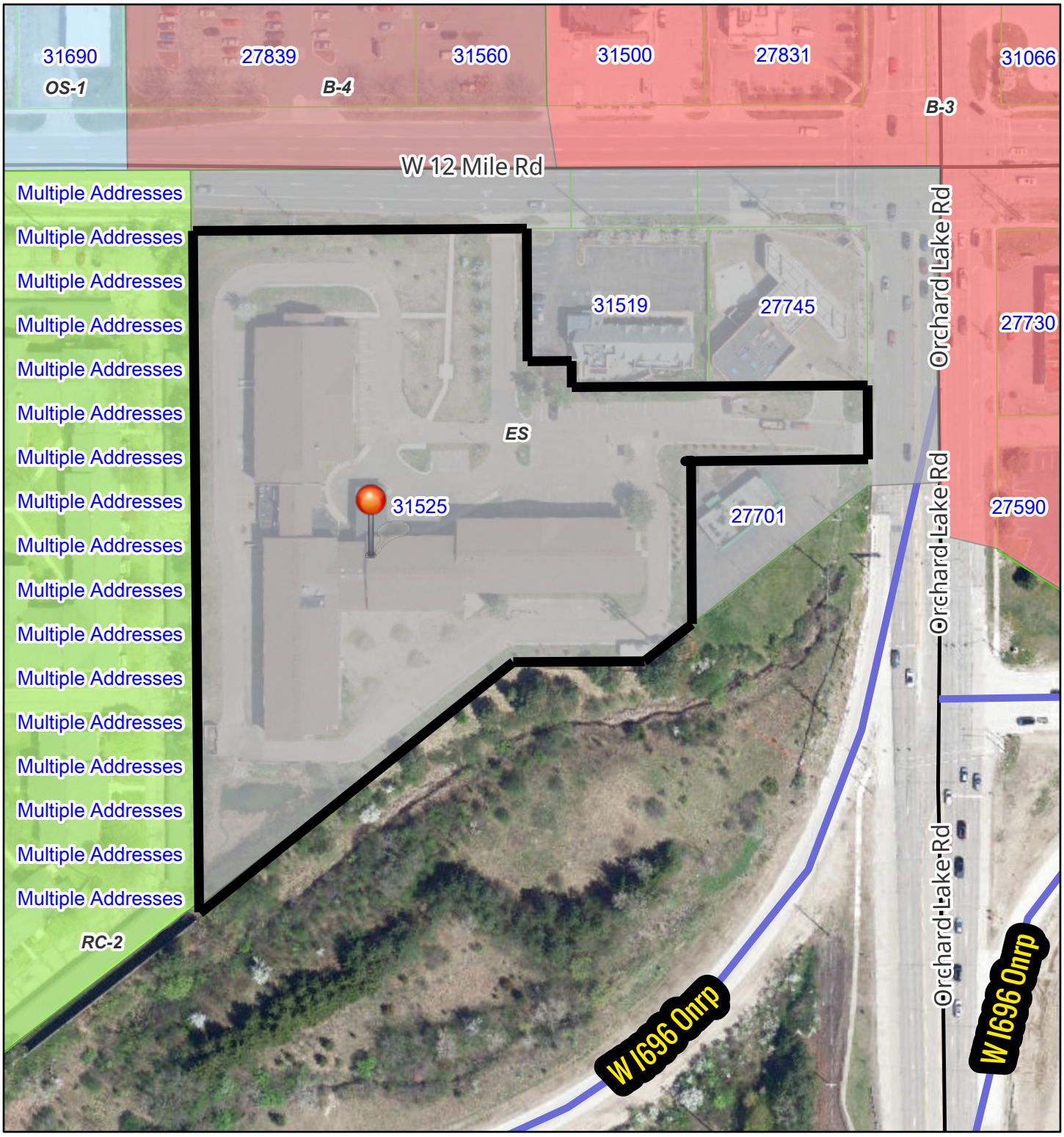
5. Regular Meeting

B. PLANNED UNIT DEVELOPMENT (PUD) QUALIFICATION 1, 2026

LOCATION:	31525 W. Twelve Mile Road
PARCEL I.D.:	22-23-15-201-270
PROPOSAL:	Convert previously approved senior assisted living complex to multifamily residential in the ES, Expressway Service District.
ACTION REQUESTED:	Preliminary PUD Qualification
APPLICANT:	Acre Farmington, LLC, Saman Abdo
OWNER:	31525 Building, LLC

ZONING MAP

31525 W 12 MILE RD - ZONING MAP



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Zoning districts
- B-3
- B-4
- ES
- OS-1
- RC-2
- Tax Parcels

1:2,167

0 0.01 0.03 0.05 mi
0 0.02 0.04 0.08 km

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

City of Farmington Hills, MI

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ES – Expressway Service District

34-3.1.27 ES Expressway Service District

A. INTENT

The ES expressway service districts are designed to provide for servicing needs of automobile highway traffic at the interchange areas of feeder roads and expressway facilities. The avoidance of undue congestion on feeder roads, the promotion of smooth traffic flow at the interchange area and on the freeway and the protection of adjacent properties in other zones from adverse influences of traffic are prime considerations in the application of this district.

? **User Note:** For uses listed in **bold blue**, refer to Article 4, or click on use, for use-specific standards

B. PRINCIPAL PERMITTED USES

The following uses are permitted subject to the required conditions in **Sections 34-3.12.**

i. **Gasoline service stations** § 34-4.28
ii. Parking garages
iii. Bus passenger stations
iv. Retail establishments to service the needs of the highway traveler including such facilities as drugstores, gift shops and restaurants (including fast food, drive-in and carryout restaurants),
v. Motels, hotels and transient lodging facilities but not including recreation vehicle camps or tent sites
vi. **Outdoor space for seating areas accessory to a restaurant** § 34-4.32
vii. **Cellular tower and cellular antennae** §34- 4.24
viii. Accessory structures and uses customarily incident to any principal permitted use

C. SPECIAL APPROVAL USES

i. Reserved

D. ACCESSORY USES

i. **Electric vehicle infrastructure** § 34-4.55
ii. **Parking structures** § 34-4.61

ES Expressway Service District

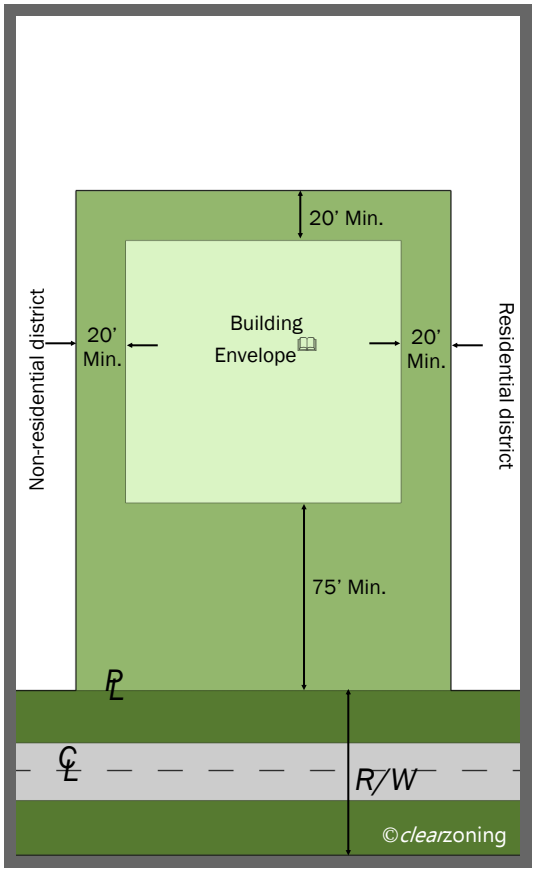
E. DEVELOPMENT STANDARDS

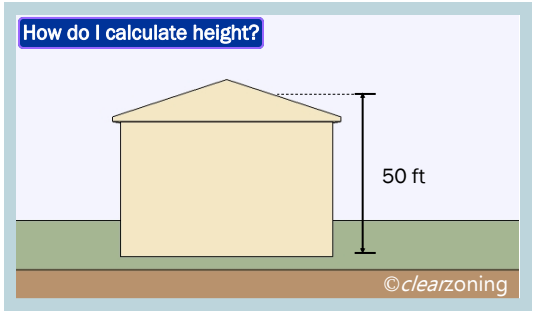
Lot Size
Minimum lot area: Not specified

Setbacks
Minimum front yard setback: 75 ft
Minimum rear yard setback: 20 ft
Minimum side yard setback: 20 ft
Minimum from residential district: 20 ft
Minimum from side street: 75 ft

Building Height
Maximum building height: 50 ft
Maximum number of stories: 3

Open Space
Front yard open space required 20%





The above drawings are not to scale.

NOTES

- For additions to the above requirements, refer to Section 34-3.5: A, J, K, L, N, T and U.

Δ Ord. No. C-5-2025

SELECTED REFERENCES

3. Zoning Districts
- General Exceptions § 34-3.26
- Planned Unit Development § 34-3.20

4. Use Standards
- Special Land Uses § 34-4.20
- Cellular Towers and Cellular Antennae § 34-4.24
- Standards for Cellular Towers § 34-4.24.8

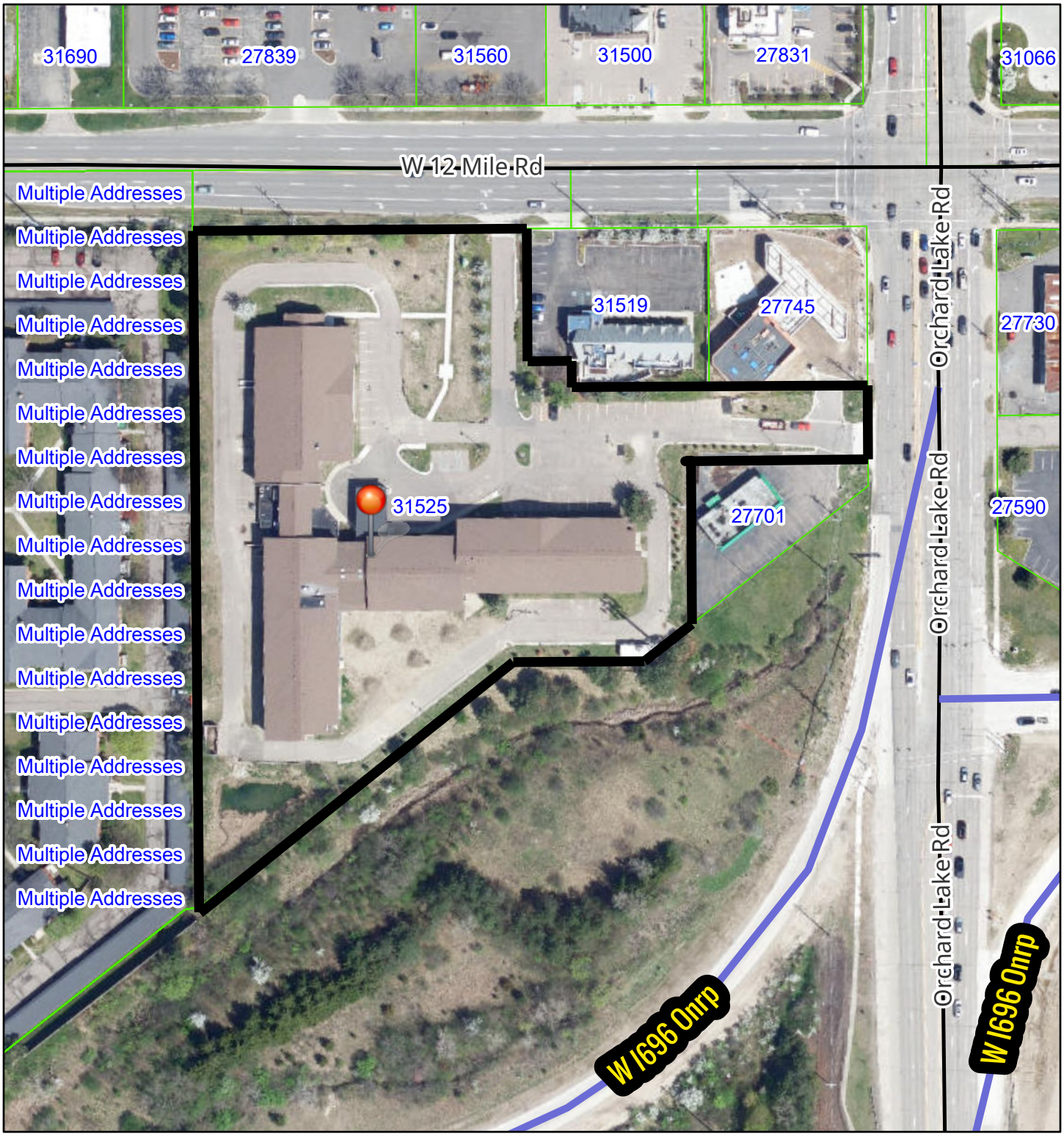
5. Site Standards
- Accessory Buildings and Structures § 34-5.1
- Off-street Parking Requirements § 34-5.2
- Off-street Parking Space Layout Standards § 34-5.3
- Off-street Loading and Unloading § 34-5.4
- Signs § 34-5.5
- Acceleration-deceleration Passing Lanes § 34-5.6
- Flood Zone Controls § 34-5.8
- Entranceway Structures § 34-5.9
- Corner Clearance § 34-5.10
- Frontage on Public Street § 34-5.11
- Fences § 34-5.12
- Access to Major or Secondary Thoroughfares § 34-5.13
- Landscape Development § 34-5.14
- Walls and Berms § 34-5.15
- Exterior Lighting § 34-5.16
- Screening of Rooftop Equipment § 34-5.17
- Tree Protection, Removal & Replacement § 34-5.18
- Pedestrian Access and Connectivity § 34-5.19

6. Development Procedures
- Site Plan Review § 34-6.1
- Notice of Public Hearing § 34-6.2
- Special Land Use and Special Approval Use Standards § 34-6.3

7. Admin and Enforcement
- Guarantee for Improvements § 34-7.2

AERIAL MAP

31525 W 12 MILE RD - AERIAL MAP



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Tax Parcels

1:2,167

0 0.01 0.03 0.05 mi

0 0.02 0.04 0.08 km

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

City of Farmington Hills, MI

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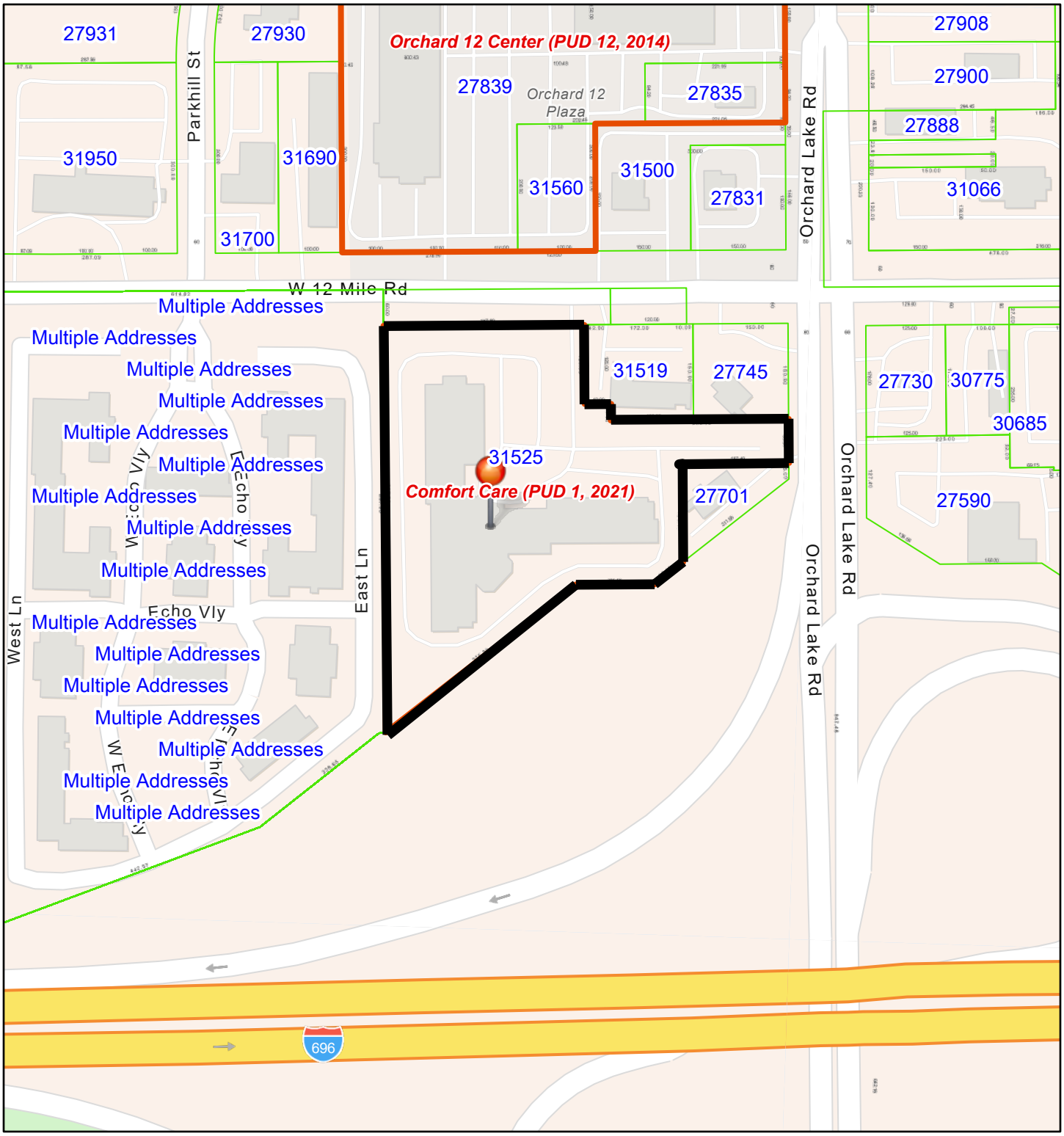
LOCATION MAP

31525 W 12 MILE RD - LOCATION MAP



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Planned Unit Development

Tax Parcels

1:3,612

0 0.02 0.04 0.09 mi

0 0.04 0.07 0.14 km

Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

City of Farmington Hills, MI

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CWA Review
November 9, 2026

Carlisle | Wortman
ASSOCIATES, INC.

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

Date: November 9, 2026

Qualification for PUD Option
for
The City of Farmington Hills

Applicant: Acre Farmington, LLC

Project Name: PUD Q1, 2026 – 31525 W. 12 Mile Road – Farmington Hills Apartments

Plan Date: October 26, 2026

Site: 31525 W. 12 Mile Road (Parcel ID: 22-23-15-201-270)

Zoning: ES, Expressway Service (PUD 1, 2021)

Action Requested: Qualification for PUD Option

PROJECT AND SITE DESCRIPTION

The applicant is requesting preliminary qualification for the Planned Unit Development (PUD) option to redevelop an existing three (3) story building into a multifamily residential building.

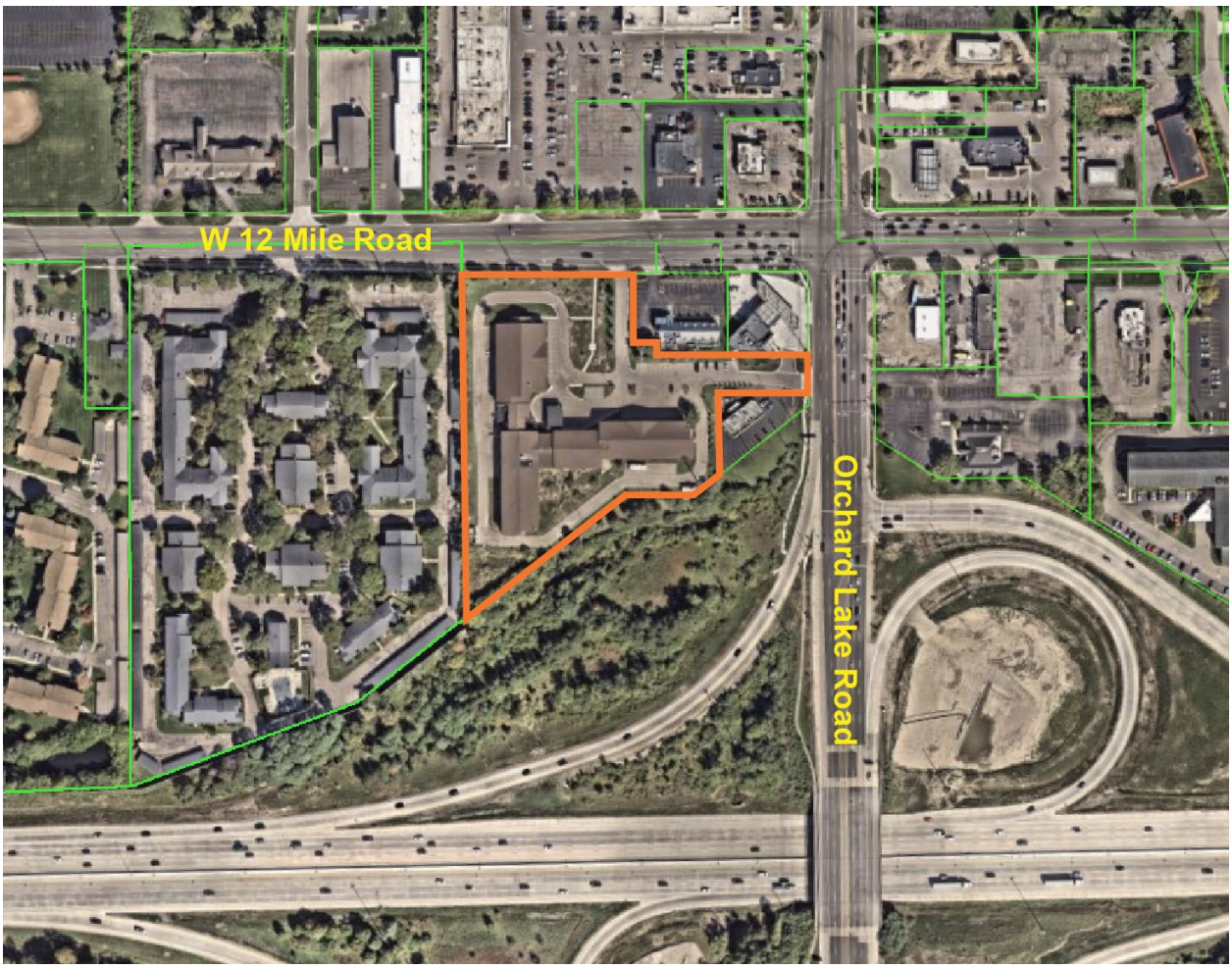
The subject property is located at the southwest corner of W. 12 Mile Road and Orchard Lake Road, and is approximately 4.95 acres in area. The existing building on the property is approximately 127,714 square feet in floor area and was originally developed as a 217-room hotel. The building is currently vacant. As shown in Figure 1, other existing site improvements include off-street parking, landscaping, and access drives from Orchard Lake Road and W. 12 Mile Road.

The property is governed by the Comfort Care Planned Unit Development (PUD 1, 2021) dated November 29, 2021 to allow the existing building to be converted into assisted living, memory care, and independent living senior units. Although a subsequent amendment to convert all units to independent living was approved by the Planning Commission and City Council in 2024, the amended agreement was not executed. While site improvements have been completed following the initial PUD approval, the property has remained vacant since the hotel closed. The applicant's request to develop the site as a multifamily residential use requires a new PUD qualification due to the significant difference between the proposed use and the previously approved PUD 1, 2021 plan.

Benjamin R. Carlisle, *President* John L. Enos, *Vice President* Douglas J. Lewan, *Principal*
David Scurto, *Principal* Sally M. Elmiger, *Principal* R. Donald Wortman, *Principal* Craig Strong, *Principal*
Paul Montagno, *Principal* Megan Masson-Minock, *Principal* Laura Kreps, *Principal*
Richard K. Carlisle, *Past President/Senior Principal*

The applicant is seeking a PUD to permit the proposed use within the ES District, where multifamily residential is not a principal permitted use. Uses that are not permitted in a district that is the basis of a PUD may be allowed if they are specifically noted on a PUD plan per Section 34-3.20.3.B. of the Zoning Ordinance.

Figure 1. Aerial Photo of the Subject Site and Approximate Lot Lines



According to the provided floor plans, the applicant is proposing to utilize the existing building to provide approximately ninety-five (95) multifamily dwellings. Sixty (60) will be one-bedroom units, and thirty-five (35) will be two-bedroom units. This number must be confirmed, as the site plan indicates that one hundred (100) units are proposed. The applicant is also proposing additional parking and replacement of a concrete pad with a pedestrian sidewalk.

Item to be Addressed: *The applicant must confirm the total number and types of dwellings being proposed.*

PLANNED UNIT DEVELOPMENT (PUD) QUALIFICATION CRITERIA

According to Section 34-3.20.5.A of the Zoning Ordinance, the Planning Commission must make a preliminary determination as to whether a parcel qualifies for the PUD option under the provisions of Section 34-3.20.2. A preliminary determination that the parcel qualifies will not assure a favorable

recommendation or approval of the PUD option, but is intended only to provide an initial indication as to whether the applicant should proceed to prepare a PUD plan upon which a final determination would be based. The Section 34-3.20.2 criteria, and our comments on the applicant's proposal according to those criteria, are as follows.

1) "The PUD option may be effectuated in any zoning district."

   CWA Comments: *The ES District is eligible for the PUD option as long as the remaining criteria under Section 34-3.20.5.A are met.*

2) "The use of this option shall not be for the sole purpose of avoiding the applicable zoning requirements. Any permission given for any activity or building or use not normally permitted shall result in an improvement to the public health, safety and welfare in the area affected."

   CWA Comments: *The proposal would reactivate a vacant site adjacent to a high-traffic intersection. While residential uses are not permitted in the ES District, the site has been vacant since the hotel ceased operations in (approximately) 2020. The site has not been redeveloped as a use permitted in the ES District, and the previously approved assisted and independent living uses have not come to fruition. As indicated by the applicant, the proposal would serve as a transition between the existing commercial uses to the east and residential development to the west.*

   The Planning Commission must determine whether the reuse of the property alone qualifies as an improvement to public health, safety, and welfare, as the proposal does not appear to offer additional public benefits. The most significant site modification shown on the plan is removing greenspace to accommodate the off-street parking required for multifamily residential uses, notably along the property's west lot line. Approximately eighty-five (85) parking spaces exist on-site, and 156 spaces are proposed. The building will otherwise utilize existing water and sanitary sewer services, and on-site stormwater management facilities.

   The applicant has indicated they are willing to work collaboratively with the City to incorporate "reasonable site, landscape, amenity, accessibility, and placemaking improvements." We recommend that the Planning Commission provide the applicants with direction about desired improvements, such as additional on-site landscaping and/or pedestrian amenities along the site's frontage. Please see criterion 5 for additional comments.

3) "The PUD shall not be utilized in situations where the same land use objectives can be accomplished by the application of conventional zoning provisions or standards. Problems or constraints presented by applicable zoning provisions shall be identified in the PUD application. Asserted financial problems shall be substantiated with appraisals of the property as currently regulated and as proposed to be regulated."

   CWA Comments: *The proposal could not be permitted under the current ES zoning or a rezoning to a multifamily district. The proposal exceeds the maximum density permitted in the RC-3 District, which allows the greatest density of the RC districts. According to Section 34-3.5.2.F, the minimum floor area per multifamily dwelling room in the RC-3 District shall not be less than 1,050 square feet of lot area per room. The currently proposed unit mix would provide approximately 958 square feet of lot area per room. Section 34-3.5.2.F specifies the number of rooms per unit type to be used in the density calculation.*

The proposal would also require a waiver of off-street parking spaces. According to Section 34-5.2.10.A.ii, two (2) parking spaces are required for each dwelling unit of three (3) rooms or less. A total of 190 parking spaces would be required if ninety-five (95) dwelling units are proposed. However, Section 34-5.2.11 of the Zoning Ordinance includes provisions for the Planning Commission to adjust the number of spaces required.

The applicant has indicated that their request is "based upon the physical and land-use characteristics of the property and the proposed adaptive reuse, rather than upon an asserted financial hardship." We recommend that the applicant specify the problems or constraints resulting from standard zoning provisions that necessitate a PUD for this site other than the proposed use.

4) "The Planned Unit Development option may be effectuated only when the proposed land use will not materially add service and facility loads beyond those contemplated in the Future Land Use Plan unless the proponent can demonstrate to the sole satisfaction of the city that such added loads will be accommodated or mitigated by the proponent as part of the Planned Unit Development."

CWA Comments: *The submitted schematic plan does not appear to make any changes to the existing building footprint or site utilities. The plan indicates that the development will utilize existing water, sanitary sewer, and stormwater management facilities. We defer to the City Engineer and Fire Department for comment about the proposal's potential impact on City services and facilities.*

The Planning Commission will need to determine if a multifamily redevelopment in this location is consistent with the Master Plan. The Plan generally envisions mixed residential and commercial development to the south of 12 Mile Road between Orchard Lake Road and Halsted Road. The Future Land Use Plan designates this area and the subject site as "12 Mile Mixed Use." The site is also in the "12 Mile Corridor" Special Planning Area. Development goals for the 12 Mile Mixed Use area include "…encourage[ing] the long-term redevelopment and infill development of the area with a greater mix of uses, including retail, restaurants, and personal services, entertainment, attached and multi-family residential."

While mixed use development is encouraged in this area, the 12 Mile Corridor Special Planning Area objectives envision multifamily redevelopment to the west of the subject site between Farmington Road and Drake Road.

5) "The Planned Unit Development must meet, as a minimum, one of the following objectives of the city:
    i. To permanently preserve open space or natural features because of their exceptional characteristics or because they can provide a permanent transition or buffer between land uses.
    ii. To permanently establish land use patterns which are compatible or which will protect existing or planned uses.
    iii. To accept dedication or set aside open space areas in perpetuity.
    iv. To provide alternative uses for parcels which can provide transition buffers to residential areas.

v. To guarantee the provision of a public improvement which could not otherwise be required that would further the public health, safety, or welfare, protect existing or future uses from the impact of a proposed use, or alleviate an existing or potential problem relating to public facilities.
vi. To promote the goals and objectives of the Master Plan for Land Use.
vii. To foster the aesthetic appearance of the city through quality building design and site development, the provision of trees and landscaping beyond minimum requirements; the preservation of unique and/or historic sites or structures; and the provision of open space or other desirable features of a site beyond minimum requirements.
viii. To bring about redevelopment of sites where an orderly change of use is determined to be desirable."

CWA Comments: *The proposal generally meets the following objectives:*

- ***Objective ii:*** *The proposed use, building, and site configuration is consistent with the multifamily residential dwellings to the west and commercial uses to the east.*
- ***Objective iv:*** *The proposed use provides a transition to the adjoining RC-2 District to the west by establishing a similar residential use on the subject site, which separates the RC-2 property from adjacent commercial uses and the W. 12 Mile Road and Orchard Lake Road thoroughfares.*
- ***Objective viii:*** *The redevelopment of the property as multifamily residential is consistent with the Master Plan's objectives for the 12 Mile Mixed Use area.*

However, the proposal would need to be updated to advance several specific Master Plan objectives for this area, which include the following:

- *Development should be planned with connections to neighboring uses in mind and focused on providing walkable environments where the convenience needs of residents and workers can be met without the need to drive for every trip.*
- *Create a pedestrian-friendly landscape and streetscape.*
- *Expand walkability in the corridor.*
- *Improve safety for all modes of travel along 12 Mile Road.*

We recommend that the applicant incorporate improvements that would contribute to the Master Plan's landscaping and walkability goals for the 12 Mile Road corridor.

6) The PUD shall not be allowed solely as a means of increasing density or as a substitute for a variance request; such objectives should be pursued through the normal zoning process by requesting a zoning change or variance.

CWA Comments: *According to the applicant, the PUD option would allow them to make productive use of an existing building, infrastructure, and the site's established development footprint. While the applicants are requesting an increase in density over what could be permitted through a rezoning, the Planning Commission may find that permitting the adaptive reuse of the site through the PUD process meets this criterion.*

PRELIMINARY PUD PLAN

According to Section 34-3.20.5.A.iii.b of the Zoning Ordinance, a request for PUD qualification must include a land use plan containing enough detail to explain the function of open space; the location of land use areas, streets providing access to the site, pedestrian and vehicular circulation within the site; dwelling unit density and types; and buildings or floor areas contemplated. In addition, the land use plan shall be defined by the districts of the zoning ordinance which are to be applicable to the parts of the PUD area. The dimensional requirements applicable within each district area must be designated on the plan, including any proposed modifications.

The applicant must specify the zoning district standards that will apply to the site, including any proposed deviations from Zoning Ordinance requirements.

Dimensional Standards		
Standard	**Required**	**Proposed**
Min. lot size	***Pending.*** *Applicable district requirements and deviations must be specified.*	215,622 s.f.
Min. lot width		315 ft.
Min. lot coverage		23%
Min. front setback		77 ft.
Min. side setback		68 ft./42 ft.
Min. rear yard setback		56 ft.
Max. building height		TBD
Max. number of stories		3 stories

Items to be Addressed: *The applicant must specify the zoning district standards that will apply to the site, including any proposed deviations from Zoning Ordinance requirements.*

SUMMARY

As required by Section 34-3.20.5.A, the Planning Commission must make the following preliminary determinations for PUD qualification:

1) *Whether the proposed use and site plan provide an improvement to the public health, safety and welfare in the area. As part of this assessment, the Commission must determine if the adaptive reuse of the existing building and site alone qualifies as a public benefit.*

2) *Whether the situation has problems or constraints that would prevent accomplishing the same land use objectives under conventional zoning provisions or standards. As part of this assessment, we recommend the applicant provide additional detail about the constraints that standard zoning options and existing site conditions create that necessitate a PUD for this site.*

3) *Whether the proposed use will materially add service and facility loads beyond those contemplated in the Future Land Use Plan.*

4) *Whether the proposal meets at least one of the objectives in Section 34-3.20.2.E. As part of this evaluation, we recommend that the Commission discuss how the development could incorporate improvements envisioned in the Master Plan that:*

    a. *Provide pedestrian connections to neighboring uses.*
    b. *Create a pedestrian-friendly landscape and streetscape.*
    c. *Expand walkability in the corridor.*
    d. *Improve safety for all modes of travel along 12 Mile Road.*

5) *Whether the request is being made solely as a means of increasing density or as a substitute for a variance request.*

In addition, the following items must be addressed to the Commission's satisfaction. All or some may be addressed as conditions of approval.

1) *The applicant must confirm the total number and types of dwellings being proposed.*

2) *The applicant must specify the zoning district standards that will apply to the site on the PUD plan, including any proposed deviations from Zoning Ordinance requirements.*

3) *Items identified by the City Engineer must be addressed.*

4) *Items identified by the City Fire Department must be addressed.*

CARLISLE/WORTMAN ASSOC., INC.
Mike Auerbach, AICP
Senior Associate

CARLISLE/WORTMAN ASSOC., INC.
Arin Yu
Community Planner

Engineering Review

November 10, 2026

DEPARTMENT OF PUBLIC SERVICES
JACOB RUSHLOW, P.E., DIRECTOR

INTEROFFICE CORRESPONDENCE

DATE: November 10, 2026

TO: Nora Brock, Secretary to the Director of Planning and Development

FROM: Mike Freckelton, Civil Engineer III

SUBJECT: Farmington Hills Apartments
PJ 15-26-47 – PUD Q1, 2026
23-15-201-270

A review of the above referenced site plan has been received by the engineering office on October 29, 2026 has been performed. Our preliminary review comments are as follows:

1. Sanitary sewer and water supply infrastructures are currently in place from past development. Ensure that these services will be adequate for the proposed development.

2. It appears that there is a section of pavement near the detention area that is failing. This pavement as well as any surrounding ground conditions should be repaired.

3. See the letter from the City Environmental Engineer for additional comments.

The construction set of plans will be subject to further review during the engineering review process. Please feel free to reach out to our department with any questions or concerns.

Sincerely,

Mike Freckelton, PE
Civil Engineer III

31555 West Eleven Mile Road • Farmington Hills MI 48336
Administration • 248.871.2530 Phone Engineering • 248.871.2560 Phone 248.871.2561 Fax

Public Works • 27245 Halsted Road • Farmington Hills MI 48331 • 248.871.2850 Phone • 248.871.2851 Fax

Environmental Review

November 9, 2026

DEPARTMENT OF PUBLIC SERVICES
JACOB RUSHLOW, P.E., DIRECTOR

City of Farmington Hills
Environmental Review

Project Name: Farmington Hills Apartments Project

Address: 31525 12 Mile Road
PJ 15-26-47 – PUD Q1, 2026
Plan Dated: 10-26-2026

Plan Received: 10-28-2026
Review #: 1
Review Date: 11-9-2026

As requested, I have conducted a plan review of the above reference engineering plans. I have the following comments:

1. The existing detention pond needs to be graded to it's original design elevations. Provide a survey showing the design volume is equal to the original design. Dredging of the pond and removal of vegetation or sediment may be required to ensure inlets and outlets are functioning properly and that the pond has sufficient capacity.
2. It appears erosion in the pond is causing damage to the pavement abutting the detention pond. Restore the slopes per original design.

Should you have any questions, please do not hesitate to call.

Respectfully submitted,

Tyler Sonoga
Civil/Environmental Engineer
Department of Public Services

cc: City of Farmington Hills, M. Saksewski

Traffic Engineering Review

November 12, 2026

DEPARTMENT OF PUBLIC SERVICES
JACOB RUSHLOW, P.E., DIRECTOR

INTEROFFICE CORRESPONDENCE

DATE: November 12, 2026

TO: Ms. Diane Mulville-Friel, City Planner

FROM: Nicholas Nicita, PE, PTOE, Traffic Engineer

SUBJECT: Farmington Hills Apartments (Parking Lot Only) FH Job No. PUDQ12026
Planned Unit Development Qualification Submittal – Traffic Impact Review #1

At your request, Traffic Engineering has performed a review of the proposed Farmington Hills Apartments Parking Lot Site Plans by Gateway Engineering dated October 26, 2026. The proposed parking lot improvements occur in the southwest quadrant of 12 Mile Road (31525 12 Mile Road) and Orchard Lake Road. The site plan indicates the planned unit development (PUD) will consist of 100 total dwelling units and 156 parking spaces. Traffic Engineering has the following traffic comments regarding the PUD qualification submittal:

≡ General

1. Orchard Lake Road and 12 Mile Road are under the jurisdiction of the Road Commission for Oakland County. If the driveway approaches within the right-of-way are modified, the applicant needs to apply for a ROW permit with RCOC at the time of preliminary site plan submittal.

≡ Site Plans

2. Sheet C2.1 indicates the existing building footprint is to remain as is, but the land use will change. The applicant will need to provide information on the land use and expected trip generation to determine if a traffic impact study or assessment is required at the time of preliminary site plan submittal.
3. Turning paths of a fire truck navigating the site are needed to verify that the curb radii are large enough to accommodate all turns. The turning paths of a fire truck circulating the site will need to be shown and approved by Fire Safety to verify they can access all critical areas (hydrants and spigots) at the time of preliminary site plan submittal.

Traffic Engineering has reviewed the site plans with the above traffic exceptions noted. The applicant will need to follow the city's preliminary site plan procedures when the apartments are ready to be developed. From a traffic standpoint only, Traffic Engineering finds the PUD submittal to be acceptable.

Fire Review

November 5, 2026

FIRE

FARMINGTON HILLS

INTEROFFICE CORRESPONDENCE

DATE: **November 5, 2026**

TO: **Planning Commission**

FROM: **Jason Baloga, Fire Marshal**

SUBJECT: **PUD Q1-2026 – Farmington Hills Apartments Project**
31525 W. Twelve Mile Road - 22-23-15-201-270

The Fire Department has no objection to approval of this proposed site plan contingent upon compliance with the following requirements:

1. Sites shall be designed to accommodate fire apparatus with a 50’ turning radius.

2. Proponent shall consider onsite generator or other form of approved long-term emergency power for the building in the event of a long term power outage.

3. Proponent shall provide elevator access within the building. Consideration shall be given to an elevator capable of accommodating Farmington Hills Fire Department staff and an EMS stretcher in the supine position.

4. EV Chargers shall be installed according to all applicable codes and NFPA Standards. EV Chargers shall have disconnected signage approved by the Fire Department and electrical inspector.

5. Any interior modifications shall be subject to applicable permits through the City’s Building Department.

6. An entire re-review will be required of the fire suppression system, fire alarm system, and proposed Kitchen suppression system.

7. Re-acceptance tests shall be required for kitchen, fire alarm and fire suppression systems.

8. An Emergency Responder Radio Coverage system shall be required if it is determined that signal strength is not adequate.

9. The minimum clearance between the finished roadway surface and any overhead obstruction shall be 13’ 6”.

10. The Fire Department Connection (FDC) shall be a 5" Storz with a 30° downturn. The location of the FDC shall be approved by the Fire Department.

11. If a fire pump is required, a diesel pump or on-site generator shall be provided; DTE is not considered a reliable power source.

12. In multiple story building, provide floor control valves with water flow and tamper switches for each floor.

13. No parking fire lane signs shall be posted and strictly enforced.

14. The building shall be properly maintained and in accordance with Fire Prevention Code requirements.

Jason Baloga, Fire Marshal

JB/ss

Narrative Description

8155 Annsbury Drive Suite 109
Shelby Township MI 48316

Office # 586-786-5533
Email: info@gatewayengineer.com

October 07, 2026

PUD Qualification Criteria

31525 W. Twelve Mile Road
Farmington Hills Apartments
Parcel No. 22-23-15-201-270

The applicant respectfully requests qualification of the approximately 4.95-acre property at 31525 W. Twelve Mile Road under the Planned Unit Development Option pursuant to Section 34-3.20 of the City of Farmington Hills Zoning Ordinance.

The proposal is for the adaptive reuse and completion of the existing three-story former hotel building as a high-quality, market-rate multifamily residential development consisting primarily of one- and two-bedroom dwelling units together with resident amenities, improved landscaping and outdoor spaces, pedestrian improvements, and related site enhancements.

The request is based not simply upon the proposed use, but upon the particular characteristics of this already-developed property, its existing building and infrastructure, its relationship to surrounding land uses, and the opportunity to place a substantially underutilized property into a stable and compatible long-term use.

Criteria:

A. Availability of the PUD Option

The property is currently zoned ES, Expressway Service District. The PUD Option may be utilized within any zoning district where the applicable qualification criteria are satisfied.

Multifamily residential use is not otherwise permitted within the ES District. The PUD process therefore provides an appropriate mechanism for the City to evaluate the proposed adaptive reuse comprehensively, including the proposed use, site relationship, landscaping, amenities, circulation, infrastructure, and other improvements as an integrated development plan.

B. The PUD is not being utilized solely to avoid applicable zoning requirements and will provide a public benefit

The requested PUD is not intended solely to avoid the requirements of the underlying ES zoning district. Rather, it provides an opportunity for the orderly redevelopment of an existing three-story building and substantially developed site that is no longer functioning as its original hotel use.

The proposed redevelopment will further the public health, safety and welfare by returning an underutilized property to productive long-term use; reinvesting in an existing building and infrastructure; establishing a compatible transition between surrounding residential, commercial and expressway-oriented uses; improving the landscaped and pedestrian environment of the property; and providing new housing within an already-developed area of the City.

The project will also incorporate applicable ADA accessibility requirements throughout the redevelopment, including accessible routes, entrances, common areas and dwelling units as required by applicable codes and standards.

Importantly, the applicant is committed to working collaboratively with the City throughout the PUD and site plan review process and is prepared to incorporate reasonable site, landscape, amenity, accessibility and placemaking improvements that further the City's objectives and strengthen the project's relationship to the surrounding community.

C. The same land-use objectives cannot reasonably be accomplished through conventional zoning

The proposed multifamily use cannot be accomplished under the property's existing ES zoning classification. At the same time, simply applying another conventional zoning district would not address the unusual circumstance presented by this property: an existing three-story former hotel building, established site circulation and infrastructure, existing parking and open-space areas, and a site configuration originally developed for a materially different use.

The PUD process allows the City to evaluate the redevelopment of the property as a whole rather than attempting to apply conventional standards developed primarily for new development to an existing building and established site.

The property previously received PUD qualification for an earlier residential adaptive-reuse proposal based upon many of the same site-specific characteristics and land-use considerations that remain present today. The current request is a new PUD

qualification for a different multifamily proposal, but the fundamental characteristics of the property that make a planned approach appropriate remain substantially unchanged.

The request is therefore based upon the physical and land-use characteristics of the property and the proposed adaptive reuse, rather than upon an asserted financial hardship.

D. Public services and infrastructure

The proposal represents the adaptive reuse of an existing developed property utilizing established access, utilities, drainage facilities and other site infrastructure.

Because the project reuses the existing building and development footprint rather than introducing a substantially larger new development, the proposed use is not anticipated to create public service or facility demands that cannot be accommodated by the existing or planned infrastructure serving the area.

Any utility, engineering, stormwater, access or other infrastructure improvements determined to be necessary will be coordinated with City staff and the appropriate agencies through the PUD and site plan review process.

E. Objectives of the PUD Option

The proposed redevelopment directly advances several of the City's stated PUD objectives, including the same principal objectives previously recognized by the City in connection with the redevelopment of this property.

- **Objective ii: Compatible Land-Use Pattern**

The proposed multifamily redevelopment establishes a compatible long-term land-use pattern at a uniquely situated property.

Existing multifamily residential development is located immediately to the west, while commercial and Expressway Service uses are located to the north and east and the I-696 corridor is located to the south. Residential reuse of the existing building is compatible with the established multifamily use to the west while maintaining an appropriate relationship with the more intensive commercial and highway-oriented uses surrounding the remainder of the property.

The proposal therefore reinforces an existing residential land-use pattern rather than introducing an isolated or incompatible use.

- **Objective iv: Transition Between Land Uses**

The property occupies a natural transition point between the existing multifamily residential development to the west and the commercial, Expressway Service and highway-oriented uses to the north, east and south.

Redevelopment of the property as multifamily housing provides an appropriate transition between these uses while maintaining the existing building footprint and established site configuration.

The proposed use is significantly more compatible with the adjoining residential development than many of the more intensive commercial or expressway-oriented uses that could otherwise occupy property within the ES District.

- **Objective vii: Aesthetic Appearance, Landscaping, Open Space and Desirable Site Features**

The redevelopment will provide substantial reinvestment in both the existing building and surrounding site and will be developed as a high-quality, market-rate, amenity-rich residential community.

Existing landscaped and open-space areas will be maintained and enhanced, with additional opportunities for greenscaping, pedestrian circulation and usable resident outdoor space incorporated as the site plan develops. The large existing lawn and open-space areas provide opportunities for walking areas and outdoor amenities such as a dog park or similar resident recreation space.

The applicant is also prepared to work with the City regarding additional reasonable placemaking elements identified through the review process, including enhanced landscaping, pedestrian amenities and opportunities for public art that contributes positively to the identity of the property and the City of Farmington Hills.

These improvements are intended not merely to satisfy minimum site requirements, but to improve the appearance, functionality and community value of the property.

- **Objective viii: Orderly Redevelopment**

The proposed project represents precisely the type of orderly redevelopment contemplated by the PUD Option.

The property contains a substantial existing building originally constructed and operated as a hotel. The site was subsequently approved for redevelopment as a senior living facility, and redevelopment work was initiated but not ultimately completed. The current

multifamily proposal provides an opportunity to complete that reinvestment and establish a stable, viable long-term use for the existing building and site.

Adaptive reuse as multifamily housing allows the existing structure and infrastructure to be completed, improved and placed into productive use rather than remaining partially completed, vacant or underutilized. Reuse of the existing structure also avoids unnecessary demolition and replacement of a substantial building and limits the need for a materially larger development footprint.

The proposed project therefore represents an orderly evolution of an established site in response to changing land-use conditions while preserving and improving the property's principal physical assets.

F. The PUD is not being requested solely to increase density or as a substitute for a variance

The requested PUD is not being pursued solely for the purpose of increasing residential density and is not intended as a substitute for a variance.

The fundamental purpose of the request is to establish an appropriate long-term use for an existing building and substantially developed property where the proposed multifamily use cannot be accommodated under the existing ES zoning classification.

The proposed density, unit mix, parking, open space, landscaping, amenities and other development standards will be evaluated comprehensively through the PUD and site plan review process. The applicant is prepared to work with the City to refine those components as necessary to achieve a development plan that is both viable and consistent with the City's planning objectives.

The proposed redevelopment presents an opportunity to transform an underutilized former hotel property into a high-quality residential community while making productive use of the existing building, infrastructure and established development footprint.

The site's location between existing multifamily residential development, commercial uses and the I-696 corridor makes it particularly well suited to serve as a transitional residential property. The proposal supports compatible land-use patterns, orderly redevelopment, reinvestment in an existing property, enhanced landscaping and open space, improved pedestrian and resident amenities, and thoughtful placemaking.

The applicant intends to be an active and cooperative partner throughout the City's review process and is prepared to incorporate reasonable improvements and recommendations that further the City's objectives and contribute positively to the surrounding community.

For these reasons, the property satisfies the applicable qualification criteria of Section 34-3.20 and advances Objectives ii, iv, vii and viii of the Planned Unit Development Option. The applicant respectfully requests that the Planning Commission grant PUD Qualification for the proposed redevelopment of 31525 W. Twelve Mile Road.

Sincerely,

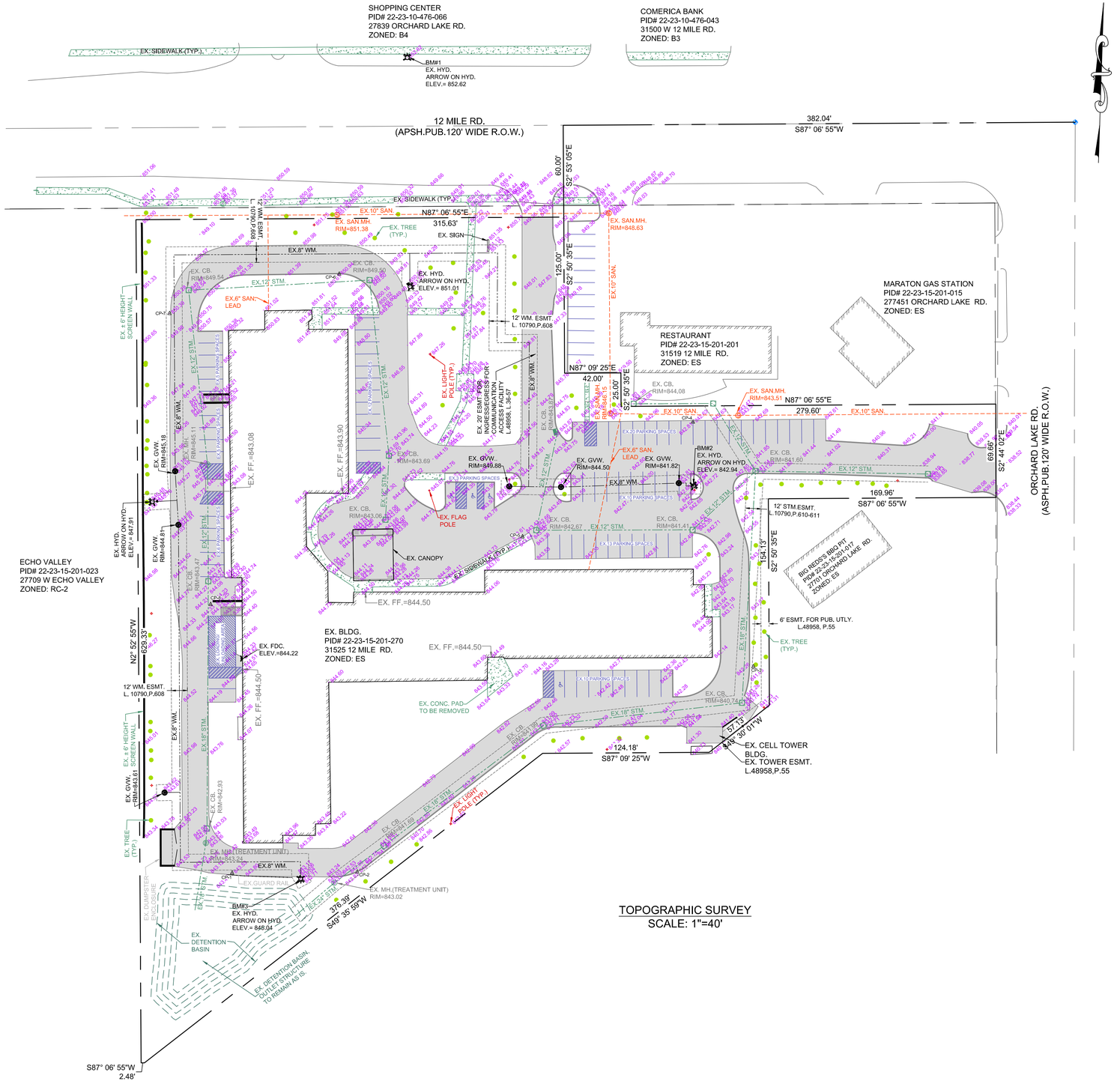
Odette Giorgees, RA. NCARB

Lead Architect

Gateway



Site Plan



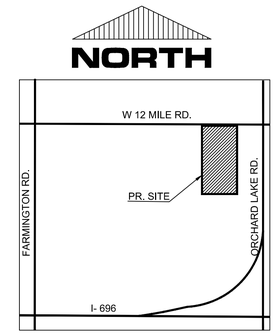
TOPOGRAPHIC SURVEY
SCALE: 1"=40'

BENCHMARKS: (NAVD 88 - BY GPS)

BM#1 (CITY BENCHMARK):
EX. HYDRANT LOCATED IN THE 12 MILE RD. R.O.W. ON THE NORTH SIDE OF THE PROPOSED SITE.
ARROW ON HYD. ELEV.=852.62

BM#2 (SITE BENCHMARK):
EX. HYDRANT LOCATED IN THE CENTER OF THE PARKING LOT OF THE PROPOSED SITE.
ARROW ON HYD. ELEV.=842.94

BM#3 (SITE BENCHMARK):
EX. HYDRANT LOCATED IN REAR YARD ON THE SOUTH PART OF EX. BLDG.
ARROW ON HYD. ELEV.=845.04



LOCATION MAP
NOT TO SCALE

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

FLOODPLAIN NOTE:

SUBJECT PROPERTIES (ZONE X) ARE IN AN AREA OF MINIMAL FLOOD HAZARD.
FLOOD ZONE. FIRM MAP NUMBER: 26125C0651F
EFFECTIVE DATE: SEPTEMBER 29,2006

SOIL LEGEND:

41B - AQUENTS,SANDY, LOAMY UNDULATING
59 - URBAN LAND

SETBACK REQUIREMENTS:

FRONT SETBACK	75 FEET
SIDE SETBACK	20 FEET
REAR SETBACK	20 FEET
RESIDENTIAL SETBACK	20 FEET

LEGAL DESCRIPTION: 31525 W 12 MILE ROAD

PIN 23-15-201-270

LEGAL DESCRIPTION (AS FURNISHED BY CLIENT):
A PARCEL OF LAND IN THE NORTHEAST 1/4 OF SECTION 15, T1N, R9E, FARMINGTON HILLS, OAKLAND COUNTY, MICHIGAN, MORE PARTICULARLY DESCED AS: COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 15; THENCE S87°06'55"W 382.04 FEET ALONG THE NORTH LINE OF SAID SECTION; THENCE S02°53'05"E 60.00 FEET FOR A POINT OF BEGINNING; THENCE S02°50'35"E 125.00 FEET; THENCE N87°09'25"E 42.00 FEET THENCE S02°50'35"E 25.00 FEET; THENCE N87°06'55"E 279.60 FEET TO THE WEST RIGHT OF WAY LINE OF ORCHARD LAKE ROAD; THENCE S02°44'02"E 69.66 FEET ALONG SAID RIGHT OF WAY; THENCE S87°06'55"W 169.96 FEET; THENCE S02°50'35"E 154.13 FEET TO THE NORTHERLY RIGHT OF WAY LINE OF I-696; THENCE ALONG SAID RIGHT OF WAY THE FOLLOWING FOUR COURSES: S49°30'01"W 57.13 FEET, S 87°09'25"W 124.18 FEET, S49°35'59"W 376.39 FEET AND S87°06'55"W 2.48 FEET; THENCE N02°52'55"W 629.33 FEET TO THE SOUTH RIGHT OF WAY OF 12 MILE ROAD; THENCE N87°06'55"E 315.63 FEET ALONG SAID RIGHT OF WAY TO THE POINT OF BEGINNING, CONTAINING 4.91 ACRES.

LEGEND

- EXIST. STORM SEWER
- EXIST. OVERHEAD UTILITY
- EXIST.GUARD RAIL LINE
- EXIST. WATERMAIN
- EXIST. SANITARY LINE.
- EXIST. GAS LINE
- EXIST. HYDRANT
- EXIST. LIGHT POLE
- EXIST. GATE WELL
- EXIST. ROAD CATCH BASIN
- EXIST. STORM CATCH BASIN (BEEHIVE)
- EXIST. SANITARY MANHOLE
- EXIST. SIDEWALK CONC.PAVT.
- EXIST. ASPH.PAVT.

NOT FOR CONSTRUCTION UNLESS APPROVED BY MUNICIPALITY

LEGEND
R-O-W = RIGHT OF WAY
P.O.B = POINT OF BEGINNING
FI = FOUND IRON
FCI = FOUND CAPPED IRON
S-PR COR = SET PROPERTY CORNER
N ; E ; S ; W = NORTH; EAST; SOUTH; WEST
P.I.D.# = PARCEL IDENTIFICATION NUMBER
T./R. = TOWN/RANGE
L/P. = LIBER/PAGE
R/M. = RECORD/MEASURE

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

UTILITY WARNING
UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THE PLAN, WERE OBTAINED FROM UTILITY OWNER AND NOT FIELD LOCATED.

A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY MISS DIG AND ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK CAN BEGIN.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND/OR RELOCATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533
www.gatewayengineer.com

ALL CONTRACTORS SHALL verify and coordinate all dimensions on the job before commencing work. Any discrepancies shall be reported immediately to Gateway Engineering. No extra will be allowed for work done between these plans, Building Ordinances, Statutes, and Regulations unless approved in writing by the Owner and Gateway Engineering. Contractor must comply with the local, if construction rules and regulations governing the work.

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GATEWAY ENGINEERING & SURVEYING LLC
2026

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PROJECT INFORMATION:

FARMINGTON HILLS APARTMENTS

31525 WEST 12 MILE RD.
FARMINGTON HILLS, MI 48334

PARCEL ID # 23-15-201-270

CLIENT INFORMATION:

SAMAN ABRO
PHONE#: 248-679-6456
EMAIL:
ABRO2017@ICLOUD.COM

STATE OF MICHIGAN
JOSEPH VAGLICA
License No. 6201050340
PROFESSIONAL ENGINEER

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

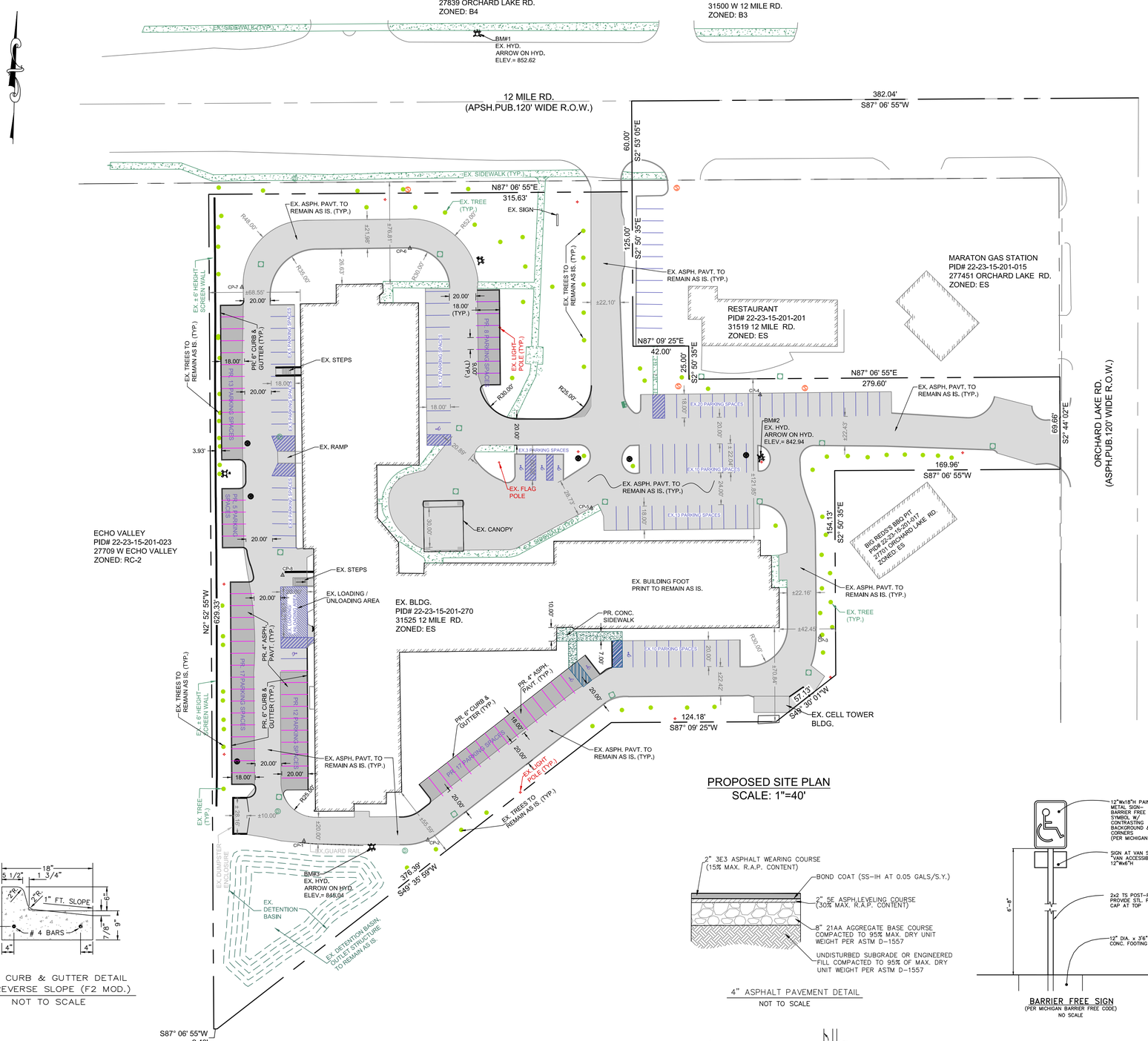
NO.	DESC.	DATE
1,	PSP	10/26/2026

REVIEWED BY:	J.V.
DESIGNED BY:	M.G.
DRAWN BY:	V.V.

DRAWING:
TOPOGRAPHIC SURVEY

NO. C1.1

PROJECT NO. 26-0902



PROPOSED SITE PLAN
SCALE: 1"=40'

BENCHMARKS: (NAVD 88 - BY GPS)

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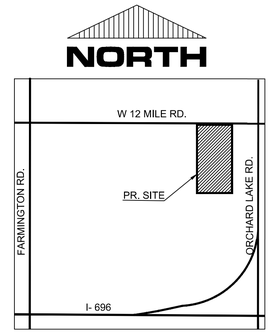

LOCATION MAP
NOT TO SCALE

GRAPHIC SCALE

40 0 20 40 80 160

(IN FEET)
1 inch = 40 ft.

PROJECT : MULTIPLE FAMILY

LEGAL DESCRIPTION: 31525 W 12 MILE ROAD

PIN 23-15-201-270

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LOCAL AGENCY: CITY OF FARMINGTON HILLS PLANNING DEPARTMENT
31555 W ELEVEN MILE RD.
FARMINGTON HILLS, MI 48336

EXISTING ZONING: ES- EXPRESSWAY SERVICE DISTRICT
PROPOSED LAND USE: PUD - MULTIPLE FAMILY RESIDENTIAL (PR. 100 UNITS APARTMENT)

GROSS AREA OF SITE	= ± 213,879.6 SF. (4.91 ACRES)
EX. GROSS BUILDING FOOT AREA	= 49,193 S.F.
EX. BUILDING SITE COVERAGE	= ± 23.00%
EX. AREA OF PAVEMENT (ROAD & SIDEWALK)	= ± 79,575 S.F.
PR. AREA OF ADDED PAVEMENT	= 11,048.34 S.F.

PR. GROSS SITE COVERAGE BY IMPERVIOUS SURFACE (BUILD., PAVT., ETC.)
= ± 65.37% (±139,816.34S.F.)

WATER SUPPLY: MUNICIPAL - EXISTING SERVICE LEAD
SANITARY: MUNICIPAL - EXISTING SERVICE LEAD
STORM/DETENTION: MUNICIPAL - EXISTING SERVICE LEAD

NOTE: ALL UNDERGROUND UTILITIES TO REMAIN AS IS.

* SIGN IS NOT PART OF THIS APPROVAL. (EX. SIGN LOCATION AND SIZE TO REMAIN AS IS.)

PARKING CALCULATIONS:

REQUIRED PARKING:
REFERENCE CITY OF FARMINGTON HILLS ZONING ORDINANCE SEC. 34-5.2 :

RESIDENTIAL MULTIPLE- FAMILY: TWO (2) FOR EACH DWELLING UNIT OF THREE (3) ROOMS OR LESS; TWO AND ONE-HALF (2 1/2) FOR EACH DWELLING UNIT OF FOUR (4) OR MORE ROOMS

PROPOSED TOTAL UNITS: 60 (ONE BEDROOM) + 40 (TWO BEDROOM) = 100 UNITS .
PR. PARKING SPACES (PUD): (100 UNITS X 1.5) = 150 PARKING SPACES.

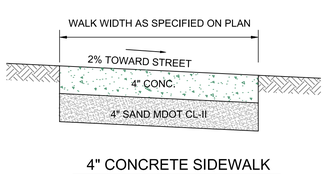
TOTAL EXISTING PARKING SPACES = 87 SPACES. (INCL. 6 H.C. SPACES)

TOTAL PROPOSED PARKING SPACES (INCLUDING EX. PARKING SPACES)
= 156 PARKING SPACES. (INCL. 8 H.C. SPACES)

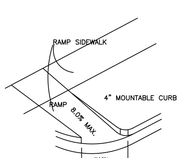
CONC. CURB & GUTTER DETAIL
WITH REVERSE SLOPE (F2 MOD.)
NOT TO SCALE

4" ASPHALT PAVEMENT DETAIL
NOT TO SCALE

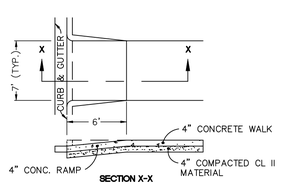
BARRIER FREE SIGN
(PER MICHIGAN BARRIEN FREE CODE)
NO SCALE



4" CONCRETE SIDEWALK
N.T.S.



HDC RAMP DETAIL 'H'
NOT TO SCALE



WHEEL CHAIR RAMP AND
TYPICAL SIDEWALK DETAIL
NO SCALE

NOTE:
1. IF ANY DISCREPANCY BETWEEN THESE PLANS AND CITY / TWP. STANDARDS OCCURS THE CITY / TWP. STANDARDS SHALL GOVERN..
2. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
3. "NO PARKING-FIRE LANE" SIGNS SHALL BE INSTALLED AND MAINTAINED AS DESIGNATED BY THE FIRE MARSHAL.
4. AN EMERGENCY ACCESS LANE, AS REQUIRED IN ORDINANCE 145, SHALL BE PROVIDED PRIOR TO THE START OF CONSTRUCTION UNLESS THE PERMANENT HARD SURFACE IS INSTALLED PRIOR TO CONSTRUCTION.
5. PRIOR TO CONSTRUCTION, ALL LOCATION AND DEPTHS OF EXISTING OVERHEAD AND UNDER-GROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD.
6. DURING CONSTRUCTION, CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR OVERHEAD AND/OR BURIED UTILITIES, CALL MISS DIG.
7. MUNICIPAL UTILITES (WATER, SANITARY AND STORM SEWER) ARE TO BE BROUGHT ON SITE BY THE DEVELOPER FROM EXISTING SOURCES IF NECESSRY.

LEGEND

- EXIST. HYDRANT
- EXIST. UTILITY POLE
- EXIST. GATE WELL
- EXIST. ROAD CATCH BASIN
- EXIST. STORM CATCH BASIN (BEEHIVE)
- EXIST. SANITARY MANHOLE
- EXIST. ROAD SIGN BOARD
- EXISTING ASPH. PAVT.
- PROPOSED 4" ASPH. PAVT.
- PROPOSED CONC. WALK & SIDEWALK

NOT FOR CONSTRUCTION UNLESS APPROVED BY MUNICIPALITY

72 HOURS
(3 WORKING DAYS)
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

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GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533
www.gatewayengineer.com

AEC (architects and) certify and coordinate all dimensions on the plans and shop drawings with the actual conditions and shall report any discrepancies with the work. Construction this drawing are to conform with all applicable codes, ordinances and regulations.

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GATEWAY ENGINEERING & SURVEYING (G.E.S.)
2026

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PROJECT INFORMATION:

FARMINGTON HILLS APARTMENTS

31525 WEST 12 MILE RD.
FARMINGTON HILLS, MI 48334

PARCEL ID # 23-15-201-270

CLIENT INFORMATION:

SAMAN ABRO
PHONE#: 248-679-6456
EMAIL:
ABRO2017@ICLOUD.COM

STATE OF MICHIGAN
JOSEPH VAGLICA
License No. 6201050340
LICENSED PROFESSIONAL ENGINEER

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1,	PSP	10/26/2026

REVIEWED BY:	J.V.
DESIGNED BY:	M.G.
DRAWN BY:	V.V.

DRAWING:
PROPOSED SITE PLAN

NO. C2.1

PROJECT NO. 26-0902

Minutes – Planning Commission Meeting
October 15, 2026

DRAFT

CITY OF FARMINGTON HILLS
PLANNING COMMISSION MEETING
31555 W ELEVEN MILE ROAD
FARMINGTON HILLS, MICHIGAN
OCTOBER 15, 2026 7:30 P.M.

1. CALL MEETING TO ORDER

The Planning Commission Meeting was called to order by Chair Lindquist at 7:30pm.

2. ROLL CALL

Commissioners present:	Banks, Brickner, Countegan, Lindquist, Mantey, Stimson, Ware
Commissioners Absent:	Grant, Trafelet
Others Present:	City Planner Mulville-Friel, City Attorney Schultz

3. APPROVAL OF AGENDA

MOTION by Brickner, support by Ware, to approve the agenda as published.
Motion passed unanimously by voice vote.

4. REGULAR MEETING

A. SITE PLAN APPROVAL 61-9-2026

LOCATION:	30775 W. Twelve Mile Rd.
PARCEL I.D.:	22-23-14-101-015
PROPOSAL:	Renovations to an existing building exterior façade and request a waiver from the applicable design standards within the B-3, General Business District.
ACTION REQUESTED:	Site Plan Approval
APPLICANT:	Jax Kar Wash
OWNER:	BMW Kar Wash dba Jax Kar Wash

Staff Report

Referencing her October 9, 2026 review memorandum, City Planner Mulville-Friel provided the background and review for this request for site plan approval for 30775 W. Twelve Mile Road, near the southeast corner of 12 Mile and Orchard Lake Roads. The applicant was requesting approval to renovate the exterior façade of the existing Jax Kar Wash facility and obtain waivers from applicable building design standards in the B-3, General Business District.

City Planner Mulville-Friel highlighted the following points:

In general:

- The property consists of approximately 0.4 acres and contains a 2,628-square-foot, single-story car wash that has operated at the location for approximately 30 years. The proposed improvements include replacing the existing EIFS façade with porcelain tile, corrugated metal decking, Nichiha fiber cement panels, and decorative glass blocks. Door and window frames would be replaced, an interior window removed, and the existing dumpster and transformer enclosures cleaned and painted.

- Vehicle washes require special approval use in the B-3 District; however, because this use is existing no new special approval is required.
- The site contains 19 angled parking spaces with vacuum stations, access from 12 Mile Road, an access drive from Orchard Lake Road, and cross access to the property to the south. Landscaping is limited to a small island in the southeast corner.
- The site has multiple nonconforming wall and ground signs; any nonconforming signs removed during renovations cannot be replaced. Any new signage must comply with Section 34-5.5.

Regarding design standards

- The proposed north façade complies with the City's primary building material requirements. However, the east façade provides 58% compliant materials, and the west façade provides 53%, compared to the required 60%. The deficiencies are primarily attributable to the proposed corrugated metal material.
- The Planning Commission is the approving authority for the requested waivers. The Commission had three options:
  a. Grant full waivers accepting the proposed design,
  b. Deny the waivers and require full compliance, or
  c. Grant partial waivers requiring modifications to one or both deficient façades.
- The proposed building also does not meet the required 60% fenestration standard applicable along Orchard Lake Road, a major thoroughfare. The north and east façades have no fenestration, while the west façade provides approximately 12%. The Commission has the same three options as listed above: grant full waivers, require full compliance, or approve partial waivers. Approval of a fenestration waiver requires a finding that at least one of the four applicable ordinance conditions is satisfied, as outlined in the draft motions provided to the Commission.
- Existing site nonconformities generally do not require correction unless affected by the proposed improvements. Staff identified the building façade as the primary area requiring review and waiver consideration.
- Any approval should also address outstanding comments from the Planning, Engineering, and Fire reviews, including plan corrections and clarifications identified in the staff memorandum.

Planning Commission discussion

Commissioner Mantey asked about the extent of the proposed building material deficiencies, particularly the blue corrugated metal associated with Jax Kar Wash's corporate identity. He asked the applicant to clarify how much of the material would need to be reduced or replaced to satisfy the City's 60% primary building material requirement.

Commissioner Mantey asked about the purpose of the City's fenestration requirements. City Planner Mulville-Friel responded that fenestration improves building aesthetics, prevents buildings from appearing bunker-like, and provides natural light to interior spaces.

Commissioner Mantey pointed out that fenestration also serves a public safety purpose by providing visibility between building occupants and pedestrians, potentially deterring criminal

activity. Fenestration along the fronts of buildings is particularly important. In the present instance, the car wash's overhead door would be open during operations. He encouraged the Commission to consider both aesthetics and public safety when evaluating the requested waivers.

Commissioner Brickner sought clarification regarding the proposed materials on the north façade. City Planner Mulville-Friel explained that the brown material proposed for the north façade complies with the City's primary building material requirements, while the blue corrugated metal proposed elsewhere does not.

Commissioner Brickner questioned whether BS&A records should be used to provide legal descriptions. City Attorney Schultz advised that the legal description included on the plans must ultimately satisfy the City Assessor's requirements.

Applicant presentation
Todd Gesund, Chief Strategic Officer of Jax Kar Wash, 26777 Central Park Boulevard, Southfield, was present on behalf of this application for site plan approval. Project architect Tim Fought, 24045 Woodland Drive, Southfield, was also present.

Mr. Gesund explained that the facility, formerly operated as Super Car Wash, was constructed in the 1970s and last substantially updated in the mid 1980s. The proposed improvements were intended to modernize the aging building, improve its competitiveness, and establish a consistent appearance with other Jax Kar Wash locations. As already noted, proposed materials included Nichiha siding, porcelain tile, and blue corrugated metal siding consistent with the company’s current design standards.

Mr. Gesund explained that installing additional fenestration on the north façade would be impractical because of existing electrical equipment and operational components occupying the limited wall space. Relocating this equipment would be costly and likely stop the project.

Mr. Fought explained that reducing the blue corrugated metal band to meet the City’s building material standards would require substantial structural modifications to the existing overhang along both sides of the building. Additional fenestration would also be impractical because of the existing interior layout, including the location of the building’s mechanical room, electrical equipment, employee restroom, work areas, and car wash machinery. The project would not expand the building, alter its existing configuration, or modify exterior lighting. Discrepancies identified in the submitted drawings had been addressed, and no interior speakers or televisions were proposed. The submittal had contained the previously approved site plan, reflecting improvements made approximately three years earlier.

Mr. Gesund confirmed that existing building signage would be removed and separate permits would be obtained for proposed replacement signage.

Mr. Fought requested a full conditional waiver of the applicable building design requirements.

Commission deliberation
Commissioner Countegan asked about the facility's financial performance, operational limitations, and proposed investment. Mr. Gesund responded that the location is among the company's more successful facilities because of its proximity to Twelve Mile and Orchard Lake Roads, despite significant space constraints. The 0.4 acre parcel and approximately 2,600 square foot building are substantially smaller than the company's preferred newer facilities, which generally require at least 1.25 acres and contain 5,000 to 6,000 square feet. The existing 110 foot wash tunnel is shorter than the preferred 130 to 140 foot configuration. Limited space also creates conflicts between customer queuing and vacuum operations, and portions of the vacuum area must be closed during winter for snow storage.

Mr. Gesund stated that approximately $500,000 has been budgeted for the proposed renovations. Previous improvements included two payment stations installed in 2023 at a cost of approximately $200,000 and vacuum equipment installed in 2016 at an estimated cost of $75,000 to $100,000. No substantial improvements to the building exterior had been completed during the company's ownership.

Chair Lindquist discussed the public safety considerations associated with the fenestration requirements. He noted that customers remain in their vehicles while traveling through the wash tunnel rather than entering the building on foot. Mr. Gesund added that there is no walk-in customer service area and employees must access the restroom from outside the building.

Chair Lindquist asked about the proposed replacement windows. Mr. Gesund explained that existing windows have experienced water intrusion and damage from debris propelled during car washing operations. The proposed glass blocks would be more durable while maintaining natural light, and a window would remain in the employee preparation area. Mr. Fought pointed out that existing skylights provide additional natural light throughout the wash tunnel.

Commissioner Mantey revisited the building material deficiency, estimating that the approximately 30 square feet of noncompliant material distributed along the building would represent only several inches of the blue band. Mr. Fought acknowledged that the dimensional difference was relatively small but reiterated that modifying the existing structural overhang would involve significant reconstruction.

Chair Lindquist indicated he was ready to entertain a motion.

MOTION by Brickner, support by Countegan, in the matter of SP 61-9-2026, the Jax Kar Wash project at 30775 W. 12 Mile Rd, to approve the Preliminary Site Plan because the information provided in the proposal **meets** the requirements of Section 34-6.1 of the City of Farmington Hills Zoning Ordinance and applicable Zoning Ordinance requirements subject to the following:

1. ***Existing Non-Conformities***
   Option A: Permit Non-Conformity
   The Planning Commission hereby acknowledges and accepts all pre-existing dimensional nonconformities.
2. ***Design Standard for Building Materials***

Option A: Grant Waiver To Permit Proposed Design

The Commission recognizes that the north façade as proposed is compliant and grants a waiver to allow the minimum primary building material percentages for facades as follows: east (58%), and; west (53%) because the proposal achieves a specific architectural objective AND the materials are compatible with the surrounding development.

3. Design Standard for Fenestration

Option A: Permit Proposed Design

The Commission grants a waiver to allow the north and east façades to have 0% and the west façade to have 12% of the required fenestration because

a. *The proposal achieves a specific architectural objective: updating a building that has been in Farmington Hills since the 1970s.*
b. *The proposal uses compatible material. The tile and the block windows will be compatible. The proposal eliminates EIFS, which is no longer allowed on building facades close to the ground. The applicants are complying with the City's new design standards.*
c. *The proposal faces a practical difficulty in that the building is not changing in any dimension: The applicants are improving the appearance of the building.*

Approval is also subject to the following conditions:

1. *The items identified in the October 9, 2026 Planning Office review letter must be addressed to the reasonable satisfaction of the City Planner;*
2. *The items identified in the September 29, 2026 Engineering Division review letter must be satisfied to the reasonable satisfaction of the City Engineer;*
3. *The items identified in the September 21, 2026 Fire Department review letter must be addressed to the reasonable satisfaction of the Fire Marshal.*

Motion passed unanimously by voice vote (7-0).

B. APPROVAL OF MINUTES September 17, 2026

MOTION by Stimson, support by Banks, to approve the September 17, 2026 regular meeting minutes as submitted.

Motion passed unanimously by voice vote, 7-0.

C. PUBLIC COMMENT

None

D. COMMISSIONER/STAFF COMMENTS

Staff Planner Mulville-Friel thanked Commissioners for attending this evening's training session prior to the regular meeting. She noted that there will be a second part to the training session on October 29. There will likely be a regular meeting on November 19. A special meeting will be scheduled to discuss potential code amendments regulating data centers in the City.

E. ADJOURNMENT

MOTION by Banks, support by Ware, to adjourn the meeting.

Motion passed unanimously by voice vote.

The meeting ended at 8:15pm.

Respectfully submitted,
Tanji Grant
Planning Commission Secretary

/cem