

CITY OF IONIA
PLANNING COMMISSION
REGULAR MEETING AGENDA
4:30 PM, Wednesday, August 12, 2026
IONIA CITY HALL - COUNCIL CHAMBERS

I. Call to Order

II. Roll Call

III. Approval of Agenda

IV. Approval of Minutes

1. June 10, 2026 – Regular Meeting

V. Public Comments

VI. Public Hearings and Associated Action

VII. Old Business

1. Amended Final Site Plan Review for 421 and 431 W. Lincoln Ave.

VIII. New Business

1. Joint Work Session with City Council

IX. Commissioner Comments

X. Adjournment

Next Meeting - September 9, 2026

PUBLIC PARTICIPATION POLICY: The City of Ionia Planning Commission encourages public comment on agenda and non-agenda items. Those desiring to speak should do so under Public Comments at the beginning of the meeting. After that point during the meeting public comments are not normally allowed. The Chairperson may limit the amount of time allowed for each person wishing to make comments during the meeting.



CITY OF IONIA
PLANNING COMMISSION
REGULAR MEETING MINUTES
4:30 PM, Wednesday, June 10, 2026
IONIA CITY HALL - COUNCIL CHAMBERS

I. CALL TO ORDER

Chairperson Bailey called the meeting of the Ionia Planning Commission to order at 4:30 PM.

II. ROLL CALL

Roll call revealed a Quorum with Planning Commissioners Logan Bailey, Ryan Gregory, Keturah Kelley, Tim Lee, and Judy Swartz present. Commissioner Michael Donaldson was absent.

III. APPROVAL OF AGENDA

Chairperson Bailey introduced the agenda and asked if there were any requested changes. Planning Commissioner Lee made a motion, seconded by Planning Commissioner Kelley, to approve the agenda as presented.

MOTION CARRIED BY VOICE VOTE.

IV. APPROVAL OF MINUTES

(IV.1.) May 13, 2026 – Regular Meeting

Minutes from the regular meeting of May 13, were reviewed. Planning Commissioner Lee made a motion, seconded by Planning Commissioner Kelley, to approve the May 13, 2026, meeting minutes as presented.

MOTION CARRIED BY VOICE VOTE.

V. PUBLIC COMMENTS

None.

VI. PUBLIC HEARINGS AND ASSOCIATED ACTION

(VI.1.) Public Hearing to receive comments on Ordinance No. 606 to amend Chapter 1286: Miscellaneous Regulations

Assistant City Manager Bowman highlighted a few small changes made since the last meeting to clarify the rules for temporary campgrounds.

Chairperson Bailey opened the public hearing for comments on Ordinance No. 606 at 4:39 PM and subsequently closed the public hearing at 4:39 PM after no public comments were made.

Chairperson Bailey made a motion, seconded by Planning Commissioner Swartz, to recommend

that City Council approve Ordinance No. 606, an ordinance to amend Chapter 1240 "General Provisions and Definitions," Section 1240.11 "Definitions," to add new definitions as subsections 95A and 102 A and to renumber subsection 102 accordingly; and to amend Chapter 1286 "Miscellaneous Regulations" of Title Six "Zoning," Part Twelve "Planning and Zoning" of the Codified Ordinances of the City of Ionia, County of Ionia, State of Michigan.

MOTION CARRIED BY VOICE VOTE.

VII. OLD BUSINESS

None.

VIII. NEW BUSINESS

None.

IX. COMMISSIONER COMMENTS

Logan Bailey: (1) Noted disappointment in Jason Perry's resignation from the Commission; (2) Requested an update on the Mayor's search for a new commissioner.

Assistant City Manager Bowman: Noted that the Mayor is actively searching to fill the vacancy and encouraged anyone interested in serving on the Planning Commission to submit an application.

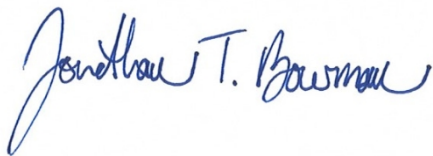
X. ADJOURNMENT

Planning Commissioner Kelley made a motion, seconded by Planning Commissioner Lee, to adjourn.

MOTION BY VOICE VOTE.

The meeting was adjourned at 4:41 PM.

Respectfully Submitted,

A handwritten signature in blue ink that reads "Jonathan T. Bowman". The signature is written in a cursive, flowing style.

Jonathan T. Bowman, Recording Secretary
for Judy Swartz, Secretary



STAFF REPORT FOR PLANNING COMMISSION AGENDA ITEM

Agenda Item: VII.1

TO: Planning Commissioners

FROM: Jonathan Bowman, Assistant City Manager

DATE: August 12, 2026

RE: Amended Final Site Plan Review for 421 and 431 W. Lincoln Ave.

Background:

On July 9, 2025, Planning Commission approved a final site plan for a redevelopment project by Bazco Holdings on the corner of Dexter Street (M-66) and Lincoln Avenue (M-21) located at 421 and 431 W. Lincoln Avenue. The renovation will convert the former Rite Aid building into a convenience store and coffee shop concept with the rest of the property being used for a gas station and car wash. As part of this approval, Planning Commission made a condition that the site plan must be brought back to the Commission for review if any changes were made to the site plan during the Michigan Department of Transportation's (MDOT) review process.

Based on MDOT's feedback, the applicant has resubmitted the site plan for Planning Commission's review. Changes to the plan since the previous approval include the driveway along M-66 being converted to a right-in/right-out only design, removal of two gasoline pumps, a shift in the rear parking and dumpster configuration, and slight adjustments to traffic flow on the site. Following this communication are the concept renderings, site plan, application, staff report from the City's Planning Consultant, traffic study, driveway designs from MDOT, and a motion sheet.

Requested Action / Motion:

Motion By:

Seconded By:

MEMORANDUM

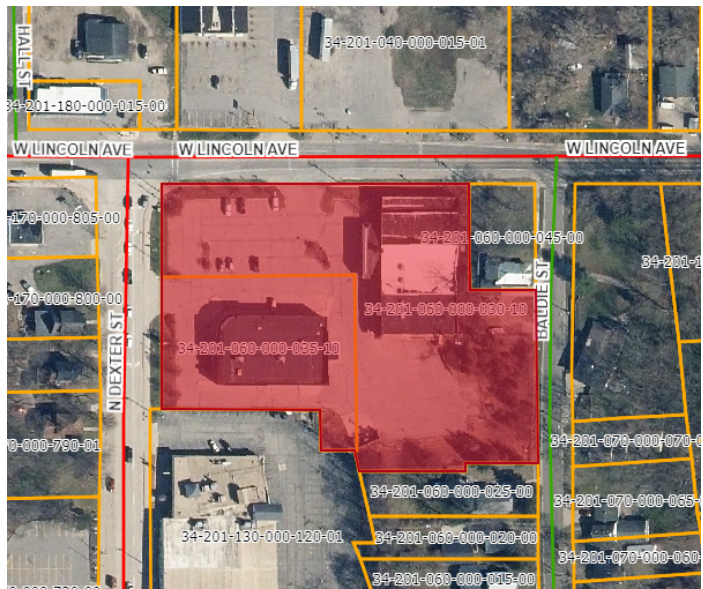
To: City of Ionia Planning Commission
Date: August 5, 2026
From: Bradley S. Kotrba, AICP
RE: **431 W Lincoln Avenue Final Site Plan Review UPDATE**

Bazco Holdings, LLC, the applicant, has applied to renovate an existing structure into a convenience store and gas station, as well as to remove an existing structure on site for the construction of a new car wash facility. This memorandum reviews the updated site plan set resubmitted by the applicant since the June 11, 2025, and July 9, 2025, Planning Commission meetings.

Background. This application pertains to two parcels, specifically identified as 34-201-060-000-030-10 and 34-201-060-000-035-10, both of which are designated for B-3, General Business

District zoning. The applicant plans to convert the 11,146 square foot former Rite Aid Pharmacy building into a convenience store and a drive-through restaurant, either Tim Hortons or Dunkin' Donuts. The design for the new gasoline station includes a broad canopy covering 8 pump islands, with a total of 16 pumps. A 4,600-square-foot tunnel car wash will be constructed after the demolition of the vacant commercial property located on the east side of the site. It's proposed that the two access driveway locations will not change, but adjustments have been made for circulation and parking.

Completeness of Submittal. Section 1276.06 lists items that must be included in all site plans unless expressly modified or waived by the Planning Commission or Zoning Administrator. We find that the site plan is generally complete for review.



Setbacks and Dimensional Requirements. The table offers the Commissioners a current dimensional site review with the latest information.

B-3 District	Standard	Proposed			Compliant
Lot Area (min.)	n/a	3.14 acres			YES
Lot Width (min.)	n/a	283 ft. (Dexter St.) 383 ft. (Lincoln Ave.)			YES
Height	n/a	18 ft. (convenience store)			YES
		24 ft. (carwash)			
		Unknown (canopy)			
Setbacks		Store	Canopy	Car wash	
Front Yard	30 ft.	65.5 ft. (Dexter)	50' 11" (Dexter)	n/a	YES
		160 ft. (Lincoln)	62' 1" (Lincoln)	82 ft. (Lincoln)	YES
Side Yard Setback	10 ft.	37 ft.	n/a	40 ft. (east prop. Line)	YES
Rear Yard	n/a (corner lot)	n/a	n/a	n/a	YES
Lot Coverage (max.)	n/a	14.48%			YES

Access/Circulation. The Lincoln Avenue access point remains largely unchanged, but the Dexter Street access point has been substantially modified, as depicted in the site plan. Access to the property is provided by two 40-foot-wide driveways. The first driveway is 190 feet from the corner of Lincoln Avenue and Dexter Street, while the second is 135 feet from that same intersection. Dexter Street's access point has been updated to comply with MDOT guidelines, now featuring a right-turn-only exit for vehicles leaving the property onto northbound Dexter Street and a right-turn-only entrance from northbound Dexter Street. As a result, left turns from Dexter Street southbound onto the property will be prohibited. Public Safety's confirmation at the June 11, 2025 Planning Commission meeting indicated that emergency vehicles have sufficient access to the property, in accordance with Zoning Ordinance Section 1276.07(h). Sheet SP-5 outlines the truck routes on the property, detailing the suggested turning movements. The proposed circulation patterns in front of and behind the convenience store, as well as around the canopy, are designed to accommodate semi-trucks and should therefore also meet the turning requirements for fire trucks and passenger vehicles.

To improve traffic flow, the applicant expanded the drive aisle in front of the proposed convenience store from 20 feet to 23 feet 6 inches. The parking spaces at the convenience store, when added to those at the gas pump island across the way, measure a combined width of 71 feet and six inches. To better serve the facility, a one-way drive aisle behind the current structure will be used for stacking vehicles at the drive-thru restaurant, since space constraints prevent a two-way system. In times of heavy traffic, the stacking area for the drive-thru can grow to considerable length; the number of provided spaces should be sufficient. Additionally, the applicant has incorporated pedestrian crosswalks, markings, and pathways linking the convenience store to the city's sidewalk system on the adjacent streets.

Parking. Calculations based on the site's three core components—a car wash, a drive-thru restaurant, and a convenience store—dictate the parking requirements. We could also use the calculations for a gasoline service station, and the overall parking space requirements for the two scenarios only differ by a handful of spots. A combined total of 65 parking spaces will be required for the convenience store (38), the drive-through restaurant (12), and the automatic car wash (15). In order to sufficiently accommodate the gasoline service station (47 spaces), the drive-through restaurant (12 spaces), and the automatic car wash (15 spaces), 74 parking spaces in total are necessary. It's important to note that these figures exclude staff at the car wash and the convenience store/gas station. The applicant stated at the June 11, 2025 Planning Commission meeting that their store and gas station would employ a total of five people at most, and their car wash operation would have a maximum of three employees. Based on the highest need of 74 spaces, plus eight more spaces for employees, the total space requirement is raised to 82. The facility has 78 parking spots, which is insufficient when all 8 employees are present. The 78 spaces proposed satisfy the baseline requirement for the intended uses; however, they cannot accommodate the entire workforce. The Planning Commission ought to confer with the applicant, given that with a total of 8 employees hired for the site, it's unlikely they'll all be present simultaneously. As a result, those four extra spots may prove to be functional for the number of employees present per shift.

Parking spaces are designated in the proposal as being 20 feet deep by 10 feet wide. Three parking spaces must be accessible according to ADA guidelines, and it seems the applicant intends to provide three such spaces. The ordinance standards are met for all standard and barrier-free space requirements. A designated area for truck loading and unloading has been identified to the east of the building.

Signage. The application materials do not include any information regarding a proposal for new signage at the site. The initial designs and elevations show two wall signs. Prior to installation, all signs must meet the conditions detailed in Section 1234 of the Ordinance, and a sign permit is required for approval.

Lighting. Included in the submission was a photometric plan from the applicant. The lighting calculations show that the illumination level in the Dexter Street driveway is low, approximately 5.3 lumens, because of where the light poles are positioned. According to city regulations, lighting must be directed downwards and shielded, or installed at a right angle to the ground. According to the proposal's specifications, wall-pack lights will be installed on the buildings, pole lights in the parking areas, and recessed lighting under the pump canopy. The exterior wall-mounted lights are positioned to shine straight down, perpendicular to the building's facade, and are shielded to reduce light pollution and glare for adjacent buildings and properties.

Landscaping. Section 1286.02 of the city's zoning ordinance specifies the landscaping requirements that apply to all properties. A landscaped buffer is required in the southeast corner and east side of the site, adjacent to Medium Density Residential (MDR) district properties and residential uses, to provide screening.

Buffer Zone Requirements:

- East Buffer Zone. Per Section 1286.02(f), approximately 198 linear feet of buffering are needed to effectively buffer the eastern residential area, necessitating the planting of eight (8) canopy trees, sixteen (16) evergreen trees, and eight (8) ornamental trees. For this project, the total number of trees provided is 32 (8 canopy, 17 evergreen, 8 ornamental) including 47 shrubs/perennials. Therefore, there is no deficiency in this proposal.
- South Buffer Zone. A 224-foot-long buffer zone separates the property from the adjacent Multiple-Density Residential (MDR) district to the south. In order to create a sufficient buffer for this area, under the specifications outlined in Section 1286.02(f), it would be necessary to plant nine (9) canopy trees, eighteen (18) evergreen trees, and nine (9) ornamental trees to meet all the section standards. In the buffer zone, where the July 9th amended plan made a substantial improvement by introducing fifteen trees—a detailed plan includes six canopy trees, three evergreens, and six ornamental trees; however, there was a shortage of 21 trees. Since then, the new plan submitted includes seven (7) canopy trees, eighteen (18) evergreens, and nine (9) ornamental trees. This is only deficient three (3) trees, those being two (2) canopy trees (tulip trees).

Front Yard Landscaping:

- Front Yard Landscaping. Ordinance Section 1286.02(n) requires front-yard landscaping. For every 75 feet of road frontage, plant one canopy, one ornamental, and one evergreen tree. There needs to be an equal number of shrubs and trees. There's roughly 282 linear feet of frontage on Dexter Street. Consequently, 12 trees (four of each type) and 12 shrubs are required from the applicant for this road frontage. The applicant proposes four (4) canopy trees, four (4) evergreens, and four (4) ornamental trees. Besides the trees, the applicant's plan includes 14 shrubs. Approximately 464 linear feet of frontage on Lincoln Avenue needs six of each tree type and eighteen shrubs. Seventeen trees and seventeen shrubs are proposed by the applicant, consisting of six (6) canopy trees, four (4) evergreen trees, and six (6) ornamental trees. Dexter Street meets the frontage requirements, but Lincoln Avenue is short two (2) evergreen trees. It contains the property number of shrubs.

Parking Lot Landscaping:

- Parking Lot Landscaping. Section 1286.03(o) specifies that parking lots must have landscaping. For every 20 parking spaces, plant one canopy tree nearby. The 78 proposed spaces (excluding stacked spaces) require 4 trees. Only one parking lot island (car wash) features a dedicated tree, and an additional six (6) are around the dumpster area. Fifty percent of the buffer zone and frontage canopy trees can meet the parking lot tree requirements. The applicant easily met this requirement.

In summary, the total number of trees exceeds the requirement by two (2) trees, while the placement of these doesn't meet the Lincoln Avenue evergreen and South buffer requirements. The parking lot landscaping requirements have been met; however, the landscaping appears to have undergone additions and rearrangement, particularly clear in the buffer zones, which initially lacked any plantings. The Planning Commission should discuss with the applicant further. The Planning Commission may consider this, the overall number of trees on site is greater than necessary; only a few are located in other areas (parking lot) rather than along Lincoln Avenue or the Southern Buffering zone as required. You could consider the parking lot trees that were counted in excess of those required to also be added to the buffering requirement to make up the lack of two (2) trees.

Landscaped Area	Required Amount			Application Amount Proposed			Count
	Canopy	Evergreen	Ornamental	Canopy	Evergreen	Ornamental	
East Buffer Zone (198 ft.)	8	16	8	8	16	8	0 trees
South Buffer Zone (224 ft.)	9	18	9	7	18	9	-2 trees
Dexter St. Front Yard (282 ft.)	4	4	4	4	4	4	0 trees
Lincoln Ave. Front Yard (464 ft.)	6	6	6	6	4	6	-2 trees
Parking Lot	4	n/a	n/a	10	n/a	n/a	+4 trees
TOTAL	31	44	27	35	42	27	+4

Waste Handling. The applicant has moved the dumpster enclosure further south and increased the storage from two containers to three containers. The plan also includes a three-sided screening wall and a gate for the enclosure. This meets the ordinance requirements (Sec. 1286.02(m)).

Site Plan Review. The Planning Commission must also consider the standards found in Section 1276.07 of the Zoning Ordinance. Below are those standards, along with our comments.

- (b) The Planning Commission shall have the authority to limit the number of driveways for a site, to require that parking lots on contiguous parcels be connected, that driveways for contiguous parcels be shared, and that opposite driveways be directly aligned.

Comment. The Lincoln Avenue access point remains largely unchanged, but the Dexter Street access point has been substantially modified, as depicted in the site plan. Access to the property is provided by two 40-foot-wide driveways. The first driveway is 190 feet from the corner of Lincoln Avenue and Dexter Street, while the second is 135 feet from that same intersection. Dexter Street's access point has been updated to comply with

MDOT guidelines, now featuring a right-turn-only exit for vehicles leaving the property onto northbound Dexter Street and a right-turn-only entrance from northbound Dexter Street. As a result, left turns from Dexter Street southbound onto the property will be prohibited. The Planning Commission, after careful review and consideration, may decide that this standard is adequately met.

- (c) Landscaping shall be provided and designed in accordance with the City's landscape provisions.

Comment. As previously discussed, the Planning Commission may require additional dialogue with the applicant to clarify the landscaping elements of the application. Nevertheless, the Commission is empowered to adjust or waive landscaping compliance requirements at its discretion. It's advised that the Planning Commission engage in additional dialogue with the applicant to resolve any inconsistencies or concerns with the distribution of the plantings.

- (d) All elements of the site plan shall be designed to take into account the site's topography, the size and type of lot, the character of adjoining property, and the type and size of buildings. The site shall be developed so as not to impede the normal and orderly development or improvement of surrounding property for uses permitted in this Zoning Code.

Comment. The Commission must take into account that the site in question has already been developed and contains a number of retail buildings. The applicant's site redevelopment strategy involves refurbishing the former Rite Aid location and demolishing the present commercial building to make way for a new car wash. The Planning Commission's assessment should find that this standard is deemed to be satisfactorily met.

- (e) The landscape shall be preserved in its natural state, insofar as practical, by removing only those areas of vegetation or by making those alterations to the topography which are reasonably necessary to develop the site in accordance with the requirements of this Zoning Code. A development shall respect the natural resources of the City.

Comment. The site was developed many years ago. The Planning Commission may consider this standard to be irrelevant or applicable in this instance.

- (f) Areas of natural drainage, such as swales, wetlands, ponds, or swamps, shall be protected and preserved insofar as practical in their natural state to provide areas for natural habitat, preserve drainage patterns, and maintain the natural characteristics of the land.

Comment. It should be noted that the site currently under consideration has already undergone significant development and construction. No natural areas will be disturbed during the process of this renovation. Natural drainage will be managed through a

combination of onsite infiltration and discharge into the existing city storm sewer network to handle excess runoff. The Planning Commission may consider this standard reasonably met.

- (g) The site plan shall provide reasonable visual and sound privacy for all dwelling units located therein. Fences, walls, barriers, and landscaping shall be used, as appropriate, to accomplish these purposes.

Comment. It's important to note that the property has significant natural borders on its east and south sides, though much of this vegetation is overgrown and likely to be cleared. The landscaping analysis above concludes that the property contains an excess amount of 4 trees on site, but that some of the required trees along Lincoln Avenue and the Southern buffer area are lacking. As such, the Commission may agree that the overabundance of parking lot trees may be used for the buffering requirement due to the proposed installation location; however, it does not solve the deficiency of two evergreen trees along Lincoln Avenue. The Planning Commission does have the authority to waive or alter this requirement if it feels that the number of trees overall on site exceeds the requirements, while the excess of trees is located in the parking lot landscaping and not the streetscape. The Planning Commission should weigh this and make a determination if it agrees, or if it feels that two additional trees should be relocated or added to Lincoln Avenue's frontage requirement.

- (h) All buildings or groups of buildings shall be arranged to permit necessary emergency vehicle access as requested by the City Fire Department.

Comment. Concerning emergency vehicle access, the site plan's specifications for fire truck maneuvers show there is plenty of room between buildings. The Planning Commission has received comments from the Department of Public Safety that this is satisfactory.

- (i) In recognition that a sidewalk system along City streets would enhance pedestrian safety and conserve energy through non-motorized transportation opportunities, sidewalks shall be required as determined by the Planning Commission during the site plan review process. Sidewalks, if required, shall be constructed in accordance with the City of Ionia sidewalk standards. Additions to or renovations of buildings existing as of the effective date of this chapter that require site plan review shall be subject to the requirements herein. In determining the need for a sidewalk, the following criteria shall be considered:

- 1) The amount of current and future pedestrian traffic passing by the site.
- 2) Whether a sidewalk would enhance the safety of pedestrians currently walking by the site, as well as the safety of future pedestrians.
- 3) The existing and future volume of traffic on the street abutting the site.
- 4) The existence or probability of sidewalks being constructed on adjacent properties in order to create or complete a usable sidewalk system.

- 5) The location of the proposed use.
- 6) The location of pedestrian attractors, such as schools, churches, public buildings, and shopping opportunities.

Comment. The existing sidewalks along the northern and western property lines are proposed to remain and appear to be in good condition. In addition, the site plan adds connections from the site to the building and visible crosswalk and pedestrian right of way markings. The Planning Commission may find that this standard is satisfactorily met.

- (j) The arrangement of public or common ways for vehicular and pedestrian circulation shall be connected to existing or planned streets and pedestrian or bicycle pathways in the area. Streets and drives that are part of an existing or planned street pattern serving adjacent development shall be of a condition appropriate to the traffic volume and type of traffic they will carry.

Comment. The arrangement of common ways for vehicular and pedestrian circulation is unlikely to change or be significantly impacted. The Planning Commission may find that this standard is satisfactorily met. MDOT has reviewed the plans and required that the applicant install a modified ingress/egress point along Dexter Avenue to prevent entering onto or exiting from the southbound Dexter Street lanes from the property. The Planning Commission may consider this standard to be satisfactorily met.

- (k) Appropriate measures shall be taken to ensure that the removal of surface waters will not adversely affect neighboring properties or the public stormwater drainage system. Provisions shall be made to accommodate stormwater, prevent erosion, particularly during construction, and prevent the formation of dust. The use of detention/retention ponds may be required. Surface water on all paved areas shall be collected at intervals so that it will not obstruct the flow of vehicular or pedestrian traffic or create puddles in paved areas. The Planning Commission may, at its discretion, require catch basins to contain oil filters or traps to prevent contaminants from being discharged into the natural drainage system.

Comment. No surface water is present on site. The applicant has moved the location of the underground storage tanks to the northwest corner of the property to provide room for the City sewer easement that traverses the property. In addition to the aforementioned changes, several catch-basins have also been repositioned to facilitate the project's completion. The City's Department of Public Works will be the point of contact for any additional discussions that may arise during the construction process.

- (l) Exterior lighting shall be arranged so that illumination is deflected away from adjacent properties and so that it does not interfere with the vision of the motorist along adjacent streets. Flashing or intermittent lights shall not be permitted. Excessive lighting of buildings or structures shall be minimized to reduce light pollution. Street lights that

conform to the City of Ionia specifications for street lighting shall be installed on the right-of-way along all streets abutting the parcel. The Planning Commission may, at its discretion, require these same street lights to be installed on the parcel at locations that are close to the street to maintain a consistent lighting theme along City streets.

Comment. The proposed exterior lighting plan includes wall-mounted lights affixed to the building exteriors, in addition to light poles strategically positioned throughout the parking areas to ensure adequate illumination. The lighting specifications suggest a design in which all pole lights are oriented to cast illumination downwards. The specifications clearly detail that the wall pack lighting units will be designed with a downward-facing orientation and will include a protective shield. The Planning Commission may consider this standard to be satisfactorily met.

- (m) Outside storage areas, including areas for the storage of trash, shall conform to the regulations contained in Chapter 1060 of these Codified Ordinances.

Comment. No outdoor storage areas are proposed. To improve waste management and traffic circulation, the dumpster enclosure has been moved and expanded to include an additional dumpster, resulting in a total of three dumpsters. The City's requirements have been met by the screening system, as determined by the proposed screening process. The Planning Commission may find that this standard is satisfactorily met.

- (n) Maneuvering space for trucks using on-site loading areas shall be provided on-premises and shall not necessitate the use of the public right-of-way.

Comment. Truck maneuvering specs were provided on the site plan and appear adequate for any deliveries on site, as well as for fire truck circulation. Public Safety has commented that they are satisfied with the traffic patterns and turning radii. The Planning Commission may consider this standard met.

- (o) Site plans shall conform to all applicable requirements of County, State, and Federal statutes, and approval may be conditioned on the applicant receiving necessary County, State, and Federal permits before final site plan approval or any occupancy permits are granted.

Comment. This may be addressed as a condition of approval.

Recommendation. At the August 12th regular meeting, the Planning Commission should carefully consider any public comments as well as comments from the applicant. While significant progress was made from the previous final review in July 2025, the applicant has nearly resolved every issue or concern for site design standards and accessibility, utilities, and circulation. The Planning Commission has the authority to approve or approve with conditions the proposed plan. However, after our review and concluding the findings of fact in this document, the Planning Commission should feel comfortable conditionally approving the amended final site plans as submitted with the following considerations.

1. The applicant shall install 2 additional trees (evergreens) along , unless altered or waived by the Commission. If the Commission should choose to alter this requirement, we request that they clearly state that the excess four (4) trees that have been installed for parking lot landscaping satisfies the requirements and the two (2) Additional evergreen trees as required along the Lincoln Avenue road frontage has been met.
2. The applicant shall install four additional parking spaces to provide for all eight proposed business employees, unless the Commission determines that the proposed four additional spaces are satisfactory for workforce shift requirements.
3. Receive any other permits or approvals necessary from any local, state, or federal permitting authority.
4. Any other reasonable condition that the Planning Commission may feel is appropriate for protecting the health, safety, and welfare of the community.



MOTION SHEET FOR PLANNING COMMISSION AGENDA ITEM
Bazco Holdings, LLC – 421/431 W. Lincoln Avenue

Agenda Item: VII.1

Chapter 1276 – Site Plan Approval Standards

1. The Planning Commission shall have the authority to limit the number of driveways for a site, to require parking lots on contiguous parcels to be connected, that driveways for contiguous parcels be shared, and that opposite driveways be directly aligned.
2. Landscaping shall be provided and designed in accordance with the City's landscape provisions.
3. All elements of the site plan shall be designed to take into account the site's topography, the size and shape of the lot, the character of adjoining property, and the type and size of buildings. The site shall be developed not to impede the normal and orderly development or improvement of surrounding property for uses permitted in the Zoning Code.
4. The landscape shall be preserved in its natural state, insofar as practical, by removing only those areas of vegetation or making those alterations to the topography that are reasonably necessary to develop the site according to the requirements of the Zoning Code.
5. Areas of natural drainages, such as swales, wetlands, ponds, or swamps, shall be protected and preserved insofar as practical in their natural state to provide areas for natural habitat, preserve drainage patterns and maintain the natural characteristics of the land.
6. The site plan shall provide reasonable visual and sound privacy for all dwelling units. Fences, walls, barriers, and landscaping shall be used, as appropriate, to accomplish these purposes.
7. All buildings or groups of buildings shall be arranged to permit necessary emergency vehicle access as requested by the Fire Department.
8. In recognition that a sidewalk system along City streets would enhance pedestrian safety and conserve energy through non-motorized transportation opportunities, sidewalks shall be required as determined by the Planning Commission during the site plan review process. Sidewalks, if required, shall be constructed in accordance with the City of Ionia sidewalk standards. Additions or renovations of buildings existing as of the effective date of this Chapter, which require a site plan review, shall be subject to the requirements herein. In determining the need for sidewalks, the following shall be considered:

- a. The amount of current and future pedestrian traffic by the site.
 - b. Whether a sidewalk would enhance the safety of pedestrians currently walking by the site and the safety of future pedestrians.
 - c. The existing and future volume of traffic on the street abutting the site.
 - d. The existence or probability of sidewalks being constructed on adjacent properties in order to create or complete a usable sidewalk system.
 - e. The location of the proposed use.
 - f. The location of pedestrian attractors such as schools, churches, public buildings, and shopping opportunities.
9. The arrangement of public or common ways for vehicular traffic and pedestrian circulation shall be connected to existing or planned streets and pedestrian or bicycle pathways in the area. Roads and drives which are part of a current or planned street pattern serving adjacent development shall be of a condition appropriate to the traffic volume and the type of traffic they will carry.
10. Appropriate measures shall be taken to ensure that the removal of all surface waters will not adversely affect neighboring properties or the public stormwater drainage system. Provisions shall be made to accommodate stormwater, prevent erosion, particularly during construction, and prevent dust formation. The use of detention/retention ponds may be required. Surface water on all paved areas shall be collected at intervals so that it will not obstruct the flow of vehicular or pedestrian traffic or create puddles in paved areas. The Planning Commission may, at its discretion, require catch basins to contain oil filters or traps to prevent contaminants from being discharged into the natural drainage system.
11. Exterior lighting shall be arranged so that illumination is deflected away from adjacent properties and so that it does not interfere with the vision of the motorist along adjacent streets. Flashing or intermittent lights shall not be permitted. Excessive lighting of buildings or structures shall be minimized to reduce light pollution. Street lights that conform to the City of Ionia specifications for street lighting shall be installed within the right-of-way along the streets abutting the parcel. The Planning Commission may, at its discretion, require these same street lights to be installed on the parcel at locations that are close to the street in order to maintain a consistent lighting theme along the City streets.
12. Outside storage areas, including areas for trash storage, shall conform to the regulations contained in Chapter 1060 of these Codified Ordinances.
13. Maneuvering space for trucks using on-site loading areas shall be provided on-premises and shall not necessitate the use of public rights of way.
14. Site Plans shall conform with all applicable requirements of County, State, and Federal statutes, and approval may be conditioned on the applicant receiving necessary County, State, and Federal permits before final site plan approval or any occupancy permits are granted.

Staff Listed Conditions

1. A land division application shall be submitted to combine the two separate parcels prior to beginning construction.
2. An easement shall be provided to the City related to the existing storm sewer main located on the property.
3. The applicant shall install 2 additional trees (evergreens) than the number listed on the site plan, unless altered or waived by the Commission. If the Commission should choose to alter this requirement, the Commission shall clearly state that the excess four (4) trees that have been installed for parking lot landscaping satisfy the requirements and the two (2) additional evergreen trees required along the Lincoln Avenue road frontage have been waived.
4. All landscaping must be installed within three months of the site work and construction completion.
5. The applicant shall install four additional parking spaces to provide for all eight proposed business employees, unless the Commission determines that the proposed four additional spaces are satisfactory for workforce shift requirements.
6. An approval letter shall be provided to the City from the Michigan Department of Transportation for the site plan and driveway designs.
7. A letter shall be submitted to the City from the Ionia County Drain Commissioner approving site drainage.
8. Receive any other permits or approvals necessary by any local, state, or federal permitting authority.
9. Best management practices for construction site management shall be maintained at all times because of the volume of traffic that uses this intersection and for the health, safety, and welfare of the motorists, pedestrians, and neighboring property owners.

Motion Options:

1. Decision to Approve

Moved by _____ and seconded by _____ to approve the site plan review for a convenience store, gas station, car wash, and drive-thru establishment at 421 and 431 W. Lincoln Avenue. This decision is based on the findings that the proposed plan complies with the Site Plan Approval Standards of Chapter 1276, as detailed and discussed above, subject to the approval by staff of the conditions and outstanding site plan items, as noted in the above staff conditions.

2. Decision to Deny

Moved by _____ and seconded by _____ to deny the site plan review for a convenience store, gas station, car wash, and drive-thru establishment at 421 and 431 W. Lincoln Avenue. This decision is based on the findings that the proposed plan does not comply with the Site Plan Approval Standards of Chapter 1276, as detailed and discussed above.

3. Decision to Approve with Additional Conditions

Moved by _____ and seconded by _____ to approve the site plan review for an expanded gas station at 421 and 431 W. Lincoln Avenue. This decision is based on the findings that the proposed plan complies with the Site Plan Approval Standards of Chapter 1276 as detailed and discussed above, subject to the approval by staff of the conditions and outstanding site plan items, as noted in the above staff conditions and the following additional conditions created by the Planning Commission.

List of Additional Conditions:

4. Table the Request

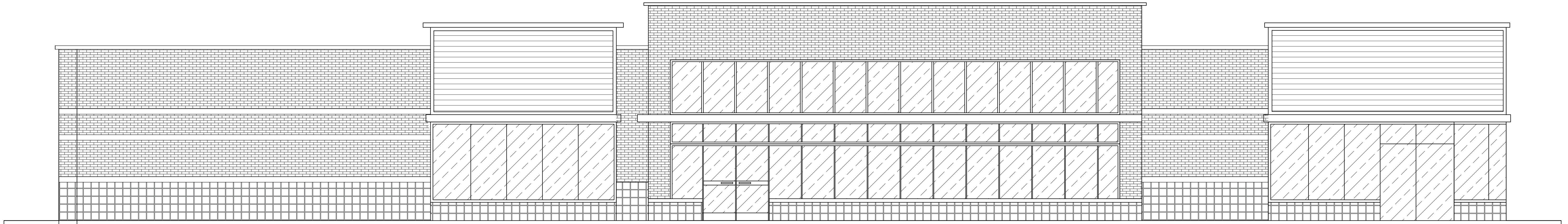
Moved by _____ and seconded by _____ to table the request until the listed outstanding items are provided.

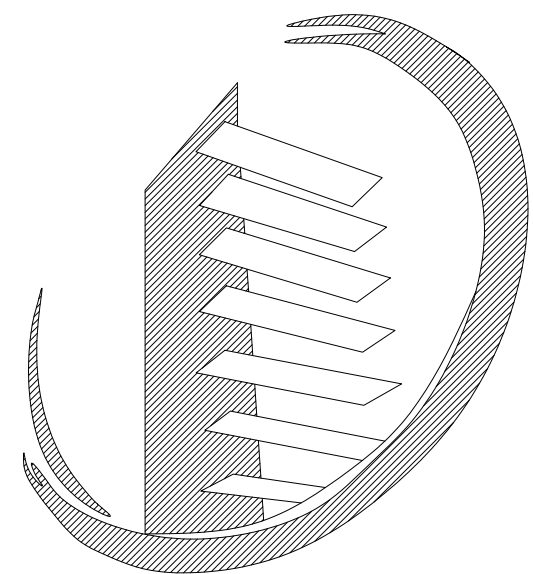
List of Outstanding Items:

PROPOSED GAS STATION / CAR WASH

431 West Lincoln Avenue,

Ionia, MI





**N.C. DESIGNERS
& CONTRACTING INC.**

ARCHITECT/ GC : NASSER CHOUCAIR
PHONE: (313)-986-8381
EMAIL: NCDESIGNERS@YAHOO.COM

3241 S.TELEGRAPH RD, DEARBORN, MI 48124

ARCHITECTURE

CODE INFORMATION - APPLIED ON SITE			
1. BUILDING DESCRIPTION:	ONE STORY COMMERCIAL BUILDING		
2. APPLICABLE CODE:	BUILDING:	2021 MICHIGAN BUILDING CODE. (MBC)	
	ACCESSIBILITY:	2009 ICC A117.1 STANDARD FOR ACCESSIBLE BUILDINGS AND FACILITIES	
	ENERGY:	2015 MICHIGAN ENERGY CODE-ASHRAE 90.1-2013	
	FIRE:	2015 INTERNATIONAL FIRE CODE	
	PLUMBING:	2021 MICHIGAN PLUMBING CODE. (MPC)	
	MECHANICAL:	2021 MICHIGAN MECHANICAL CODE. (MMC)	
	ELECTRICAL:	2023 MICHIGAN ELECTRIC CODE. (MEC)	
3. OCCUPANCY/ USE CLASSIFICATION:	SERVICE GROUP		
4. CONSTRUCTION TYPE:	TYPE III-B		
	TOTAL AREA:	11,146 SQ FT	
5. GROSS AREA SUMMARY:	AREAS	OCCUPANT LOAD	
6. ALLOWABLE BLDG. HEIGHT (504.3):	ALLOWED	PROPOSED	
	80.0'	20.5'	
7. NUMBER OF REQUIRED EXITS:	(2) REQUIRED MIN.		(4) PROVIDED
8.	1 H.C. TOILET ROOM REQUIRED OCCUPANT LOAD LESS THAN 50 2 PROVIDED.		

BUILDING DETAILS
Address: 431 West Lincoln Avenue, Ionia, MI
Sewer Public Sewer (Sewer-Sanitary)
Property Type Commercial
County IONIA COUNTY
Water Water at Street
LEGAL DESCRIPTION
"COM AT THE NW COR LOT 15 OF SUP AMPHLETT'S SUBD OF LOT 23 OF HUTCHINS ADD TO CITY OF IONIA; E 17 FT ALG S LINE OF LINCOLN AVE TO POB; E 379 FT ALG SAID LINE; S 00D 06M 02S E 131.94 FT; E 82.5 FT; S 00D 06M 02S E 213.90 FT ALG W INE OF BALDIE ST; W 90"
PARCEL NUMBER
201-060-000-030-10

TABLE OF CONTENTS	
COVER	
T-1	TITLE SHEET & PROJECT INFORMATION
SITE PLAN APPROVAL	
SP-1	EXISTING SITE PLAN
SP-2	PROPOSED SITE PLAN
SP-3	PROPOSED LANDSCAPING PLAN
SP-4	PROPOSED PHOTOMETRIC PLAN
SP-5	PROPOSED TRUCK CIRCULATION PLAN
A-1	PROPOSED FLOOR PLAN (GAS STATION)
A-1.1	PROPOSED FLOOR PLAN (CAR WASH)
A-2	EXISTING ELEVATIONS (RITE AID)
A-2.1	PROPOSED ELEVATIONS (GAS STATION)
A-2.2	PROPOSED ELEVATIONS (CAR WASH)
A-3	PROPOSED ROOF PLAN (CAR WASH)
(PHASE 1 GAS STATION MEP)	
M-1	PROPOSED MECHANICAL PLAN
E-1	PROPOSED REFLECTED CEILING PLAN
E-2	PROPOSED POWER PLAN
E-3	PROPOSED ELECTRIC DIAGRAMS
E-4	PROPOSED ELECTRIC DIAGRAMS
P-1	PROPOSED PLUMBING PLAN
P-2	PROPOSED PLUMBING DIAGRAMS

TABLE OF CONTENTS	
(PHASE 2 CAR WASH MEP)	
S-1	PROPOSED FOUNDATION PLAN
S-2	PROPOSED STRUCTURAL PLAN
S-3	PROPOSED STRUCTURAL DETAILS
M-1.1	PROPOSED MECHANICAL DETAILS
M-1.2	PROPOSED MECHANICAL PLAN
M-1.3	PROPOSED MECHANICAL PLAN
M-1.4	PROPOSED MECHANICAL SCHEDULE
E-1.1	PROPOSED ELECTRICAL LEGEND
E-1.2	PROPOSED ELECTRICAL DETAILS
E-1.3	PROPOSED ELECTRICAL SPECIFICATIONS
E-1.4	PROPOSED ELECTRICAL SPECIFICATIONS
E-1.5	PROPOSED ELECTRICAL RISER DIAGRAMS
E-1.6	PROPOSED ELECTRICAL RISER DIAGRAMS
E-1.7	LIGHTNING CONTROL TABLES
E-1.8	PROPOSED LIGHTNING PLAN
E-1.9	PROPOSED LIGHTNING PLAN
P-1.1	PLUMBING INFORMATION
P-1.2	PROPOSED PLUMBING PLAN
P-1.3	PROPOSED PLUMBING PLAN
P-1.4	PROPOSED PLUMBING ENLARGED PLAN
P-1.5	PROPOSED PLUMBING ENLARGED PLAN
P-1.6	PROPOSED PLUMBING ENLARGED PLAN
P-1.7	PROPOSED PLUMBING ENLARGED PLAN
P-1.8	PROPOSED PLUMBING ENLARGED PLAN

ZONE INFO	
ZONE: GENERAL BUSINESS DISTRICT (B-3) COUNTY : IONIA COUNTY CITY : IONIA STATE : MICHIGAN	
ZONING INFORMATION	
ZONE	B-3
LOTS AREA	3.13 ACRES
MINIMUM LOT WIDTH	152.00'
PARKING SETBACK	N/A
CANOPY SET BACK	N/A
FRONT YARD SET BACK	60'-0"
SIDE STREET YARD SET BACK	5'-0"
REAR YARD SET BACK	5'-0"
SIDE YARD SET BACK	5'-0"
MAXIMUM HEIGHT	35.0'
MAXIMUM BLDG. COVERAGE	8%
MAXIMUM IMPERVIOUS COVERAGE	N/A



3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

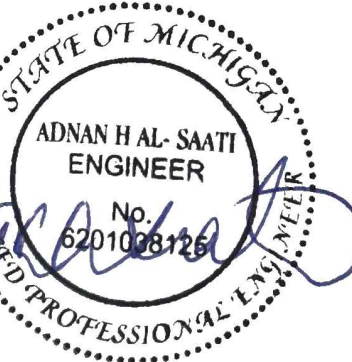
Project Location: 431 West Lincoln Avenue, Ionia, MI

OWING:

APPROVED BY:

Adnan Al-Saati
41 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
ncdesigners@yahoo.com

Deal:



12/18/2025	Issued For BUILD. DEP.
------------	---------------------------

Drawn By:	M. A.
Checked By:	N. C.
Approved By:	A. A.

Sheet Title:

EXISTING SITE PLAN

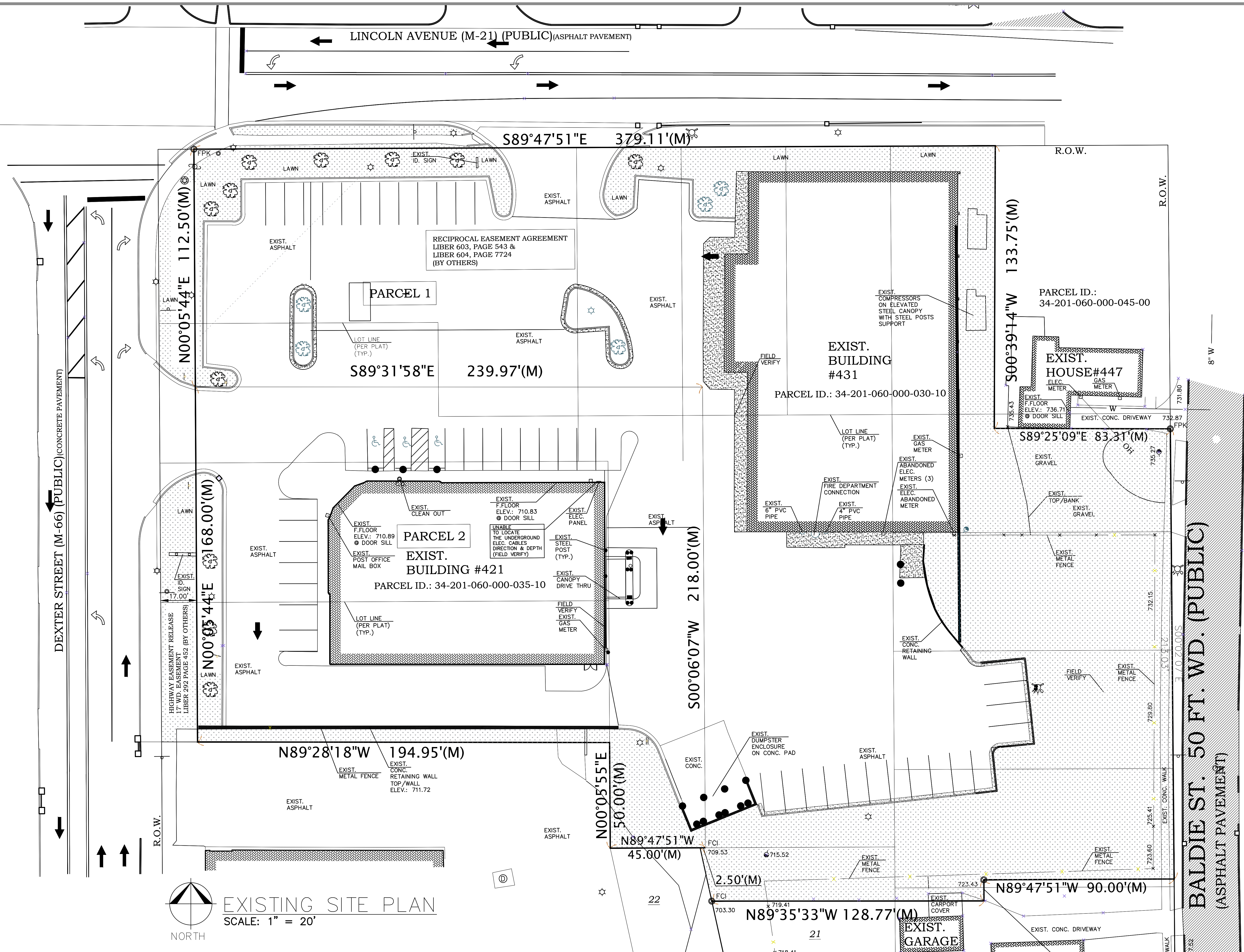
Date: 05/02/2025

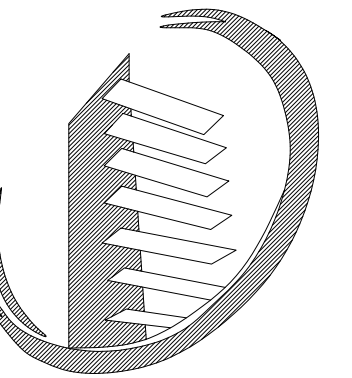
Scale: Noted

Project Number:
25-119

Sheet Number:

SP-1





N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

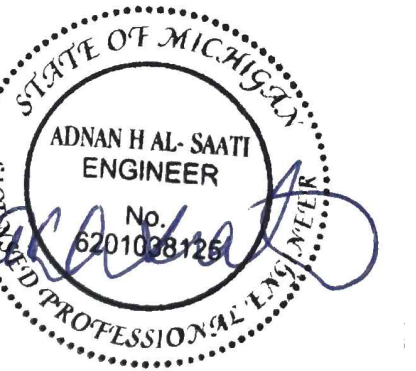
Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:

PROPOSED SITE PLAN

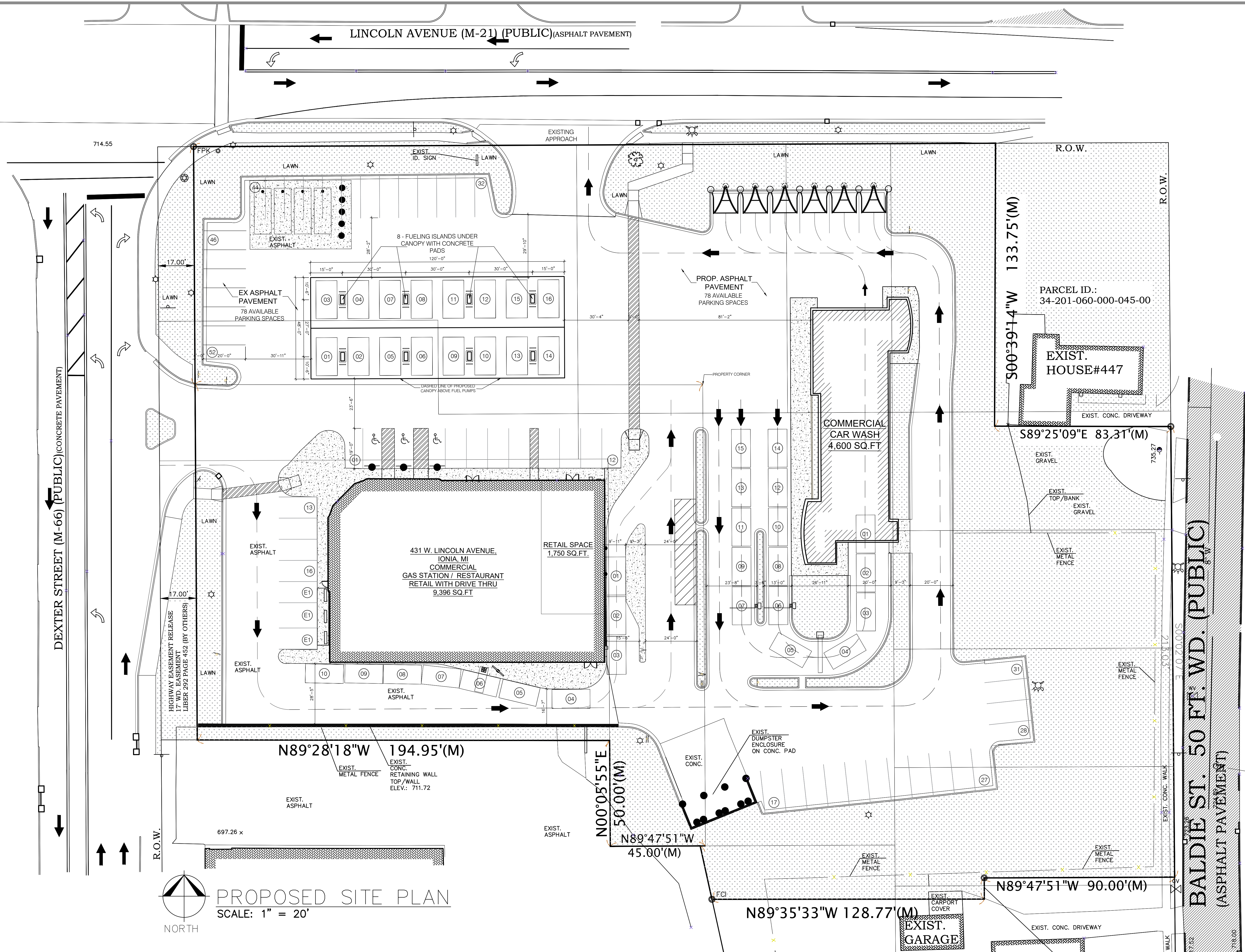
Date: 05/02/2025

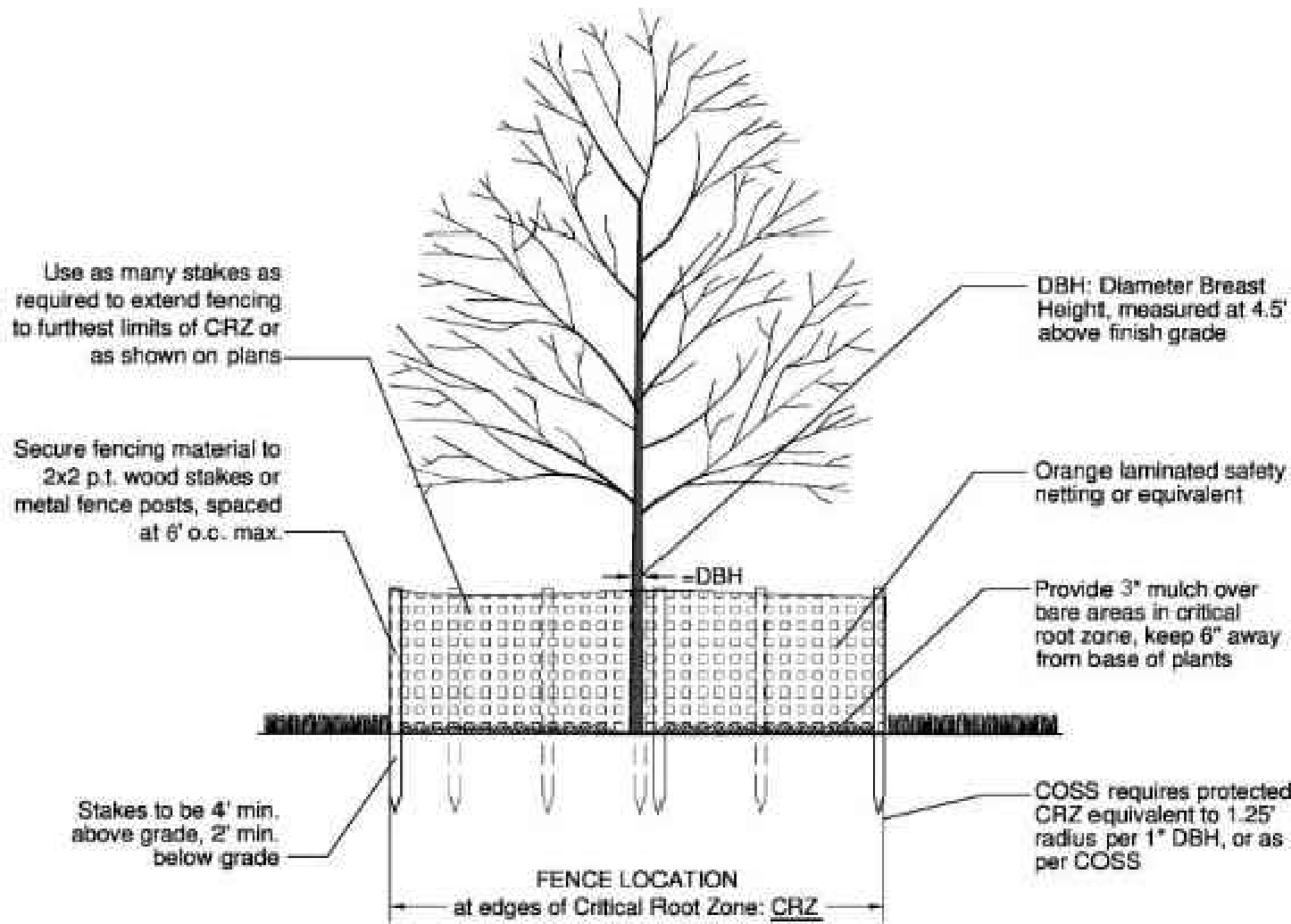
Scale: Noted

Project Number:
25-119

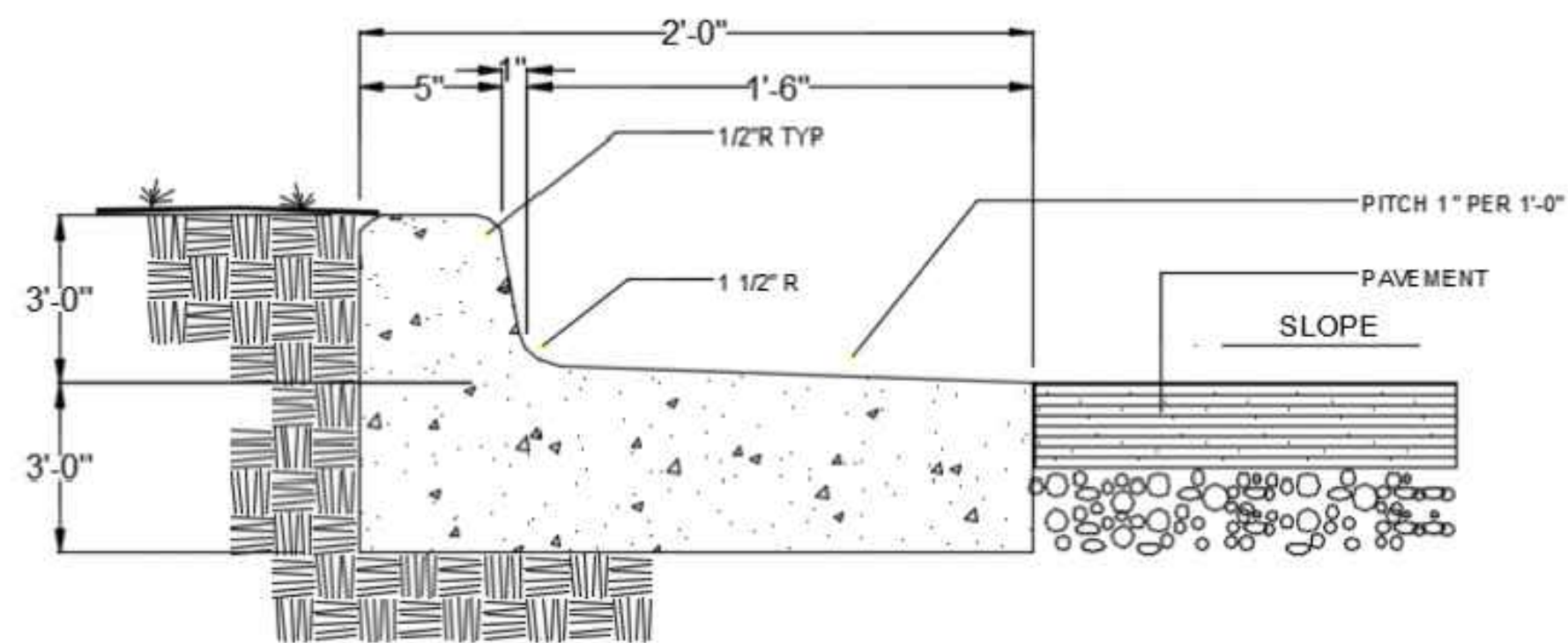
Sheet Number:

SP-2





TREE PROTECTION DETAIL



CURB & GUTTER DETAIL



AC



PG



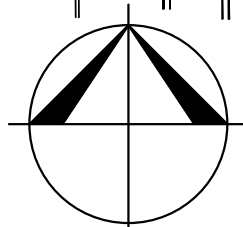
HHR



CAH



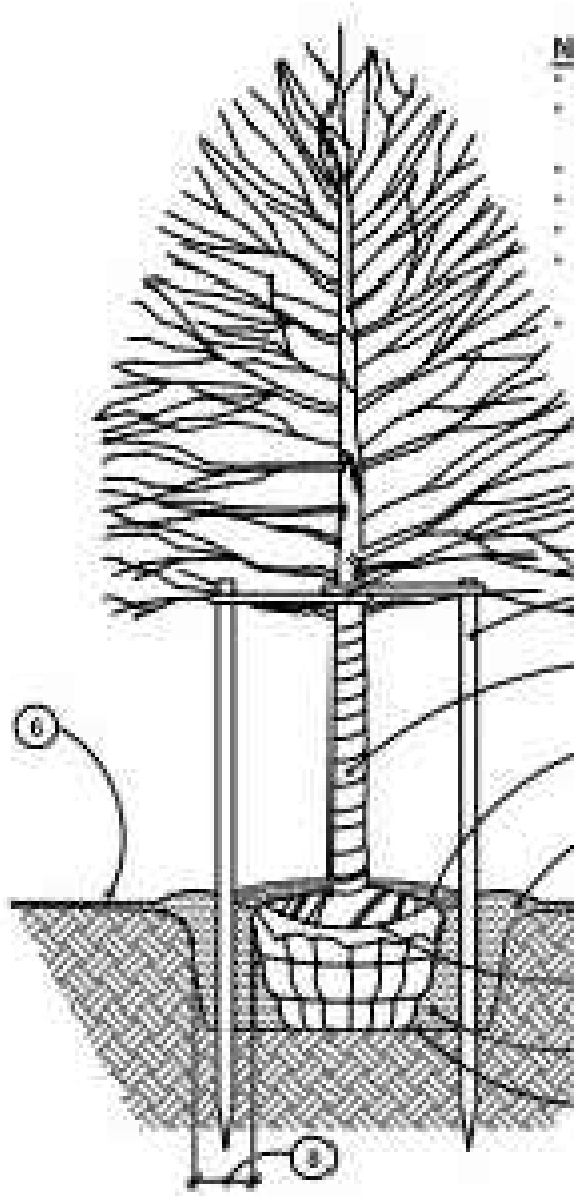
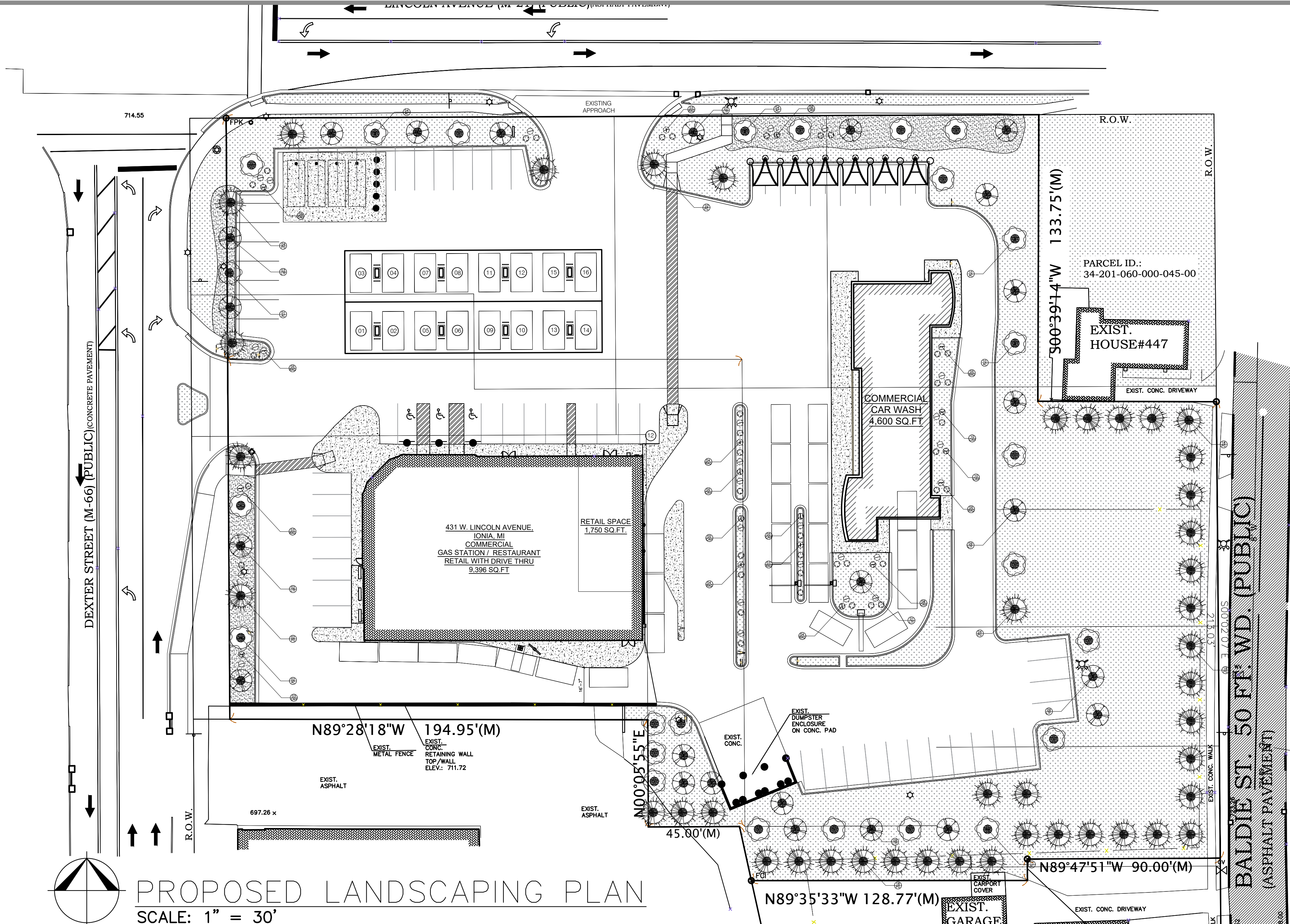
RAG



NORTH

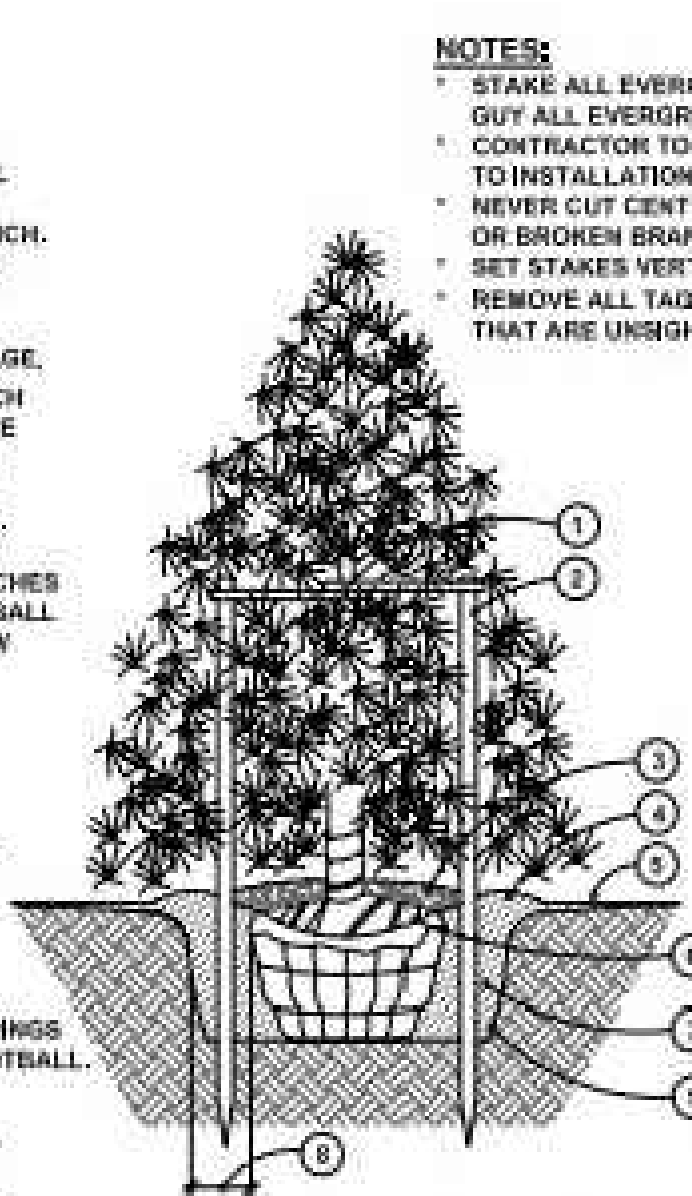
PROPOSED LANDSCAPING PLAN

SCALE: 1" = 30'

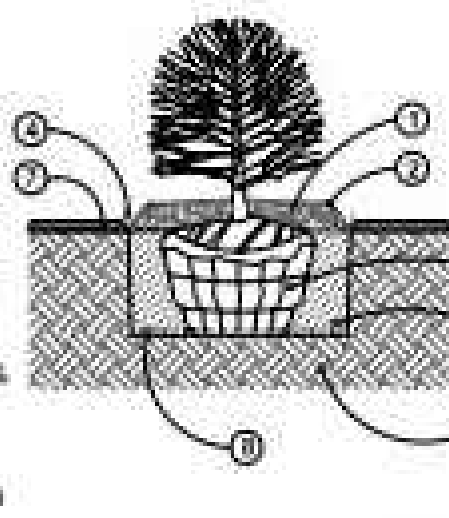


DECIDUOUS TREE

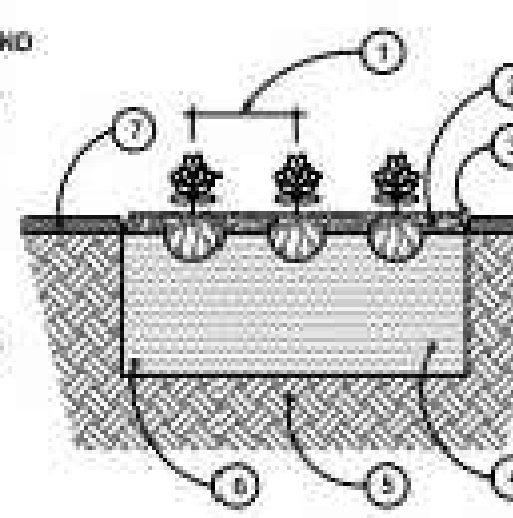
PLANTING DETAILS



EVERGREEN TREE



SHRUB



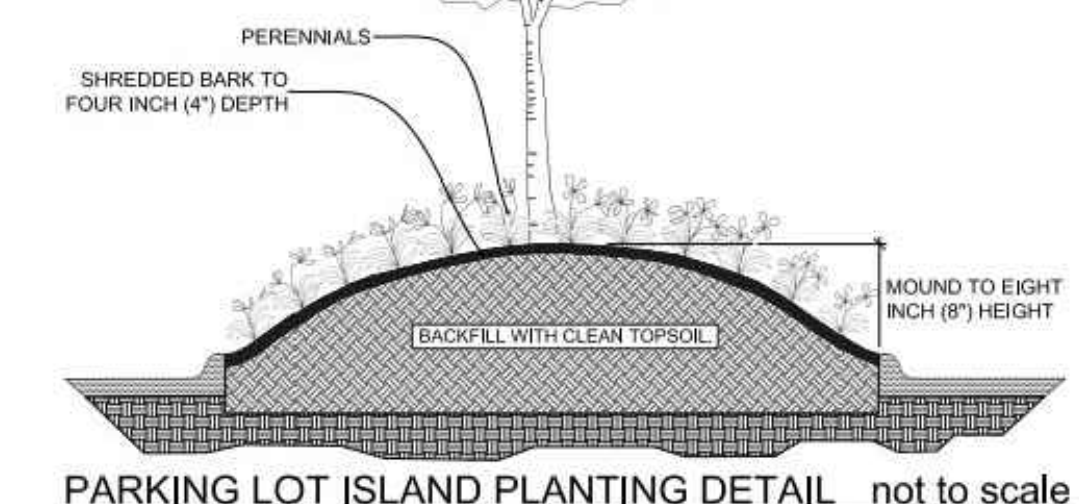
PERENNIAL / GROUNDCOVER

not to scale

PLANT LIST

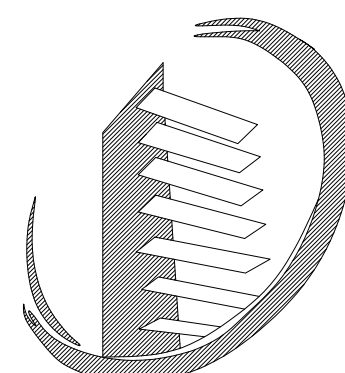
KEY QTY.	BOTANICAL NAME	COMMON NAME	SIZE
Large Trees			
ARA	<i>Acer rubrum</i> 'Redpointe'	Redpointe Red Maple	3" cal, B&B
LSS	<i>Liquidambar styraciflua</i>	Slender Silhouette	3" cal, B&B
LTF	<i>24 Liquidambar styraciflua</i> 'Fastigiate'	Fastigiate Tuliptree	3" cal, B&B
PG	<i>43 Picea glauca</i>	White Spruce	8' ht, B&B
Ornamental Trees			
AC	<i>25 Amelanchier canadensis</i>	Clump Serviceberry	6' - 8' ht, B&B
ACS	<i>Amelanchier canadensis</i>	Single Stem Serviceberry	2" cal, B&B
Shrubs			
CAH	<i>48 Ceanothus alifolia</i> 'Hummingbird'	Hummingbird Summersweet	30" ht, 5 gal. pot
I/V	<i>Ilex verticillata</i> 'Jim Dandy'	Jim Dandy Winterberry	30" ht, 5 gal. pot
I/V	<i>Ilex verticillata</i> 'Red Sprite'	Red Sprite Winterberry	30" ht, 5 gal. pot
RAG	<i>31 Rhus aromatica</i> 'Gro-Low'	Gro-Low Fragrant Sumac	30" ht, 3 gal. pot
SJG	<i>Spiraea japonica</i> 'Goldmound'	Goldmound Spirea	30" ht, 3 gal. pot
TMD	<i>Taxus x media</i> 'Densiformis'	Densiformis Yew	30" ht, B&B
Perennials			
CP	<i>Carax pensylvanica</i>	Pennsylvania Sedge	1 gal. pot, 24" o.c.
HHR	<i>Hemerocallis</i> sp. 'Happy Returns'	Happy Returns Daylily	1 gal. pot, 30" o.c.
PAM	<i>Pennisetum alopecuroides</i> 'Mouly'	Black Flowered Fountain Grass	2 gal. pot, 36" o.c.
RFG	<i>Rudbeckia fulgida</i> var. <i>sulcata</i>	Goldsturm Orange	2 gal. pot, 24" o.c.
	<i>'Goldsturm'</i>	Conetower	

* Landscape Contractor to determine the quantity in the field.



PARKING LOT ISLAND PLANTING DETAIL

not to scale



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

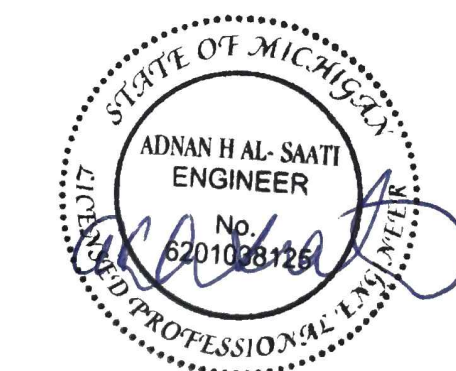
Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.

Checked By: N. C.

Approved By: A. A.

Sheet Title:

PROPOSED LANDSCAPING
PLAN

Date: 05/02/2025

Scale: Noted

Project Number:

25-119

Sheet Number:

SP-3



TECHNICAL DATA SHEET



NAME: LED Canopy Light

P/N: SNC-CP-150W-3421-1602

DLC CODE :P6AFABNC

Advantage:

- UL cUL, DLC certificate
- High CRI
- Mean Well IP65 driver, Input voltage 100-277Vdc
- No UV or IR in the beam
- Easy to install and operate
- Energy saving, Long lifespan
- Light is soft and uniform, Safe to eyes
- Instant start, NO flickering, NO humming
- Green and eco-friendly without mercury.

Application:

- Gas station
- Service station, Toll station.

SNC OPTO ELECTRONIC CO., LTD
Tel: +86-755-29683009
www.snc-lighting.com

Fax: +86-755-29684853
E-mail: sales@snc-led.com



FEATURES & SPECIFICATIONS

INTENDED USE
Provides maintenance-free general illumination for outdoor use in residential and commercial applications such as retail, education, multi-unit housing and storage. Ideal for lighting building facades, parking areas, walkways, garages, loading areas and any other outdoor space requiring reliable security lighting.

CONSTRUCTION
Sturdy weather-resistant aluminum housing with a dark bronze finish.
High performance LEDs are powered by an MVDLT driver providing 2720 and 3970 delivered lumens at 5000K. 100,000 hour LED lifespan based on IESNA LM-80-08 results and calculated per IESNA TM-21-11 methodology. Future is maintenance-free.

Rated for outdoor installations: -40°C minimum ambient.
Adjustable Dusk-to-Dawn, photocell standard automatically turns light on at dusk and off at dawn for convenience and energy savings.
Photocell can be disabled by rotating the photocell cover.

OPTICS
Precision-molded acrylic lenses provide optimal luminaire spacing with Type 3 distribution.
Nighttime Friendly™ full cutoff above 90° angle, standard.

INSTALLATION
Wall or arm mount (mounting arm sold separately).
All mounting hardware included.

LISTINGS
UL Certified to US safety standards. CUL Certified to Canadian safety standards. Wet location listed.
Tested in accordance with IESNA LM-79 and LM-80 standards. DLC qualified product.

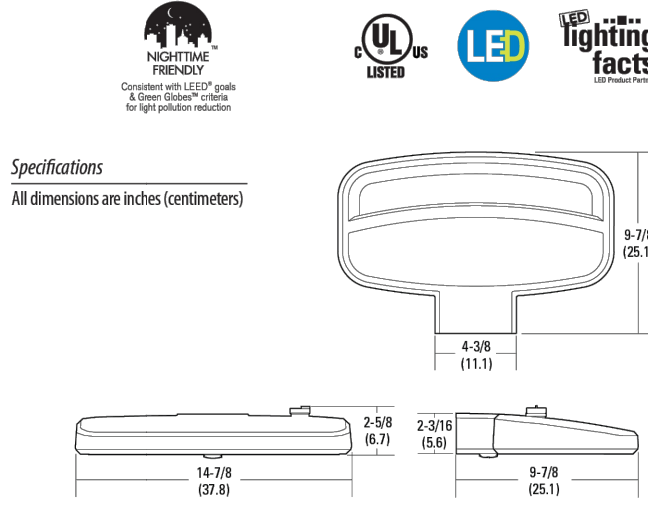
WARRANTY
5-year limited warranty. Complete warranty terms located at www.lithonia.com/CustomerResource/terms_and_conditions.aspx

Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
NOTE: Specifications are subject to change without notice.

Color Number	
Note	
Type	

Outdoor General Purpose

OLW



ORDERING INFORMATION

Series	Lumens / Color Temperature (CCT)	Voltage	Features	Finish
OLW	23 2720 delivered lumens / 5000K 31 3970 delivered lumens / 5000K	(blank)	MVDLT (120V-277V)	(blank)
			Photocell included	(blank)
				DDB Dark Bronze

Accessories: Order as separate catalog number.
OWA 18 DDB U 18" Steel mounting arm

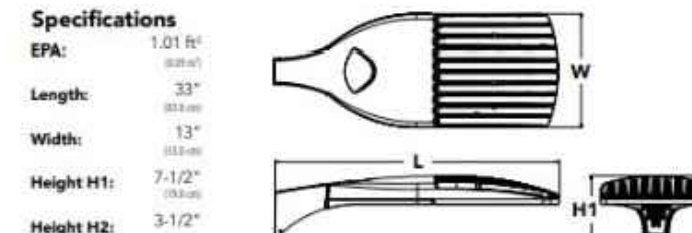
Note:
1. Correlated Color Temperature (CCT) shown is nominal per ANSI C78.377.2008.

COMMERCIAL OUTDOOR

OLW



D-Series Size 1
LED Area Luminaire

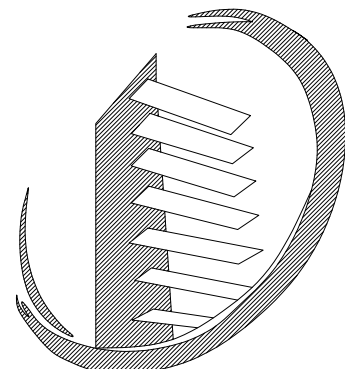


Introduction
The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DB8XD

Series	LEDs	Color Temperature	Distribution	Wavelength	Mounting	
DSX1 LED	Forward optics	30K 3000 K	F15 Spot (short)	7395 Spot (very short)	M0021 ¹	Shipped included
	P1 P4 P7 P9	40K 4000 K	F25 Spot (short)	7495 Spot (short)	M0022 ¹	SPMA Super slim mounting
	P2 P3 P6 P9	50K 5000 K	F35 Spot (short)	7595 Spot (short)	7772 ¹ A4000 ¹	SPMA Super slim mounting ¹
	P10 P12 P13		F45 Spot (short)	7695 Spot (short)		SPMA Wall bracket ¹
	Retained optics		F55 Spot (medium)	7795 Spot (short)		SPMA Super slim universal mounting adapter ¹
	P10 P12 P13		F65 Spot (medium)	7895 Spot (short)		SPMA Super slim universal mounting adapter ¹
			F75 Spot (medium)	7995 Spot (short)		SPMA Super slim universal mounting adapter ¹
			F85 Spot (medium)	8095 Spot (short)		
			F95 Spot (medium)	8195 Spot (short)		
			F105 Spot (medium)	8295 Spot (short)		
			F115 Spot (medium)	8395 Spot (short)		
			F125 Spot (medium)	8495 Spot (short)		
			F135 Spot (medium)	8595 Spot (short)		
			F145 Spot (medium)	8695 Spot (short)		
			F155 Spot (medium)	8795 Spot (short)		
			F165 Spot (medium)	8895 Spot (short)		
			F175 Spot (medium)	8995 Spot (short)		
			F185 Spot (medium)	9095 Spot (short)		
			F195 Spot (medium)	9195 Spot (short)		
			F205 Spot (medium)	9295 Spot (short)		
			F215 Spot (medium)	9395 Spot (short)		
			F225 Spot (medium)	9495 Spot (short)		
			F235 Spot (medium)	9595 Spot (short)		
			F245 Spot (medium)	9695 Spot (short)		
			F255 Spot (medium)	9795 Spot (short)		
			F265 Spot (medium)	9895 Spot (short)		
			F275 Spot (medium)	9995 Spot (short)		
			F285 Spot (medium)	10095 Spot (short)		
			F295 Spot (medium)	10195 Spot (short)		
			F305 Spot (medium)	10295 Spot (short)		
			F315 Spot (medium)	10395 Spot (short)		
			F325 Spot (medium)	10495 Spot (short)		
			F335 Spot (medium)	10595 Spot (short)		
			F345 Spot (medium)	10695 Spot (short)		
			F355 Spot (medium)	10795 Spot (short)		
			F365 Spot (medium)	10895 Spot (short)		
			F375 Spot (medium)	10995 Spot (short)		
			F385 Spot (medium)	11095 Spot (short)		
			F395 Spot (medium)	11195 Spot (short)		
			F405 Spot (medium)	11295 Spot (short)		
			F415 Spot (medium)	11395 Spot (short)		
			F425 Spot (medium)	11495 Spot (short)		
			F435 Spot (medium)	11595 Spot (short)		
			F445 Spot (medium)	11695 Spot (short)		
			F455 Spot (medium)	11795 Spot (short)		
			F465 Spot (medium)	11895 Spot (short)		
			F475 Spot (medium)	11995 Spot (short)		
			F485 Spot (medium)	12095 Spot (short)		
			F495 Spot (medium)	12195 Spot (short)		
			F505 Spot (medium)	12295 Spot (short)		
			F515 Spot (medium)	12395 Spot (short)		
			F525 Spot (medium)	12495 Spot (short)		
			F535 Spot (medium)	12595 Spot (short)		
			F545 Spot (medium)	12695 Spot (short)		
			F555 Spot (medium)	12795 Spot (short)		
			F565 Spot (medium)	12895 Spot (short)		
			F575 Spot (medium)	12995 Spot (short)		
			F585 Spot (medium)	13095 Spot (short)		
			F595 Spot (medium)	13195 Spot (short)		
			F605 Spot (medium)	13295 Spot (short)		
			F615 Spot (medium)	13395 Spot (short)		
			F625 Spot (medium)	13495 Spot (short)		
			F635 Spot (medium)	13595 Spot (short)		
			F645 Spot (medium)	13695 Spot (short)		
			F655 Spot (medium)	13795 Spot (short)		
			F665 Spot (medium)	13895 Spot (short)		
			F675 Spot (medium)	13995 Spot (short)		
			F685 Spot (medium)	14095 Spot (short)		
			F695 Spot (medium)	14195 Spot (short)		
			F705 Spot (medium)	14295 Spot (short)		
			F715 Spot (medium)	14395 Spot (short)		
			F725 Spot (medium)	14495 Spot (short)		
			F735 Spot (medium)	14595 Spot (short)		
			F745 Spot (medium)	14695 Spot (short)		
			F755 Spot (medium)	14795 Spot (short)		
			F765 Spot (medium)	14895 Spot (short)		
			F775 Spot (medium)	14995 Spot (short)		
			F785 Spot (medium)	15095 Spot (short)		
			F795 Spot (medium)	15195 Spot (short)		
			F805 Spot (medium)	15295 Spot (short)		
			F815 Spot (medium)	15395 Spot (short)		
			F825 Spot (medium)	15495 Spot (short)		
			F835 Spot (medium)	15595 Spot (short)		
			F845 Spot (medium)	15695 Spot (short)		
			F855 Spot (medium)	15795 Spot (short)		
			F865 Spot (medium)	15895 Spot (short)		
			F875 Spot (medium)	15995 Spot (short)		
			F885 Spot (medium)	16095 Spot (short)		
			F895 Spot (medium)	16195 Spot (short)		
			F905 Spot (medium)	16295 Spot (short)		
			F915 Spot (medium)	16395 Spot (short)		
			F925 Spot (medium)	16495 Spot (short)		
			F935 Spot (medium)	16595 Spot (short)		
			F945 Spot (medium)	16695 Spot (short)		
			F955 Spot (medium)	16795 Spot (short)		
			F965 Spot (medium)	16895 Spot (short)		
			F975 Spot (medium)	16995 Spot (short)		
			F985 Spot (medium)	17095 Spot (short)		
			F995 Spot (medium)	17195 Spot (short)		
			F1005 Spot (medium)	17295 Spot (short)		
			F1015 Spot (medium)	17395 Spot (short)		
			F1025 Spot (medium)	17495 Spot (short)		
			F1035 Spot (medium)	17595 Spot (short)		
			F1045 Spot (medium)	17695 Spot (short)		
			F1055 Spot (medium)	17795 Spot (short)		
			F1065 Spot (medium)	17895 Spot (short)		
			F1075 Spot (medium)	17995 Spot (short)		
			F1085 Spot (medium)	18095 Spot (short)		
			F1095 Spot (medium)	18195 Spot (short)		
			F1105 Spot (medium)	18295 Spot (short)		
			F1115 Spot (medium)	18395 Spot (short)		
			F1125 Spot (medium)	18495 Spot (short)		
			F1135 Spot (medium)	18595 Spot (short)		
			F1145 Spot (medium)	18695 Spot (short)		
			F1155 Spot (medium)	18795 Spot (short)		
			F1165 Spot (medium)	18895 Spot (short)		
			F1175 Spot (medium)	18995 Spot (short)		
			F1185 Spot (medium)	19095 Spot (short)		
			F1195 Spot (medium)	19195 Spot (short)		
			F1205 Spot (medium)	19295 Spot (short)		
			F1215 Spot (medium)	19395 Spot (short)		
			F1225 Spot (medium)	19495 Spot (short)		
			F1235 Spot (medium)	19595 Spot (short)		
			F1245 Spot (medium)	19695 Spot (short)		
			F1255 Spot (medium)	19795 Spot (short)		
			F1265 Spot (medium)	19895 Spot (short)		
			F1275 Spot (medium)	19995 Spot (short)		
			F1285 Spot (medium)	20095 Spot (short)		
			F1295 Spot (medium)	20195 Spot (short)		
			F1305 Spot (medium)	20295 Spot (short)		
			F1315 Spot (medium)	20395 Spot (short)		
			F1325 Spot (medium)	20495 Spot (short)		
			F1335 Spot (medium)	20595 Spot (short)		
			F1345 Spot (medium)	20695 Spot (short)		
			F1355 Spot (medium)	20795 Spot (short)		
			F1365 Spot (medium)	20895 Spot (short)		
			F1375 Spot (medium)	20995 Spot (short)		
			F1385 Spot (medium)	21095 Spot (short)		
			F1395 Spot (medium)	21195 Spot (short)		
			F1405 Spot (medium)	21295 Spot (short)		
			F1415 Spot (medium)	21395 Spot (short)		
			F1425 Spot (medium)	21495 Spot (short)		
			F1435 Spot (medium)	21595 Spot (short)		
			F1445 Spot (medium)	21695 Spot (short)		
			F1455 Spot (medium)	21795 Spot (short)		
			F1465 Spot (medium)	21895 Spot (short)		
			F1475 Spot (medium)	21995 Spot (short)		
			F1485 Spot (medium)	22095 Spot (short)		
			F1495 Spot (medium)	22195 Spot (short)		
			F1505 Spot (medium)	22295 Spot (short)		
			F1515 Spot (medium)	22395 Spot (short)		
			F1525 Spot (medium)	22495 Spot (short)		
			F1535 Spot (medium)	22595 Spot (short)		
			F1545 Spot (medium)	22695 Spot (short)		
			F1555 Spot (medium)	22795 Spot (short)		
			F1565 Spot (medium)	22895 Spot (short)		
			F1575 Spot (medium)	22995 Spot (short)		
			F1585 Spot (medium)	23095 Spot (short)		
			F1595 Spot (medium)	23195 Spot (short)		
			F1605 Spot (medium)	23295 Spot (short)		
			F1615 Spot (medium)	23395 Spot (short)		
			F1625 Spot (medium)	23495 Spot (short)		
			F1635 Spot (medium)	23595 Spot (short)		
			F1645 Spot (medium)	23695 Spot (short)		
			F1655 Spot (medium)	23795 Spot (short)		
			F1665 Spot (medium)	23895 Spot (short)		
			F1675 Spot (medium)	23995 Spot (short)		
			F1685 Spot (medium)	24095 Spot (short)		
			F1695 Spot (medium)	24195 Spot (short)		
			F1705 Spot (medium)	24295 Spot (short)		
			F1715 Spot (medium)	24395 Spot (short)		
			F1725 Spot (medium)	24495 Spot (short)		
			F1735 Spot (medium)	24595 Spot (short)		
			F1745 Spot (medium)	24695 Spot (short)		
			F1755 Spot (medium)	24795 Spot (short)		
			F1765 Spot (medium)	24895 Spot (short)		
			F1775 Spot (medium)	24995 Spot (short)		
			F1785 Spot (medium)	25095 Spot (short)		
			F1795 Spot (medium)	25195 Spot (short)		
			F1805 Spot (medium)	25295 Spot (short)		
			F1815 Spot (medium)	25395 Spot (short)		
			F1825 Spot (medium)	25495 Spot (short)		
			F1835 Spot (medium)	25595 Spot (short)		
			F1845 Spot (medium)	25695 Spot (short)		
			F1855 Spot (medium)	25795 Spot (short)		
			F1865 Spot (medium)	25895 Spot (short)		
			F1875 Spot (medium)	25995 Spot (short)		
			F1885 Spot (medium)	26095 Spot (short)		
			F1895 Spot (medium)	26195 Spot (short)		
			F1905 Spot (medium)	26295 Spot (short)		
			F1915 Spot (medium)	26395 Spot (short)		
			F1925 Spot (medium)	26495 Spot (short)		
			F1935 Spot (medium)	26595 Spot (short)		
			F1945 Spot (medium)	26695 Spot (short)		
			F1955 Spot (medium)	26795 Spot (short)		
			F1965 Spot (medium)	26895 Spot (short)		
			F1975 Spot (medium)	26995 Spot (short)		
			F1985 Spot (medium)	27095 Spot (short)		
			F1995 Spot (medium)	27195 Spot (short)		
			F2005 Spot (medium)	27295 Spot (short)		
			F2015 Spot (medium)	27395 Spot (short)		
			F2025 Spot (medium)	27495 Spot (short)		
			F2035 Spot (medium)	27595 Spot (short)		
			F2045 Spot (medium)	27695 Spot (short)		
			F2055 Spot (medium)	27795 Spot (short)		
			F2065 Spot (medium)	27895 Spot (short)		
			F2075 Spot (medium)	27995 Spot (short)		
			F2085 Spot (medium)	28095 Spot (short)		
			F2095 Spot (medium)	28195 Spot (short)		
			F2105 Spot (medium)	28295 Spot (short)		
			F2115 Spot (medium)	28395 Spot (short)		
			F2125 Spot (medium)	28495 Spot (short)		
			F2135 Spot (medium)	28595 Spot (short)		
			F2145 Spot (medium)	28695 Spot (short)		
			F2155 Spot (medium)	28795 Spot (short)		
			F2165 Spot (medium)	28895 Spot (short)		
			F2175 Spot (medium)	28995 Spot (short)		
			F2185 Spot (medium)	29095 Spot (short)		
			F2195 Spot (medium)	29195 Spot (short)		
			F2205 Spot (medium)	29295 Spot (short)		
			F2215 Spot (medium)	29395 Spot (short)		
			F2225 Spot (medium)	29495 Spot (short)		
			F2235 Spot (medium)	29595 Spot (short)		
			F2245 Spot (medium)	29695 Spot (short)		
			F2255 Spot (medium)	29795 Spot (short)		
			F2265 Spot (medium)	29895 Spot (short)		
			F2275 Spot (medium)	29995 Spot (short)		
			F2285 Spot (medium)	30095 Spot (short)		
			F2295 Spot (medium)	30195 Spot (short)		
			F2305 Spot (medium)	30295 Spot (short)		
			F2315 Spot (medium)	30395 Spot (short)		
			F2325 Spot (medium)	30495 Spot (short)		
			F2335 Spot (medium)	30595 Spot (short)		
			F2345 Spot (medium)	30695 Spot (short)		
			F2355 Spot (medium)	30795 Spot (short)		
			F2365 Spot (medium)	30895 Spot (short)		
			F2375 Spot (medium)	30995 Spot (short)		
			F2385 Spot (medium)	31095 Spot (short)		
			F2395 Spot (medium)	31195 Spot (short)		
			F2405 Spot (medium)	31295 Spot (short)		
			F2415 Spot (medium)	31395 Spot (short)		
			F2425 Spot (medium)	31495 Spot (short)		
			F2435 Spot (medium)	31595 Spot (short)		
			F2445 Spot (medium)	31695 Spot (short)		
			F2455 Spot (medium)	31795 Spot (short)		
			F2465 Spot (medium)	31895 Spot (short)		
			F2475 Spot (medium)	31995 Spot (short)		
			F2485 Spot (medium)	32095 Spot (short)		
			F2495 Spot (medium)	32195 Spot (short)		
			F2505 Spot (medium)	32295 Spot (short)		
			F2515 Spot (medium			



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

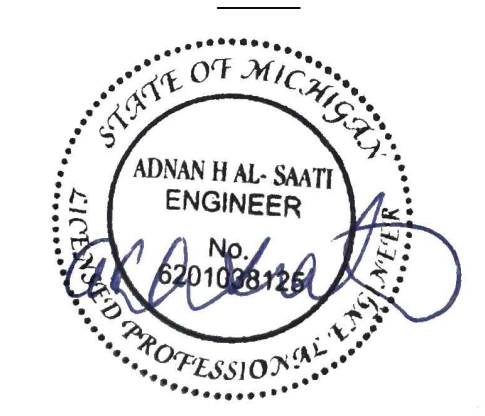
Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED TRUCK
CIRCULATION PLAN

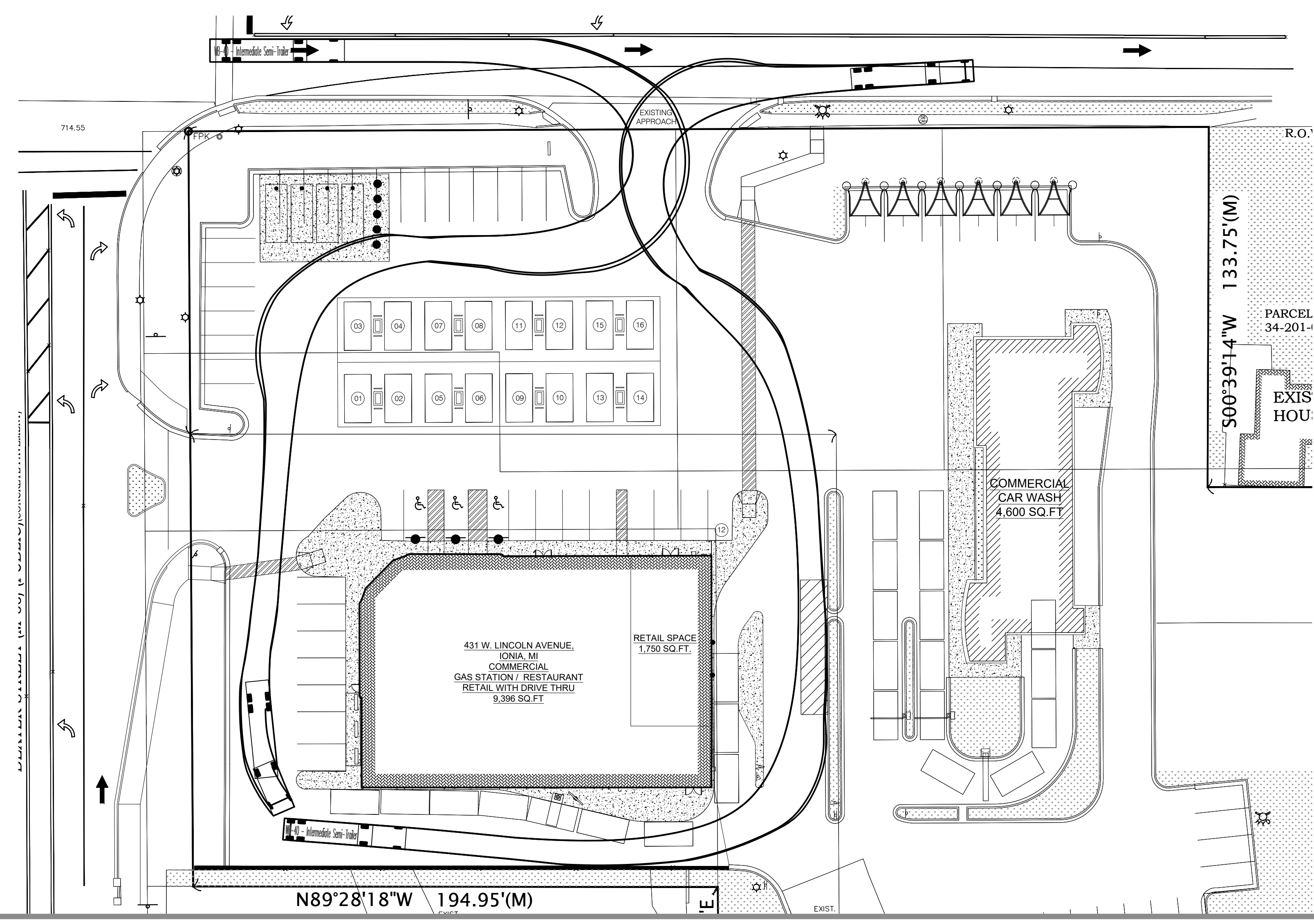
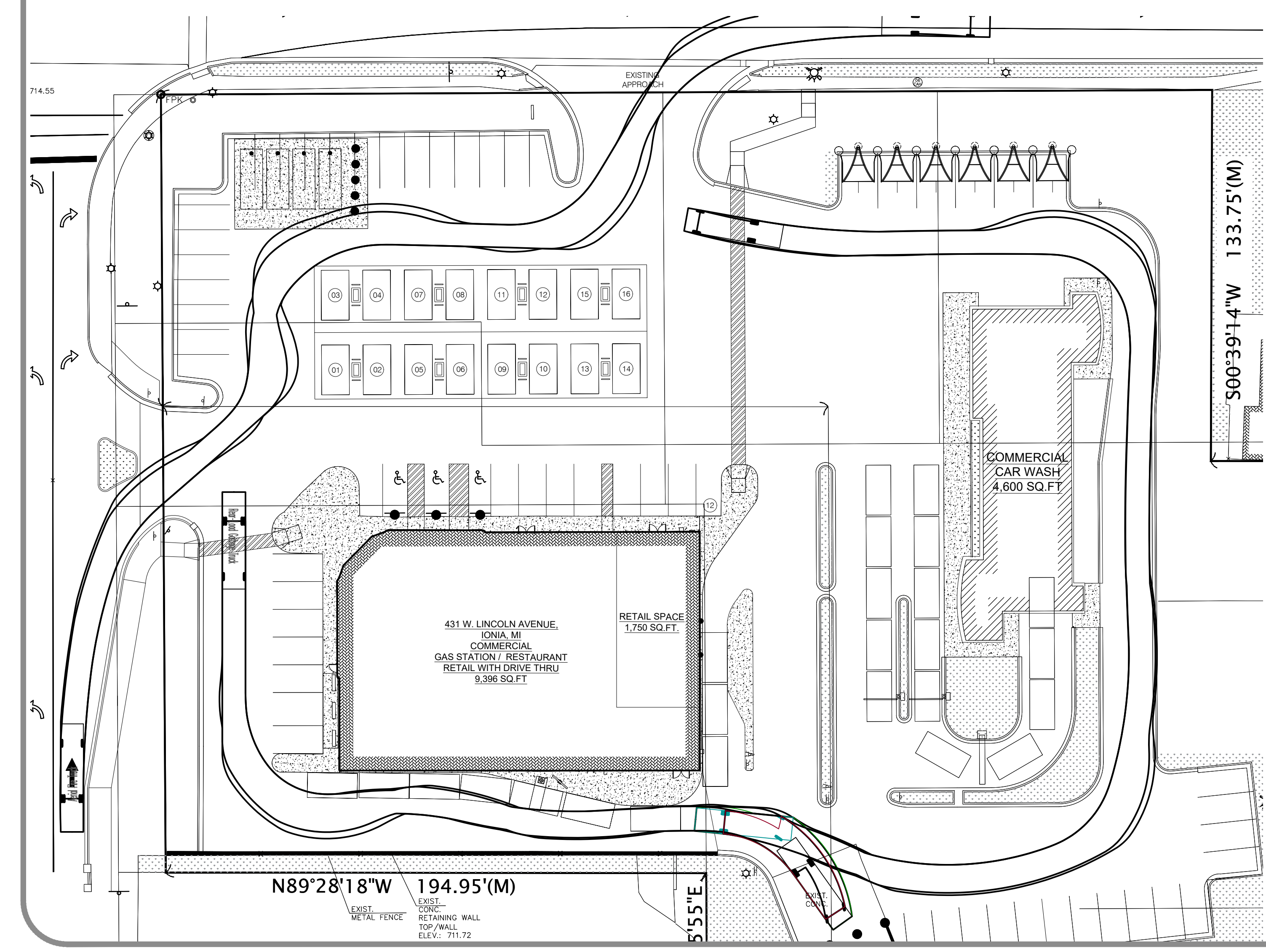
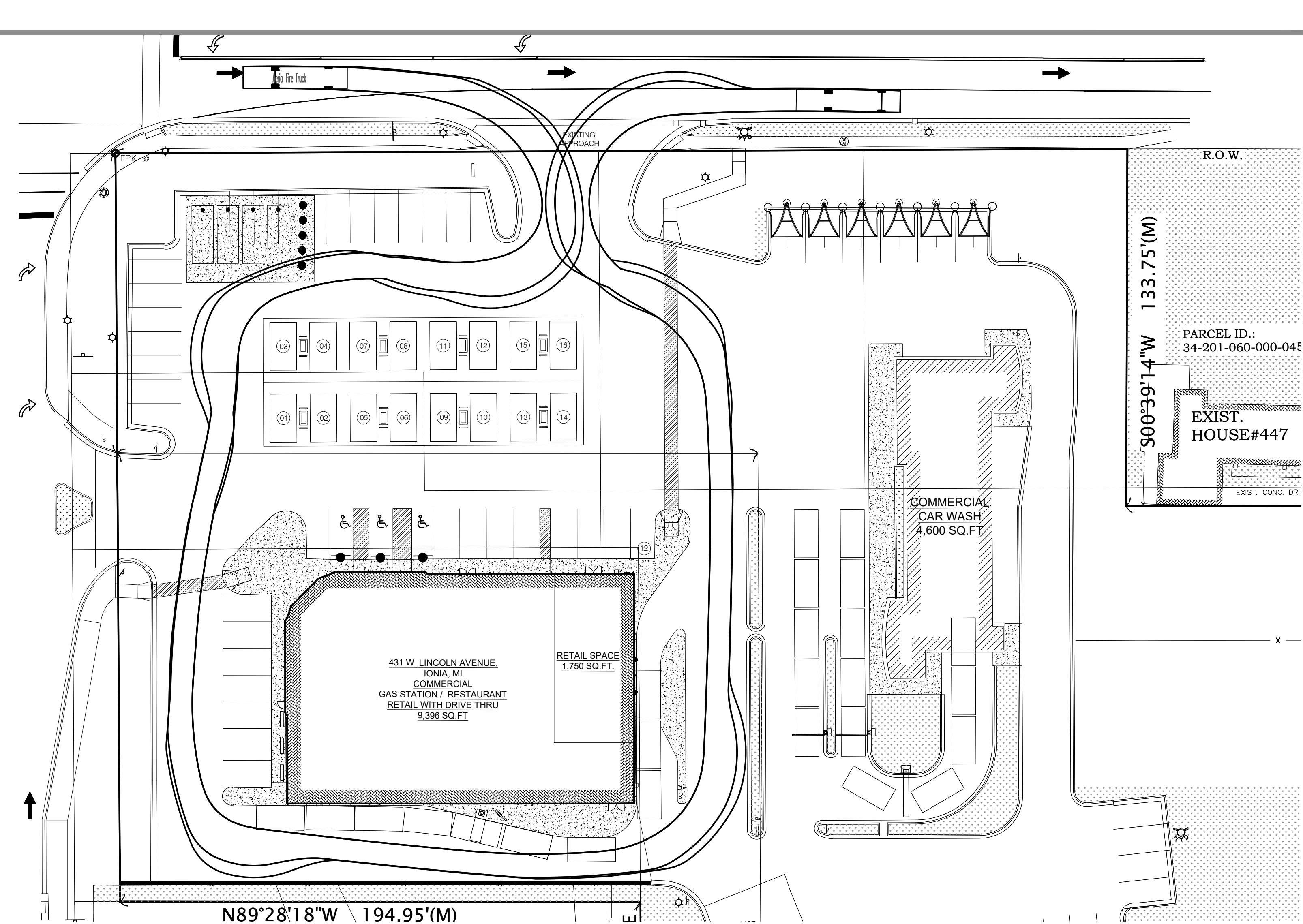
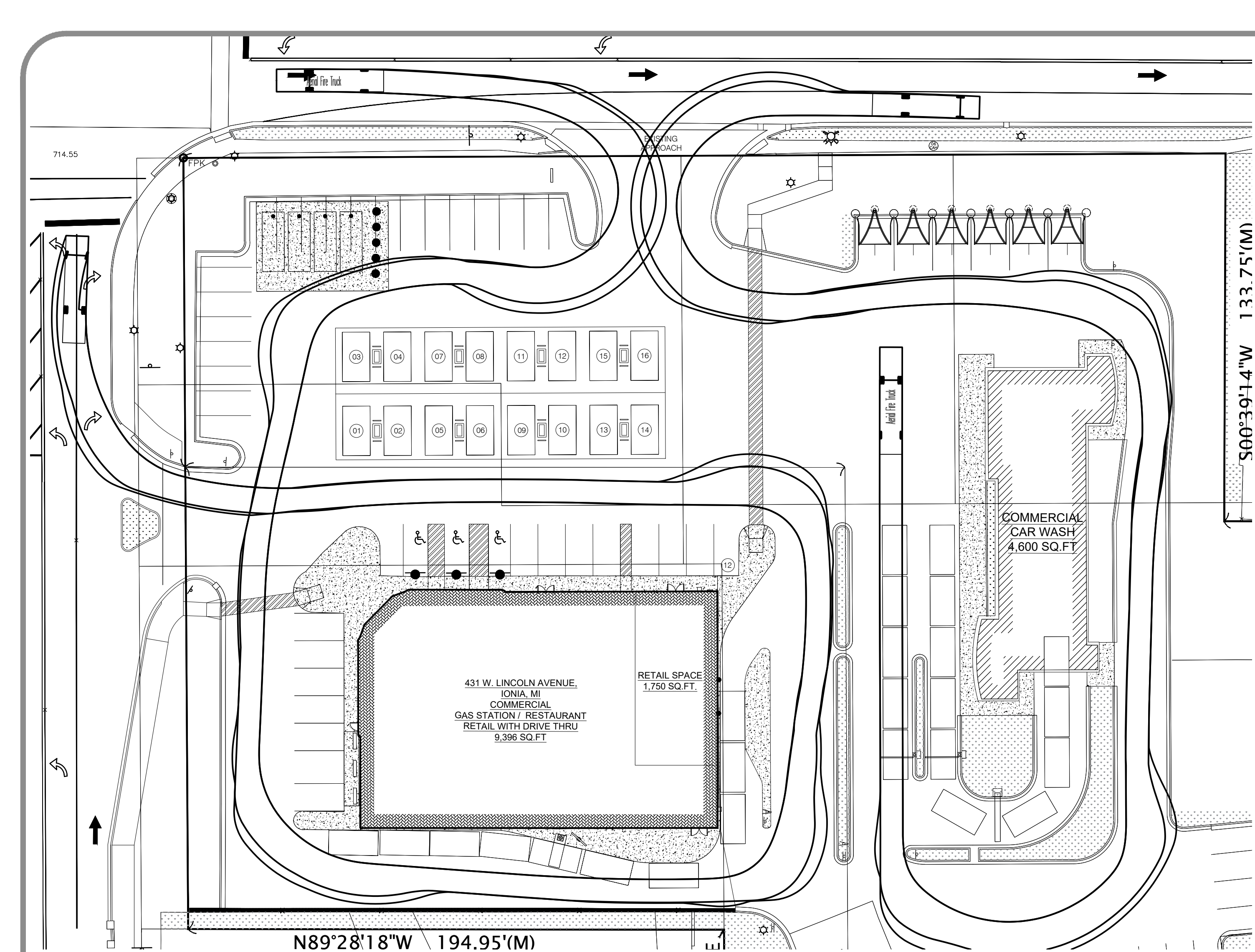
Date: 05/02/2025

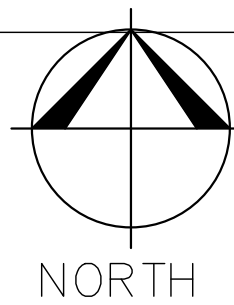
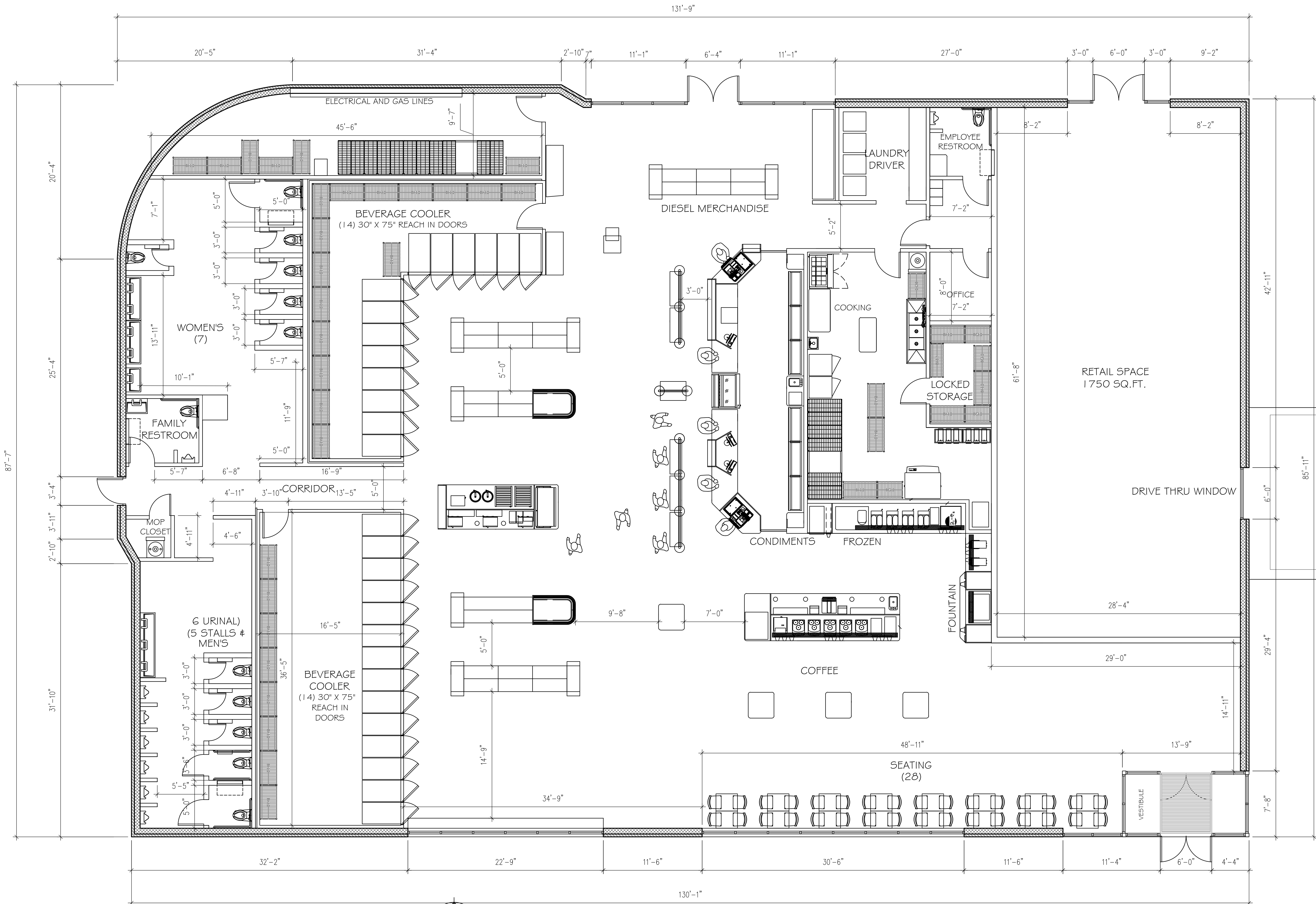
Scale: Noted

Project Number:
25-119

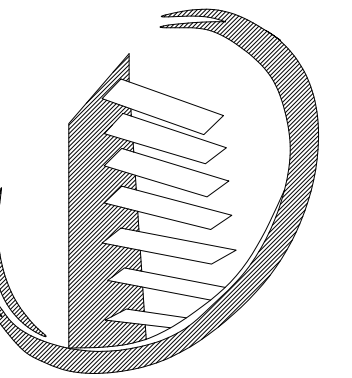
Sheet Number:

SP-5





PROPOSED FLOOR PLAN (GAS STATION)
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

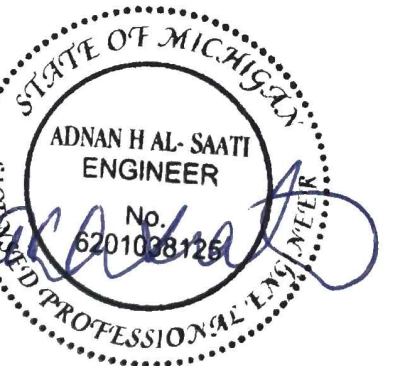
Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED FLOOR PLAN
GAS STATION

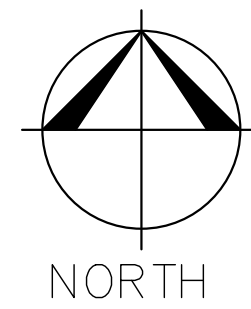
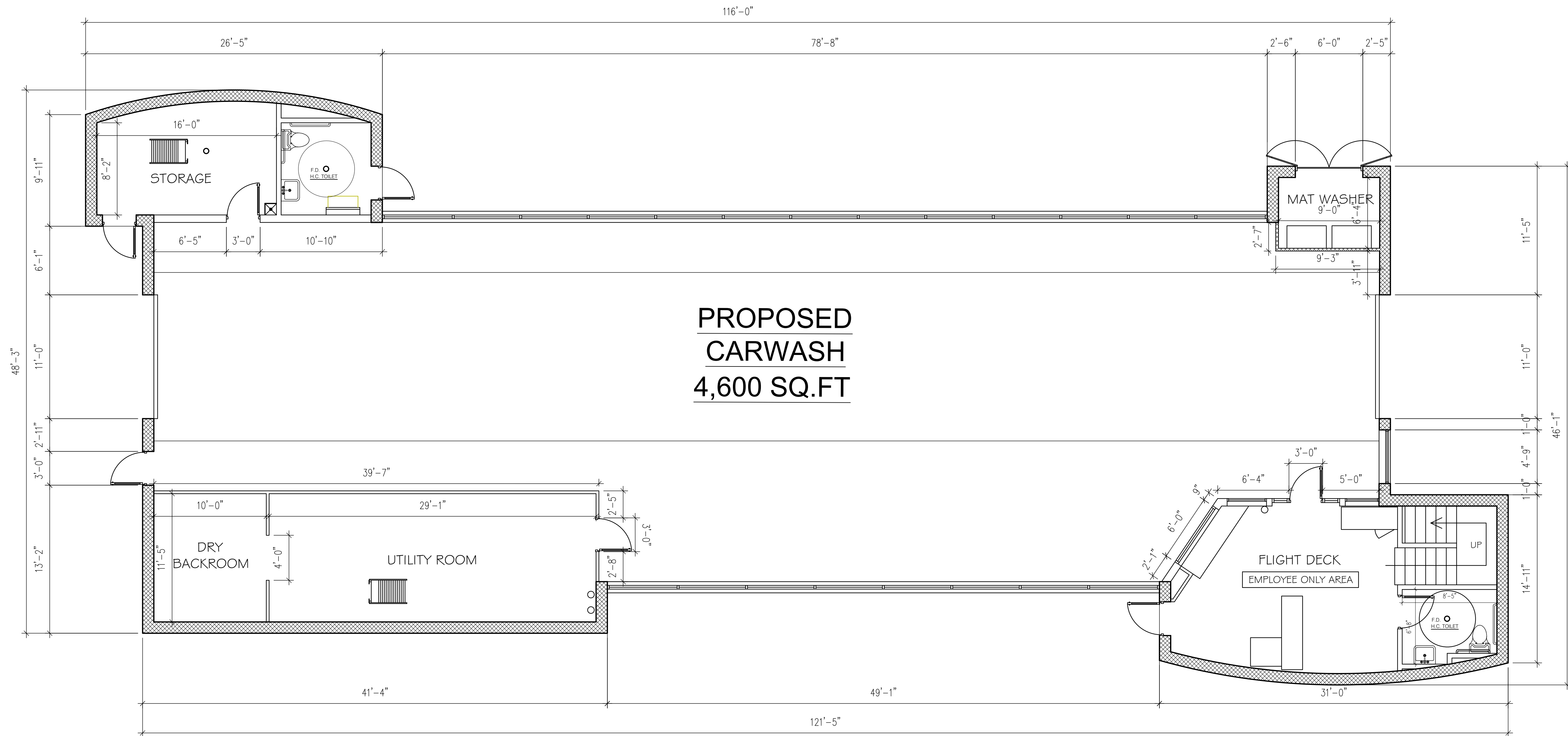
Date:
05/02/2025

Scale:
Noted

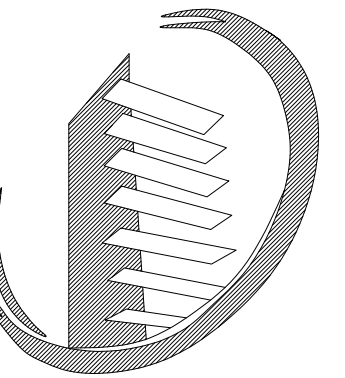
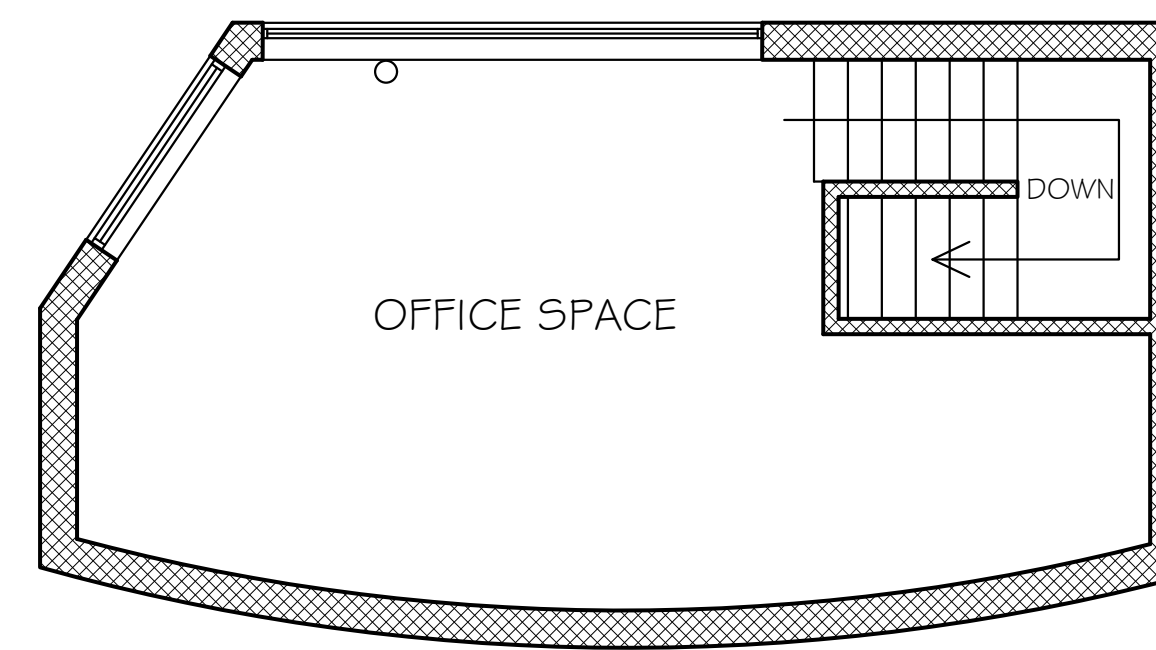
Project Number:
25-119

Sheet Number:

A-1



PROPOSED PLANS (CAR WASH)
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

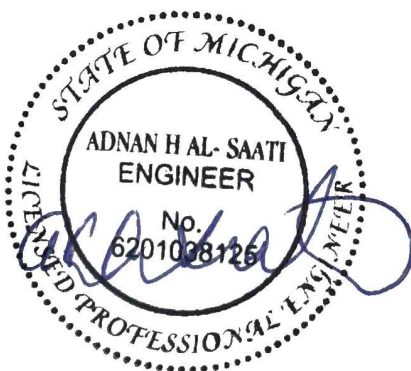
Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED FLOOR PLAN
CAR WASH

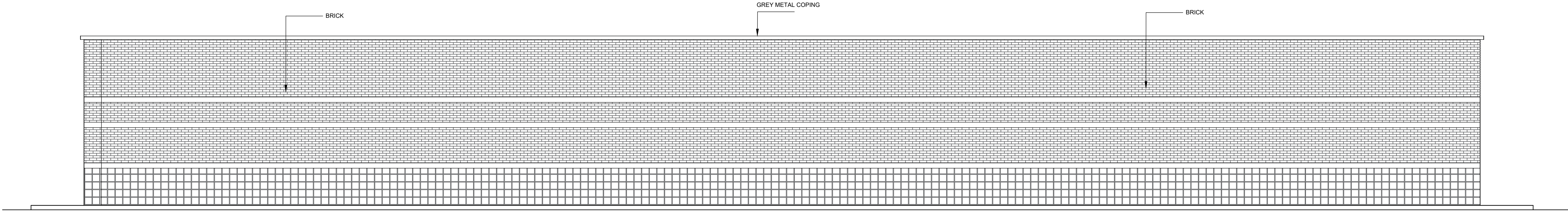
Date:
05/02/2025

Scale:
Noted

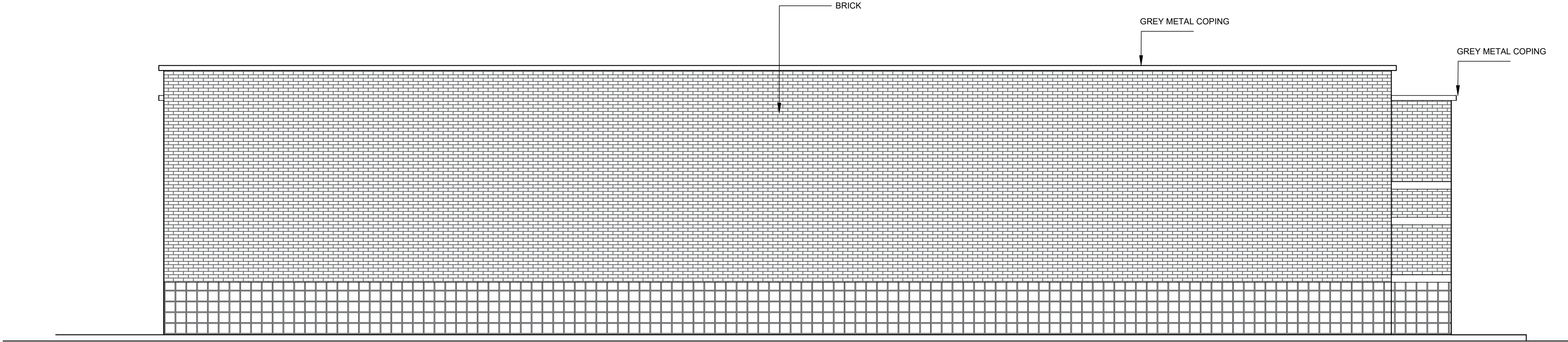
Project Number:
25-119

Sheet Number:

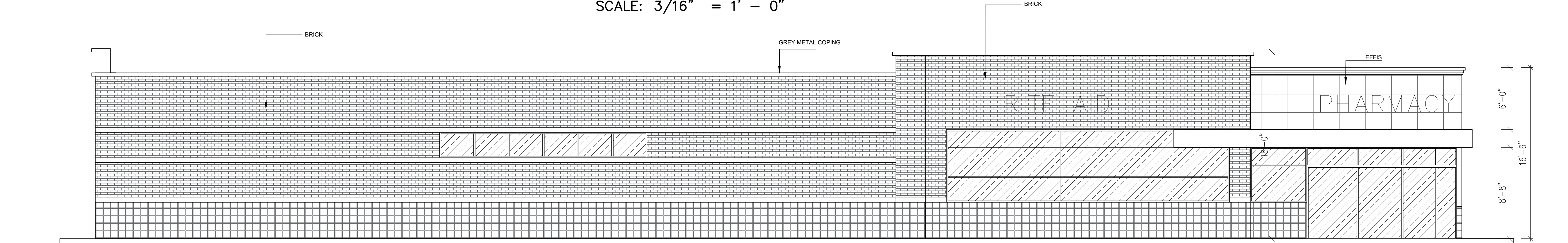
A-1.1



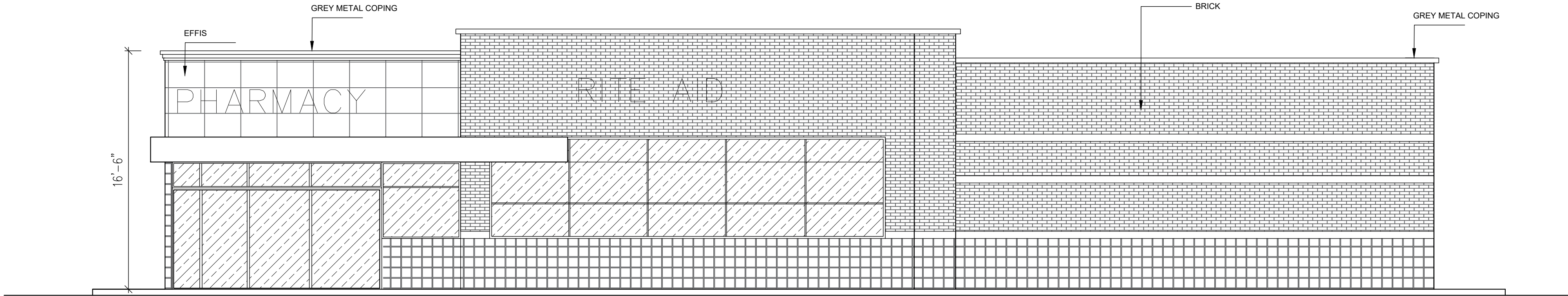
EXISTING SOUTH ELEVATION
SCALE: 3/16" = 1' - 0"



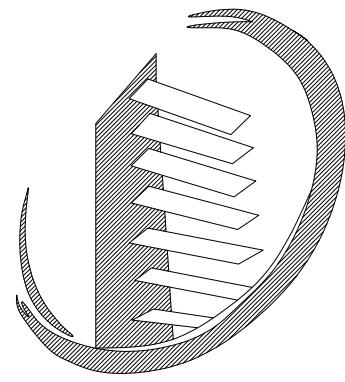
EXISTING EAST ELEVATION
SCALE: 3/16" = 1' - 0"



EXISTING NORTH ELEVATION
SCALE: 3/16" = 1' - 0"



EXISTING WEST ELEVATION
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

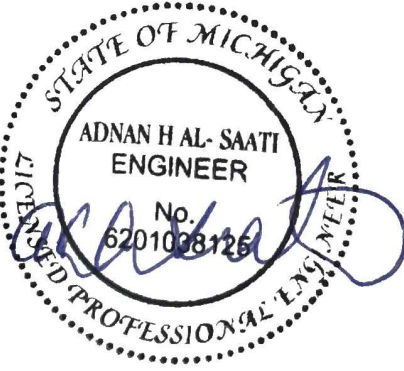
Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
EXISTING ELEVATIONS
GAS STATION

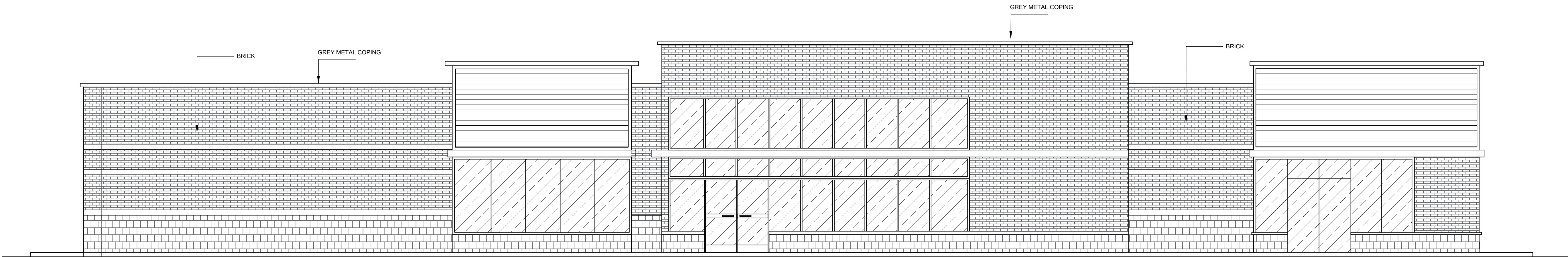
Date:
05/02/2025

Scale:
Noted

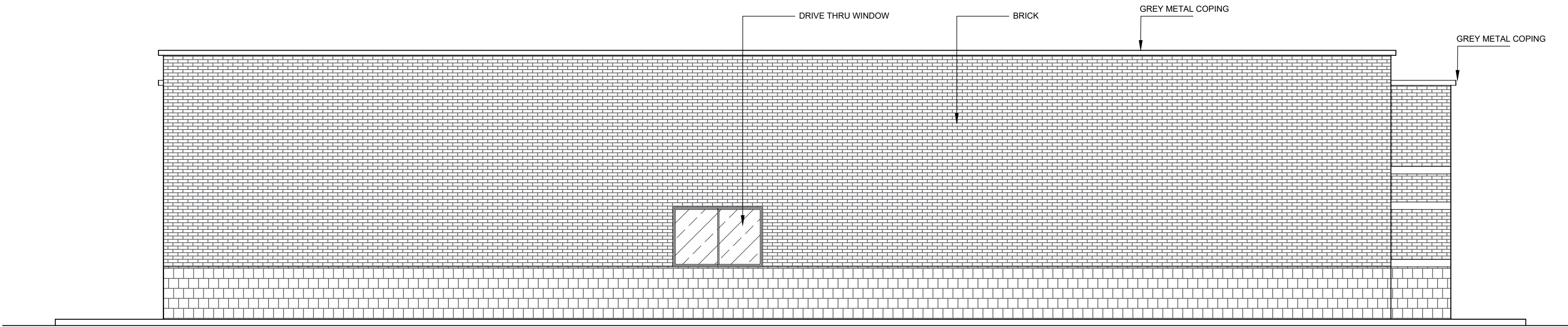
Project Number:
25-119

Sheet Number:

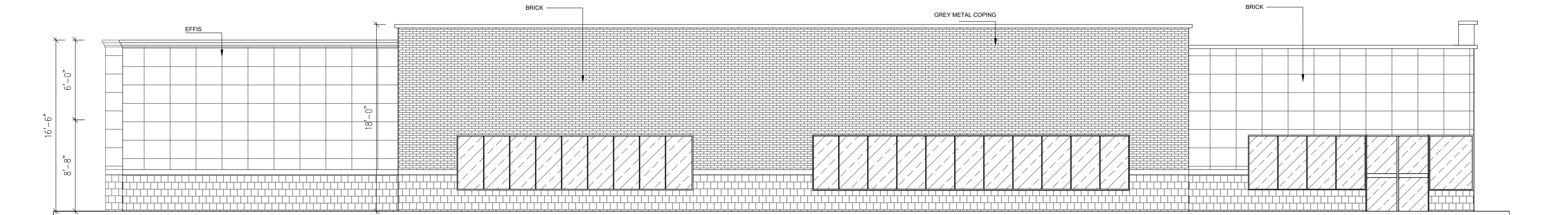
A-2



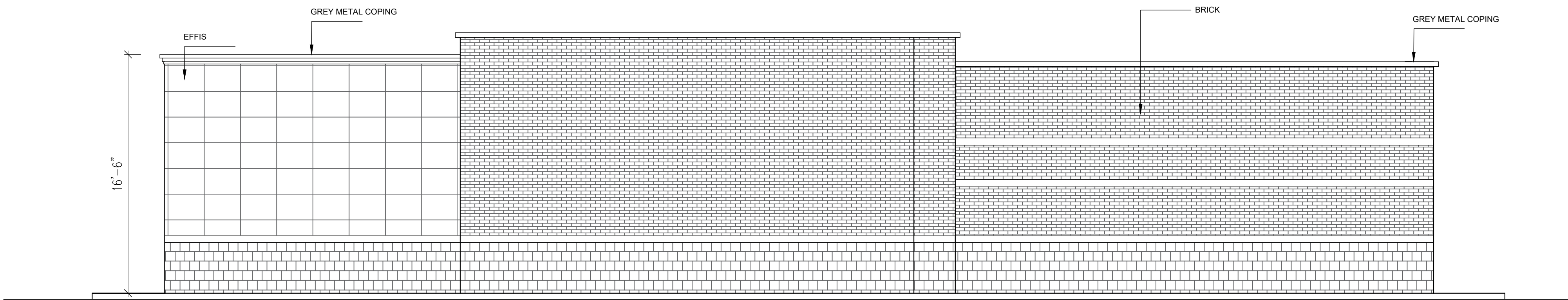
PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1' - 0"



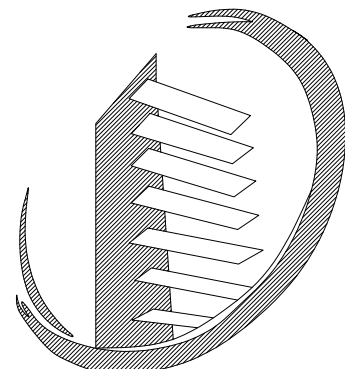
PROPOSED EAST ELEVATION
SCALE: 3/16" = 1' - 0"



PROPOSED NORTH ELEVATION
SCALE: 3/16" = 1' - 0"



PROPOSED WEST ELEVATION
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

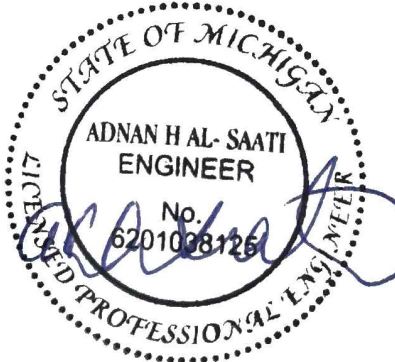
Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED ELEVATIONS
GAS STATION

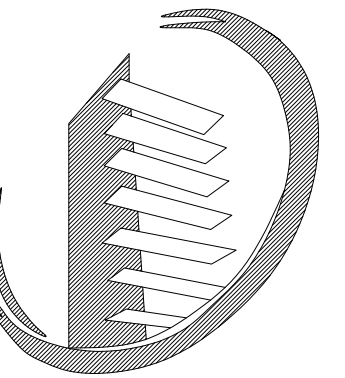
Date:
05/02/2025

Scale:
Noted

Project Number:
25-119

Sheet Number:

A-2.1



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED ELEVATIONS
CAR WASH

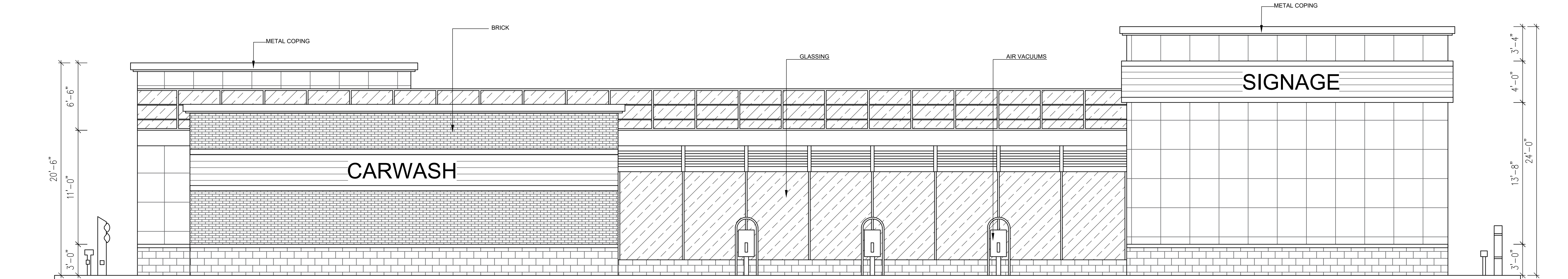
Date:
05/02/2025

Scale:
Noted

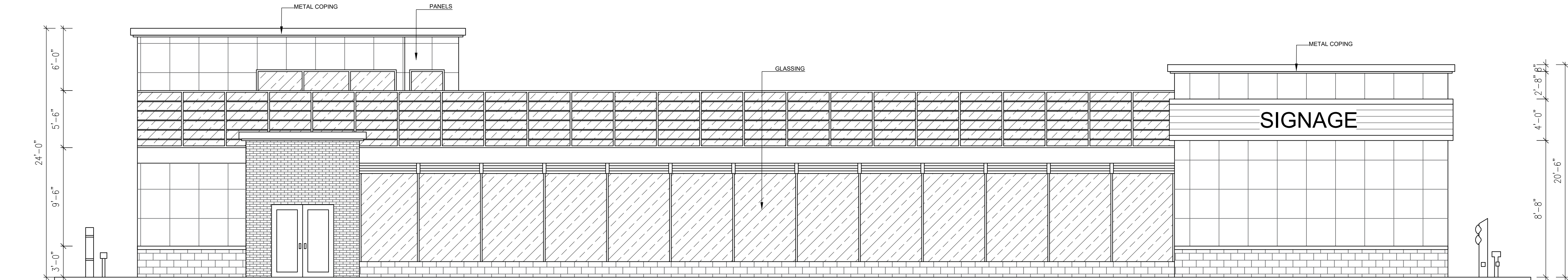
Project Number:
25-119

Sheet Number:

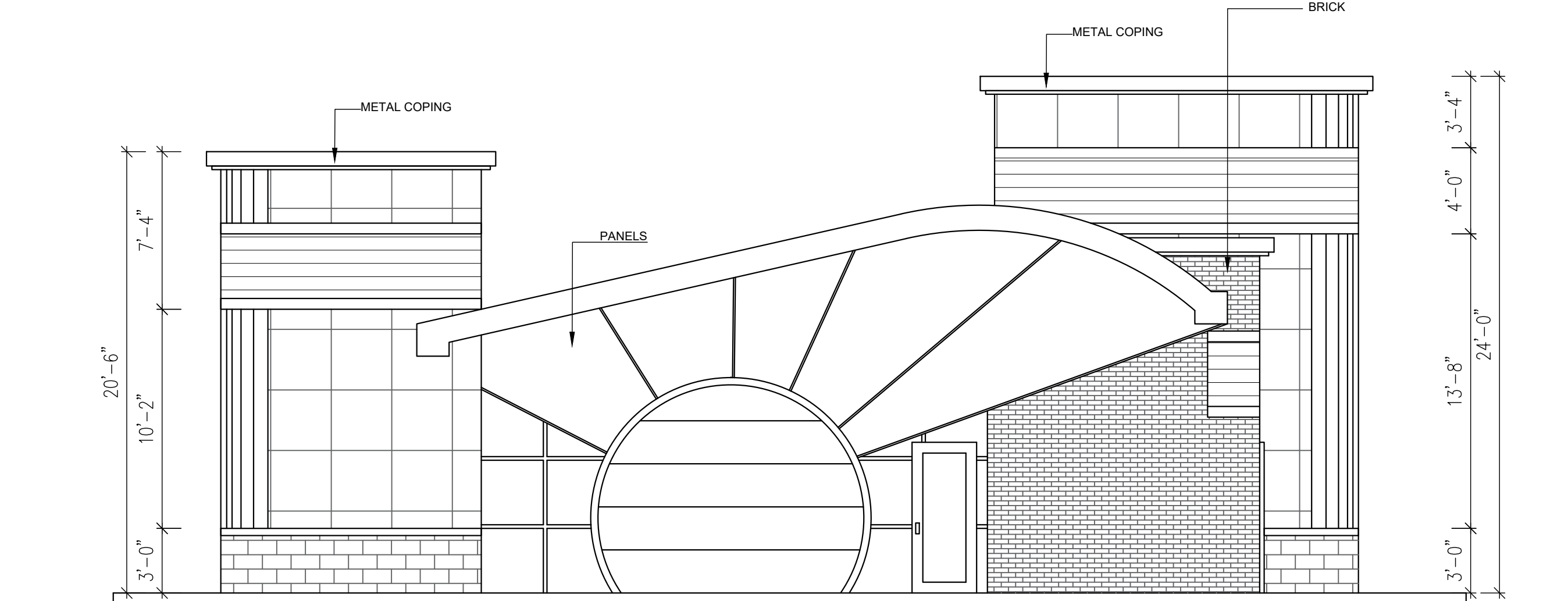
A-2.2



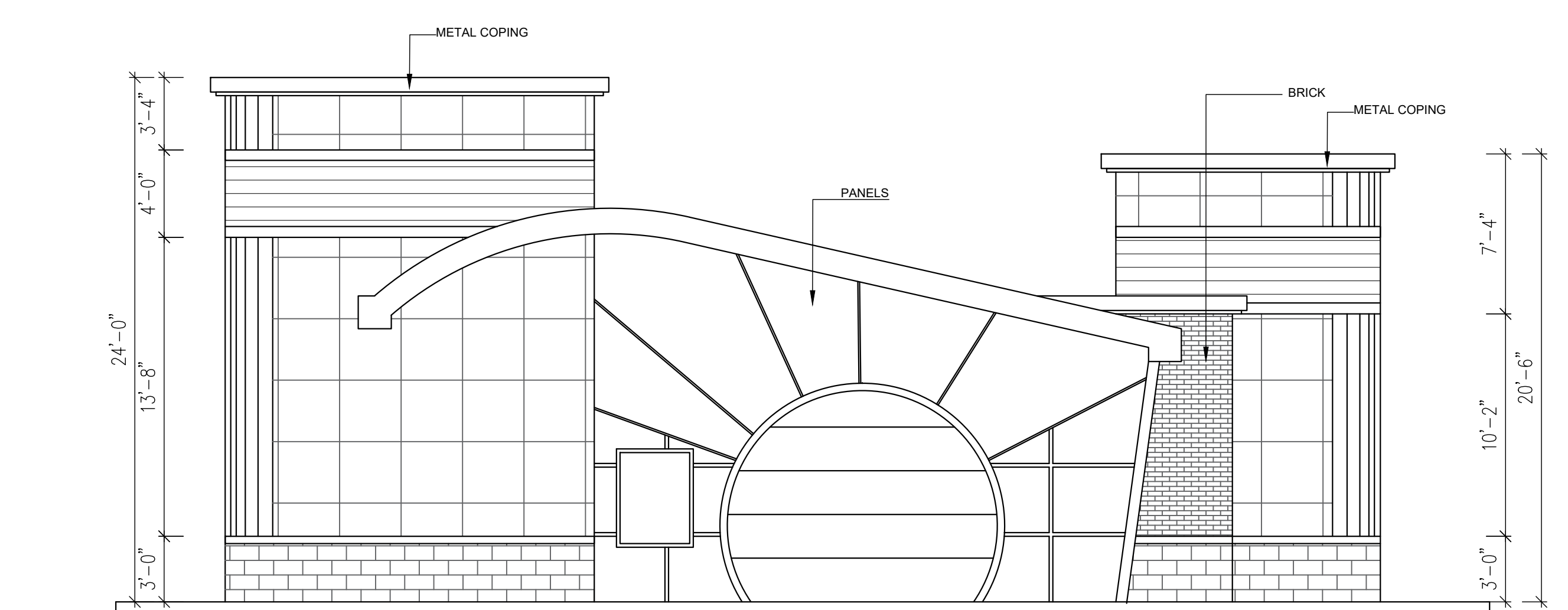
PROPOSED WEST ELEVATION
SCALE: 3/16" = 1' - 0"



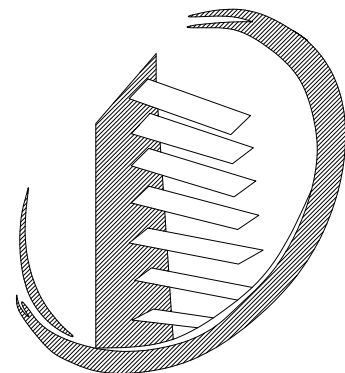
PROPOSED EAST ELEVATION
SCALE: 3/16" = 1' - 0"



PROPOSED NORTH ELEVATION
SCALE: 3/16" = 1' - 0"



PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For
12/18/2025 BUILD. DEP.

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:

PROPOSED ROOF PLAN
(CAR WASH)

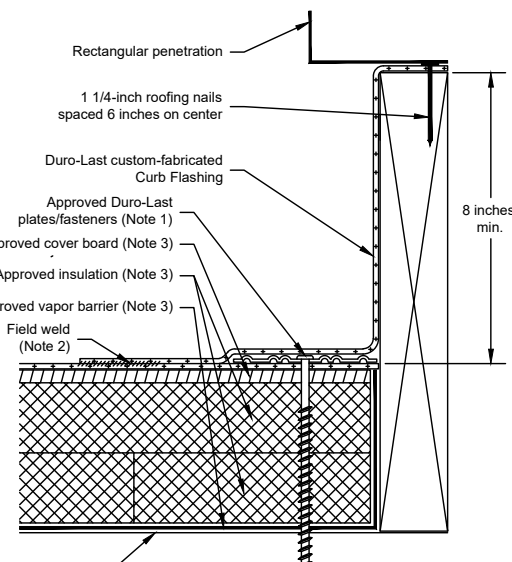
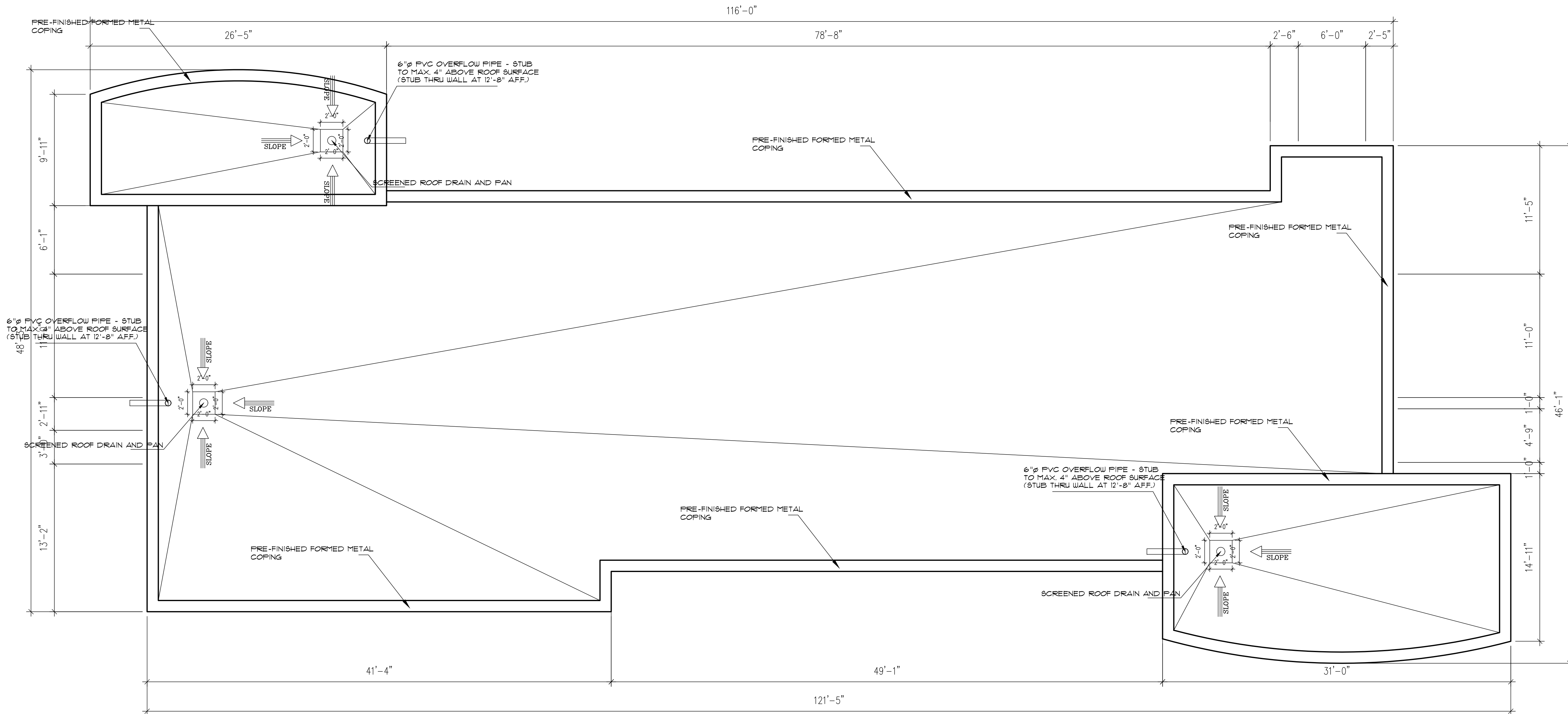
Date: 05/02/2025

Scale: Noted

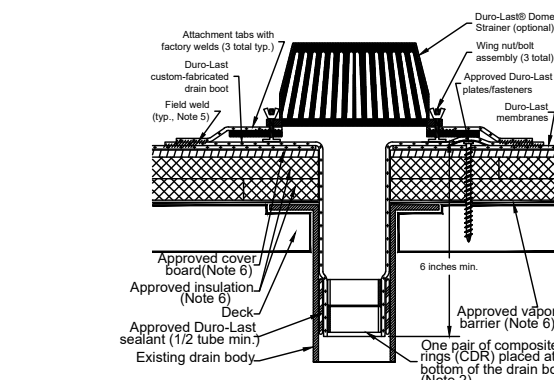
Project Number:
25-119

Sheet Number:

A-3



Note 1: Deck membrane shall be fastened around perimeter of roof penetration as per respective zone the roof access hatch is located within (field, perimeter, corner).
Note 2: All field welds shall be a minimum of 1-1/2 inches wide.
Note 3: Refer to specifications for vapor barrier, insulation and cover board requirements.



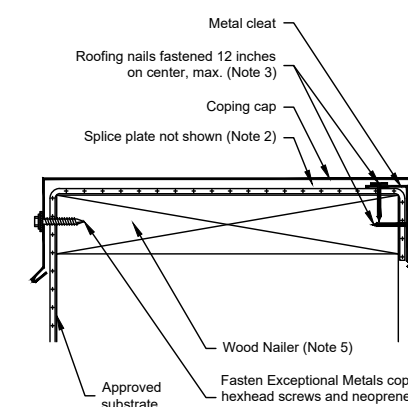
Note 1: Membrane must be fastened around the perimeter of the drain with the same fastening pattern as the field membrane, no less than 1 fastener per drain.
Note 2: The openings in the CDRs must face in opposite directions. Sealant must be behind the membrane at the CURS location.
Note 3: Dome Strainer attachment tabs are secured to the roof membrane by heat welding.
Note 4: Duro-Last Dome Strainers (optional) must only be used with roof drains that are 6 inches in diameter or less.
Note 5: All field welds shall be a minimum of 1-1/2 inches wide.
Note 6: Refer to specifications for vapor barrier, insulation and cover board requirements.

NOTES:

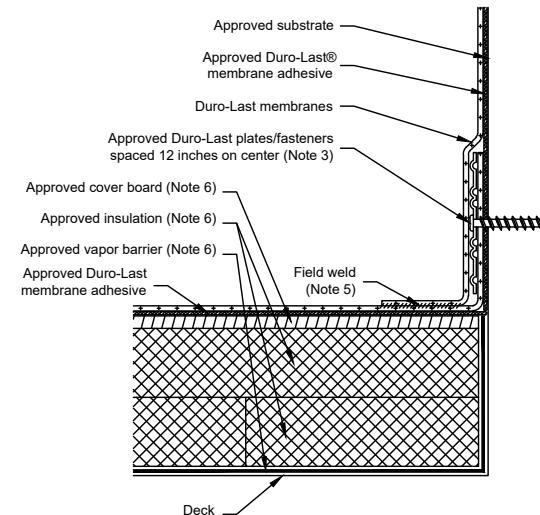
1. ROOFING CONTRACTOR SHALL PROVIDE AND INSTALL ALL FLASHINGS, ROOFING ACCESSORIES, ROOF DRAINS, INSUL, ROOF CURBS AND VENTS w/ RAIN CAPS, ETC. TO PROVIDE A WEATHER-TIGHT INSTALLATION.
2. ROOFING CONTRACTOR TO COORDINATE ALL ROOF PENETRATIONS AND OPENINGS WITH THE TRUSS ERECTOR.
3. THE ROOFING CONTRACTOR SHALL DOCUMENT TO THE BUILDING OFFICIAL THAT THE COMPONENTS OF THE ROOF ARE CONSISTENT WITH CLASS 'B' ROOF COVERINGS.

MEMBRANE ROOF SPECIFICATION

SINGLE-PLY, WHITE, MECH. FASTENED, ELASTOMERIC 60 MIL (DL60) MEMBRANE - FULLY ADHERED ON 5" POLYISOCYANURATE RIGID INSUL. ON METAL DECK BY 'DURO-LAST SYSTEMS' OR EQUAL (PROVIDE THE MANUF. 15 YEAR WARRANTY FOR ALL MATERIALS AND LABOR INCLUDING INSULATION, AND COVERAGE FOR DAMAGE CAUSED BY WIND UP TO 68 MPH.)



Note 1: All coping cap joints must utilize a 6-inch concealed splice plate.
Note 2: Refer to Detail Drawing 8050 for splice plate installation instructions.
Note 3: All fasteners must penetrate into metal by a minimum of 1-1/2 inches.
Note 4: Fasten other manufacturers' products per manufacturer's specifications.
Note 5: Wood nailers must withstand a minimum force of 180 pounds per linear foot (per building code). Any pull values greater than 270 pounds will allow for a fastener spacing of 18 inches on center. Pull values less than 270 pounds will require additional fasteners. The installing contractor is responsible for meeting building codes.



Note 1: When deck membrane is adhered and wall membrane is mechanically fastened, refer to Detail Drawings A5000 and A5001.
Note 2: Minimum termination height is 8 inches above finished roof deck.
Note 3: When wall flashing exceeds 5 feet in height, horizontal rows of plates/fasteners are required at 5-foot intervals and spaced 12 inches on center along rows.
Note 4: Any approved membrane plate may be used, it is recommended to use 3-inch Metal Plates or Cleat Plates.
Note 5: All field welds shall be a minimum of 1-1/2 inches wide.
Note 6: Refer to specifications for vapor barrier, insulation and cover board requirements.

Jonathan Bowman

From: Keen, Kerwin (MDOT) <KeenK2@michigan.gov>
Sent: Tuesday, July 28, 2026 3:35 PM
To: Jonathan Bowman
Subject: RE: 431 W. Lincoln Ave.

Jon,
We're awaiting some surety and insurance documentation but administratively, the permit is complete.
Kerwin

From: Jonathan Bowman <jbowman@ci.ionia.mi.us>
Sent: Tuesday, July 28, 2026 2:45 PM
To: Keen, Kerwin (MDOT) <KeenK2@michigan.gov>
Subject: 431 W. Lincoln Ave.

CAUTION: This is an External email. Please report suspicious emails via the "Report to Abuse" button in Outlook

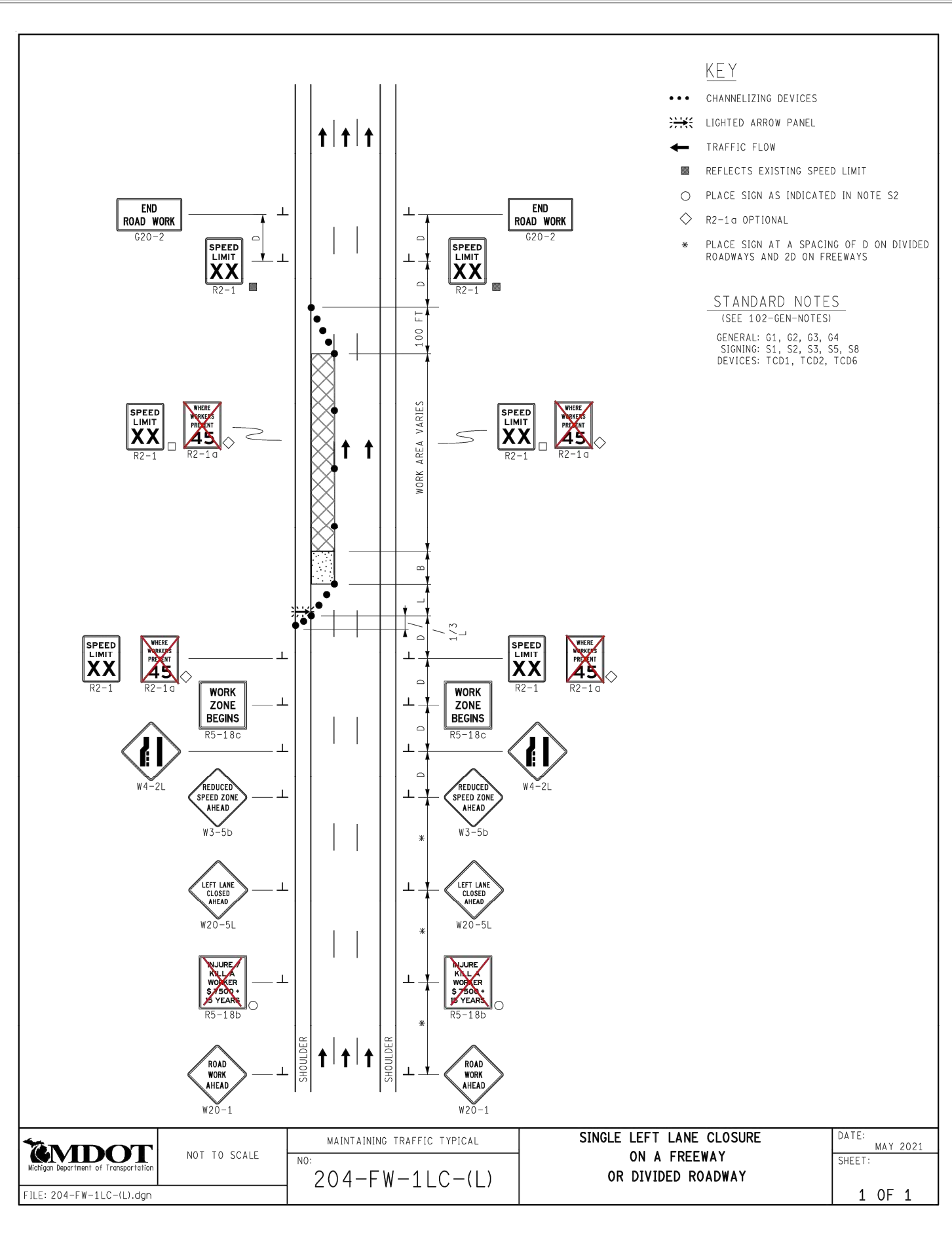
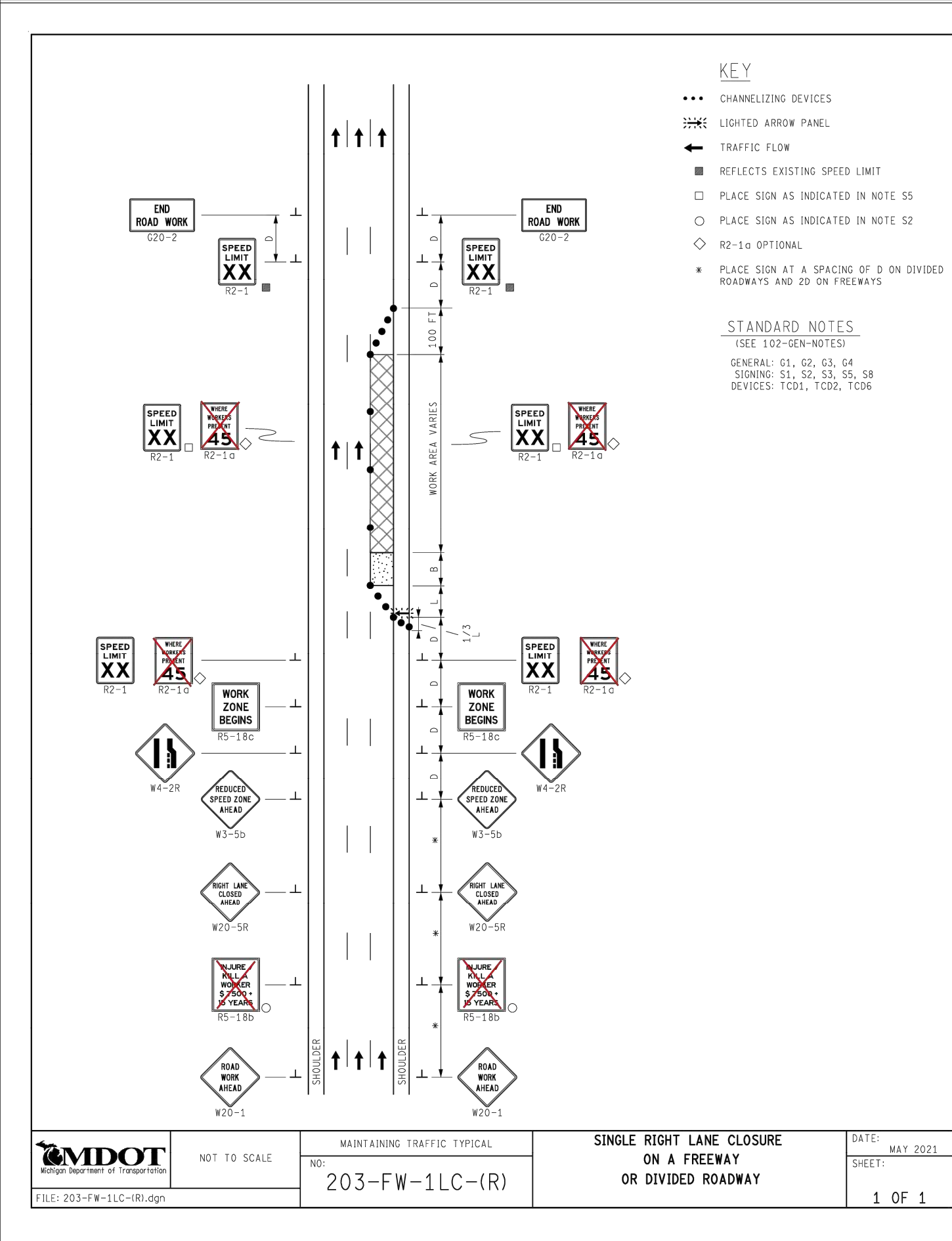
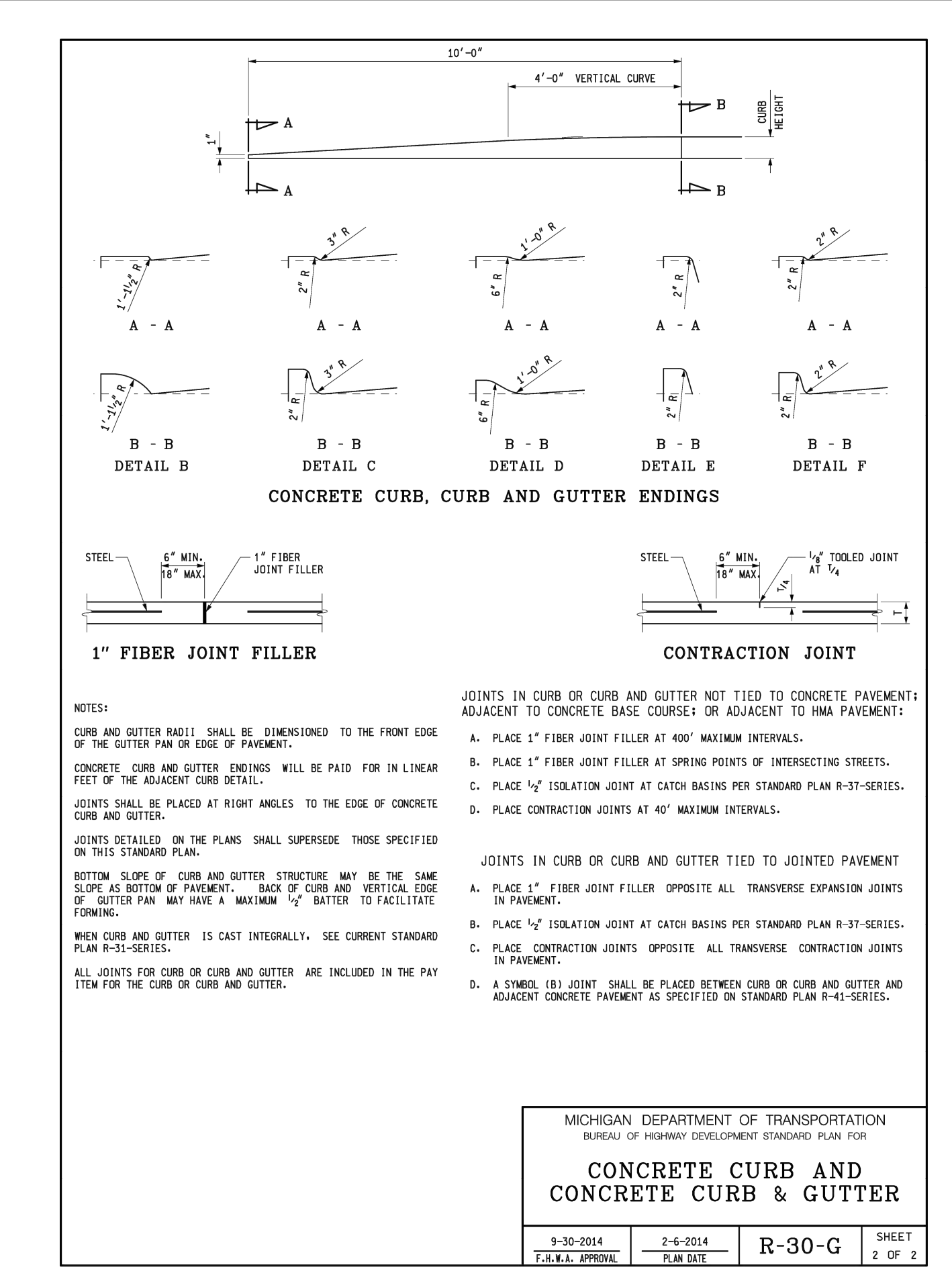
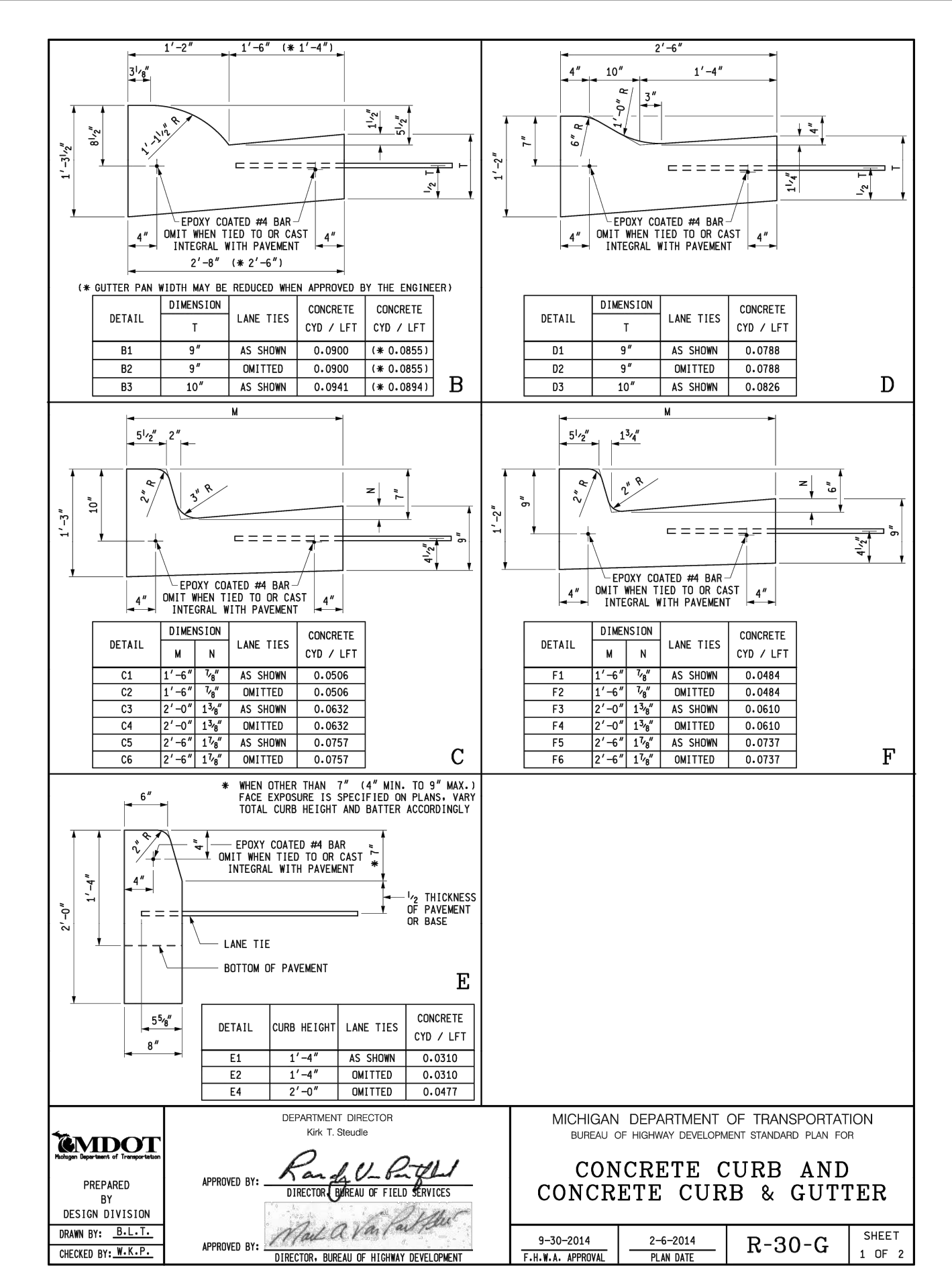
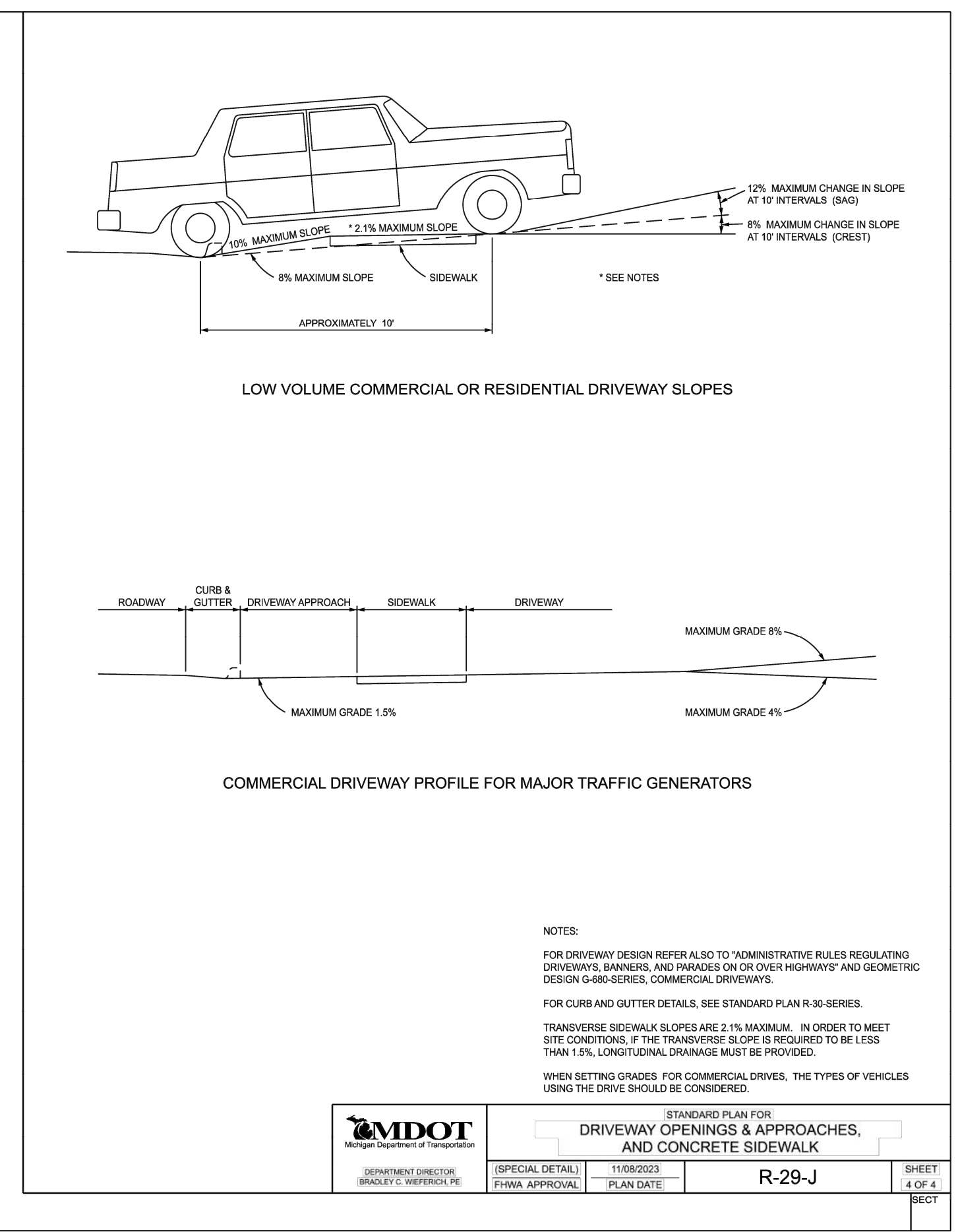
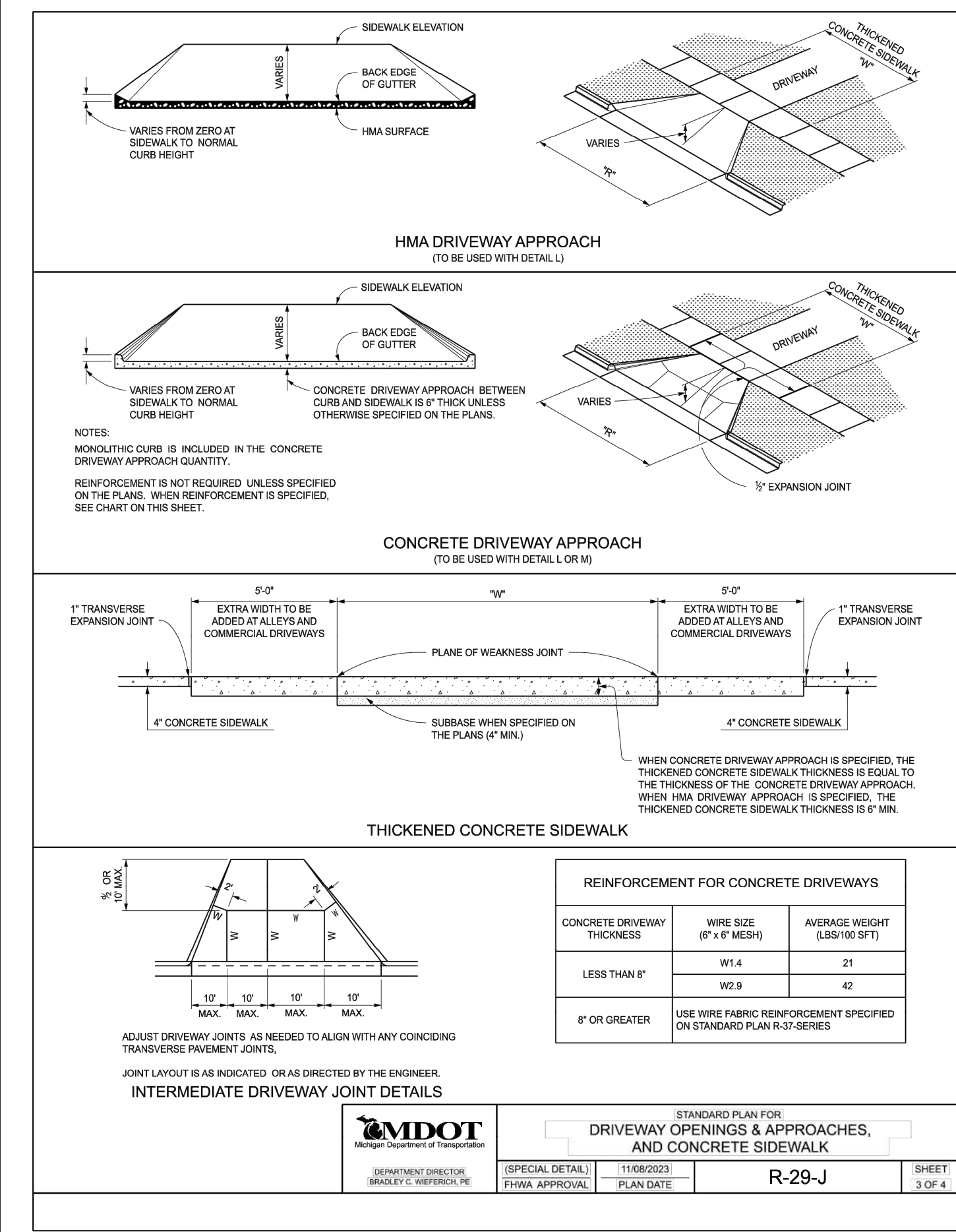
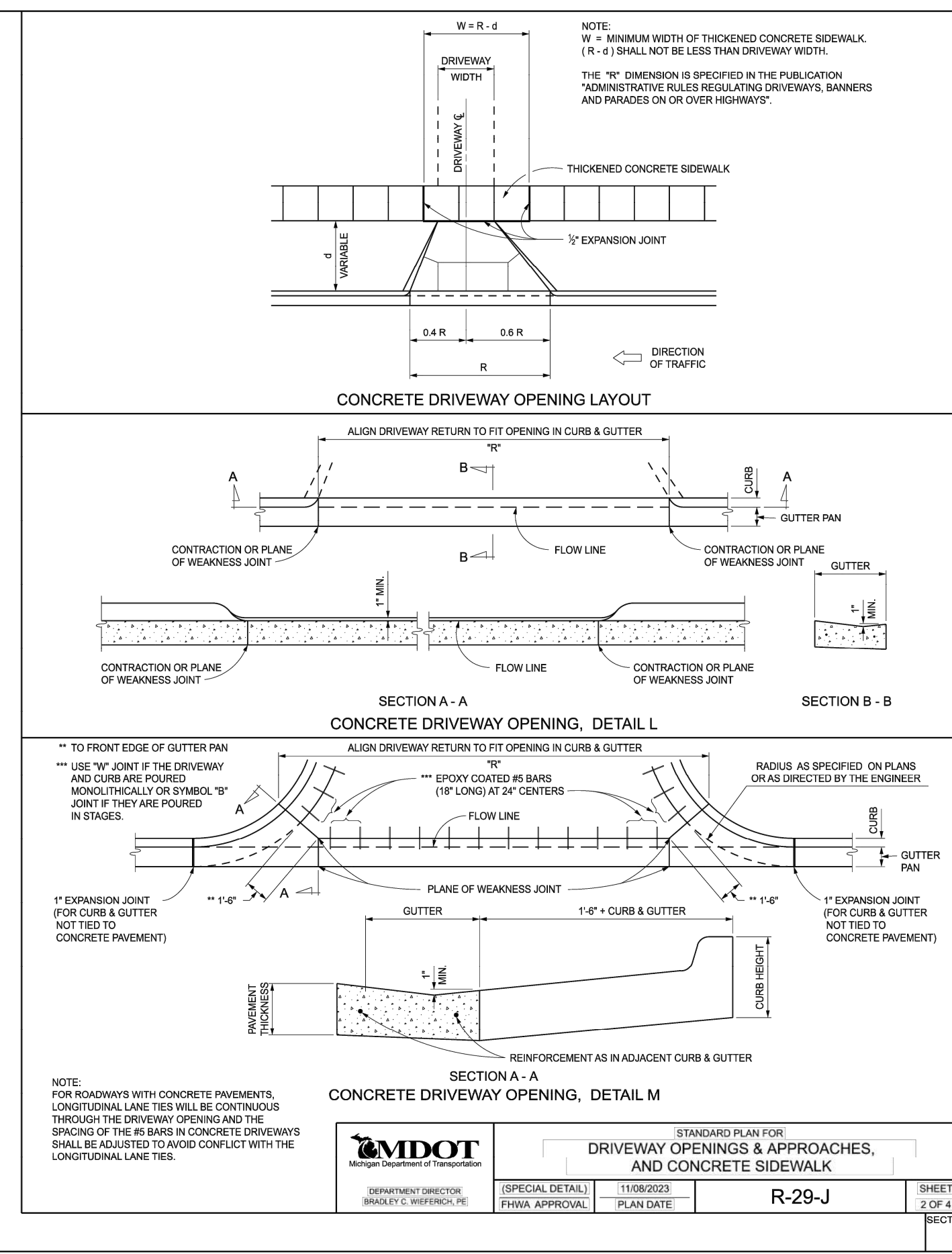
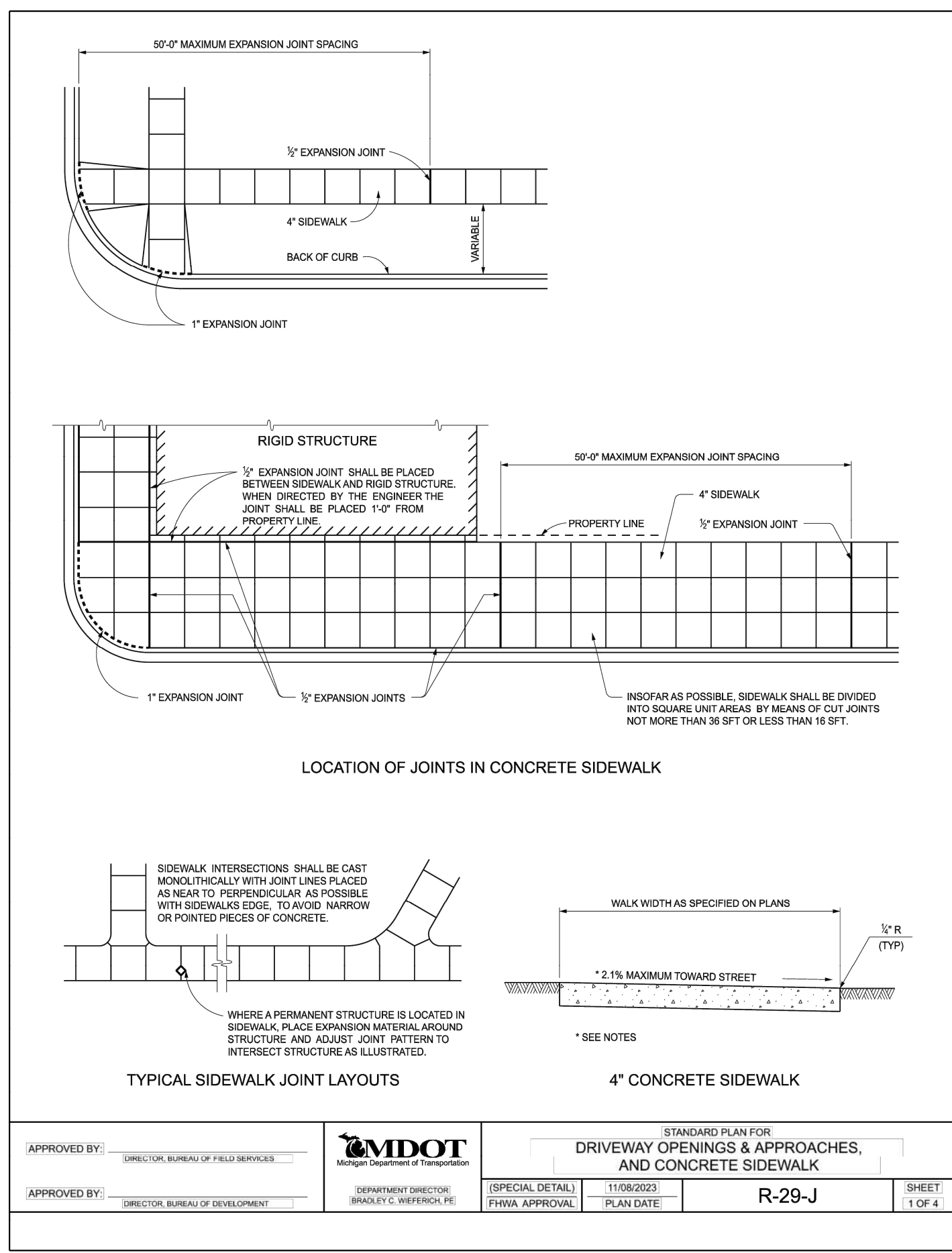
Good Afternoon,

I wanted to reach out about redevelopment of 431 W. Lincoln Avenue. Can you confirm if they have received their MDOT approval for this project? Do you have an approval letter that I could put on file?

Thank you,

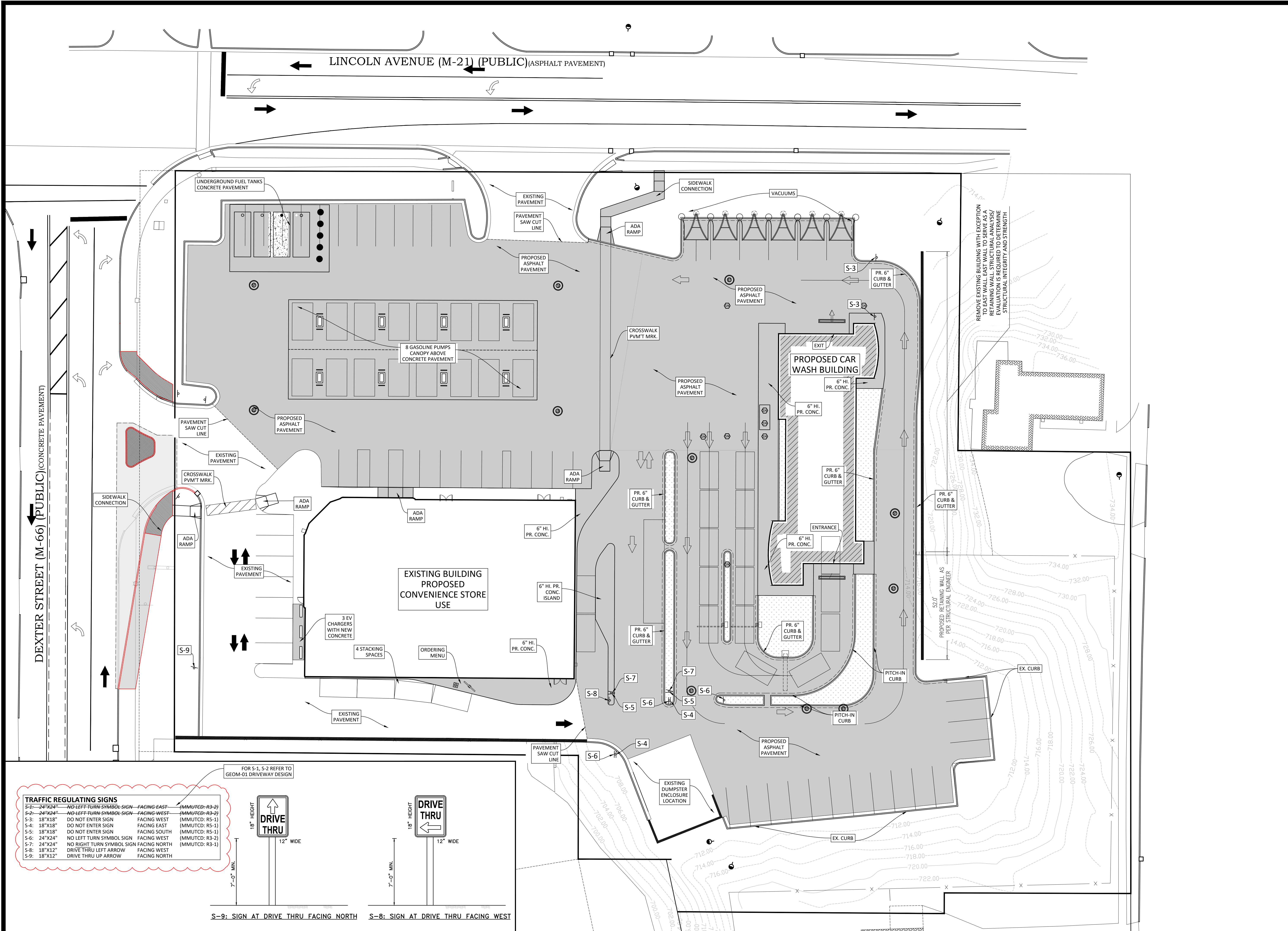
Jonathan T. Bowman

Assistant City Manager & City Clerk
City of Ionia, Michigan
jbowman@ci.ionia.mi.us
(616) 523-0147



I HEREBY CERTIFY THAT THIS PLAN AND SPECIFICATION WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ARCHITECT OR ENGINEER UNDER THE LAWS OF THE STATE OF MICHIGAN BY MY HAND AND SEAL.

Ghassan Khabab



05/28/26
02/09/26

MDOT DRIVEWAY SIGNS

MARK	DATE	DESCRIPTION
CONSULTANT		
GHASSAN KHALAF		
TEL: 313-377-9449		
e-mail: GK@GKCI.NET		
ADDRESS: 5648 MIDDLEBELT RD		
GARDEN CITY, MI 48135		
COPYRIGHT		
DUPLICATION STRICTLY PROHIBITED WITHOUT THE WRITTEN CONSENT OF CONSULTANT.		

I hereby certify that this plan and specification was prepared by me or under my direct supervision and that I am a duly registered Architect or Engineer under the Laws of the State of Michigan by my hand and seal.

STATE OF MICHIGAN

GHASSAN KHALAF

ENGINEER

No. 6201058670

REGISTERED PROFESSIONAL ENGINEER

GHASSAN KHALAF

**PROPOSED
GAS STATION / CAR WASH**
421 W LINCOLN AVE.,
431 W LINCOLN AVE.,
IONIA, MI 48846

SHEET TITLE

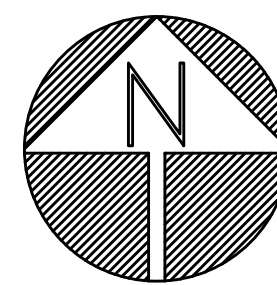
PAVEMENT AND SIGNS
PLANS

SCALE

1" = 20'-0"

SHEET No.

C-01



Traffic Impact Study Gas Station/Fast Food Restaurant & Car Wash

City of Ionia Ionia County, Michigan

Prepared for
N.C. Designer
3241 S. Telegraph Road
Deaborn, Michigan 48124

January, 2026

AEW Project No.
1772-0001



Prepared by: Mohammad Lutfi, P.E., PTOE
Alexa Sorenson



ANDERSON, ECKSTEIN & WESTRICK, INC.
CIVIL ENGINEERS - SURVEYORS - ARCHITECTS
Shelby Township - Roseville - Livonia
586.726.1234 | www.aewinc.com

Table of Contents

EXECUTIVE SUMMARY	3
1.0 STUDY BACKGROUND AND PURPOSE	5
1.1 SCOPE OF STUDY.....	7
2.0 STUDY AREA CHARACTERISTICS	8
2.1 ROADWAY CHARACTERISTICS	8
3.0 EXISTING TRAFFIC CONDITIONS	8
3.1 EXISTING TRAFFIC CONDITIONS.....	8
3.2 TRAFFIC OPERATIONS ANALYSIS METHODOLOGY	11
3.3 EXISTING LEVEL OF SERVICE.....	12
4.0 BACKGROUND TRAFFIC ANALYSIS	13
4.1 BACKGROUND DEVELOPMENTS.....	13
4.2 BACKGROUND TRAFFIC GROWTH.....	17
4.2 BACKGROUND LEVEL OF SERVICE.....	19
5.0 PROPOSED BUILD CONDITIONS	20
5.1 BUILD TRIP GENERATIONS	20
5.2 TRIP DISTRIBUTION.....	20
6.0 BUILD CONDITIONS.....	24
6.1 BUILD LEVEL OF SERVICE.....	24
7.0 MITIGATION CONDITIONS	25
8.0 QUEUE ANALYSIS.....	26
9.0 CRASH ANALYSIS	27
10.0 RIGHT TURN WARRANTS.....	28
10.1 RIGHT TURN-LANE WARRANT.....	28
11.0 CONCLUSION AND RECOMMENDATIONS.....	30

List of Figures

FIGURE 1.1 – PROPOSED DEVELOPMENT LOCATION	5
FIGURE 1.2 – PRELIMINARY SITE PLAN	6
FIGURE 1.3 – STUDY INTERSECTION	7
FIGURE 3.1 – EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL.....	9
FIGURE 3.2 – 2025 COLLECTED PEAK HOUR VOLUMES	10
FIGURE 4.4 – BACKGROUND PEAK HOUR VOLUMES.....	18
FIGURE 5.1 – TRIP DISTRIBUTION.....	21
FIGURE 5.2 – TRIP GENERATION DISTRIBUTION	22
FIGURE 5.3 – 2026 BUILD PEAK HOUR VOLUME.....	23
FIGURE 10.1 – DEXTER STREET RIGHT-TURN LANE/TAPER ANALYSIS	29
FIGURE 10.2 – LINCOLN AVENUE RIGHT-TURN LANE/TAPER ANALYSIS	29

List of Tables

TABLE 2.1 – ROADWAY CHARACTERISTICS	8
TABLE 3.1 – LEVEL OF SERVICE DEFINITIONS AND CRITERIA	11
TABLE 3.2 – 2025 EXISTING CONDITION LOS INTERSECTION ANALYSIS	12
TABLE 5.1 – BACKGROUND DEVELOPMENT TRIP GENERATION	14
TABLE 4.1 – 2026 BACKGROUND CONDITION LOS PEAK HOUR ANALYSIS	19
TABLE 5.1 – PROPOSED BUILD TRIP GENERATION	20
TABLE 6.1 – BUILD LEVEL OF SERVICE PEAK HOUR FACTOR	24
TABLE 7.1 – MITIGATION LEVEL OF SERVICE PEAK HOUR FACTOR	25
TABLE 8.1 – QUEUE ANALYSIS	26
TABLE 9.1 – CRASH DATA	27

Appendices

Appendix A – Preliminary Site Plan
Appendix B – Traffic Counts
Appendix C – Existing Condition Reports LOS
Appendix D – Background Development Site Plan
Appendix E – 2026 Background Conditions Summary Reports
Appendix F – ITE Trip Generation
Appendix G – 2026 Build Condition Report LOS
Appendix H – 2026 Mitigation Condition Report LOS
Appendix I – Crash Data

EXECUTIVE SUMMARY

This Traffic Impact Study (TIS) evaluates the transportation impacts associated with the proposed redevelopment of an existing vacant site into a convenience store/gas station, fast-food restaurant with drive-through, and automated car wash in the City of Ionia, Michigan.

The proposed development is located on the east side of Dexter Street (M-66) and the south side of Lincoln Avenue (M-21) and includes 16 fueling positions, a 9,396-square-foot fast-food restaurant with drive-through, and a 4,600-square-foot automated car wash. The site will be accessed by two full-access driveways, one on each adjacent roadway.

Traffic data was collected on Tuesday, December 9, 2025, at the following study intersections:

- Lincoln Avenue (M-21) & Dexter Street (M-66)
- Lincoln Avenue (M-21) & North State Street
- Lincoln Avenue (M-21) & Union Street

Existing, background (2026), build, and mitigation conditions were analyzed using Synchro 12 in accordance with Highway Capacity Manual methodologies. Under existing and background conditions, all study intersections operate at Level of Service (LOS) D or better, with the exception of the eastbound right-turn movement and overall operations at Dexter Street and Lincoln Avenue during the PM peak hour, which are already failing.

Trip generation for the proposed development was estimated using the ITE Trip Generation Manual (12th Edition), including appropriate pass-by reductions. The development is projected to generate 175 net new trips during the AM peak hour and 221 net new trips during the PM peak hour impacting the roadway network. These trips were distributed based on existing traffic patterns.

The build condition analysis indicates that the proposed development will result in minimal impacts to traffic operations, with all intersections and movements continuing to operate at LOS D or better, except for movements already failing under background conditions. Signal timing optimization at the Dexter Street and Lincoln Avenue intersection was evaluated and shown to improve overall intersection operations.

A queue analysis using SimTraffic 12 confirms that projected queues can be accommodated within available storage lengths. A review of five years of crash data found no crash patterns that would be adversely affected by the proposed development.

An evaluation of MDOT right-turn lane warrants indicates that right-turn deceleration lanes are warranted for both proposed driveways on Dexter Street and Lincoln Avenue.

Overall, the proposed development is expected to have minimal impact on the surrounding roadway network, and with the recommended improvements, traffic operations will remain acceptable and consistent with City of Ionia and MDOT standards.

1.0 STUDY BACKGROUND AND PURPOSE

This report presents the methodologies, analyses, and results of the Traffic Impact Study (TIS) for the proposed developments that will redevelop and renovate an existing site currently vacant by a former Rite Aide building. The project includes Convenience Store/Gas-Station, Fast-Food Restaurant with drive-through and Car Wash. The proposed development is located on the east side of Dexter Street (M-66) and the south side of Lincoln Avenue (M-21). The proposed development consists of 16 fueling positions with a 9,396 square-foot fast-food restaurant with a drive though and a 4,600 square-foot drive thru car wash. The proposed development location can be found in **Figure 1.1**, and the preliminary site plan can be found in **Figure 1.2** and **Appendix A**.

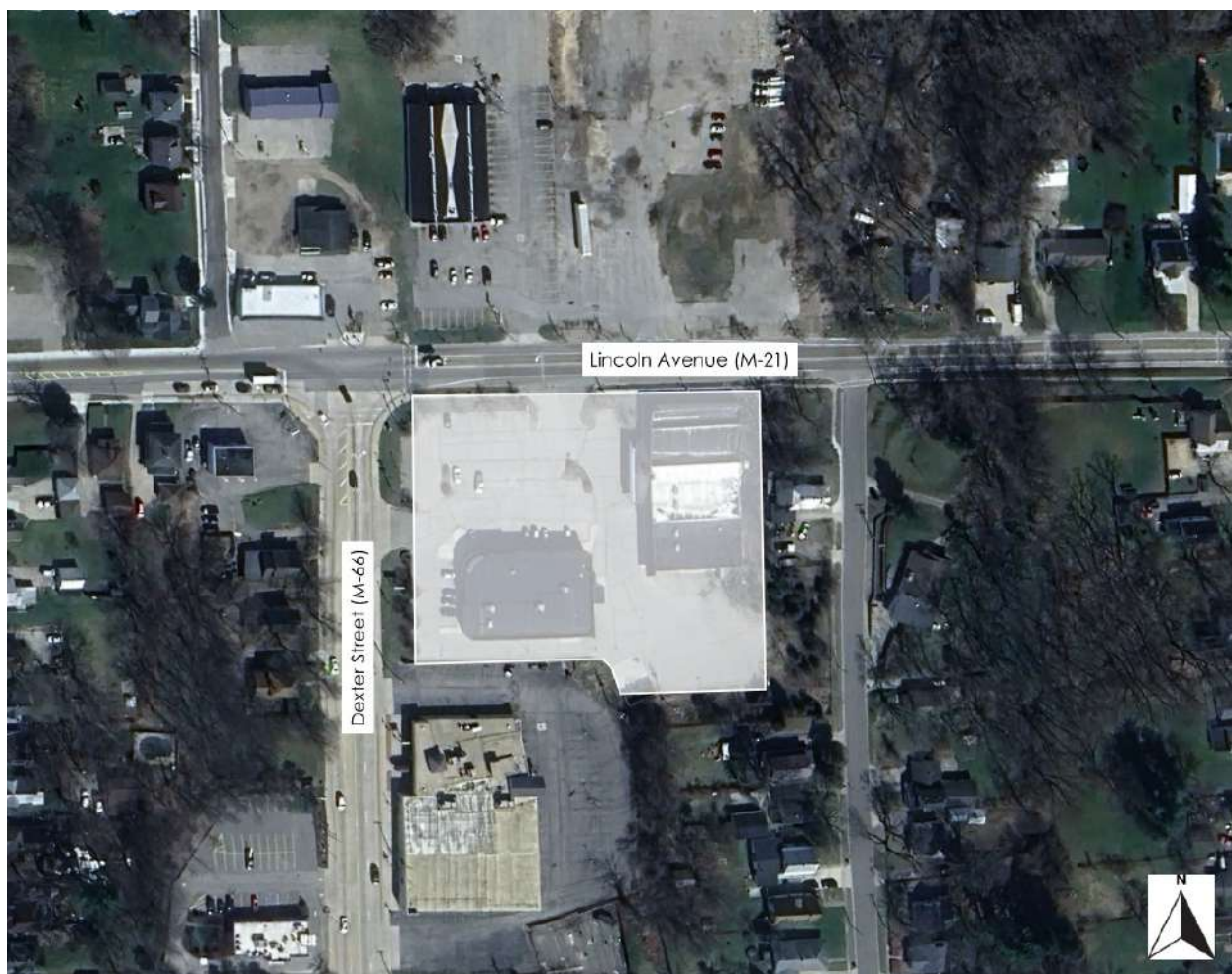


Figure 1.1 – Proposed Development Location

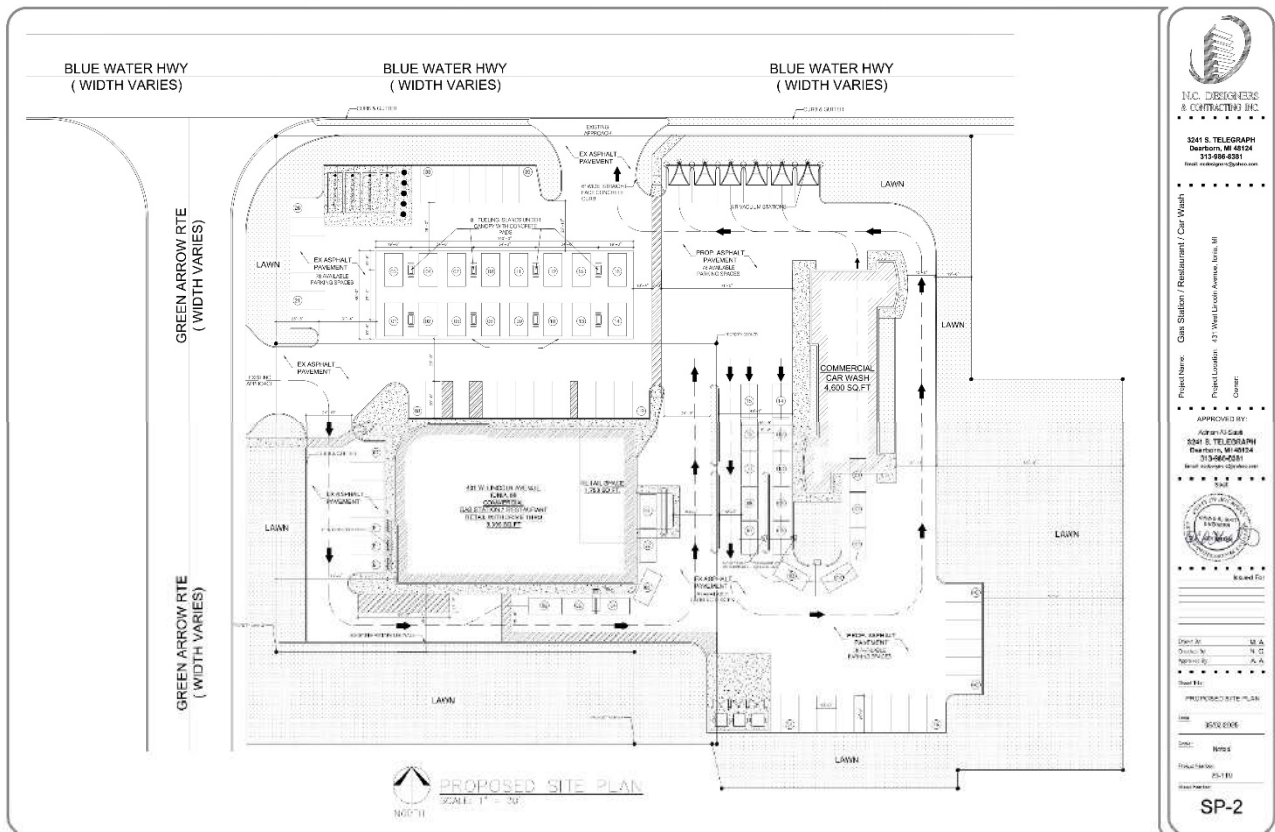


Figure 1.2 – Preliminary Site Plan

The objective of this study is to evaluate the impact the proposed development will have on traffic patterns and traffic flow of surrounding areas. The scope of this study was devolvement based on Anderson, Eckstein & Westrick, Inc. (AEW) knowledge of the study area, accepted traffic engineering practice, and information published by the Institute of Transportation Engineers (ITE). The study analyses were completed using Synchro and SimTraffic, Version 12 traffic analysis software.

The specific objectives of the study are to

- Quantify existing traffic volumes and operations.
- Develop a trip generation for the proposed gas-station/fast-food restaurant with drive through and drive though car wash.
- Calculate future traffic counts including the trip generations.
- Evaluate the level of service and delay under each traffic condition.

1.1 Scope of Study

The overall scope of the traffic impact study is to identify the traffic impact of the proposed development on the adjacent street network, including the impact of background traffic growth in the area.

The intersections analyzed for this study area are presented in **Finger 1.3** and include:

- 1.Lincoln Avenue (M-21) & Dexter Street (M-66)
- 2.Lincoln Avenue (M-21) & N. State Street
- 3.Lincoln Avenue (M-21) & Union Street



Figure 1.3 – Study Intersection

2.0 STUDY AREA CHARACTERISTICS

2.1 Roadway Characteristics

The existing roadway classification, jurisdiction, average daily traffic (ADT), posted speed and lane configuration were analyzed for all the study area roadways. The findings of the existing conditions are shown in **Table 2.1**.

Table 2.1 – Roadway Characteristics

Road	Functional Classification	Controlling Jurisdiction	ADT	Posted Speed	Lane Description
Lincoln Avenue (M-21)	Minor Arterial	MDOT	11,920	25 MPH	2-lane roadway
Dexter Street (M-66)	Minor Arterial	MDOT	13,760	30 MPH	3-lane roadway w/TWCLTL
N. State Street	Major Collector	City of Ionia/MOT	10,510	30 MPH	2-lane roadway
Union Street	Local	City of Ionia	N/A	25 MPH	2-lane roadway

(Traffic Sources: 2024 MDOT Traffic Volumes Map and MDOT National Functional Classification Map)

3.0 EXISTING TRAFFIC CONDITIONS

3.1 Existing Traffic Conditions

Traffic data was collected on Tuesday December 9, 2025. The traffic data collection is used to develop the existing conditions can be found in **Appendix B**.

The peak hour volume for each intersection was utilized for the study and volumes were balanced upward through the study network. At locations where access is provided between study intersections, “dummy” intersections were used to account for sink and source volumes, and through volumes were carried along the main roadways. The lane configuration and traffic control are presented in **Figure 3.1**, and the 2025 peak hour volumes are provided in **Figure 3.2**. The A.M. and P.M. peak hour was utilized for this study.

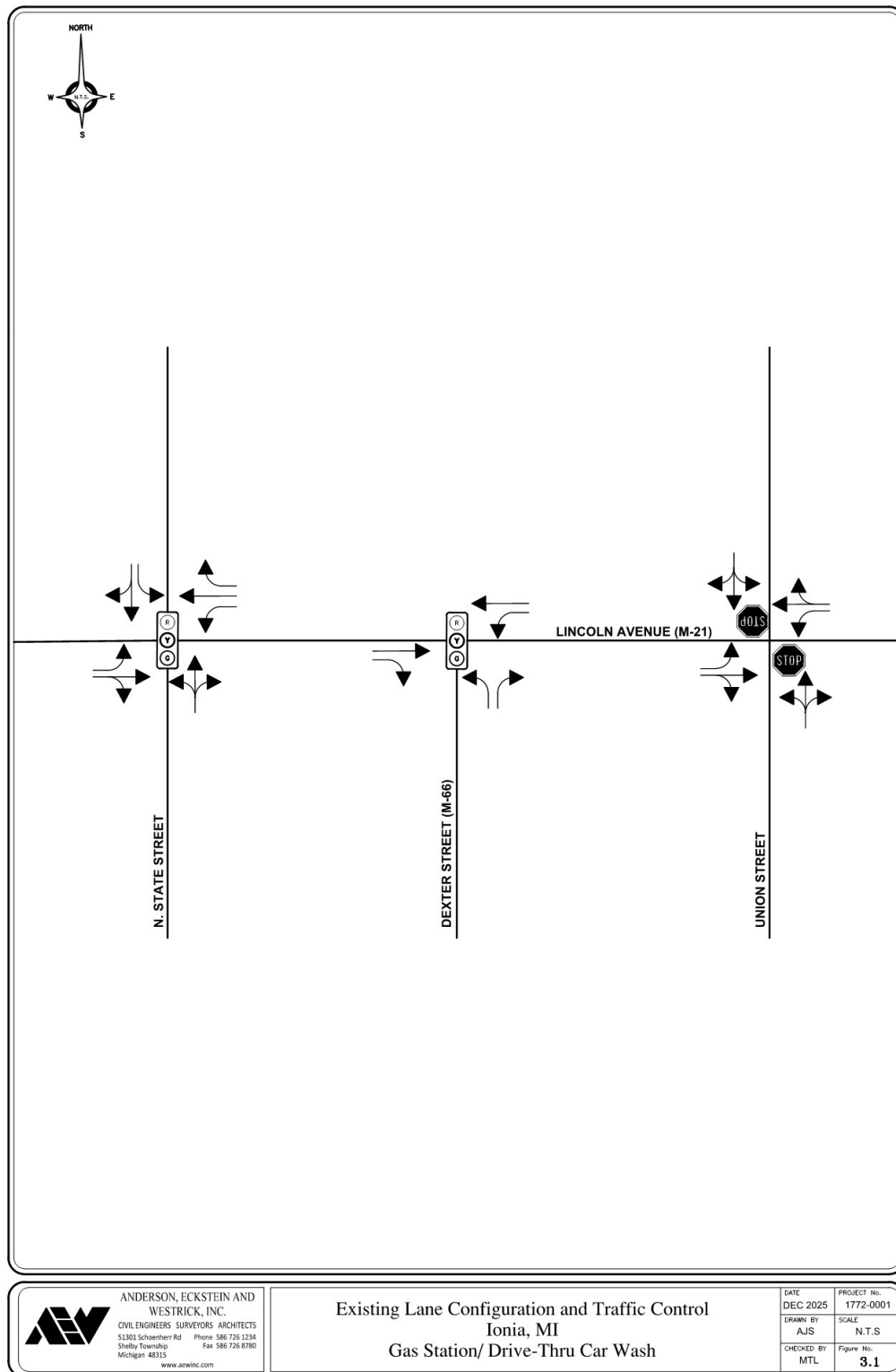


Figure 3.1 – Existing Lane Configuration and Traffic Control

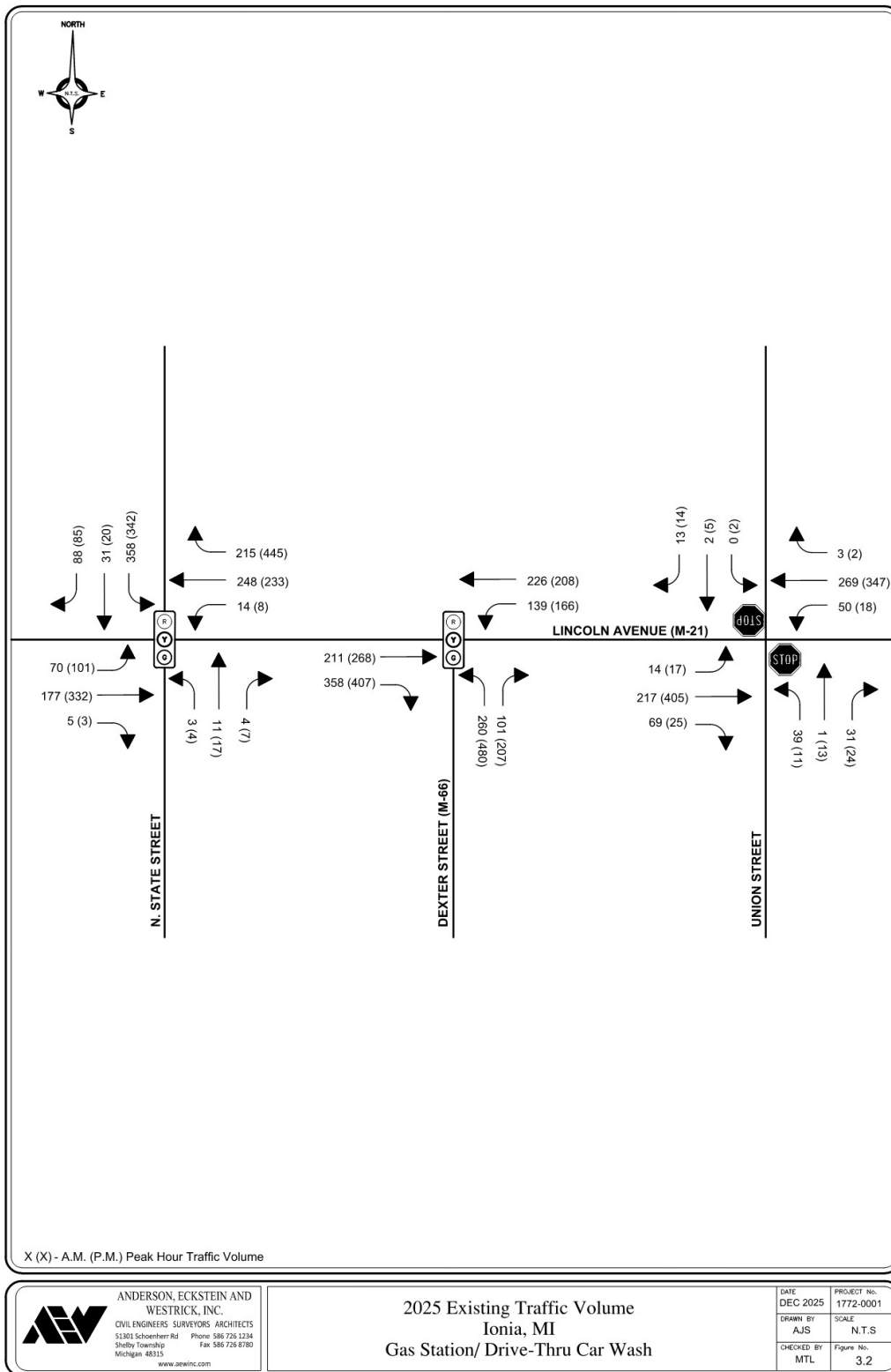


Figure 3.2 – 2025 Collected Peak Hour Volumes

3.2 Traffic Operations Analysis Methodology

Trafficware's Synchro 12 was used to perform intersection capacity analysis and assign Levels of Service (LOS) for the study intersections and lane group movements based on the Highway Capacity Manual, 7th Edition (HCM7) methodologies. LOS is a letter grade that describes traffic operations based on the amount of delay experienced by vehicles at an intersection, along an intersection approach (e.g., eastbound, westbound), or in a specific lane group (e.g., eastbound right turn, eastbound through-left). LOS can range from A-F with A representing the conditions in which vehicles experience the least amount of delay, and F representing the conditions in which vehicles experience the most delay. The LOS D is typically used as a threshold for "acceptable" operations and is sometimes described as being "near capacity". The LOS E is often described as operations "at capacity", while LOS F describes conditions "over capacity". Additionally, LOS for the stop-controlled intersections was reported by approach. **Table 3.1** provides information regarding the delay thresholds for LOS.

Table 3.1 – Level of Service Definitions and Criteria

Level-of-Service (LOS)	Signalized Intersections Delay (seconds)	Un-Signalized Intersections Delay (seconds)
A	< 10.0	< 10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	> 80.0	> 50.0

3.3 Existing Level of Service

The collected peak hour intersection volumes, approach peak hour factors (PHF), truck percentages, and lane utilization factors were used for the Existing Condition analysis. The LOS analysis by intersection for the existing conditions is shown in **Table 3.2**. The existing conditions summary reports are provided in **Appendix C**.

Table 3.2 – 2025 Existing Condition LOS Intersection Analysis

Intersection & Control	Approach	Lane Group	2025 Existing (LOS)	
			AM-Peak LOS/Delay	PM Peak LOS/Delay
*N. State Street & Lincoln Avenue (M-21) Signalized	Eastbound	Left	B/13.2	B/14.3
		Thru/Right	B/13.7	B/17.3
	Westbound	Left	B/11.7	B/11.8
		Thru	B/14.7	B/14.3
		Right	B/12.8	B/14.3
	Northbound	Left/Thru/Right	B/12.7	B/12.9
	Southbound	Left	C/24.6	C/27.4
		Thru/Right	B/13.4	B/13.3
Intersection Overall		B/16.7	B/17.7	
N. Dexter Street (M-66) & Lincoln Avenue (M-21) Signalized	Eastbound	Thru	C/27.3	D/35.7
		Right	F/118.4	F/206.2
	Westbound	Left	C/24.1	C/25.5
		Thru	B/13.0	B/12.1
	Northbound	Left	B/16.6	C/24.3
		Right	B/13.5	B/15.3
	Intersection Overall		D/44.0	E/67.2
	Union Street & Lincoln Avenue (M-21) Unsignalized	Eastbound	Left	A/8.0
Thru/Right			A/0.0	A/0.0
Westbound		Left	A/8.3	A/8.3
		Thru/Right	A/0.0	A/0.0
Northbound		Left/Thru/Right	C/21.7	C/16.8
Southbound		Left/Thru/Right	B/12.2	B/14.2
Intersection Overall		A/3.8	A/1.9	

*HCM2000 used to calculate LOS due to non-NEMA phasing

The results of the existing condition analysis indicate that the study intersections overall and intersection movement levels of service currently operate at a LOS D or better except for the following intersect:

- N. Dexter Street (M-66) & Lincoln Avenue (M-21) [Eastbound Right] – AM & PM Peak
- N. Dexter Street (M-66) & Lincoln Avenue (M-21) [Intersection Overall] – PM Peak

4.0 BACKGROUND TRAFFIC ANALYSIS

4.1 Background Developments

At the time traffic counts were collected, the gas station/convenience store located on the southwest corner of Lincoln Avenue and S. Main Street was under construction. On December 12, 2025, the gas station/convenience store opened for operation with several improvements, including 6 new fueling positions and a 3,574-square-foot addition to the convenience store. The site plan is provided below as **Figure 4.1** and **Appendix D**.

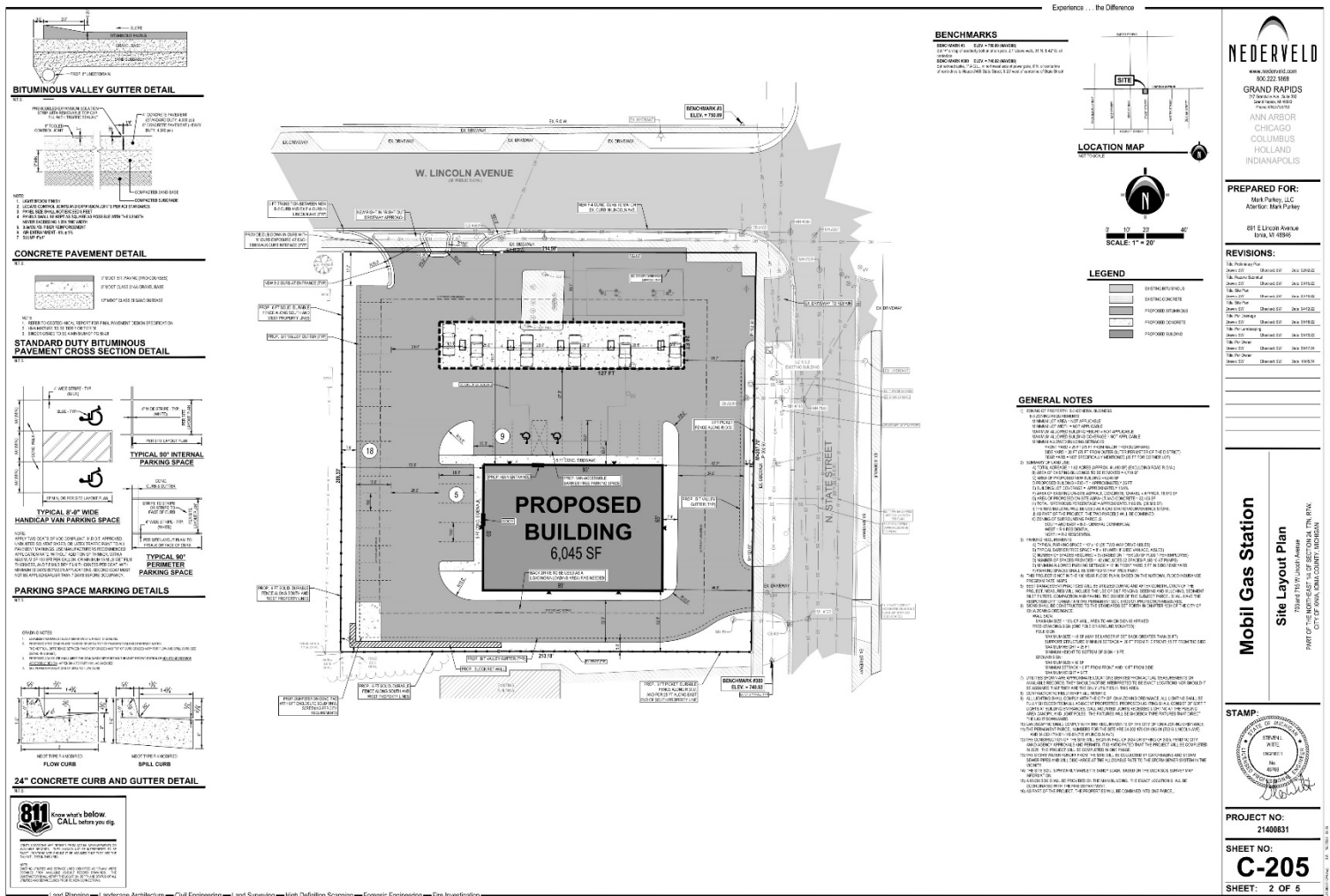


Figure 4.1 – Background Development

The trip generation for background development is provided in **Table 4.1**. The development is estimated to generate 48 new trips to the roadway network in the AM Peak and 52 new trips in the PM peak.

Table 5.1 – Background Development Trip Generation

Land Use	Units	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Convenience Store/Gas Station (945) GFA (5.5-10k)	10 Fueling Positions	116	116	232	105	106	211
	Pass-By Trips (AM 79% PM 75%)	-92	-92	-184	-79	-80	-159
	Unadjusted Generated Trips	24	24	48	26	26	52

The background trip distribution percentage can be found in **Figure 4.2**. The background trip generation distribution can be found in **Figure 4.3**. The background generated traffic was distributed throughout the roadway network based on the existing traffic patterns.

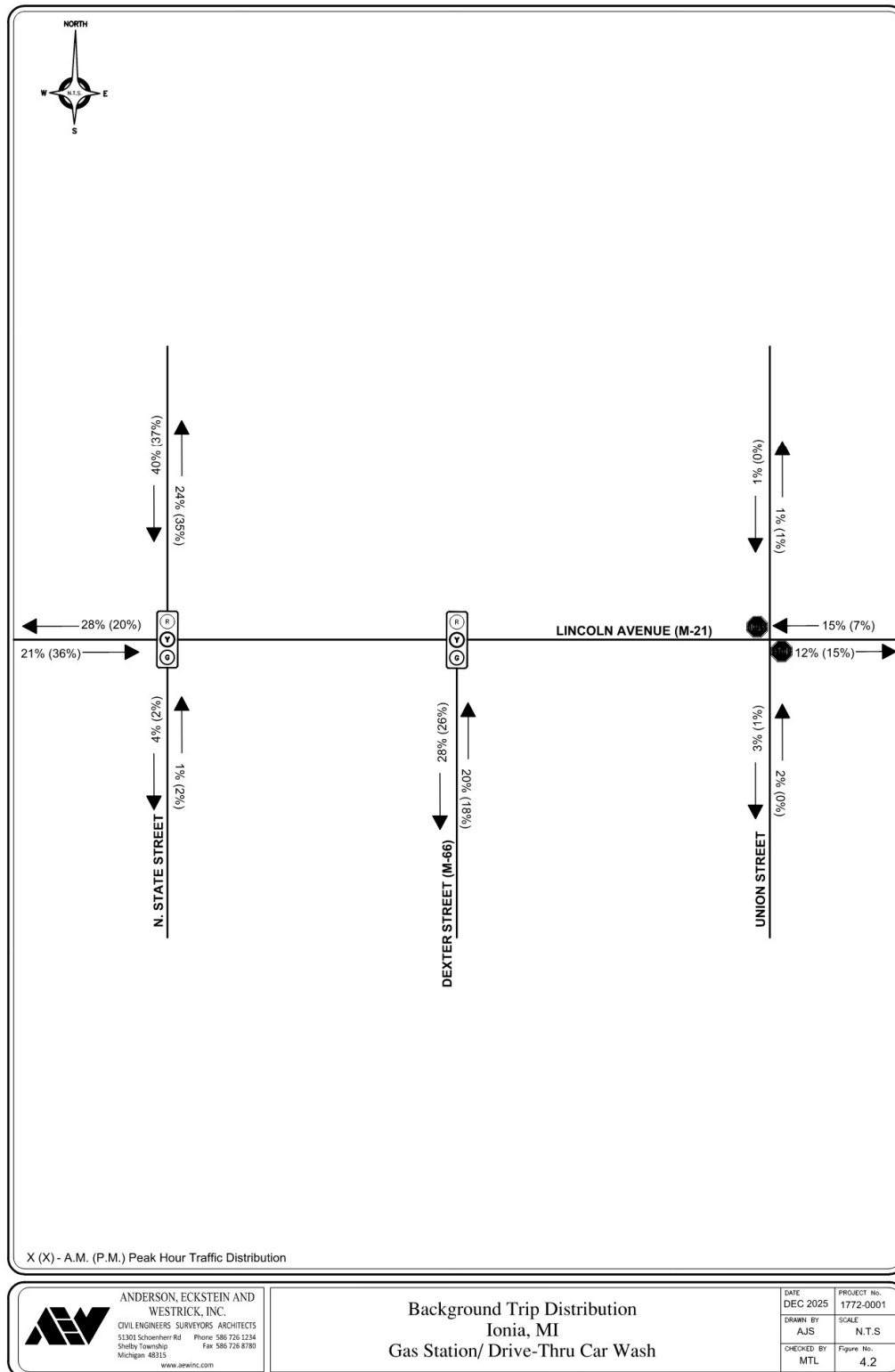


Figure 4.2 – Background Trip Distribution

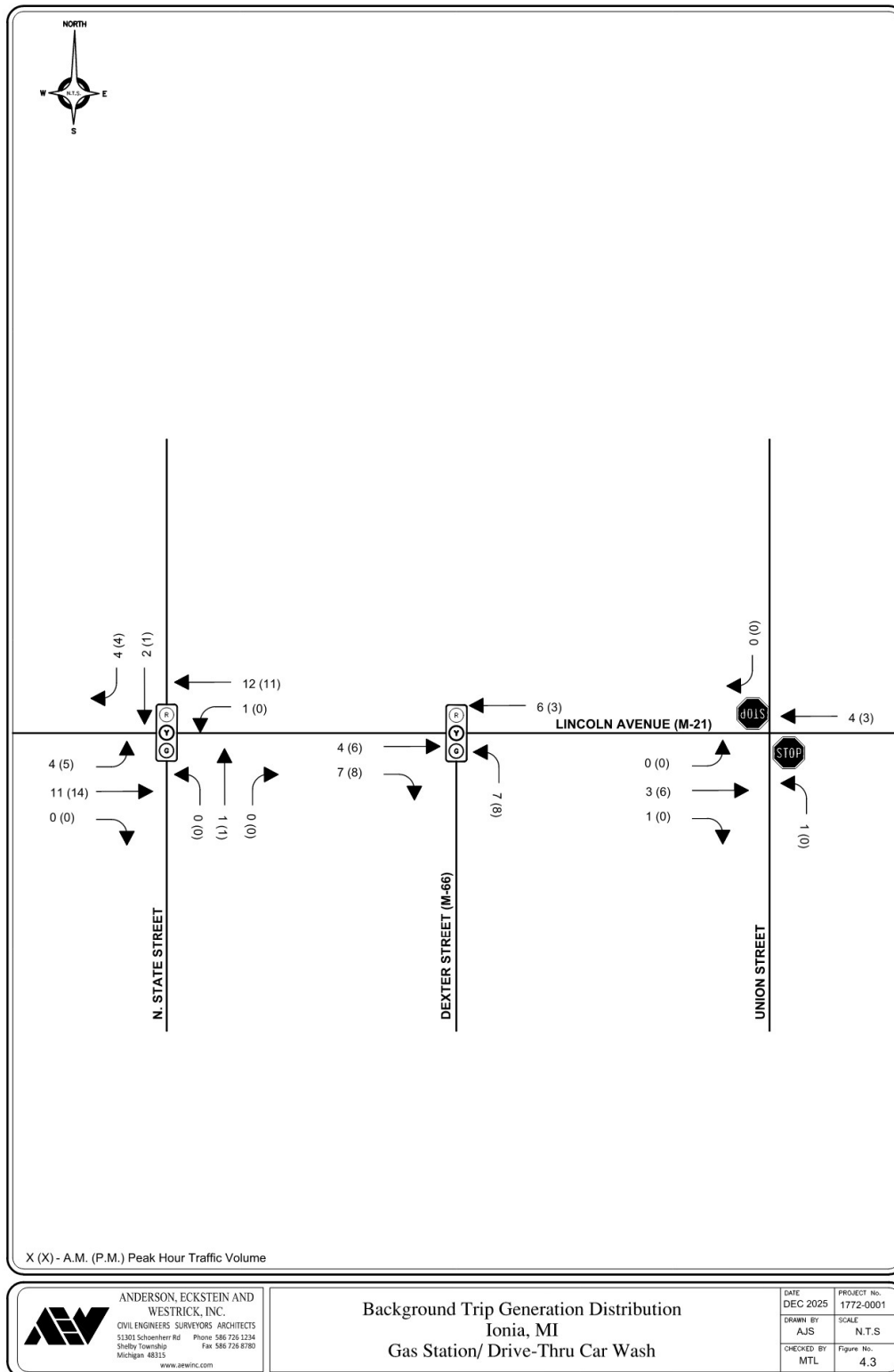


Figure 4.3 – Background Trip Generation Distribution

4.2 Background Traffic Growth

To properly evaluate the impact the proposed gas-station/fast-food restaurant with drive through and drive through car wash will have on the current traffic network, the existing volumes were projected the build year of 2026. The background condition consists of the adjusted volumes without the proposed development to allow a direct comparison of the impacts the proposed development will have on the traffic network. In order to determine the growth rate of the study area MDOT, historical data and population forecasts were referenced. This resulted in a 0.5% annual growth rate. Due to the build year of 2026 a growth factor of 1.01 was applied to the existing traffic volumes. The background volumes also include the generation trips from the gas station/convenience store located on Lincoln Avenue and S. Main Street. The background peak hour volumes can be found in **Figure 4.4**.

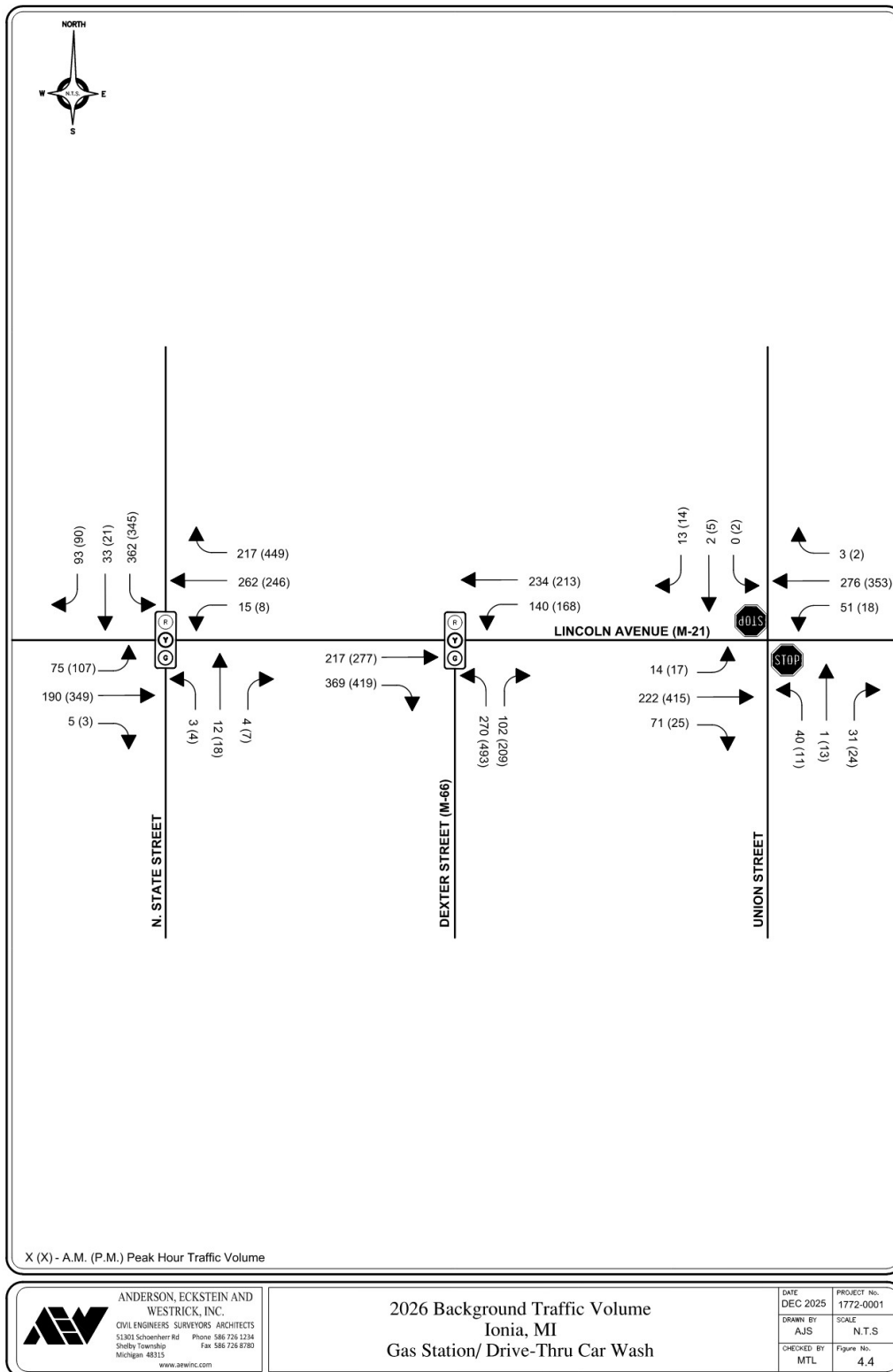


Figure 4.4 – Background Peak Hour Volumes

4.2 Background Level of Service

Table 4.1, below, presents the background condition LOS. The detailed background condition analysis, calculated in Synchro12, can be found in **Appendix E**.

Table 4.1 – 2026 Background Condition LOS Peak Hour Analysis

Intersection & Control	Approach	Lane Group	2025 Existing (LOS)		2026 Background (LOS)	
			AM-Peak LOS/Delay	PM Peak LOS/Delay	AM-Peak LOS/Delay	PM Peak LOS/Delay
*N. State Street & Lincoln Avenue (M-21) Signalized	Eastbound	Left	B/13.2	B/14.3	B/13.4	B/14.7
		Thru/Right	B/13.7	B/17.3	B/13.8	B/17.8
	Westbound	Left	B/11.7	B/11.8	B/11.8	B/11.8
		Thru	B/14.7	B/14.3	B/14.9	B/14.5
		Right	B/12.8	B/14.3	B/12.8	B/14.3
	Northbound	Left/Thru/Right	B/12.7	B/12.9	B/12.7	B/13.0
		Left	C/24.6	C/27.4	C/24.9	C/27.9
	Southbound	Thru/Right	B/13.4	B/13.3	B/13.4	B/13.4
Intersection Overall			B/16.7	B/17.7	B/16.9	B/18.0
N. Dexter Street (M-66) & Lincoln Avenue (M-21) Signalized	Eastbound	Thru	C/27.3	D/35.7	C/27.7	D/37.3
		Right	F/118.4	F/206.2	F/130.8	F/223.0
	Westbound	Left	C/24.1	C/25.5	C/24.3	C/25.9
		Thru	B/13.0	B/12.1	B/13.1	B/12.2
	Northbound	Left	B/16.6	C/24.3	B/16.9	C/25.3
		Right	B/13.5	B/15.3	B/13.6	B/15.3
	Intersection Overall		D/44.0	E/67.2	D/47.3	E/72.0
Union Street & Lincoln Avenue (M-21) Unsignalized	Eastbound	Left	A/8.0	A/8.1	A/8.1	A/8.1
		Thru/Right	A/0.0	A/0.0	A/0.0	A/0.0
	Westbound	Left	A/8.3	A/8.3	A/8.3	A/8.4
		Thru/Right	A/0.0	A/0.0	A/0.0	A/0.0
	Northbound	Left/Thru/Right	C/21.7	C/16.8	C/22.7	C/17.1
	Southbound	Left/Thru/Right	B/12.2	B/14.2	B/12.3	B/14.4
	Intersection Overall		A/3.8	A/1.9	A/3.9	A/1.9

*HCM2000 used to calculate LOS due to non-NEMA phasing

The results of the background conditions analysis indicate that all study intersections, both overall and by individual movement, are expected to operate at LOS D or better, with the exception of those movements that are already failing under existing conditions.

5.0 PROPOSED BUILD CONDITIONS

5.1 Build Trip Generations

The AM and PM peak hour vehicle trips that would be generated by the proposed development were forecasted based on the ITE Trip Generation Manual 12th Edition and engineering judgement. Land use code 945 (Convenience Store/Gas Station), 934 (Fast Food Restaurant with Drive-Thru), and 948 (Automated Car Wash) were selected. As is typical of Gas Station/Convenience Store and Fast-Food Restaurant with a Drive-Thru, a portion of the site-generated trips are already present on the adjacent road network and are interrupted to visit the site. These trips are known as “**pass-by**” trips and account for a percentage of the total site generated traffic. Pass-by trips result in movements at the site driveways, but do not increase traffic volumes on the adjacent road network. Pass-by percentages were selected within ITE-recommended ranges based on similar urban arterial sites. The development is projected to generate 497 and 507 total trips during the AM and PM peak hours, respectively, with 175 AM peak-hour trips and 221 PM peak-hour trips anticipated to impact the roadway network. The detailed trip generated is shown in **Table 5.1**, below and in **Appendix F**.

Table 5.1 – Proposed Build Trip Generation

Land Use	Units	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Convenience Store/Gas Station (945) GFA (5.5-10k)	16 Fueling Positions	186	185	371	169	168	337
Pass-By Trips (AM 79% PM 75%)		-147	-146	-293	-127	-126	-253
Fast Food Restaurant with Drive-Thru (934)	1,750 Sf	30	28	58	29	26	55
Pass-By Trips (AM 50% PM 55%)		-15	-14	-29	-16	-14	-30
Automated Car Wash (948)	4,600 Sf	38	30	68	55	57	112
Unadjusted Generated Trips		254	243	497	253	251	504
Adjusted Generated Trips		92	83	175	110	111	221

5.2 Trip Distribution

The trip distribution was calculated based on the existing traffic patterns for both the background and build conditions. The trip distribution percentage can be found in **Figure 5.1**. The generated traffic was distributed throughout the roadway network in accordance with the calculated trip distribution. The trip generation distribution can be found in **Figure 5.2**.

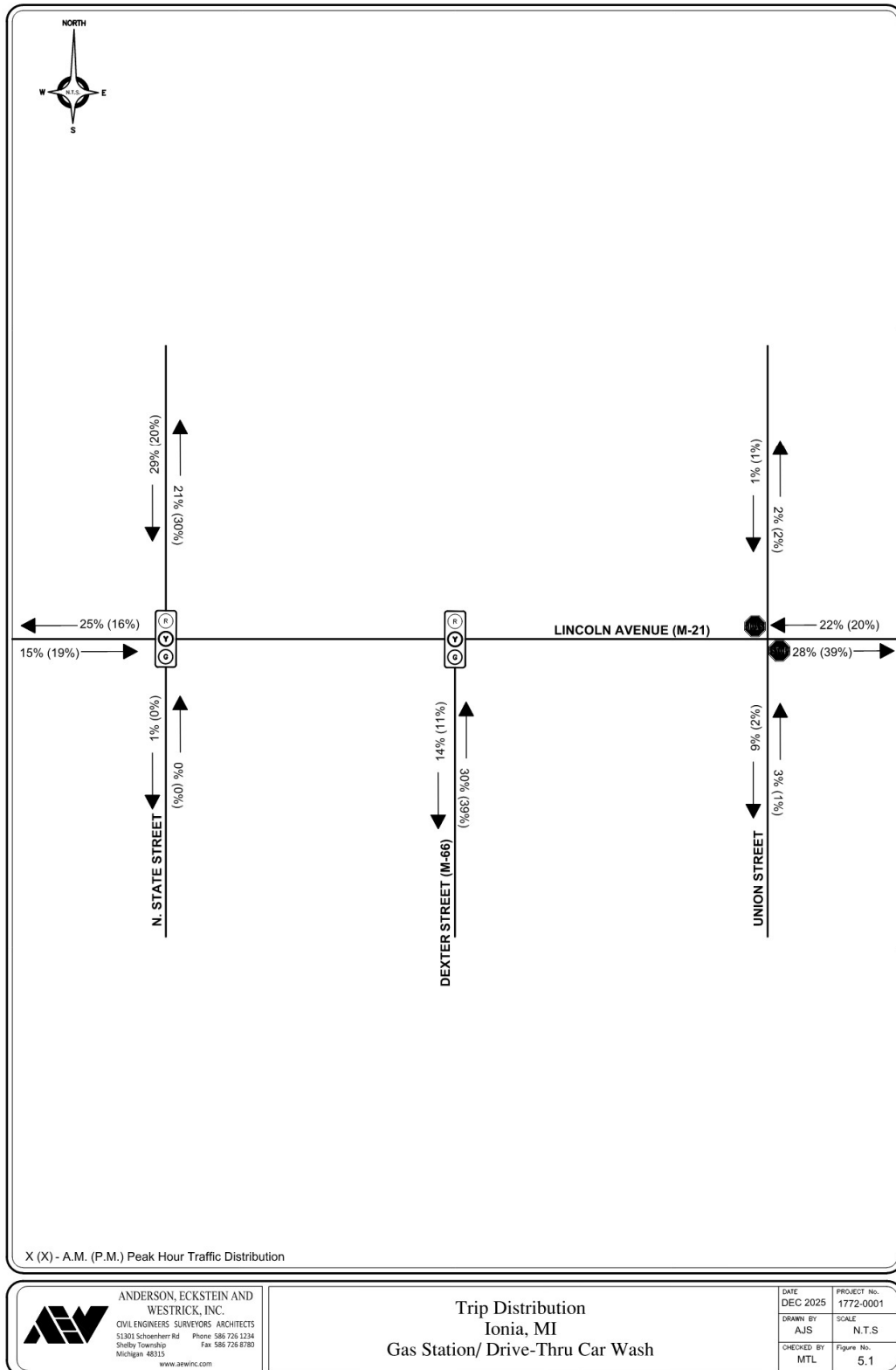


Figure 5.1 – Trip Distribution

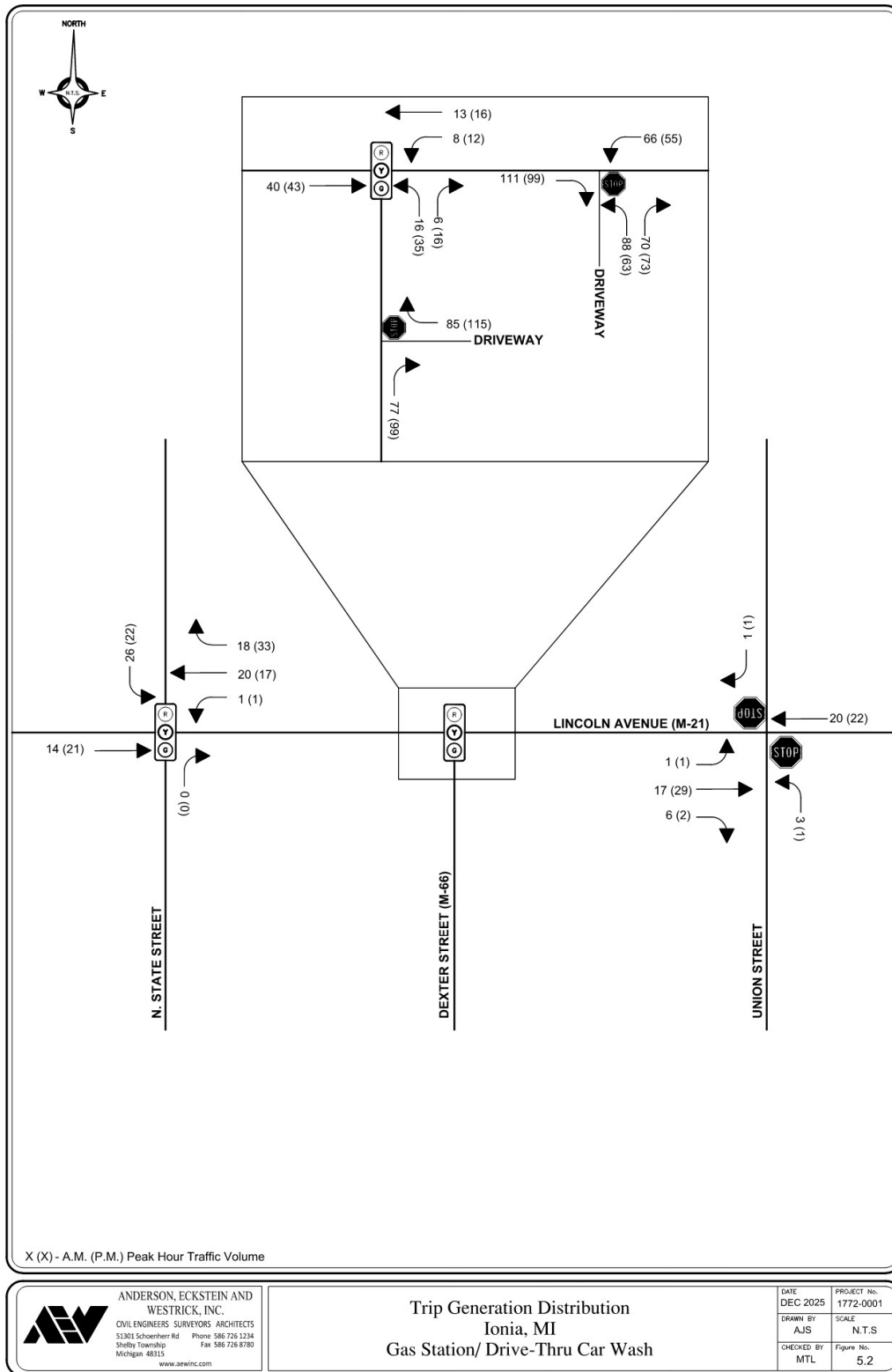


Figure 5.2 – Trip Generation Distribution

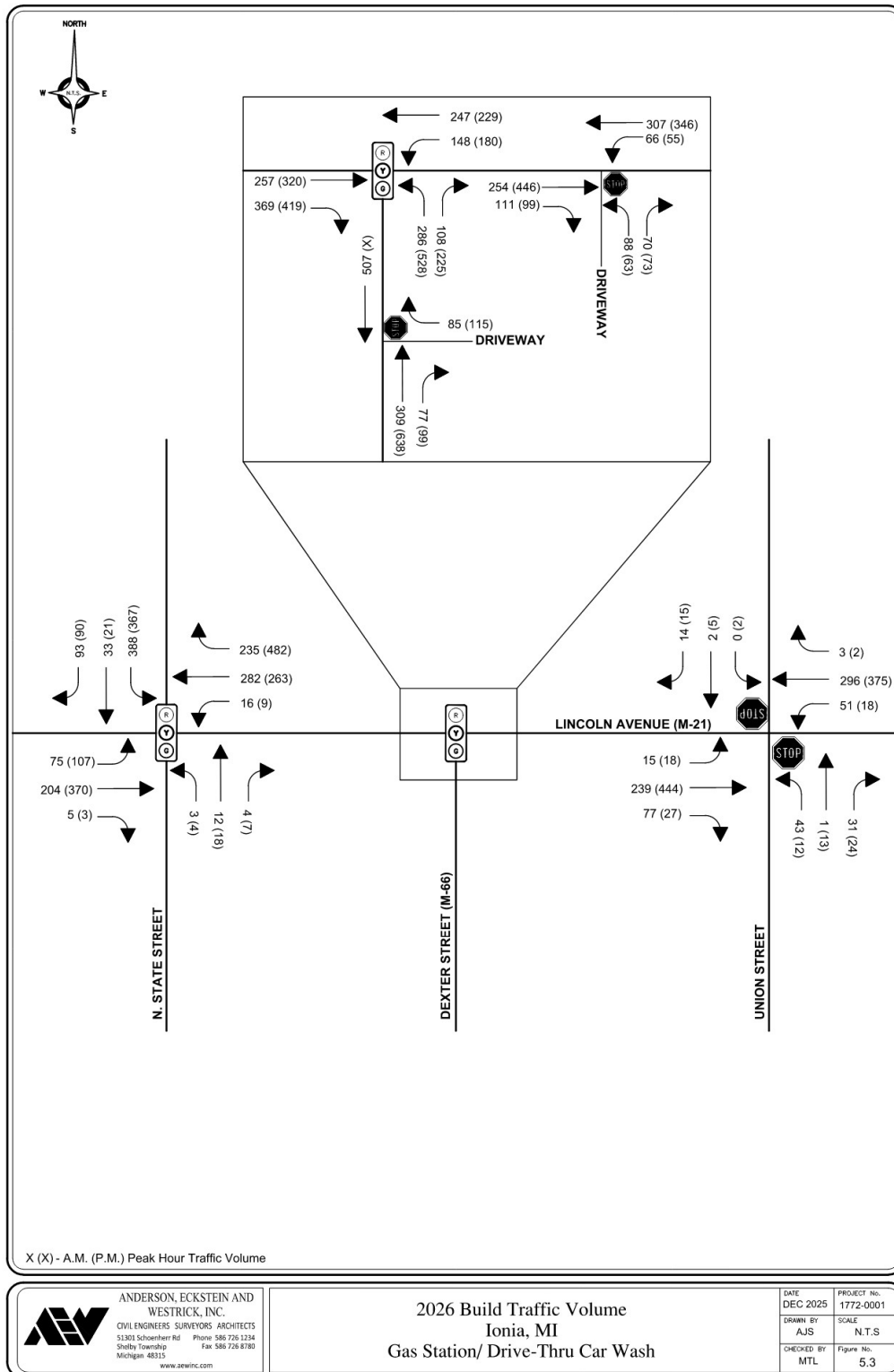


Figure 5.3 – 2026 Build Peak Hour Volume

6.0 BUILD CONDITIONS

6.1 Build Level of Service

The build conditions were implemented in Synchro12 and simulated using SimTraffic12. The LOS was calculated and presented below in **Table 6.1**. Table 6.1 also presents the background LOS for comparison. The full reports for the build conditions can be found in **Appendix G**.

Table 6.1 – Build Level of Service Peak Hour Factor

Intersection & Control	Approach	Lane Group	2026 Background (LOS)		2026 Build (LOS)	
			AM-Peak LOS/Delay	PM Peak LOS/Delay	AM-Peak LOS/Delay	PM Peak LOS/Delay
*N. State Street & Lincoln Avenue (M-21) Signalized	Eastbound	Left	B/13.4	B/14.7	B/13.6	B/14.9
		Thru/Right	B/13.8	B/17.8	B/14.1	B/18.5
	Westbound	Left	B/11.8	B/11.8	B/11.8	B/11.9
		Thru	B/14.9	B/14.5	B/15.3	B/14.7
		Right	B/12.8	B/14.3	B/12.9	B/14.6
	Northbound	Left/Thru/Right	B/12.7	B/13.0	B/12.7	B/13.0
		Left	C/24.9	C/27.9	C/27.4	C/31.1
N. Dexter Street (M-66) & Lincoln Avenue (M-21) Signalized	Eastbound	Thru	C/27.7	D/37.3	C/31.8	D/51.2
		Right	F/130.8	F/223.0	F/130.8	F/223.0
	Westbound	Left	C/24.3	C/25.9	C/25.3	C/27.6
		Thru	B/13.1	B/12.2	B/13.4	B/12.4
	Northbound	Left	B/16.9	C/25.3	B/17.5	C/28.9
		Right	B/13.6	B/15.3	B/13.7	B/15.7
	Intersection Overall		D/47.3	E/72.0	D/46.8	E/72.7
Union Street & Lincoln Avenue (M-21) Unsignalized	Eastbound	Left	A/8.1	A/8.1	A/8.1	A/8.2
		Thru/Right	A/0.0	A/0.0	A/0.0	A/0.0
	Westbound	Left	A/8.3	A/8.4	A/8.4	A/8.5
		Thru/Right	A/0.0	A/0.0	A/0.0	A/0.0
	Northbound	Left/Thru/Right	C/22.7	C/17.1	D/26.1	C/18.5
	Southbound	Left/Thru/Right	B/12.3	B/14.4	B/12.7	B/14.9
	Intersection Overall		A/3.9	A/1.9	A/4.3	A/1.9
N. Dexter Street (M-66) & Driveway Unsignalized	Westbound	Right	N/A	N/A	B/10.1	B/12.6
	Northbound	Thru	N/A	N/A	A/0.0	A/0.0
		Thru/Right	N/A	N/A	A/0.0	A/0.0
	Southbound	Thru	N/A	N/A	A/0.0	A/0.0
Lincoln Avenue (M-21) & Driveway Unsignalized	Intersection Overall		N/A	N/A	A/0.9	A/1.0
	Eastbound	Thru/Right	N/A	N/A	A/0.0	A/0.0
	Westbound	Left	N/A	N/A	A/8.3	A/8.9
		Thru	N/A	N/A	A/0.0	A/0.0
	Northbound	Right	N/A	N/A	C/20.6	D/25.7
		Left	N/A	N/A	B/10.7	B/12.8
	Intersection Overall		N/A	N/A	A/3.5	A/2.8

*HCM2000 used to calculate LOS due to non-NEMA phasing

The results of the build conditions analysis indicate that all study intersections, both overall and by individual movement, are expected to operate at LOS D or better, with the exception of those movements that are already failing under background conditions.

7.0 MITIGATION CONDITIONS

To reduce delays, the signal at N. Dexter Street (M-66) and Lincoln Avenue (M-21) was optimized to improve the level of service. The mitigation strategy was evaluated under the build conditions, and the level of service can be found in **Table 7.1**. The full reports for the mitigation conditions and proposed timing improvements can be found in **Appendix H**.

Table 7.1 – Mitigation Level of Service Peak Hour Factor

Intersection & Control	Approach	Lane Group	2026 Build (LOS)		2026 Mitigation (LOS)	
			AM-Peak LOS/Delay	PM-Peak LOS/Delay	AM-Peak LOS/Delay	PM Peak LOS/Delay
*N. State Street & Lincoln Avenue (M-21) Signalized	Eastbound	Left	B/13.6	B/14.9	B/13.6	B/14.9
		Thru/Right	B/14.1	B/18.5	B/14.1	B/18.5
	Westbound	Left	B/11.8	B/11.9	B/11.8	B/11.9
		Thru	B/15.3	B/14.7	B/15.3	B/14.7
		Right	B/12.9	B/14.6	B/12.9	B/14.6
	Northbound	Left/Thru/Right	B/12.7	B/13.0	B/12.7	B/13.0
		Left	C/27.4	C/31.1	C/27.4	C/31.1
N. Dexter Street (M-66) & Lincoln Avenue (M-21) Signalized	Eastbound	Thru	C/31.8	D/51.2	A/7.7	C/22.5
		Right	F/130.8	F/223.0	A/7.7	B/19.2
	Westbound	Left	C/25.3	C/27.6	A/7.6	B/15.6
		Thru	B/13.4	B/12.4	A/8.0	B/11.3
	Northbound	Left	B/17.5	C/28.9	D/35.0	D/53.8
		Right	B/13.7	B/15.7	B/17.7	B/19.4
	Intersection Overall		D/46.8	E/72.7	B/14.4	C/28.0
Union Street & Lincoln Avenue (M-21) Unsignalized	Eastbound	Left	A/8.1	A/8.2	A/8.1	A/8.2
		Thru/Right	A/0.0	A/0.0	A/0.0	A/0.0
	Westbound	Left	A/8.4	A/8.5	A/8.4	A/8.5
		Thru/Right	A/0.0	A/0.0	A/0.0	A/0.0
	Northbound	Left/Thru/Right	D/26.1	C/18.5	D/26.1	C/18.5
		Left/Thru/Right	B/12.7	B/14.9	B/12.7	B/14.9
	Intersection Overall		A/4.3	A/1.9	A/4.3	A/1.9
N. Dexter Street (M-66) & Driveway Unsignalized	Westbound	Right	A/4.3	A/4.3	A/4.3	A/4.3
		Thru	A/4.3	A/4.3	A/4.3	A/4.3
	Northbound	Thru/Right	A/4.3	A/4.3	A/4.3	A/4.3
		Thru	A/4.3	A/4.3	A/4.3	A/4.3
	Intersection Overall		A/0.9	A/1.0	A/0.9	A/1.0
Lincoln Avenue (M-21) & Driveway Unsignalized	Eastbound	Thru/Right	A/0.0	A/0.0	A/0.0	A/0.0
		Left	A/8.3	A/8.9	A/8.3	A/8.9
	Westbound	Thru	A/0.0	A/0.0	A/0.0	A/0.0
		Right	C/20.6	D/25.7	C/20.6	D/25.7
	Northbound	Left	B/10.7	B/12.8	B/10.7	B/12.8
	Intersection Overall		A/3.5	A/2.8	A/3.5	A/2.8

Overall, during the mitigation conditions both overall and by individual movement, are expected to operate at LOS D or better. During the AM peak the splits were optimized and during the PM peak the cycle length was increased to 80 seconds to account for the volume of the intersection.

8.0 QUEUE ANALYSIS

A queueing analysis was conducted to determine the 95th percentile queues at the study area intersections to determine the impacts generated due to the proposed development to the study intersections. SimTraffic12 was utilized to simulate 5 runs at the peak hours, which were evaluated to find the most accurate queue length. The queueing analysis is presented below in **Table 8.1**.

Table 8.1 – Queue Analysis

Intersection & Control	Approach	Lane Group	2025 Existing		2026 Background		2026 Build		2026 Mitigation	
			AM Peak Queue Length (ft)	PM Peak Queue Length (ft)	AM Peak Queue Length (ft)	PM Peak Queue Length (ft)	AM Peak Queue Length (ft)	PM Peak Queue Length (ft)	AM Peak Queue Length (ft)	PM Peak Queue Length (ft)
N. State Street & Lincoln Avenue (M-21) Signalized	Eastbound	Left	89	138	81	149	83	163	97	161
		Thru/Right	119	211	133	226	139	237	132	213
	Westbound	Left	40	26	38	28	35	23	39	29
		Thru	161	141	157	150	166	155	182	164
		Right	79	134	81	145	87	141	92	166
	Northbound	Left/Thru/Right	34	45	37	47	37	46	36	49
		Left	224	208	221	209	239	238	236	243
	Southbound	Thru/Right	66	61	67	62	69	73	60	72
N. Dexter Street (M-66) & Lincoln Avenue (M-21) Signalized	Eastbound	Thru	148	180	158	180	143	276	128	226
		Right	114	142	118	146	130	205	96	155
	Westbound	Left	126	143	113	142	122	127	111	138
		Thru	140	122	136	130	146	146	121	161
	Northbound	Left	153	257	170	262	162	245	295	278
		Right	59	110	62	117	77	113	180	111
Union Street & Lincoln Avenue (M-21) Unsignalized	Eastbound	Left	15	22	19	26	22	24	21	29
		Thru/Right	15	15	7	15	15	7	19	0
	Westbound	Left	38	25	40	27	41	21	40	25
		Thru/Right	14	4	11	9	26	11	17	11
	Northbound	Left/Thru/Right	85	53	87	52	85	53	88	54
	Southbound	Left/Thru/Right	49	46	41	42	44	43	44	44
N. Dexter Street (M-66) & Driveway Unsignalized	Westbound	Right	N/A	N/A	N/A	N/A	58	79	119	113
	Northbound	Thru	N/A	N/A	N/A	N/A	7	26	107	105
		Thru/Right	N/A	N/A	N/A	N/A	9	23	25	32
	Southbound	Thru	N/A	N/A	N/A	N/A	0	0	0	0
Lincoln Avenue (M-21) & Driveway Unsignalized	Eastbound	Thru/Right	N/A	N/A	N/A	N/A	12	13	3	10
	Westbound	Left	N/A	N/A	N/A	N/A	48	57	47	57
		Thru	N/A	N/A	N/A	N/A	23	35	16	59
	Northbound	Right	N/A	N/A	N/A	N/A	73	60	72	65
		Left	N/A	N/A	N/A	N/A	62	59	61	57

9.0 CRASH ANALYSIS

A crash analysis was conducted at the study intersections and the existing driveways. Five years of crash data were collected and reviewed. Traffic crash reports and summaries were obtained from the Transportation Improvement Association's Traffic Crash Analysis Tool (TCAT) website. A summary of crashes by type is provided in **Table 9.1**, copies of crash report summaries can be found in **Appendix I**.

Table 9.1 – Crash Data

Intersection	Crash Type	No. of Crashes	% of Crashes	K Crashes	A Crashes	B Crashes	% KAB
Lincoln Avenue (M-21) & Dexter Street (M-66)	Single	3	5.7%	0	0	0	0%
	Head-On (LT)	3	5.7%	0	0	0	0%
	Angle	7	13.2%	0	0	0	0%
	Rear-End	26	49.1%	0	0	0	0%
	Rear-End (LT)	2	3.8%	0	0	0	0%
	Sideswipe (Same)	2	3.8%	0	0	0	0%
	Sideswipe (Opposite)	3	5.7%	0	0	0	0%
	Back	4	7.5%	0	0	0	0%
	Other	3	5.7%	0	0	0	0%
Total:		53	100%	0	0	0	0%
Lincoln Avenue (M-21) & State Street	Signal	4	10.3%	0	0	0	0%
	Head-On	2	5.1%	0	0	0	0%
	Head-On (LT)	5	12.8%	0	0	1	100%
	Angle	6	15.4%	0	0	0	0%
	Rear-End	14	35.9%	0	0	0	0%
	Rear-End (LT)	2	5.1%	0	0	0	0%
	Sideswipe (Same)	1	2.6%	0	0	0	0%
	Sideswipe (Opposite)	1	2.6%	0	0	0	0%
	Back	4	10.3%	0	0	0	0%
Total:		39	100%	0	0	1	100%
Lincoln Avenue (M-21) & Union Street	Signal	1	14.3%	0	0	0	0%
	Angle	1	14.3%	0	0	1	100%
	Rear-End	5	71.4%	0	0	0	0%
		7	100%	0	0	1	100%

Note: KAB Crashes are fatal and severe crashes as noted by the KABCO scale: K= fatal crash, A=incapacitating injury, B=non-incapacitating injury.

A total of 53 crashes were reported at the Lincoln Avenue and Dexter Street intersection, with rear-end crashes accounting for the largest proportion (49.1%), followed by angle crashes (13.2%). No fatal, incapacitating, or non-incapacitating injury crashes were reported at this location.

At the Lincoln Avenue and State Street intersection, 39 crashes were recorded, with rear-end crashes again being the predominant crash type (35.9%). One incapacitating injury crash was reported at this intersection, associated with a head-on left-turn movement.

The Lincoln Avenue and Union Street intersection experienced the fewest crashes, with a total of seven reported incidents, primarily rear-end crashes. One incapacitating injury crash was reported at this location related to an angle crash.

Overall, rear-end crashes represent the most common crash type within the study area, and the majority of crashes resulted in property damage only.

10.0 RIGHT TURN WARRANTS

10.1 *Right Turn-lane Warrant*

An analysis was conducted to determine the need for a right-turn deceleration lane or taper for the proposed driveways, with one access point located on Dexter Street (M-66) and a second access point located on Lincoln Avenue (M-21). The posted speed limit on Dexter Street is 30 miles per hour, and the speed limit on Lincoln Avenue is 25 miles per hour.

The Warrant for Right-Turn Deceleration Lane published by the Michigan Department of Transportation (MDOT) was utilized for this evaluation. The analysis considers PM peak-hour directional traffic volumes as well as peak-hour right-turn movements into the proposed driveways.

Figure 10.1 and **Figure 10.2**, below, present the right-turn lane warrant results for the driveway on Dexter Street and the driveway on Lincoln Avenue, respectively.

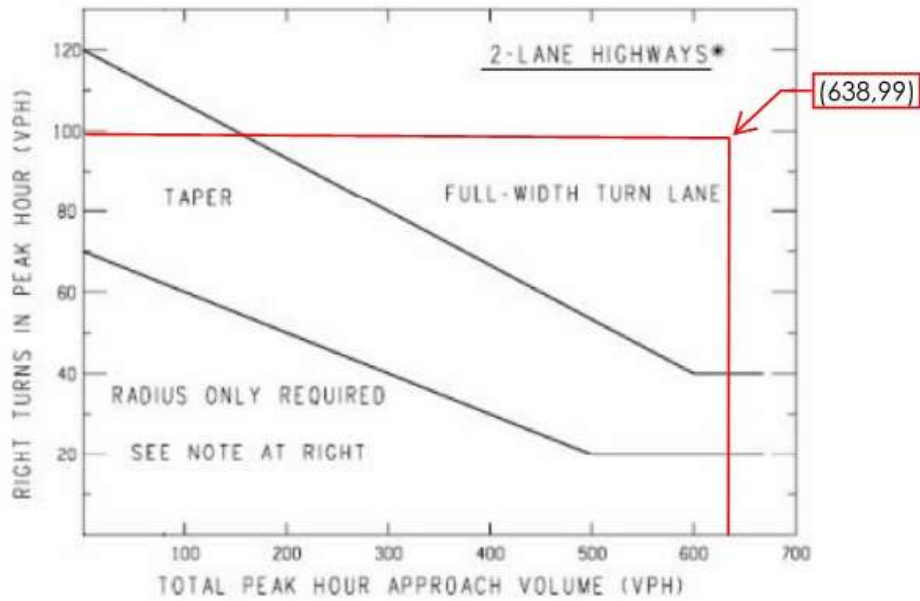


Figure 10.1 – Dexter Street Right-Turn Lane/Taper Analysis

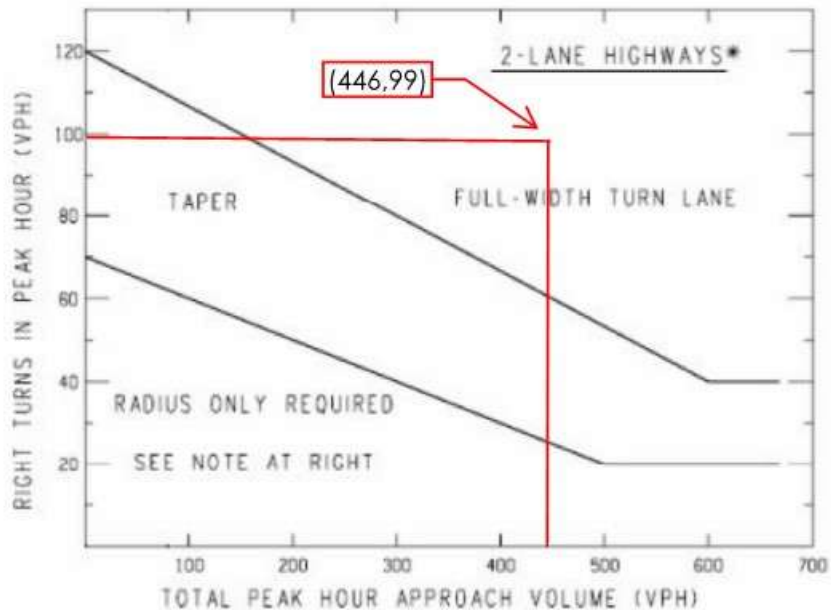


Figure 10.2 – Lincoln Avenue Right-Turn Lane/Taper Analysis

The results of this evaluation indicate that a right-turn lane is warranted for the driveway located on Dexter Street and Lincoln Avenue. However, the existing curb returns radii at both driveways adequate to accommodate design turning movements and are expected to support safe and efficient traffic operations within the corridor.

11.0 CONCLUSION AND RECOMMENDATIONS

Traffic counts were taken on Tuesday December 9, 2025, to obtain the existing conditions of the study site. The existing conditions were simulated in Synchro12, and the level of service was calculated. The results of the existing condition analysis indicate that the study intersections overall and intersection movement levels of service currently operate at a LOS D or better except for the following intersections:

- N. Deter Street (M-66) & Lincoln Avenue (M-21) [Eastbound Right] – AM & PM Peak
- N. Deter Street (M-66) & Lincoln Avenue (M-21) [Intersection Overall] – PM Peak

The background data was calculated by applying an annual growth rate of 0.5% (1.01 growth factor) to the existing traffic volumes. There was also a development located on the southwest corner of Lincoln Avenue and S. Main Street was under construction when our traffic counts were taken. The trips produced by this development were applied to the background. By applying this growth rate and background development, the traffic volumes for the horizon year of 2026 were obtained. The background conditions were analyzed in Synchro12 and resulted in the study intersection overall and individual intersection movements are all operating at a LOS D or better with the exception of those movements that are already failing under existing conditions.

The build data was simulated in Synchro12 and SimTraffic12 with the trip distribution for entering and exiting the network based off the existing traffic patterns. The results of the build condition analysis indicate that the intersections overall and intersection movement levels of service currently operate at a LOS D or better with the exception of those movements that are already failing under background conditions.

To reduce delays, the signal at N. Decter Street (M-66) and Lincoln Avenue (M-21) was optimized to improve the level of service. The results of the build condition analysis indicate that the intersections overall and intersection movement levels of service currently operate at a LOS D or better.

A crash analysis was conducted at the study intersections and the existing driveways. Five years of crash data were collected and reviewed. A total of 53 crashes were reported at the Lincoln Avenue and Dexter Street intersection. At the Lincoln Avenue and State Street intersection, 39 crashes were recorded. The Lincoln Avenue and Union Street intersection experienced the fewest crashes, with a total of seven reported incidents.

An analysis was conducted to determine the need for a right-turn deceleration lane or taper for the proposed driveways, with one access point located on Dexter Street (M-66) and a second access point located on Lincoln Avenue (M-21). The results of the right-turn analysis for the driveway located on Dexter Street and Lincoln Avenue resulted in a need for a right-turn lane.

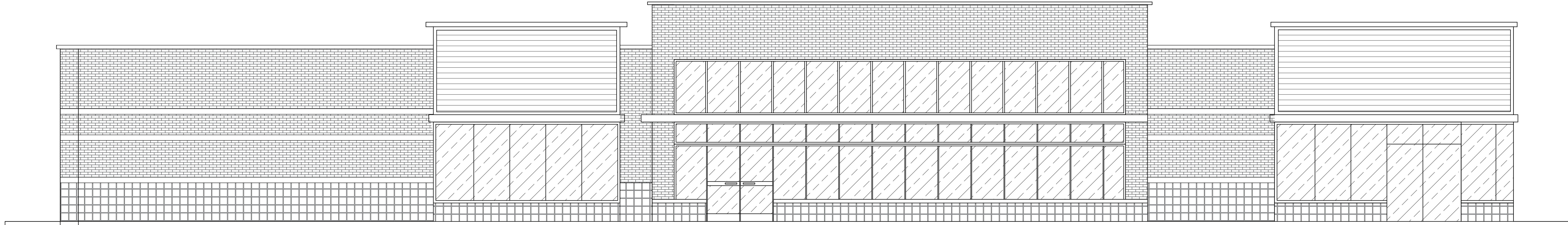
Overall, the proposed development will have minimum impact on the adjacent roadway network, however, the additional trips generated by the proposed development are not the cause for the failing LOS at the signalized intersection of Lincoln Avenue and Dexter Street.

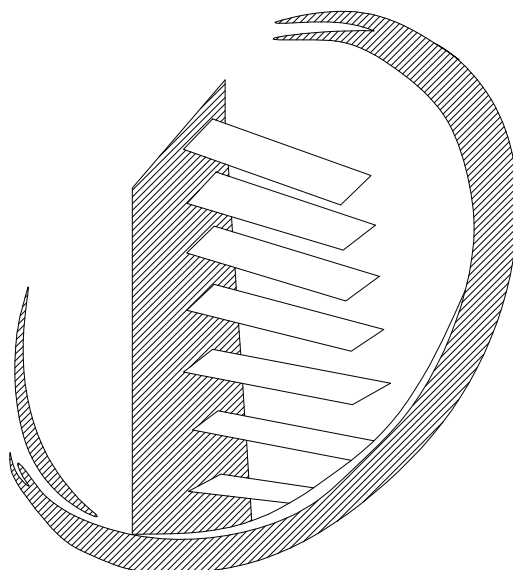
APPENDIX A - PRELIMINARY SITE PLAN

PROPOSED GAS STATION / CAR WASH

431 West Lincoln Avenue,

Ionia, MI





**N.C. DESIGNERS
& CONTRACTING INC.**

ARCHITECT/GC : NASSER CHOUCAIR
PHONE: (313)-986-8381
EMAIL: NCDESIGNERS@YAHOO.COM

3241 S.TELEGRAPH RD, DEARBORN, MI 48124

ARCHITECTURE

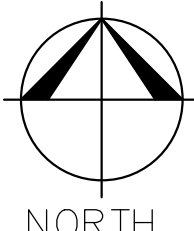
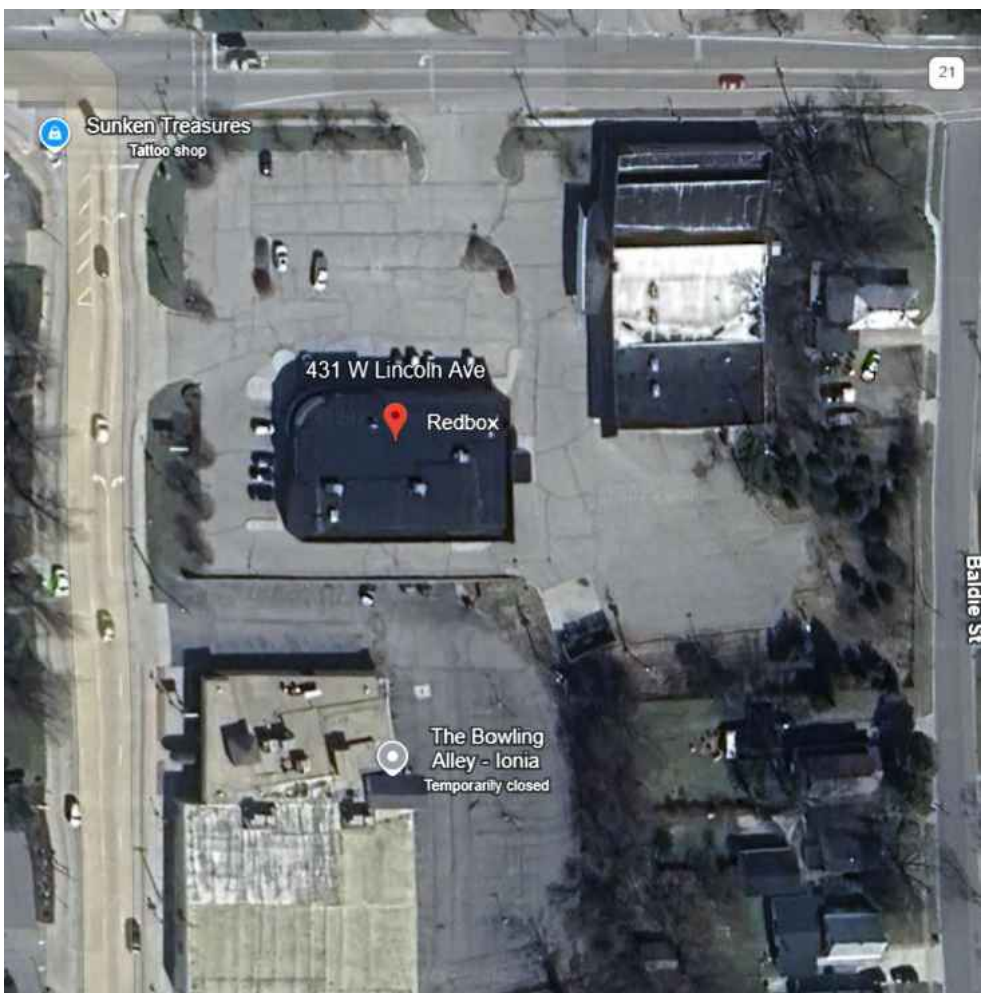
CODE INFORMATION - APPLIED ON SITE			
1. BUILDING DESCRIPTION:	ONE STORY COMMERCIAL BUILDING		
2. APPLICABLE CODE:	BUILDING:	2021 MICHIGAN BUILDING CODE. (MBC)	
	ACCESSIBILITY:	2009 ICC A117.1 STANDARD FOR ACCESSIBLE BUILDINGS AND FACILITIES	
	ENERGY:	2015 MICHIGAN ENERGY CODE-ASHRAE 90.1-2013	
	FIRE:	2015 INTERNATIONAL FIRE CODE	
	PLUMBING:	2021 MICHIGAN PLUMBING CODE. (MPC)	
MECHANICAL:	2021 MICHIGAN MECHANICAL CODE. (MMC)		
ELECTRICAL:	2023 MICHIGAN ELECTRIC CODE. (MEC)		
3. OCCUPANCY/ USE CLASSIFICATION:	SERVICE GROUP		
4. CONSTRUCTION TYPE:	TYPE III-B		
	11,146 SQ FT		
5. GROSS AREA SUMMARY:	AREAS	OCCUPANT LOAD	
	ALLOWED	PROPOSED	
6. ALLOWABLE BLDG. HEIGHT (504.3):	80.0'	20.5'	
	(2) REQUIRED MIN.		(4) PROVIDED
8. 1 H.C. TOILET ROOM REQUIRED OCCUPANT LOAD LESS THAN 50 2 PROVIDED.			

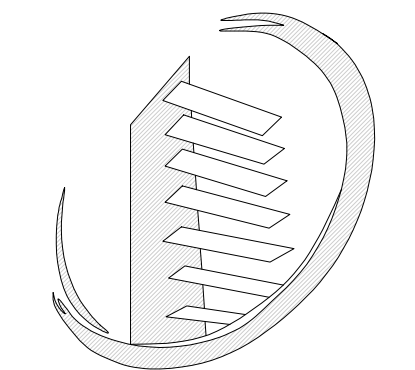
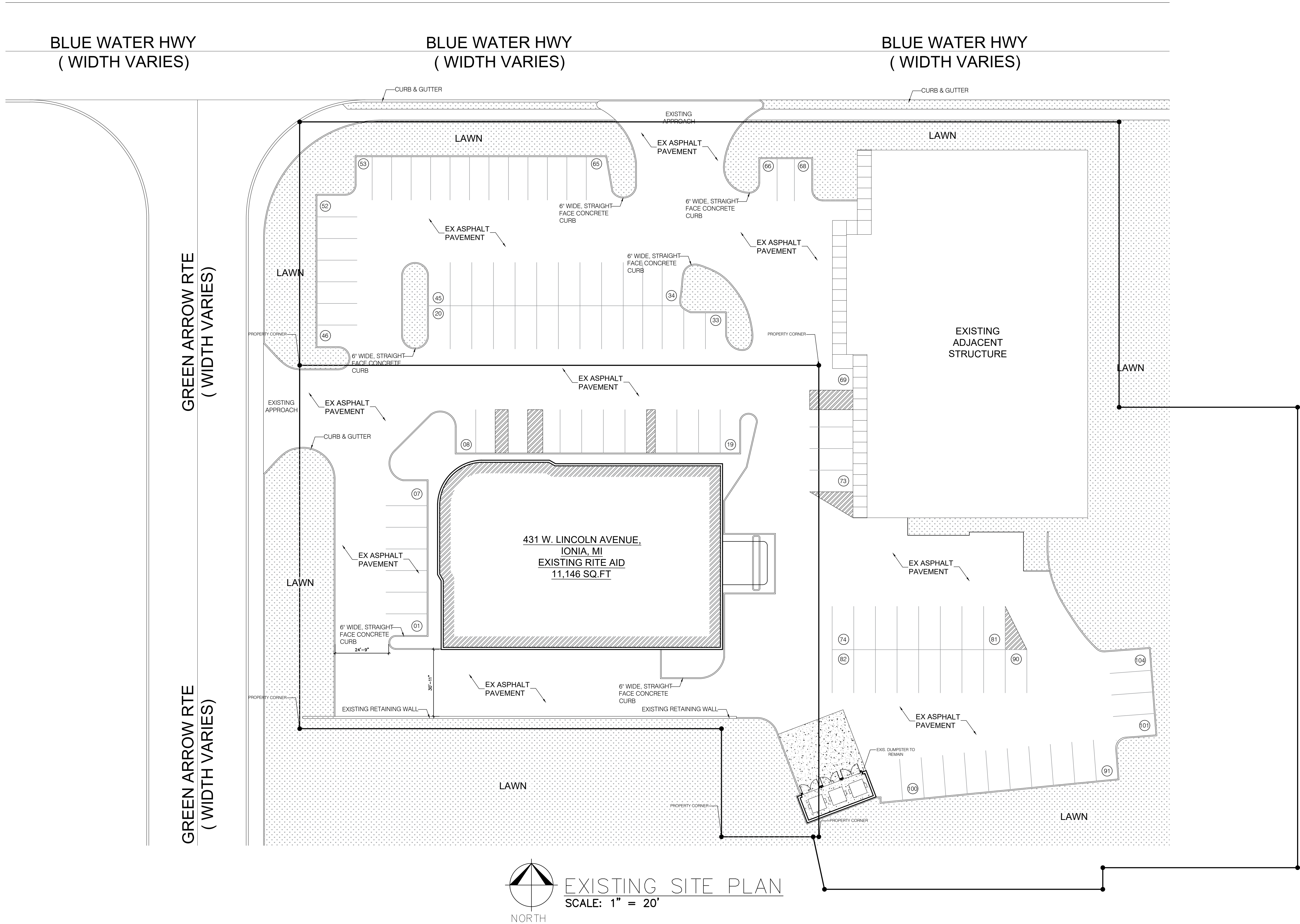
BUILDING DETAILS
Address: 431 West Lincoln Avenue, Ionia, MI
Sewer Public Sewer (Sewer--Sanitary)
Property Type Commercial
County IONIA COUNTY
Water Water at Street
LEGAL DESCRIPTION
"COM AT THE NW COR LOT 15 OF SUP AMPHLETTS SUBD OF LOT 23 OF HUTCHINS ADD TO CITY OF IONIA; E 17 FT ALG S LINE OF LINCOLN AVE TO POB; E 379 FT ALG SAID LINE; S 00D 06M 02S E 131.94 FT; E 82.5 FT; S 00D 06M 02S E 213.90 FT ALG W INE OF BALDIE ST; W 90"
PARCEL NUMBER
201-060-000-030-10

TABLE OF CONTENTS	
COVER	
T-1	TITLE SHEET & PROJECT INFORMATION
SITE PLAN APPROVAL	
SP-1	EXISTING SITE PLAN
SP-2	PROPOSED SITE PLAN
SP-3	PROPOSED LANDSCAPING PLAN
SP-4	PROPOSED PHOTOMETRIC PLAN
SP-5	PROPOSED TRUCK CIRCULATION PLAN
A-1	PROPOSED FLOOR PLAN (GAS STATION)
A-1.1	PROPOSED FLOOR PLAN (CAR WASH)
A-2	EXISTING ELEVATIONS (RITE AID)
A-2.1	PROPOSED ELEVATIONS (GAS STATION)
A-2.2	PROPOSED ELEVATIONS (CAR WASH)
D-1	PROPOSED CAR WASH DETAILS
D-2	PROPOSED CAR WASH DETAILS

ZONE INFO	
ZONE: GENERAL BUSINESS DISTRICT (B-3) COUNTY : IONIA COUNTY CITY : IONIA STATE : MICHIGAN	
ZONING INFORMATION	
ZONE	B-3
LOTS AREA	3.13 ACRES
MINIMUM LOT WIDTH	152.00'
PARKING SETBACK	N/A
CANOPY SET BACK	N/A
FRONT YARD SET BACK	60'-0"
SIDE STREET YARD SET BACK	5'-0"
REAR YARD SET BACK	5'-0"
SIDE YARD SET BACK	5'-0"
MAXIMUM HEIGHT	35.0'
MAXIMUM BLDG. COVERAGE	8%
MAXIMUM IMPERVIOUS COVERAGE	N/A

SITE OVERVIEW



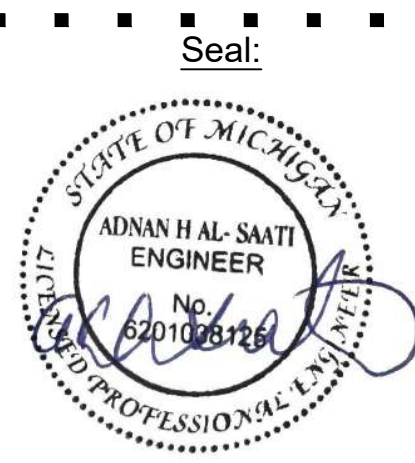


N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash
Project Location: 431 West Lincoln Avenue, Ionia, MI
Owner:

APPROVED BY:
Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
EXISTING SITE PLAN

Date:
05/02/2025

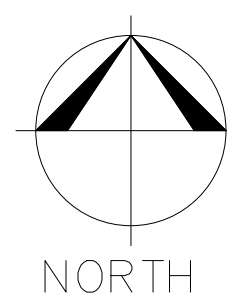
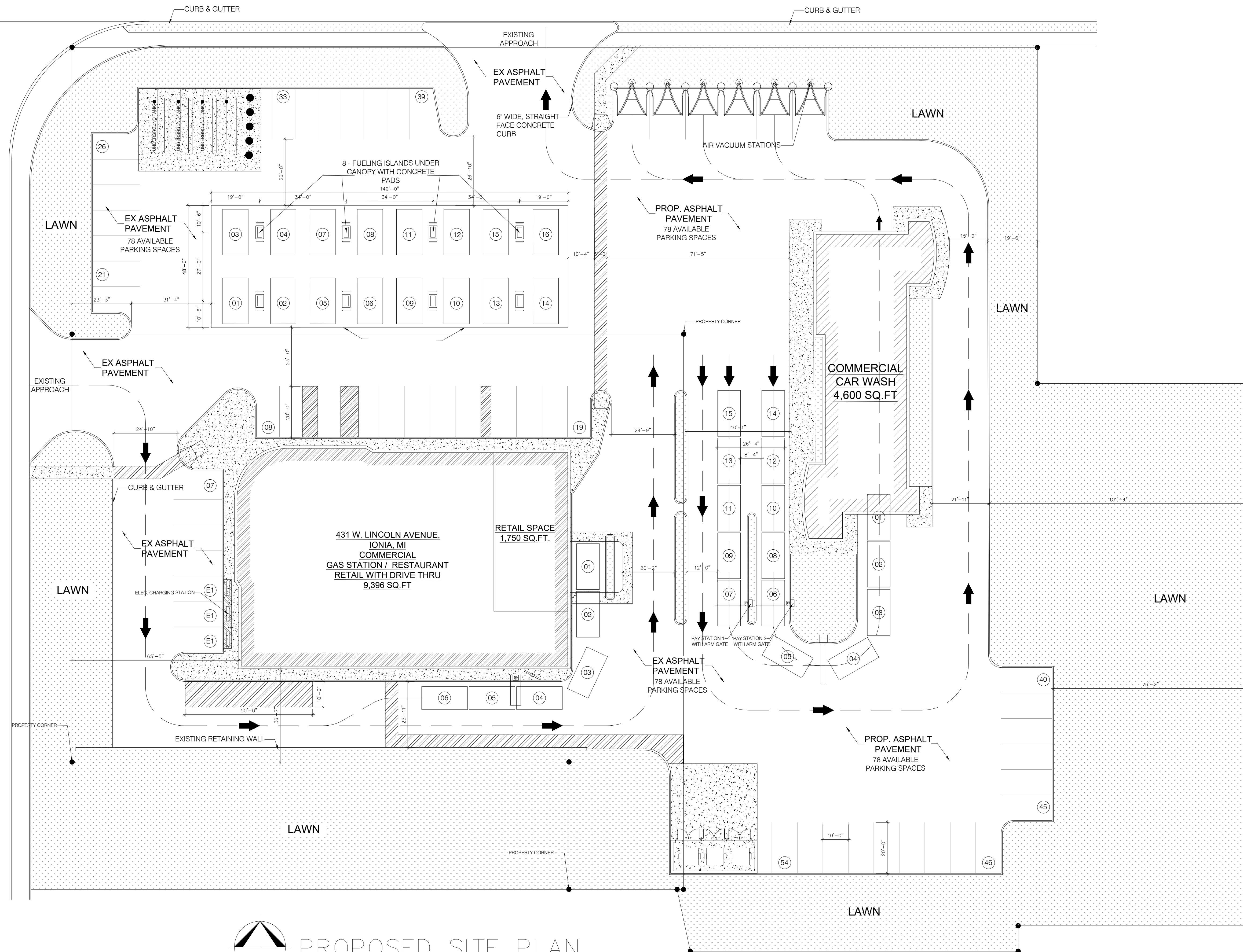
Scale:
Noted

Project Number:
25-119

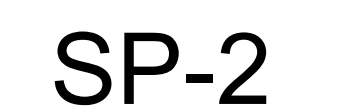
Sheet Number:

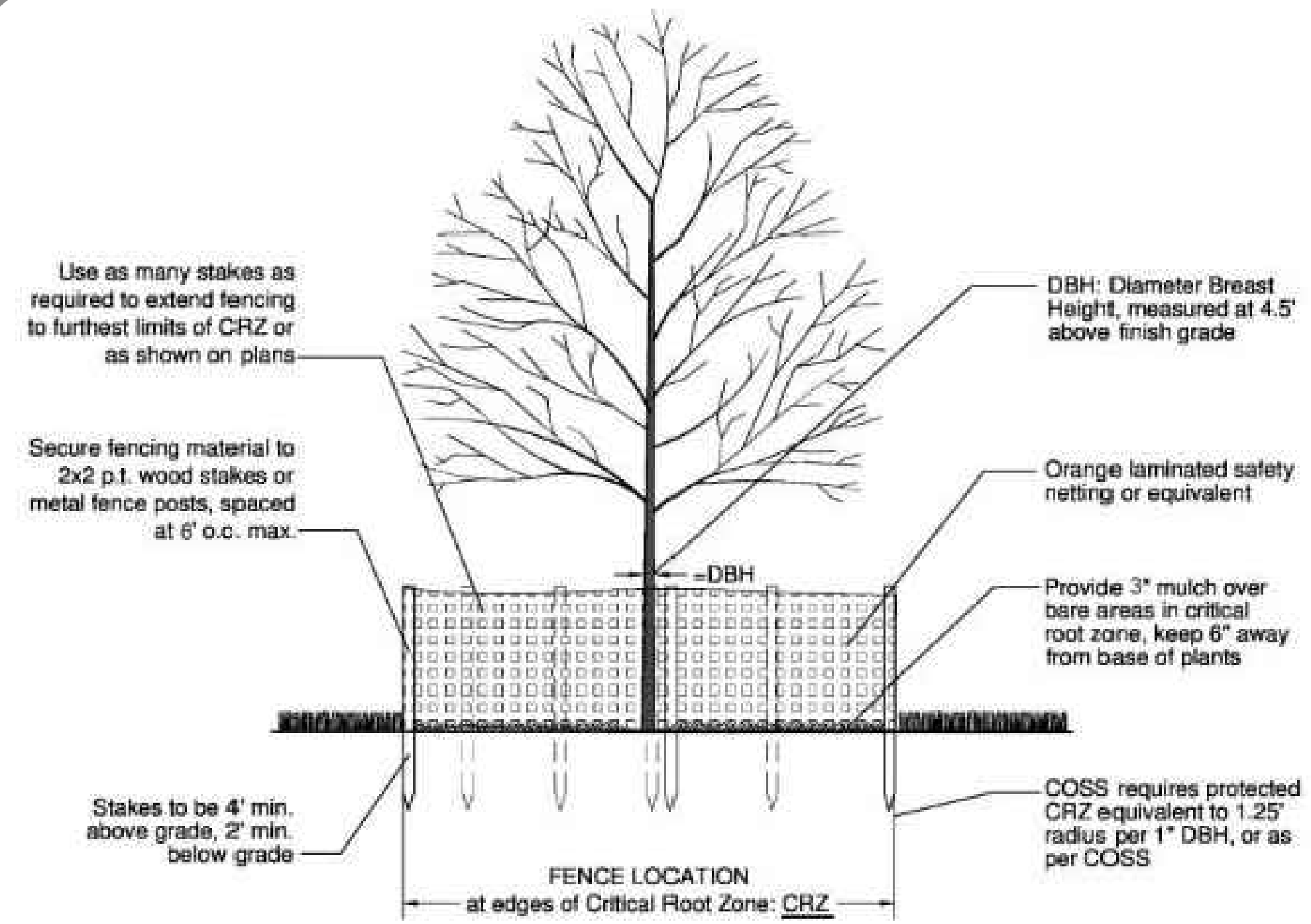
SP-1

BLUE WATER HWY
(WIDTH VARIES)

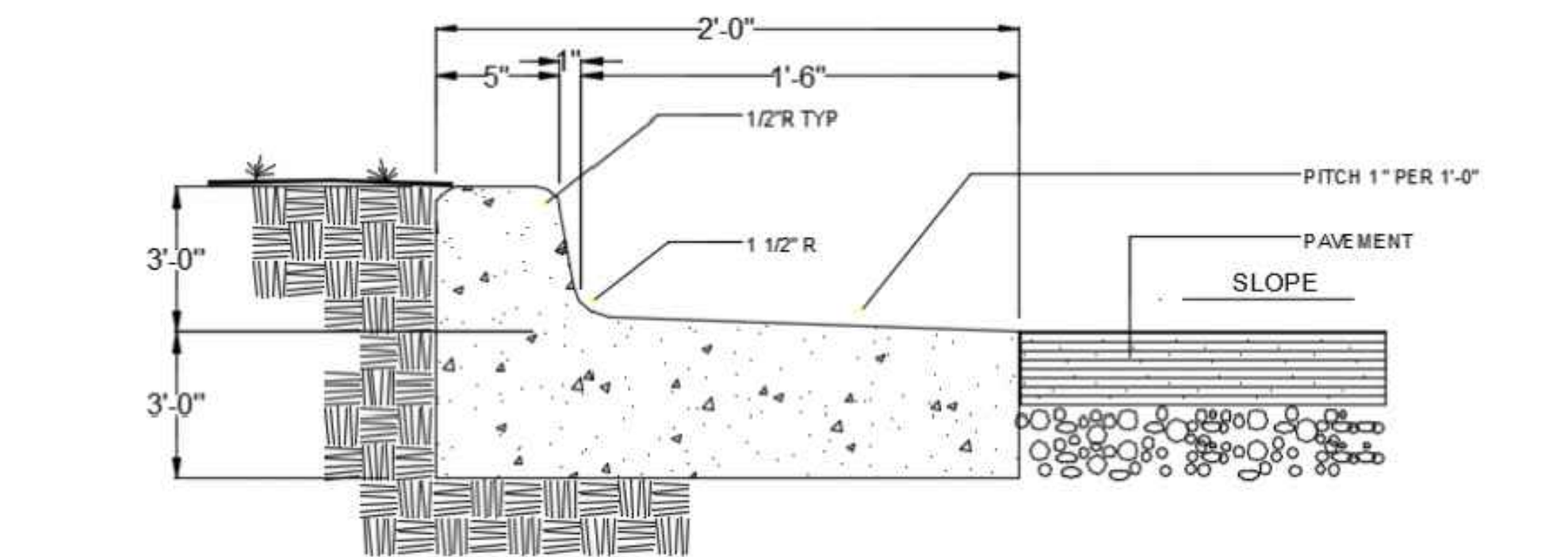


PROPOSED SITE PLAN
SCALE: 1" = 20'





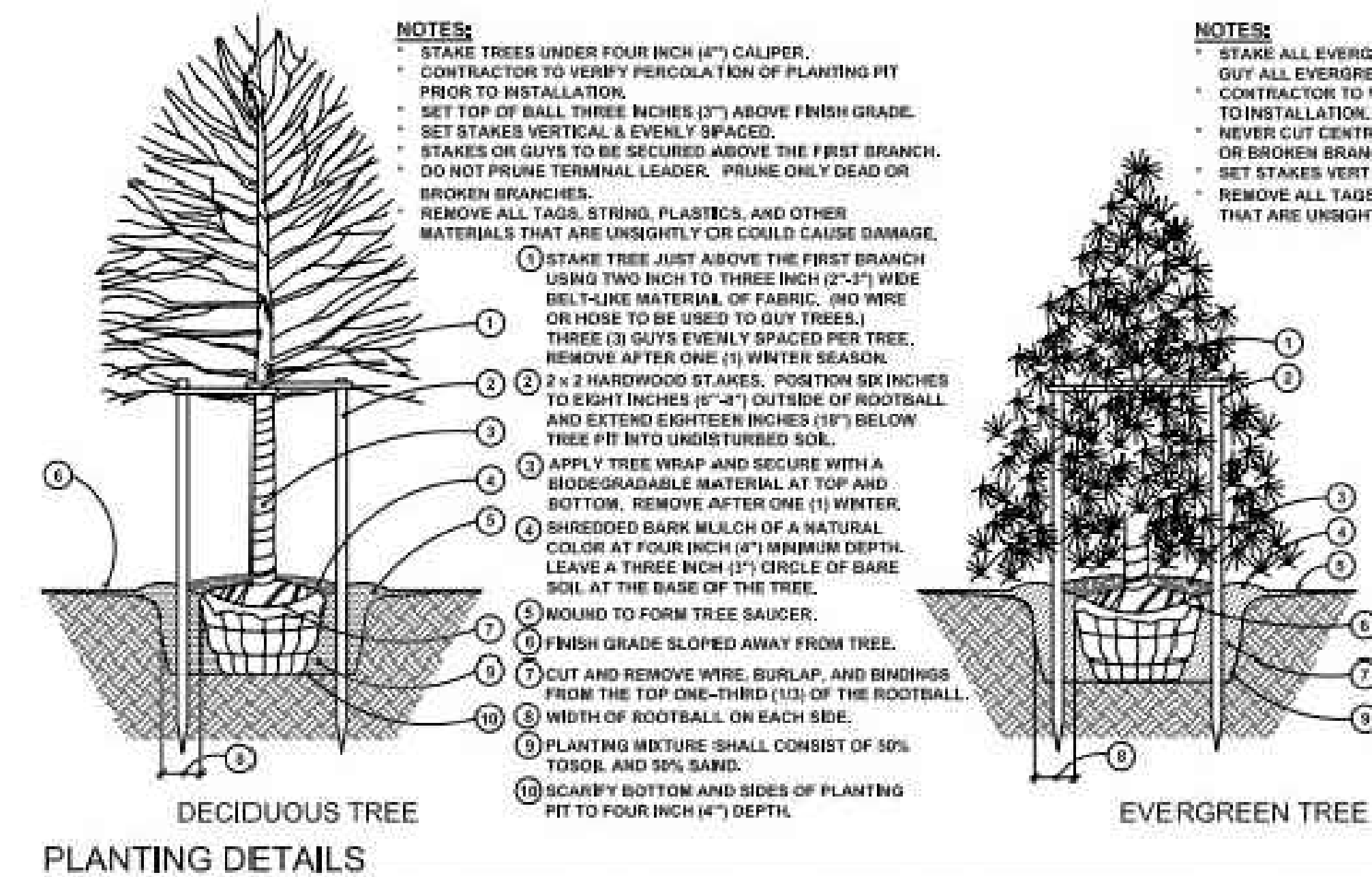
TREE PROTECTION DETAIL



CURB & GUTTER DETAIL



AC PG HHR CAH RAG



PLANTING DETAILS

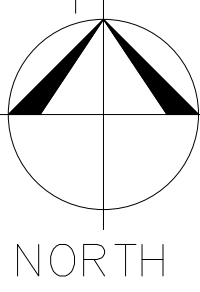
BLUE WATER HWY
(WIDTH VARIES)

BLUE WATER HWY
(WIDTH VARIES)

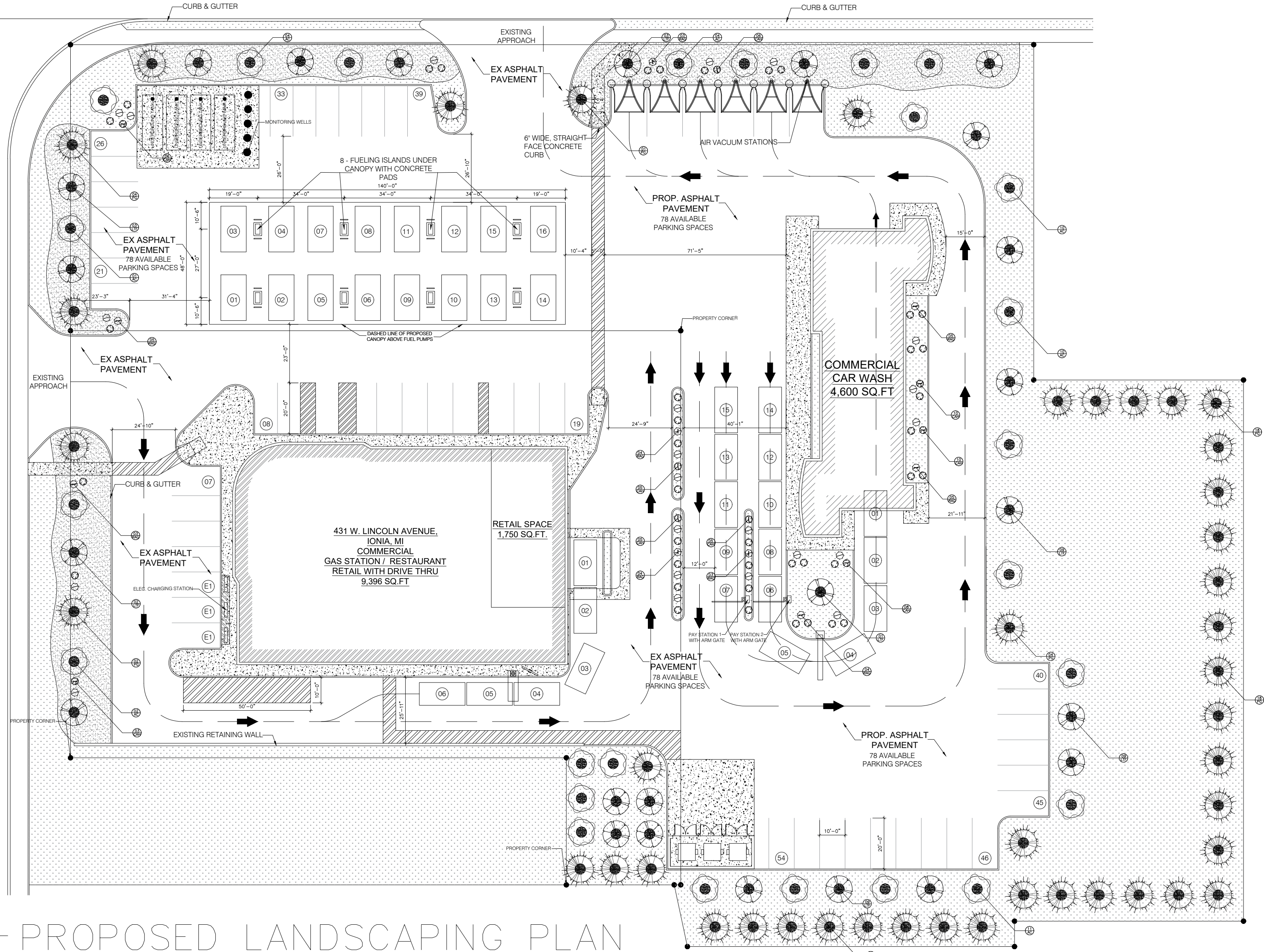
BLUE WATER HWY
(WIDTH VARIES)

GREEN ARROW RTE
(WIDTH VARIES)

GREEN ARROW RTE
(WIDTH VARIES)



NORTH



PROPOSED LANDSCAPING PLAN

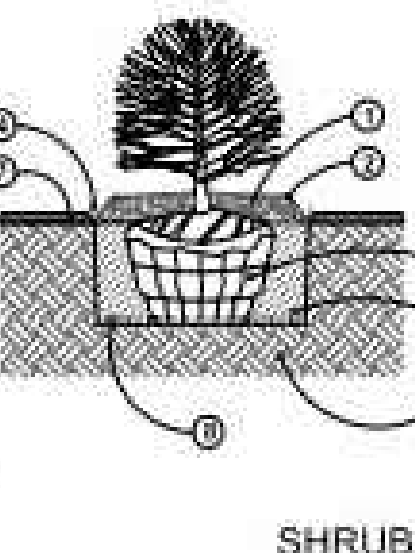
SCALE: 1" = 30'

GENERAL NOTES FOR ALL PLANTINGS:

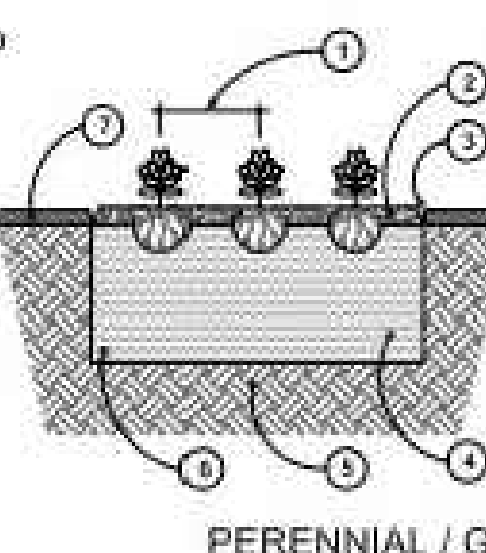
- * DO NOT CUT CENTRAL LEADER.
- * REMOVE ALL TAGS, STRINGS, PLASTICS, AND ANY OTHER NON-Biodegradable MATERIALS (EXCEPT LABEL FOR PLANT NAME) FROM PLANT STEMS OR CROWN WHICH ARE UNSIGHTLY OR COULD CAUSE GROUNDING.
- * PLANTS SHALL BEAR THE SAME RELATION TO FINISH GRADE AS IT BORE TO THE PREVIOUS GRADE IN THE NURSERY. SET THE BASE OF THE PLANT SLIGHTLY HIGHER THAN EXISTING GRADE IF PLANTING IN CLAY SOILS.
- * CENTER THE ROOTBALL IN THE PLANTING HOLE. LEAVE THE BOTTOM OF THE PLANTING HOLE FIRM. USE WATER TO SETTLE THE PLANTING MIX AND REMOVE ANY AIR POCKETS AND FIRMLY SET THE TREE OR SHRUB. GENTLY TAMP IF NEEDED.

NOTE:

- * CONTRACTOR TO VERIFY PERCOLATION OF PLANTING PIT PRIOR TO INSTALLATION.
- * THE PLANTING MIXTURE SHALL CONSIST OF 20% TOPSOIL, 60% SAND, AND 20% COMPOST.



SHRUB



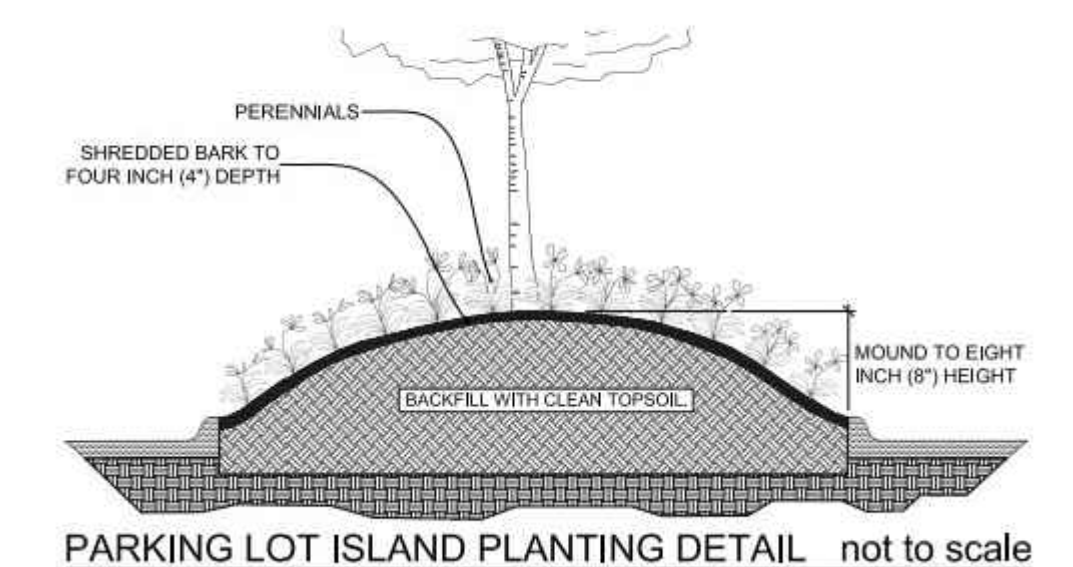
PERENNIAL / GROUNDCOVER

not to scale

PLANT LIST

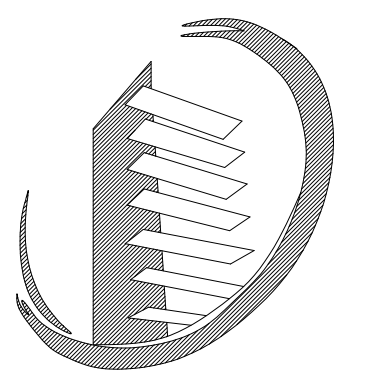
KEY QTY.	BOTANICAL NAME	COMMON NAME	SIZE
Large Trees			
ARA	<i>Acer rubrum</i> 'Redpointe'	Redpointe Red Maple	3" cal. B&B
LSS	<i>Liquidambar styraciflua</i>	Slender Silhouette	3" cal. B&B
LTF	<i>2.4 Liquidambar styraciflua</i> 'Fastigiate'	Fastigiate Tuliptree	3" cal. B&B
PG	<i>4.3 Picea glauca</i>	White Spruce	8' ht. B&B
Ornamental Trees			
AC	<i>2.5 Amelanchier canadensis</i>	Clump Serviceberry	6' - 8' ht. B&B
ACS	<i>Amelanchier canadensis</i>	Single Stem Serviceberry	2" cal. B&B
Shrubs			
CAH	<i>4.8 Clethra alnifolia</i> 'Hummingbird'	Hummingbird Summersweet	30" ht., 5 gal. pot
IVJ	<i>Ilex verticillata</i> 'Jim Dandy'	Jim Dandy Winterberry	30" ht., 5 gal. pot
MR	<i>Ilex verticillata</i> 'Red Sprite'	Red Sprite Winterberry	30" ht., 5 gal. pot
RAG	<i>3.1 Rhus aromatica</i> 'Gro-Low'	Gro-Low Fragrant Sumac	30" ht., 3 gal. pot
SJG	<i>Spiraea japonica</i> 'Goldmound'	Goldmound Spirea	30" ht., 3 gal. pot
TMD	<i>Taxus x media</i> 'Densiformis'	Densiformis Yew	30" ht. B&B
Perennials			
CP	<i>Carex pensylvanica</i>	Pennsylvania Sedge	1 gal. pot, 24" o.c.
HHR	<i>Hamamelis sp.</i> 'Happy Returns'	Happy Returns Daylily	1 gal. pot, 30" o.c.
PAM	<i>Pennisetum alopecuroides</i> 'Moudry'	Black Flowered Fountain Grass	2 gal. pot, 36" o.c.
RFG	<i>Rudbeckia hirta</i> var. <i>sulcata</i>	Goldsturm Orange Coneflower	2 gal. pot, 24" o.c.

* Landscape Contractor to determine the quantity in the field.



PARKING LOT ISLAND PLANTING DETAIL

not to scale



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED LANDSCAPING
PLAN

Date: 05/02/2025

Scale: Noted

Project Number: 25-119

Sheet Number:

SP-3



TECHNICAL DATA SHEET



NAME: LED Canopy Light

P/N: SNC-CP-150W-3421-1602

DLC CODE :P6AFABNC

Advantage:

- UL cUL DLC certificate
- High CRI
- Mean Well IP65 driver, Input voltage 100-277Vac
- No UV or IR in the beam
- Easy to install and operate
- Energy saving, Long lifespan
- Light is soft and uniform, Safe to eyes
- Instant start, NO flickering, NO humming
- Green and eco-friendly without mercury.

Application:

- ◆ Gas station
- ◆ Service station, Toll station.

SNC OPTO ELECTRONIC CO., LTD
Tel: +86-755-29683009
www.snc-lighting.com

Fax: +86-755-29684853
E-mail: sales@snc-led.com

VIETNAM JJ LIGHTING COMPANY LIMITED
Lot G1-2-1-5-6, Dai Dong - Huan Son Industrial Park, Dai Dong Commune, Huan Son Commune, Tan Du District, Bac Ninh Province, Vietnam
Web: www.vjlighting.com Tel: +84-241-2000000 Email: daniel@vjlighting.com Wechat / Whatsapp: 008615914091136

Driver: PF20-80, THD<20%
LED Source: SMD2835, CRI>70, LM80
Lumen: 140LM/W
Shell Material: Bronze Aluminum Body+Glass Cover(A series)
Colour Temperature: 3500K/4000K/5000K/5700K ±5%
Warranty: 5 Years
Certification: UL,FCC, CE,RoHS
Waterproof Grade: IP65
Model No. Description
DDM (Dimming function)
ODS (Dimming+Sensing function)
ODE (Dimming+Emergency function)
OSE (Dimming+Sensing+Emergency function)
BB(Color Temperature)



LED Wall Pack A Series -UL E508912							
Item No.	Luminaire Efficacy	Watts (W)	LED	Dimmable	Dimension (inch)	Input Voltage	Driver Brand
WPA01-040UBBL-01DCM03	140LM/W	40W	SMD2835	0-10V dimmable	14.21"X9.20"X7.8"	AC120-277V	Backy with BKV surge protection
WPA01-060UBBL-01DCM03		60W					
WPA01-080UBBL-01DCM03		80W					
WPA01-100UBBL-01DCM03		100W					
WPA01-120UBBL-01DCM03		120W					

The accessory of LED Wall Pack
The quotation on accessory is only for reference, the separate packed accessory non-made/processed in Vietnam could not ship from Vietnam directly, and please see the list for your review.

	AC100-300V/10KV surge protection device
	AC100-300V/20KV surge protection device
	Daylight sensor, DC12V
	Infrared sensor & daylight sensor, AC120-277V
	The remote controller of infrared sensor sensor
	Emergency battery backup driver, AC120-277V/15W

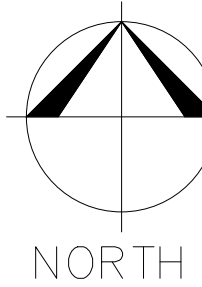
BLUE WATER HWY
(WIDTH VARIES)

BLUE WATER HWY
(WIDTH VARIES)

BLUE WATER HWY
(WIDTH VARIES)

GREEN ARROW RTE
(WIDTH VARIES)

GREEN ARROW RTE
(WIDTH VARIES)



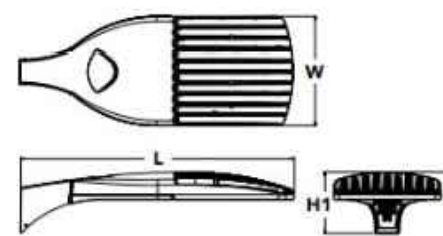
PROPOSED PHOTOMETRIC PLAN

SCALE: 1" = 30'



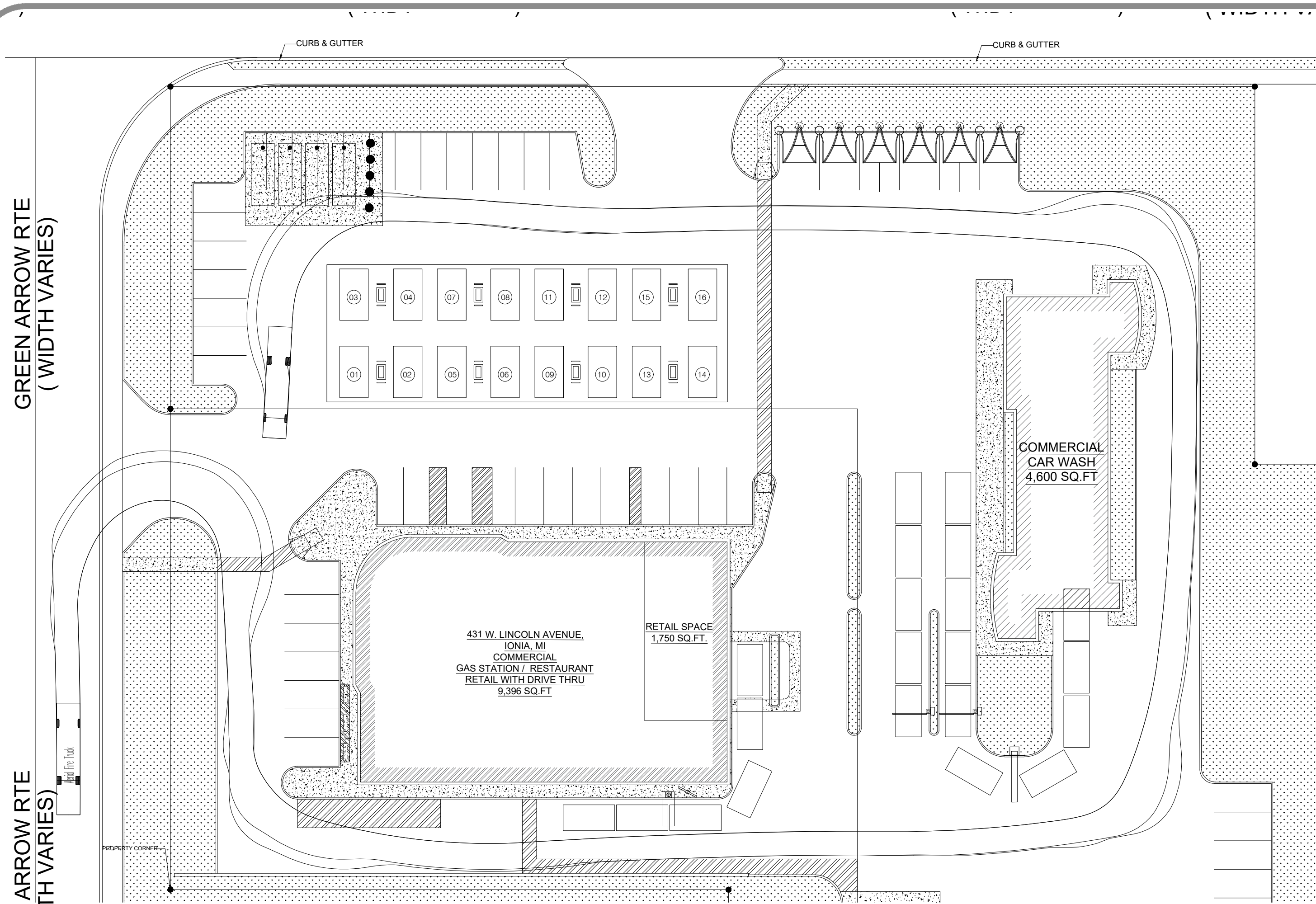
D-Series Size 1 LED Area Luminaire

Specifications
EFL: 1.01 ft
Length: 33"
Width: 13"
Height H1: 7-1/2"
Height H2: 3-1/2"
Weight (max): 27 lbs



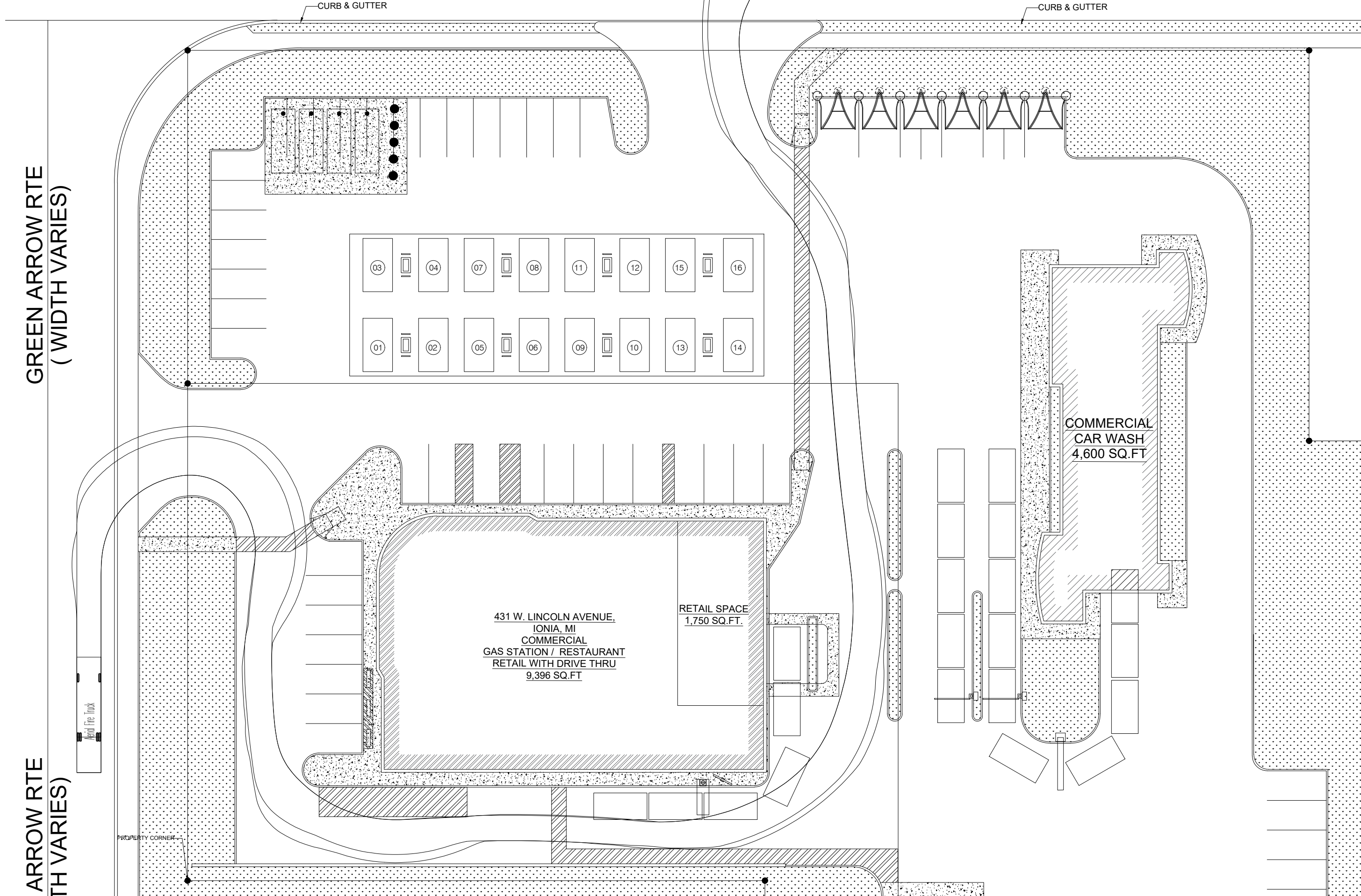
Introduction
The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high-efficiency, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 45% and expected service life of over 100,000 hours.

Ordering Information		EXAMPLE: DSX1 LED P7 40K T3M MVOLT SNA PLTAIR2 PIRHN DOBXD	
Series	Options	Manufacturer	Manufacturer
DSX1 LED	Forward optics P1 P4 P7 P2 P5 P8 P3 P6 P9 Retrofitted optics P10 P12 P11 P13	40K 3000K 40K 4000K 50K 5000K T3S Type I short T3S Type I medium T3S Type I wide T3S Type II short T3S Type II medium T3S Type II wide T3S Type III short T3S Type III medium T3S Type III wide	W0021 W0022 W0023 W0024 W0025 W0026 W0027 W0028 W0029 W0030 W0031 W0032 W0033 W0034 W0035 W0036 W0037 W0038 W0039 W0040 W0041 W0042 W0043 W0044 W0045 W0046 W0047 W0048 W0049 W0050 W0051 W0052 W0053 W0054 W0055 W0056 W0057 W0058 W0059 W0060 W0061 W0062 W0063 W0064 W0065 W0066 W0067 W0068 W0069 W0070 W0071 W0072 W0073 W0074 W0075 W0076 W0077 W0078 W0079 W0080 W0081 W0082 W0083 W0084 W0085 W0086 W0087 W0088 W0089 W0090 W0091 W0092 W0093 W0094 W0095 W0096 W0097 W0098 W0099 W0100 W0101 W0102 W0103 W0104 W0105 W0106 W0107 W0108 W0109 W0110 W0111 W0112 W0113 W0114 W0115 W0116 W0117 W0118 W0119 W0120 W0121 W0122 W0123 W0124 W0125 W0126 W0127 W0128 W0129 W0130 W0131 W0132 W0133 W0134 W0135 W0136 W0137 W0138 W0139 W0140 W0141 W0142 W0143 W0144 W0145 W0146 W0147 W0148 W0149 W0150 W0151 W0152 W0153 W0154 W0155 W0156 W0157 W0158 W0159 W0160 W0161 W0162 W0163 W0164 W0165 W0166 W0167 W0168 W0169 W0170 W0171 W0172 W0173 W0174 W0175 W0176 W0177 W0178 W0179 W0180 W0181 W0182 W0183 W0184 W0185 W0186 W0187 W0188 W0189 W0190 W0191 W0192 W0193 W0194 W0195 W0196 W0197 W0198 W0199 W0200 W0201 W0202 W0203 W0204 W0205 W0206 W0207 W0208 W0209 W0210 W0211 W0212 W0213 W0214 W0215 W0216 W0217 W0218 W0219 W0220 W0221 W0222 W0223 W0224 W0225 W0226 W0227 W0228 W0229 W0230 W0231 W0232 W0233 W0234 W0235 W0236 W0237 W0238 W0239 W0240 W0241 W0242 W0243 W0244 W0245 W0246 W0247 W0248 W0249 W0250 W0251 W0252 W0253 W0254 W0255 W0256 W0257 W0258 W0259 W0260 W0261 W0262 W0263 W0264 W0265 W0266 W0267 W0268 W0269 W0270 W0271 W0272 W0273 W0274 W0275 W0276 W0277 W0278 W0279 W0280 W0281 W0282 W0283 W0284 W0285 W0286 W0287 W0288 W0289 W0290 W0291 W0292 W0293 W0294 W0295 W0296 W0297 W0298 W0299 W0300 W0301 W0302 W0303 W0304 W0305 W0306 W0307 W0308 W0309 W0310 W0311 W0312 W0313 W0314 W0315 W0316 W0317 W0318 W0319 W0320 W0321 W0322 W0323 W0324 W0325 W0326 W0327 W0328 W0329 W0330 W0331 W0332 W0333 W0334 W0335 W0336 W0337 W0338 W0339 W0340 W0341 W0342 W0343 W0344 W0345 W0346 W0347 W0348 W0349 W0350 W0351 W0352 W0353 W0354 W0355 W0356 W0357 W0358 W0359 W0360 W0361 W0362 W0363 W0364 W0365 W0366 W0367 W0368 W0369 W0370 W0371 W0372 W0373 W0374 W0375 W0376 W0377 W0378 W0379 W0380 W0381 W0382 W0383 W0384 W0385 W0386 W0387 W0388 W0389 W0390 W0391 W0392 W0393 W0394 W0395 W0396 W0397 W0398 W0399 W0400 W0401 W0402 W0403 W0404 W0405 W0406 W0407 W0408 W0409 W0410 W0411 W0412 W0413 W0414 W0415 W0416 W0417 W0418 W0419 W0420 W0421 W0422 W0423 W0424 W0425 W0426 W0427 W0428 W0429 W0430 W0431 W0432 W0433 W0434 W0435 W0436 W0437 W0438 W0439 W0440 W0441 W0442 W0443 W0444 W0445 W0446 W0447 W0448 W0449 W0450 W0451 W0452 W0453 W0454 W0455 W0456 W0457 W0458 W0459 W0460 W0461 W0462 W0463 W0464 W0465 W0466 W0467 W0468 W0469 W0470 W0471 W0472 W0473 W0474 W0475 W0476 W0477 W0478 W0479 W0480 W0481 W0482 W0483 W0484 W0485 W0486 W0487 W0488 W0489 W0490 W0491 W0492 W0493 W0494 W0495 W0496 W0497 W0498 W0499 W0500 W0501 W0502 W0503 W0504 W0505 W0506 W0507 W0508 W0509 W0510 W0511 W0512 W0513 W0514 W0515 W0516 W0517 W0518 W0519 W0520 W0521 W0522 W0523 W0524 W0525 W0526 W0527 W0528 W0529 W0530 W0531 W0532 W0533 W0534 W0535 W0536 W0537 W0538 W0539 W0540 W0541 W0542 W0543 W0544 W0545 W0546 W0547 W0548 W0549 W0550 W0551 W0552 W0553 W0554 W0555 W0556 W0557 W0558 W0559 W0560 W0561 W0562 W0563 W0564 W0565 W0566 W0567 W0568 W0569 W0570 W0571 W0572 W0573 W0574 W0575 W0576 W0577 W0578 W0579 W0580 W0581 W0582 W0583 W0584 W0585 W0586 W0587 W0588 W0589 W0590 W0591 W0592 W0593 W0594 W0595 W0596 W0597 W0598 W0599 W0600 W0601 W0602 W0603 W0604 W0605 W0606 W0607 W0608 W0609 W0610 W0611 W0612 W0613 W0614 W0615 W0616 W0617 W0618 W0619 W0620 W0621 W0622 W0623 W0624 W0625 W0626 W0627 W0628 W0629 W0630 W0631 W0632 W0633 W0634 W0635 W0636 W0637 W0638 W0639 W0640 W0641 W0642 W0643 W0644 W0645 W0646 W0647 W0648 W0649 W0650 W0651 W0652 W0653 W0654 W0655 W0656 W0657 W0658 W0659 W0660 W0661 W0662 W0663 W0664 W0665 W0666 W0667 W0668 W0669 W0670 W0671 W0672 W0673 W0674 W0675 W0676 W0677 W0678 W0679 W0680 W0681 W0682 W0683 W0684 W0685 W0686 W0687 W0688 W0689 W0690 W0691 W0692 W0693 W0694 W0695 W0696 W0697 W0698 W0699 W0700 W0701 W0702 W0703 W0704 W0705 W0706 W0707 W0708 W0709 W0710 W0711 W0712 W0713 W0714 W0715 W0716 W0717 W0718 W0719 W0720 W0721 W0722 W0723 W0724 W0725 W0726 W0727 W0728 W0729 W0730 W0731 W0732 W0733 W0734 W0735 W0736 W0737 W0738 W0739 W0740 W0741 W0742 W0743 W0744 W0745 W0746 W0747 W0748 W0749 W0750 W0751 W0752 W0753 W0754 W0755 W0756 W0757 W0758 W0759 W0760 W0761 W0762 W0763 W0764 W0765 W0766 W0767 W0768 W0769 W0770 W0771 W0772 W0773 W0774 W0775 W0776 W0777 W0778 W0779 W0780 W0781 W0782 W0783 W0784 W0785 W0786 W0787 W0788 W0789 W0790 W0791 W0792 W0793 W0794 W0795 W0796 W0797 W0798 W0799 W0800 W0801 W0802 W0803 W0804 W0805 W0806 W0807 W0808 W0809 W0810 W0811 W0812 W0813 W0814 W0815 W0816 W0817 W0818 W0819 W0820 W0821 W0822 W0823 W0824 W0825 W0826 W0827 W0828 W0829 W0830 W0831 W0832 W0833 W0834 W0835 W0836 W0837 W0838 W0839 W0840 W0841 W0842 W0843 W0844 W0845 W0846 W0847 W0848 W0849 W0850 W0851 W0852 W0853 W0854 W0855 W0856 W0857 W0858 W0859 W0860 W0861 W0862 W0863 W0864 W0865 W0866 W0867 W0868 W0869 W0870 W0871 W0872 W0873 W0874 W0875 W0876 W0877 W0878 W0879 W0880 W0881 W0882 W0883 W0884 W0885 W0886 W0887 W0888 W0889 W0890 W0891 W0892 W0893 W0894 W0895 W0896 W0897 W0898 W0899 W0900 W0901 W0902 W0903 W0904 W0905 W0906 W0907 W0908 W0909 W0910 W0911 W0912 W0913 W0914 W0915 W0916 W0917 W0918 W0919 W0920 W0921 W0922 W0923 W0924 W0925 W0926 W0927 W0928 W0929 W0930 W0931 W0932 W0933 W0934 W0935 W0936 W0937 W0938 W0939 W0940 W0941 W0942 W0943 W0944 W0945 W0946 W0947 W0948 W0949 W0950 W0951 W0952 W0953 W0954 W0955 W0956 W0957 W0958 W0959 W0960 W0961 W0962 W0963 W0964 W0965 W0966 W0967 W0968 W0969 W0970 W0971 W0972 W0973 W0974 W0975 W0976 W0977 W0978 W0979 W0980 W0981 W0982 W0983 W0984 W0985 W0986 W0987 W0988 W0989 W0990 W0991 W0992 W0993 W0994 W0995 W0996 W0997 W0998 W0999 W1000 W1001 W1002 W1003 W1004 W1005 W1006 W1007 W1008 W1009 W1010 W1011 W1012 W1013 W1014 W1015 W1016 W1017 W1018 W1019 W1020 W1021 W1022 W1023 W1024 W1025 W1026 W1027 W1028 W1029 W1030 W1031 W1032 W1033 W1034 W1035 W1036 W1037 W1038 W1039 W1040 W1041 W1042 W1043 W1044 W1045 W1046 W1047 W1048 W1049 W1050 W1051 W1052 W1053 W1054 W1055 W1056 W1057 W1058 W1059 W1060 W1061 W1062 W1063 W1064 W1065 W1066 W1067 W1068 W1069 W1070 W1071 W1072 W1073 W1074 W1075 W1076 W1077 W1078 W1079 W1080 W1081 W1082 W1083 W1084 W1085 W1086 W1087 W1088 W1089 W1090 W1091 W1092 W1093 W1094 W1095 W1096 W1097 W1098 W1099 W1100 W1101 W1102 W1103 W1104 W1105 W1106 W1107 W1108 W1109 W1110 W1111 W1112 W1113 W1114 W1115 W1116 W1117 W1118 W1119 W1120 W1121 W1122 W1123 W1124 W1125 W1126 W1127 W1128 W1129 W1130 W1131 W1132 W1133 W1134 W1135 W1136 W1137 W1138 W1139 W1140 W1141 W1142 W1143 W1144 W1145 W1146 W1147 W1148 W1149 W1150 W1151 W1152 W1153 W1154 W1155 W1156 W1157 W1158 W1159 W1160 W1161 W1162 W1163 W1164 W1165 W1166 W1167 W1168 W1169 W1170 W1171 W1172 W1173 W1174 W1175 W1176 W1177 W1178 W1179 W1180 W1181 W1182 W1183 W1184 W1185 W1186 W1187 W1188 W1189 W1190 W1191 W1192 W1193 W1194 W1195 W1196 W1197 W1198 W1199 W1200 W1201 W1202 W1203 W1204 W1205 W1206 W1207 W1208 W1209 W1210 W1211 W1212 W1213 W1214 W1215 W1216 W1217 W1218 W1219 W1220 W1221 W1222 W1223 W1224 W1225 W1226 W1227 W1228 W1229 W1230 W1231 W1232 W1233 W1234 W1235 W1236 W1237 W1238 W1239 W1240 W1241 W1242 W1243 W1244 W1245 W1246 W1247 W1248 W1249 W1250 W1251 W1252 W1253 W1254 W1255 W1256 W1257 W1258 W1259 W1260 W1261 W1262 W1263 W1264 W1265 W1266 W1267 W1268 W1269 W1270 W1271 W1272 W1273 W1274 W1275 W1276 W1277 W1278 W1279 W1280 W1281 W1282 W1283 W1284 W1285 W1286 W1287 W1288 W1289 W1290 W1291 W1292 W1293 W1294 W1295 W1296 W1297 W1298 W1299 W1300 W1301 W1302 W1303 W1304 W1305 W1306 W1307 W1308 W1309 W1310 W1311 W1312 W1313 W1314 W1315 W1316 W1317 W1318 W1319 W1320 W1321 W1322 W1323 W1324 W1325 W1



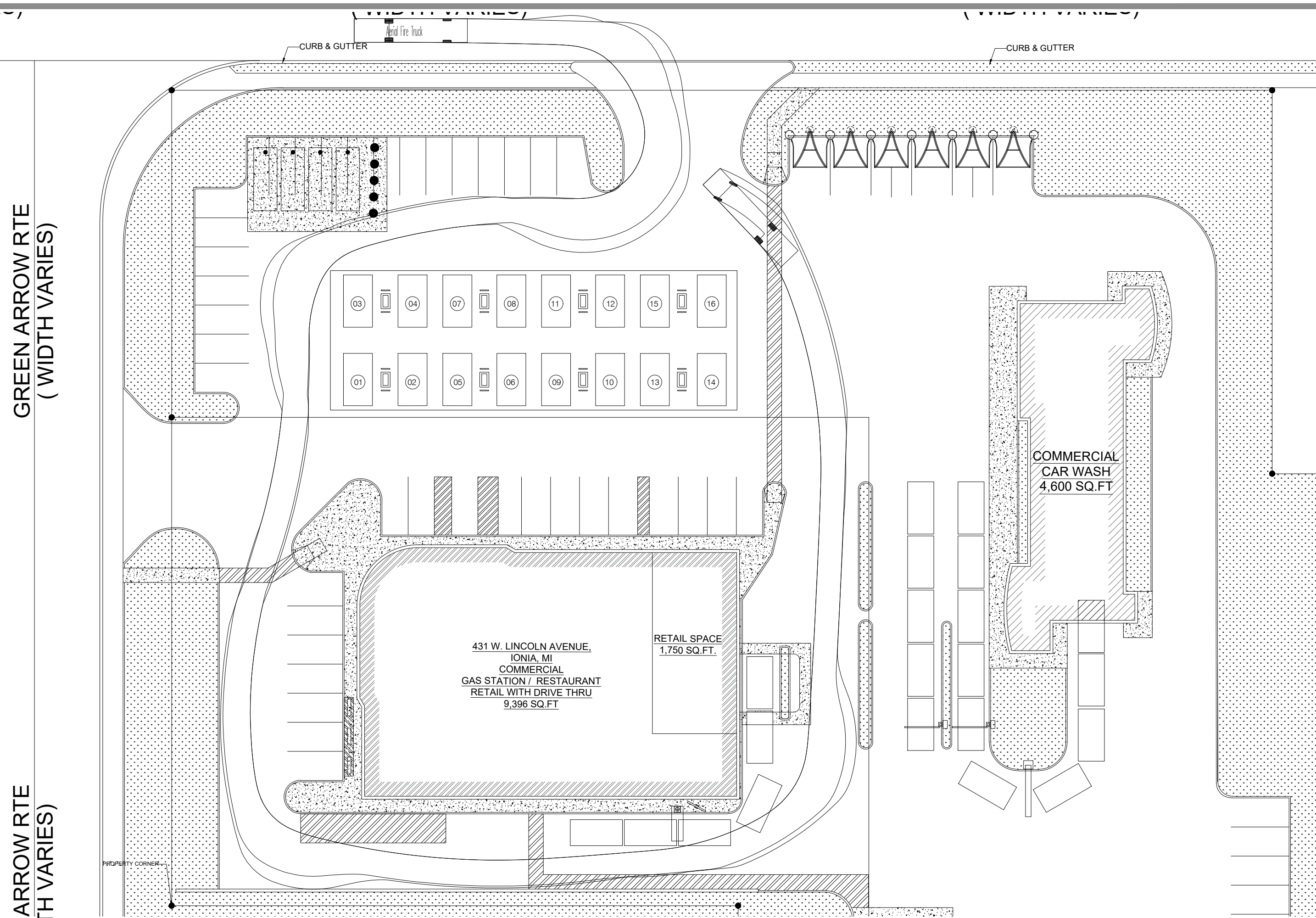
GREEN ARROW RTE (WIDTH VARIES)

BLUE WATER HWY (WIDTH VARIES)



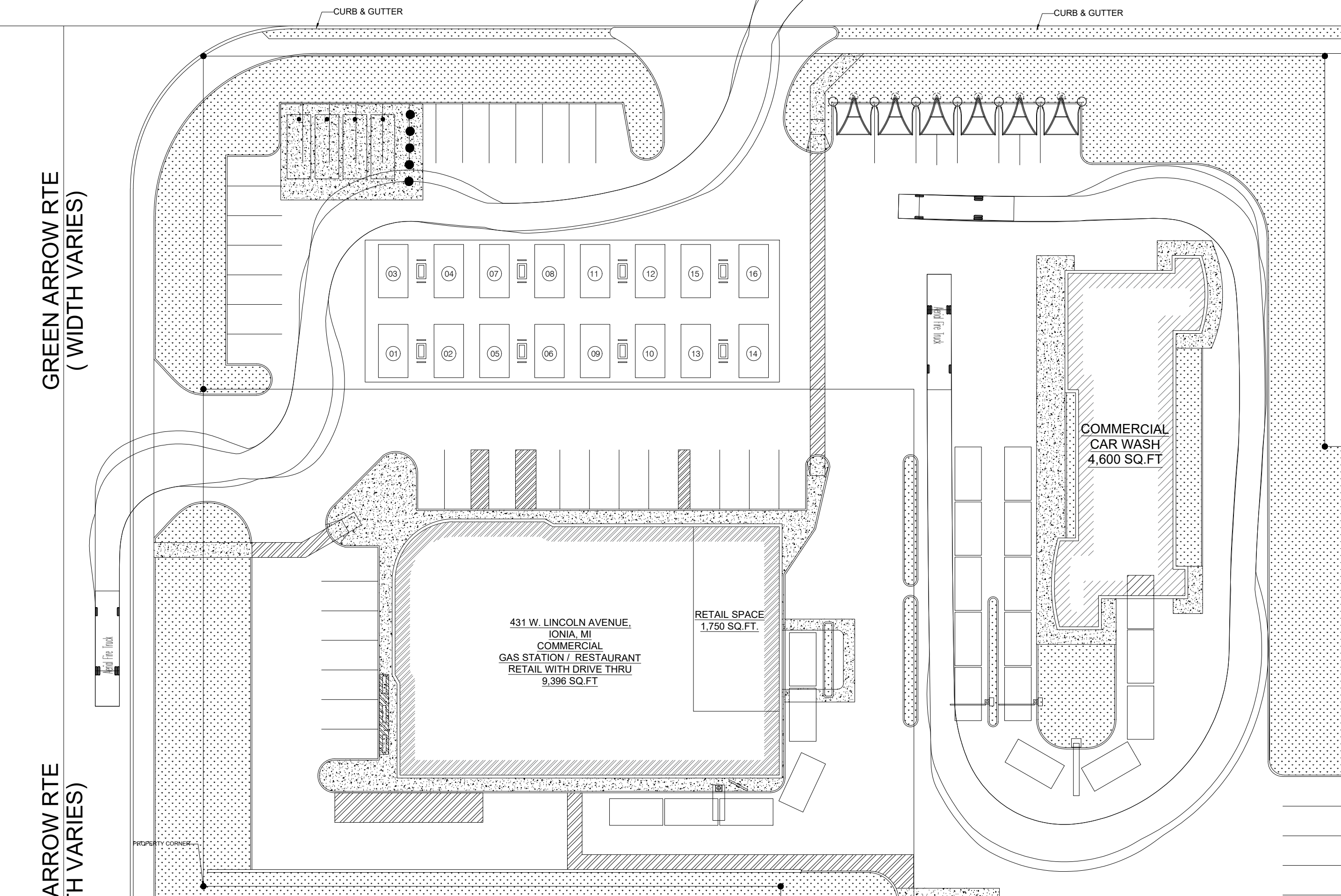
GREEN ARROW RTE (WIDTH VARIES)

BLUE WATER HWY (WIDTH VARIES)



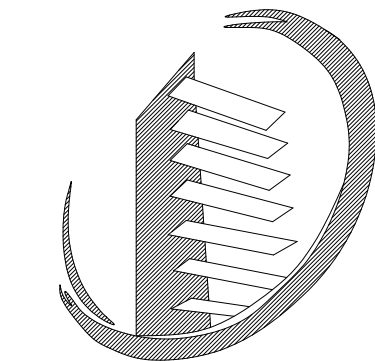
GREEN ARROW RTE (WIDTH VARIES)

BLUE WATER HWY (WIDTH VARIES)



GREEN ARROW RTE (WIDTH VARIES)

BLUE WATER HWY (WIDTH VARIES)



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED TRUCK
CIRCULATION PLAN

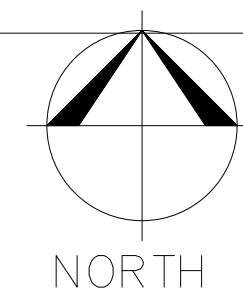
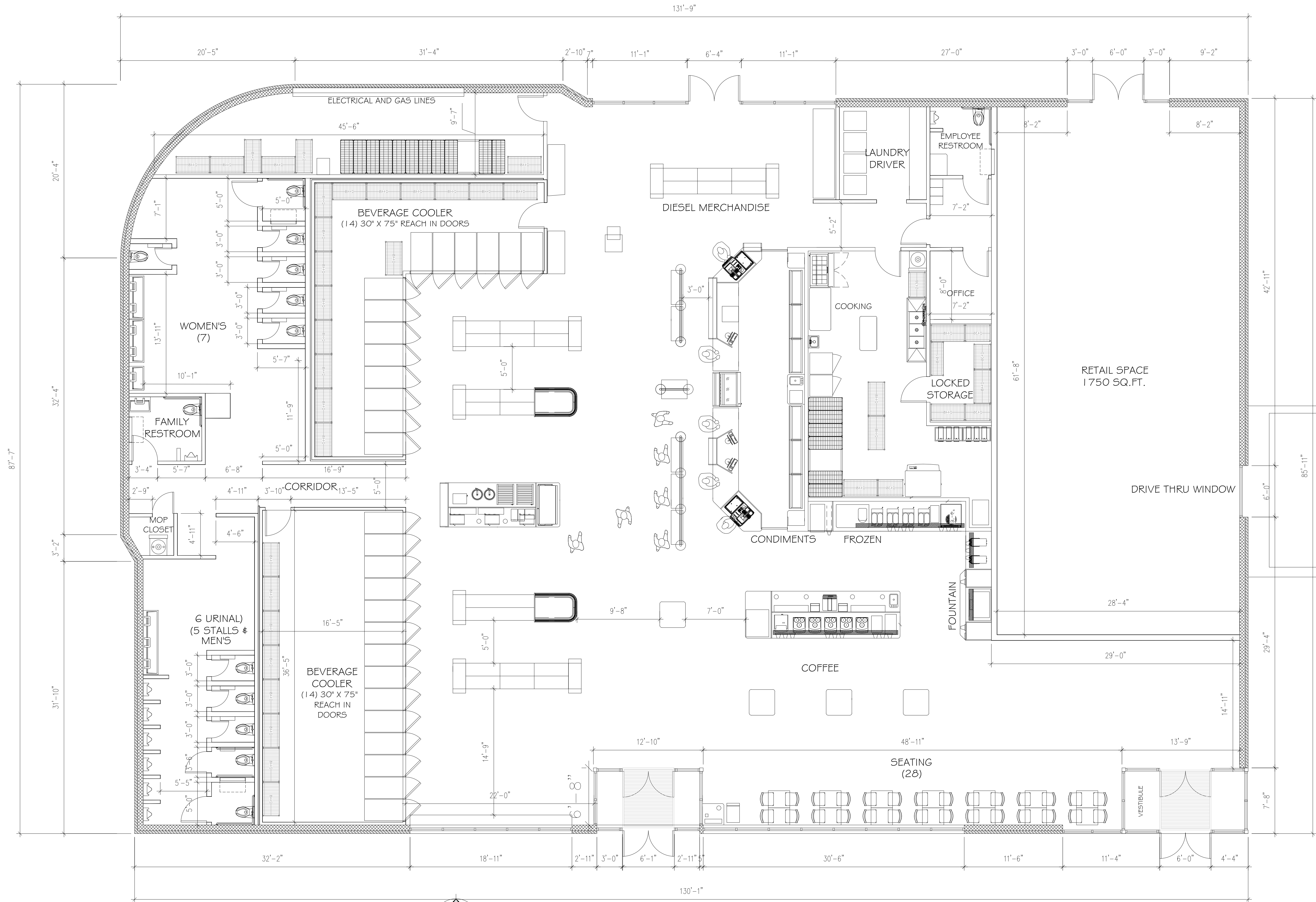
Date:
05/02/2025

Scale:
Noted

Project Number:
25-119

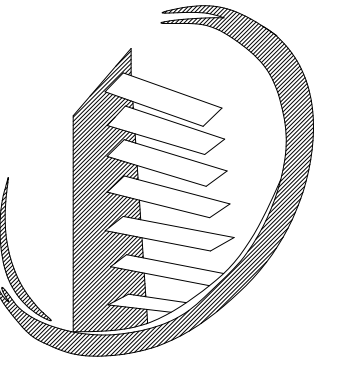
Sheet Number:

SP-5



PROPOSED FLOOR PLAN (GAS STATION)

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



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED FLOOR PLAN
GAS STATION

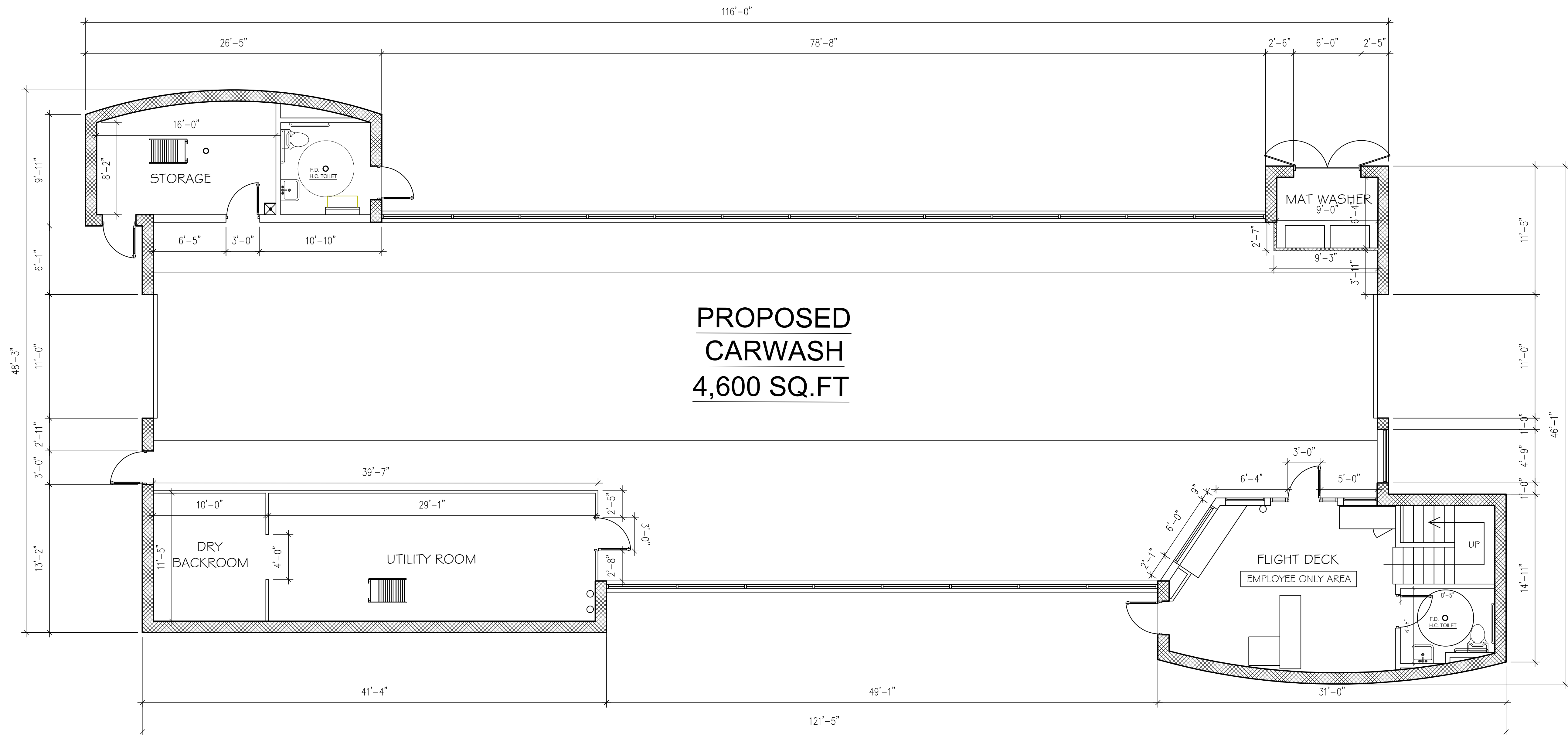
Date:
05/02/2025

Scale:
Noted

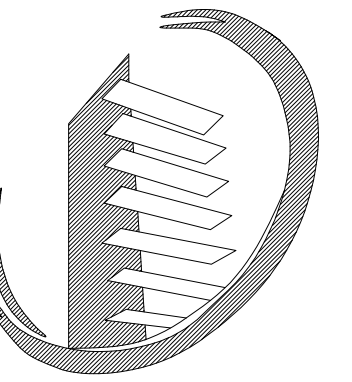
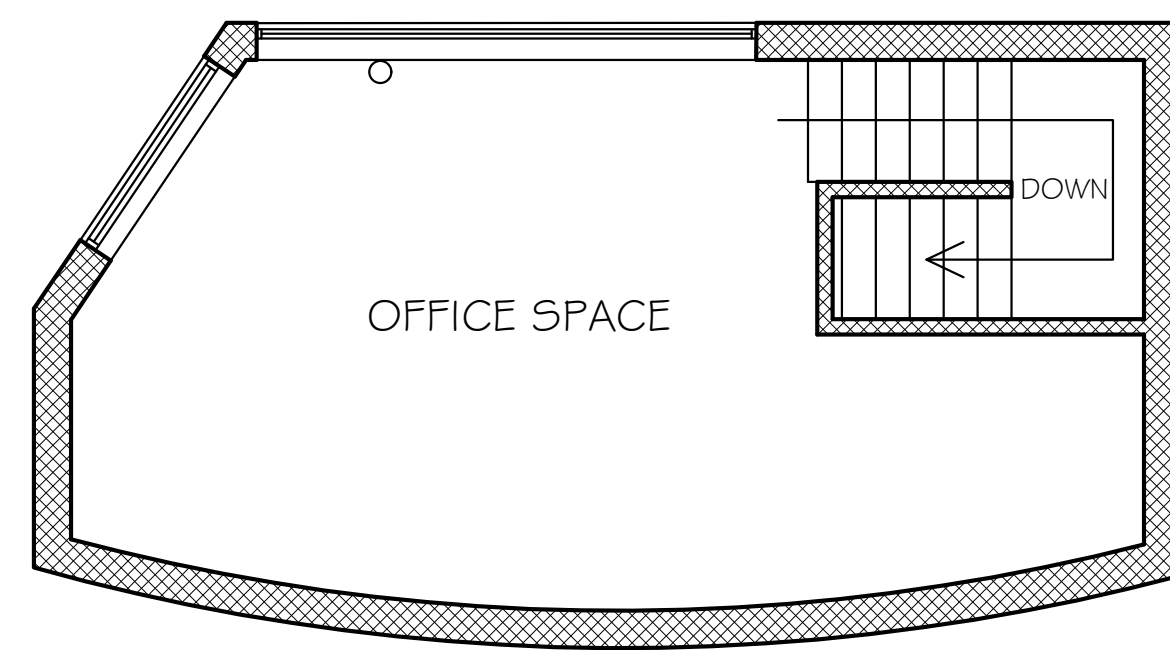
Project Number:
25-119

Sheet Number:

A-1



PROPOSED PLANS (CAR WASH)
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:
Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED FLOOR PLAN
CAR WASH

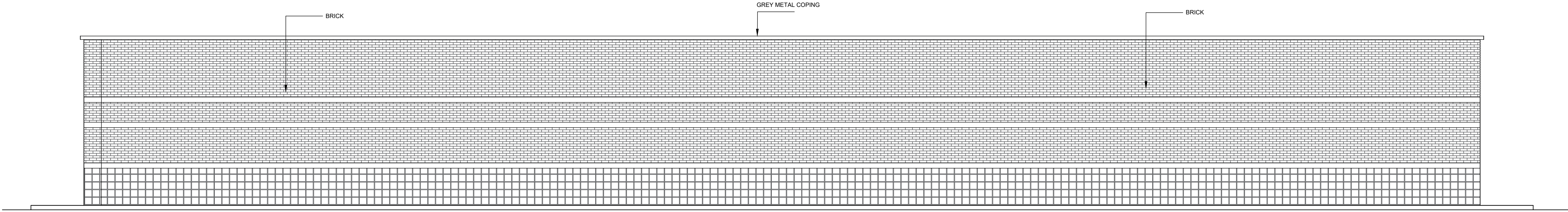
Date:
05/02/2025

Scale:
Noted

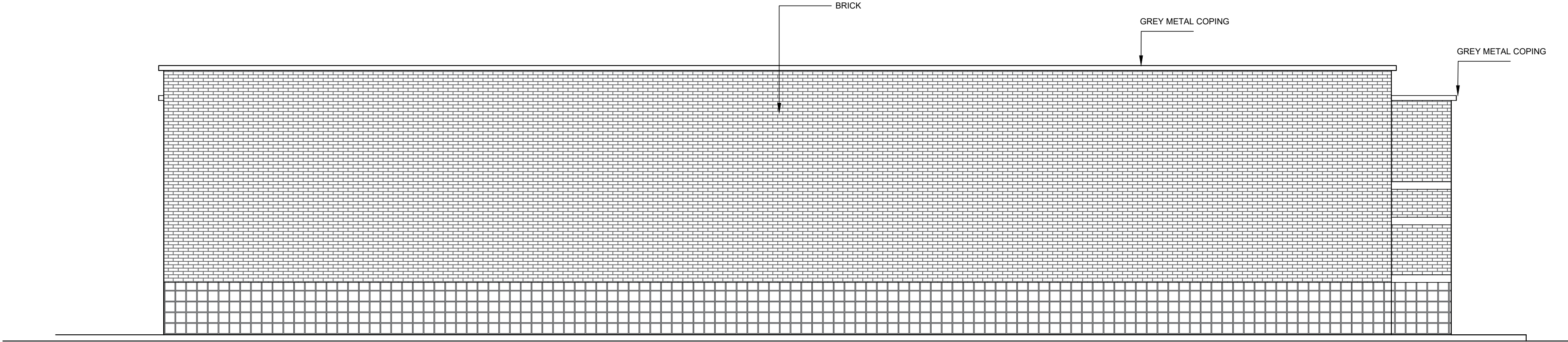
Project Number:
25-119

Sheet Number:

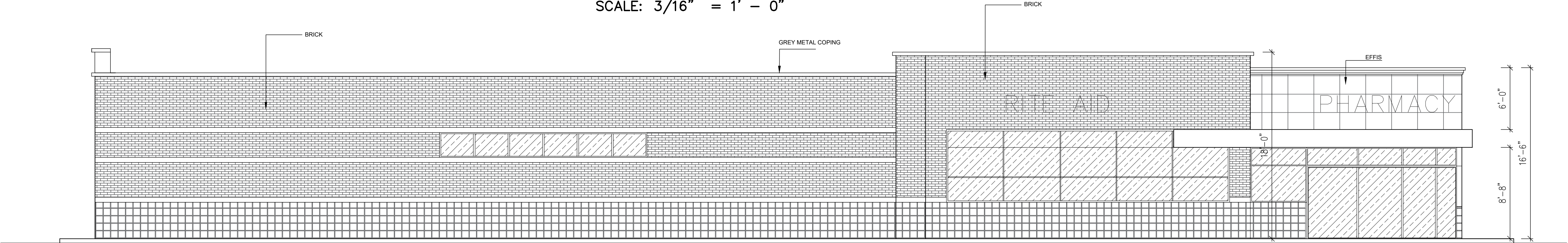
A-1.1



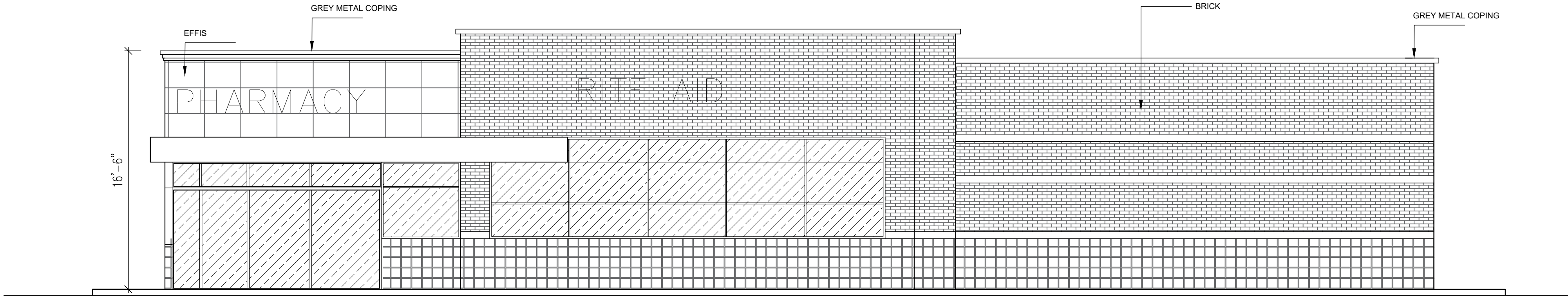
EXISTING SOUTH ELEVATION
SCALE: 3/16" = 1' - 0"



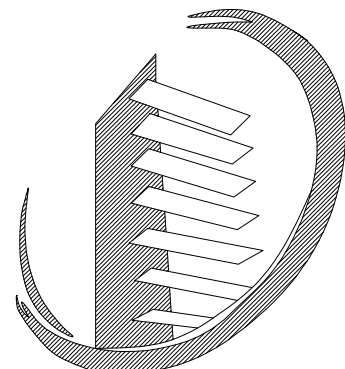
EXISTING EAST ELEVATION
SCALE: 3/16" = 1' - 0"



EXISTING NORTH ELEVATION
SCALE: 3/16" = 1' - 0"



EXISTING WEST ELEVATION
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:

EXISTING ELEVATIONS
GAS STATION

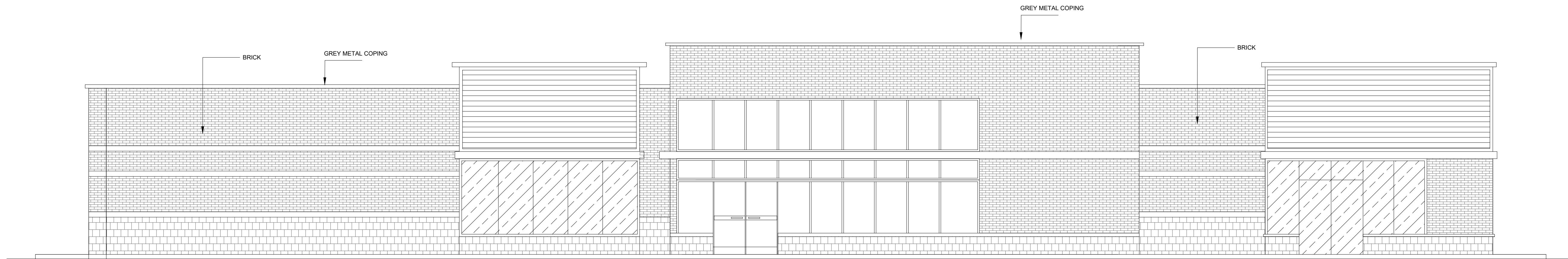
Date: 05/02/2025

Scale: Noted

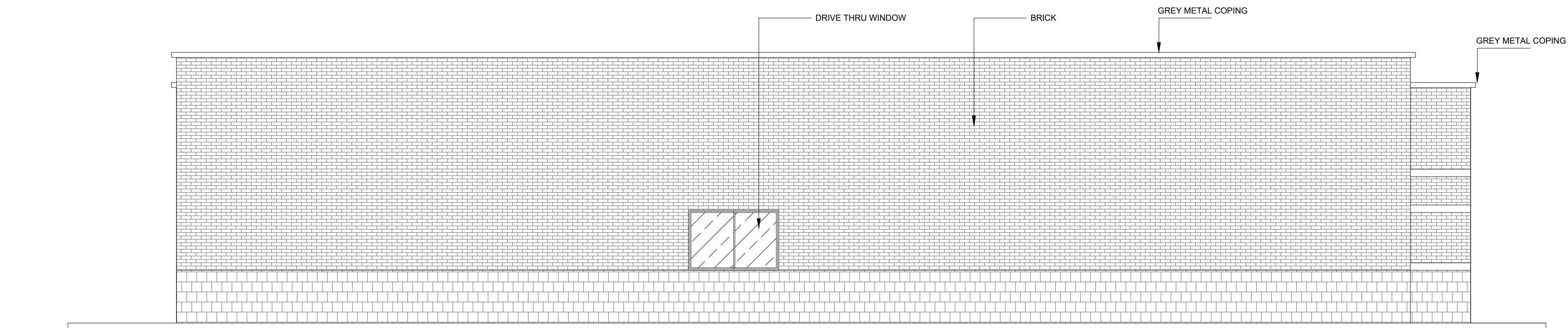
Project Number: 25-119

Sheet Number:

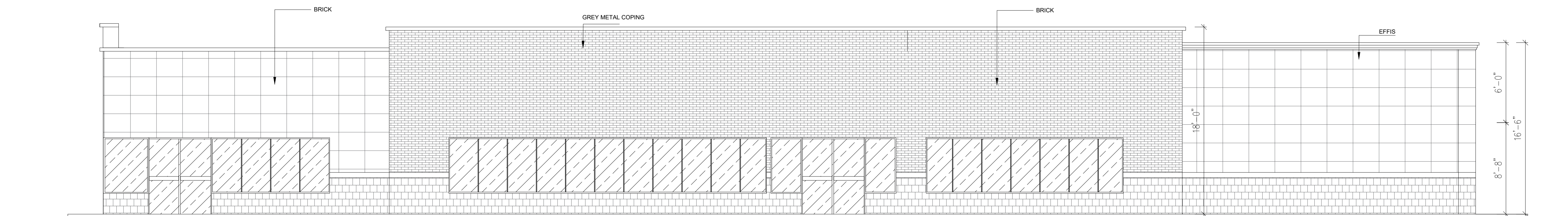
A-2



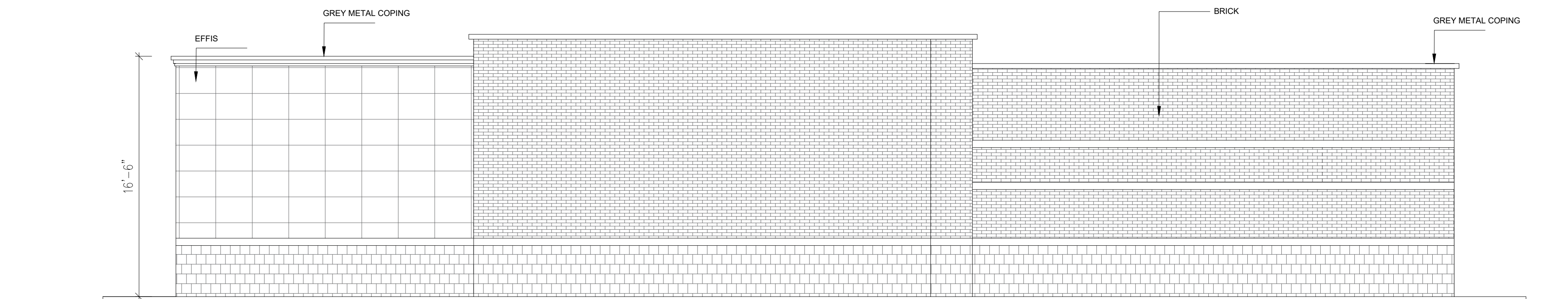
PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1' - 0"



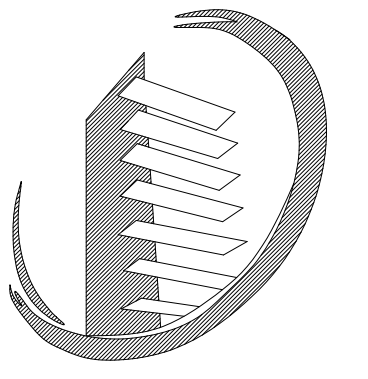
PROPOSED EAST ELEVATION
SCALE: 3/16" = 1' - 0"



PROPOSED NORTH ELEVATION
SCALE: 3/16" = 1' - 0"



PROPOSED WEST ELEVATION
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED ELEVATIONS
GAS STATION

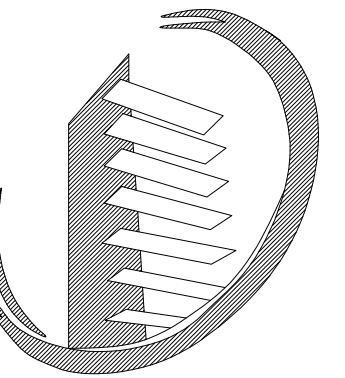
Date:
05/02/2025

Scale:
Noted

Project Number:
25-119

Sheet Number:

A-2.1



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED ELEVATIONS
CAR WASH

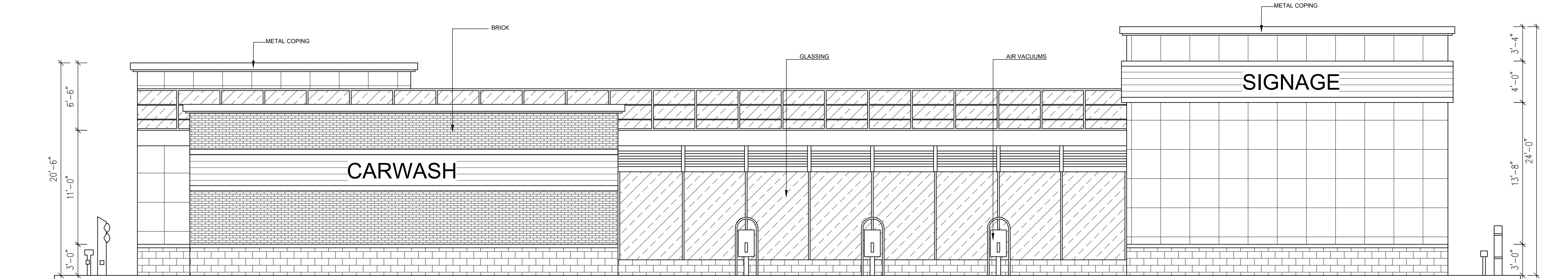
Date: 05/02/2025

Scale: Noted

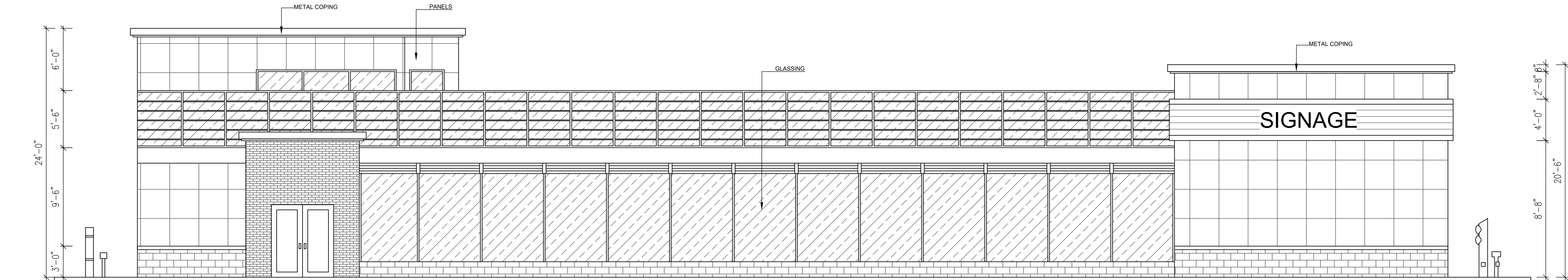
Project Number:
25-119

Sheet Number:

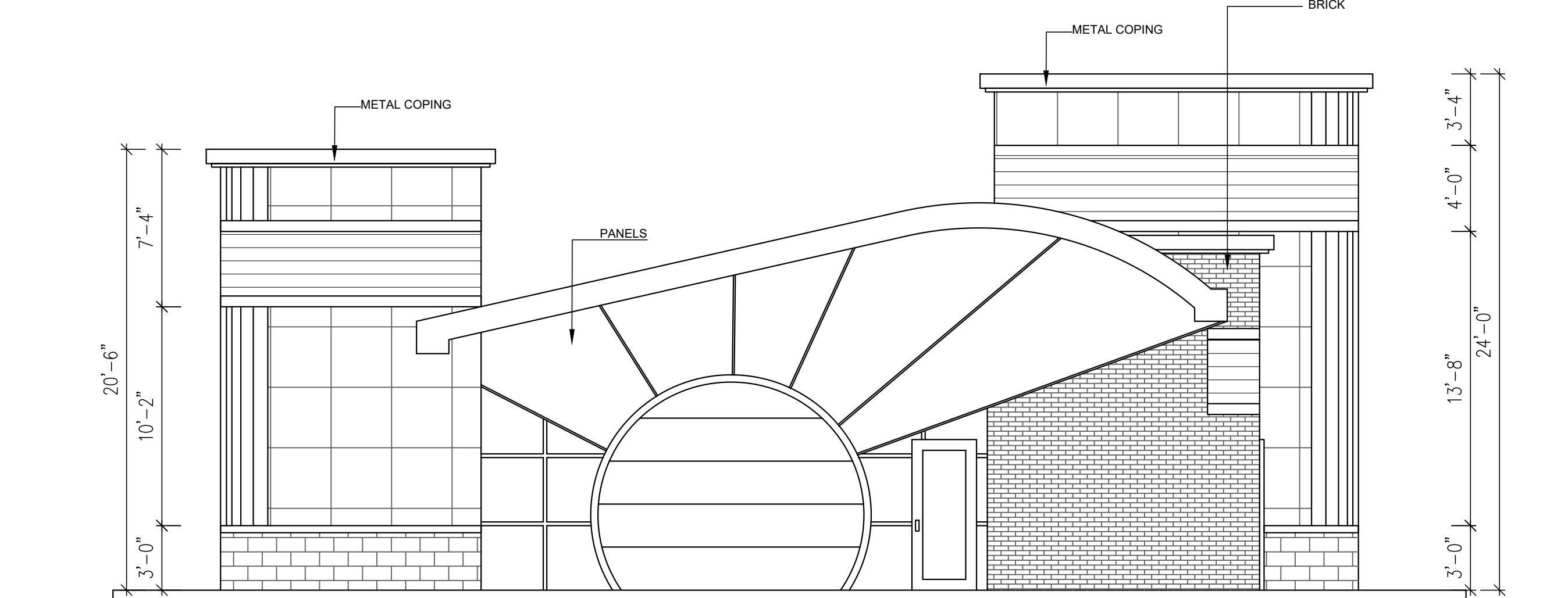
A-2.2



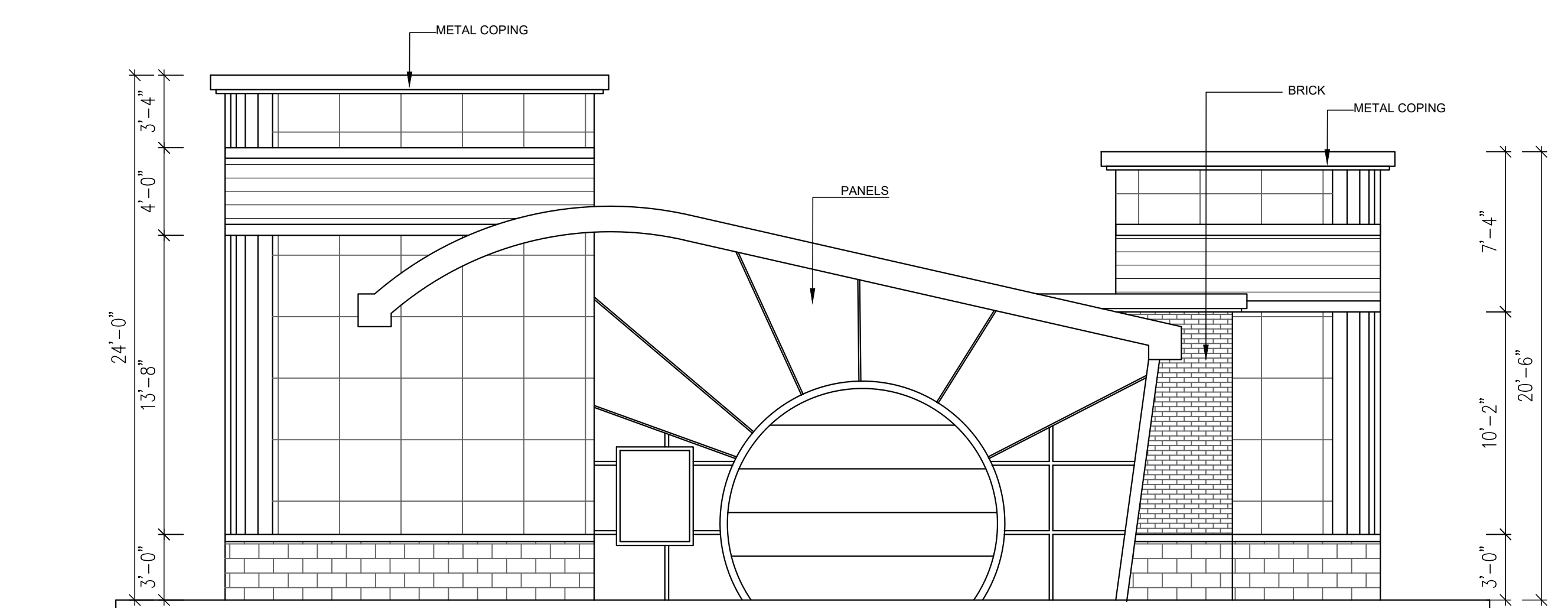
PROPOSED WEST ELEVATION
SCALE: 3/16" = 1' - 0"



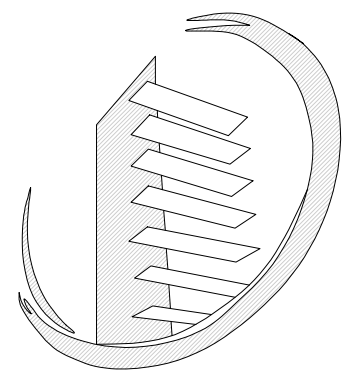
PROPOSED EAST ELEVATION
SCALE: 3/16" = 1' - 0"



PROPOSED NORTH ELEVATION
SCALE: 3/16" = 1' - 0"



PROPOSED SOUTH ELEVATION
SCALE: 3/16" = 1' - 0"



N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash

Project Location: 431 West Lincoln Avenue, Ionia, MI

Owner:

APPROVED BY:

Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Seal:



Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:

PROPOSED CAR WASH
DETAILS

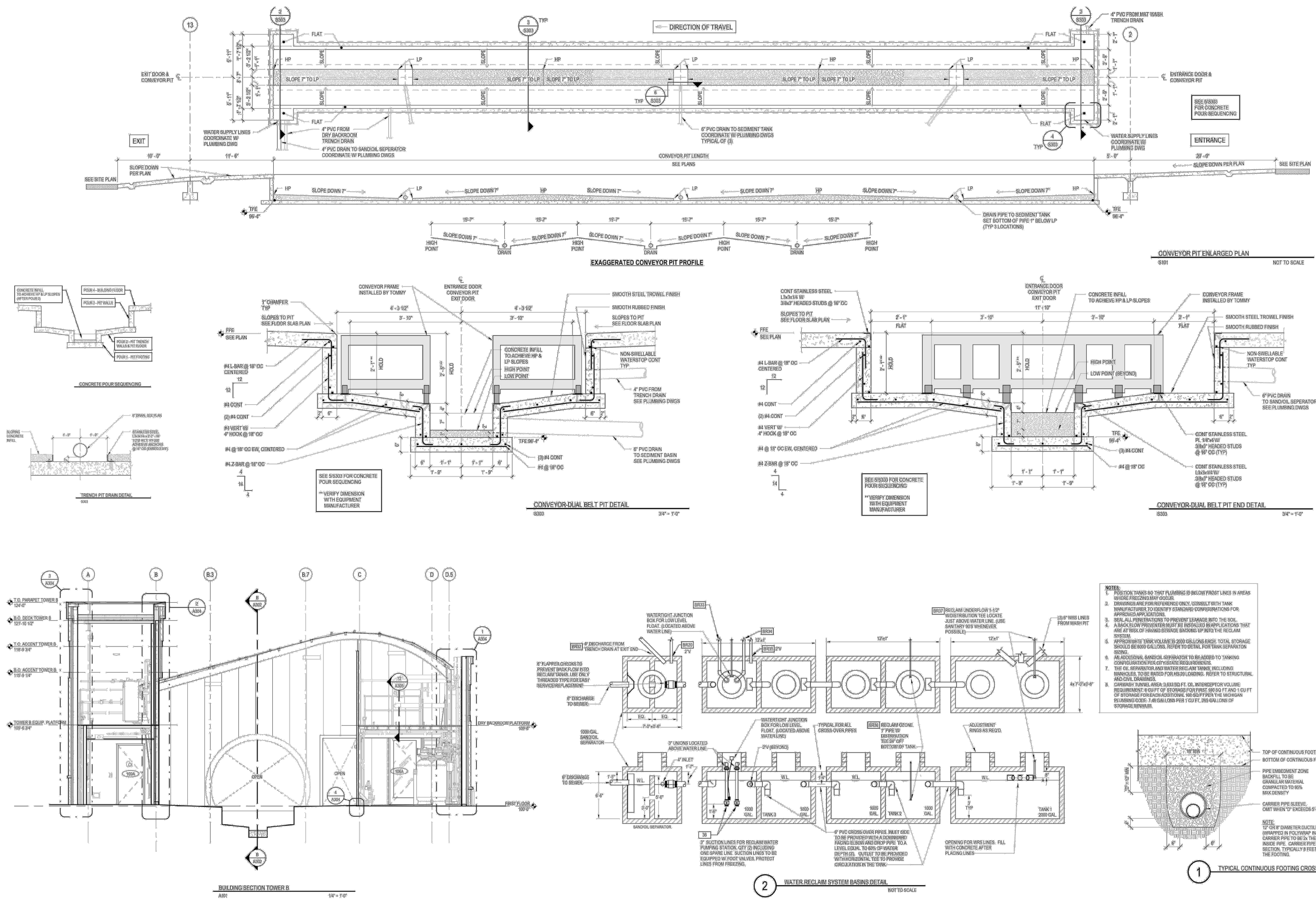
Date: 05/02/2025

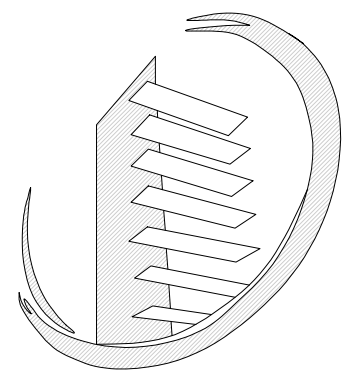
Scale: Noted

Project Number: 25-119

Sheet Number:

D-1



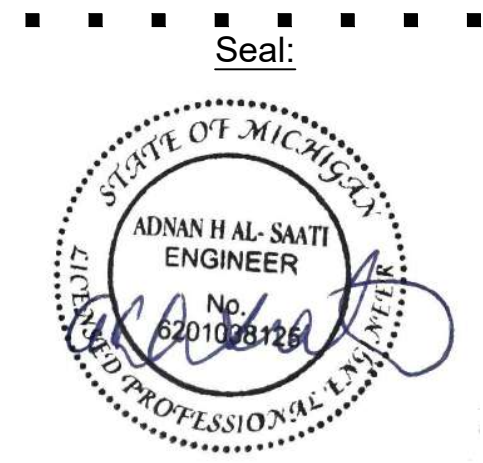


N.C. DESIGNERS
& CONTRACTING INC.

3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com

Project Name: Gas Station / Restaurant / Car Wash
Project Location: 431 West Lincoln Avenue, Ionia, MI
Owner:

APPROVED BY:
Adnan Al-Saati
3241 S. TELEGRAPH
Dearborn, MI 48124
313-986-8381
Email: ncdesigners@yahoo.com



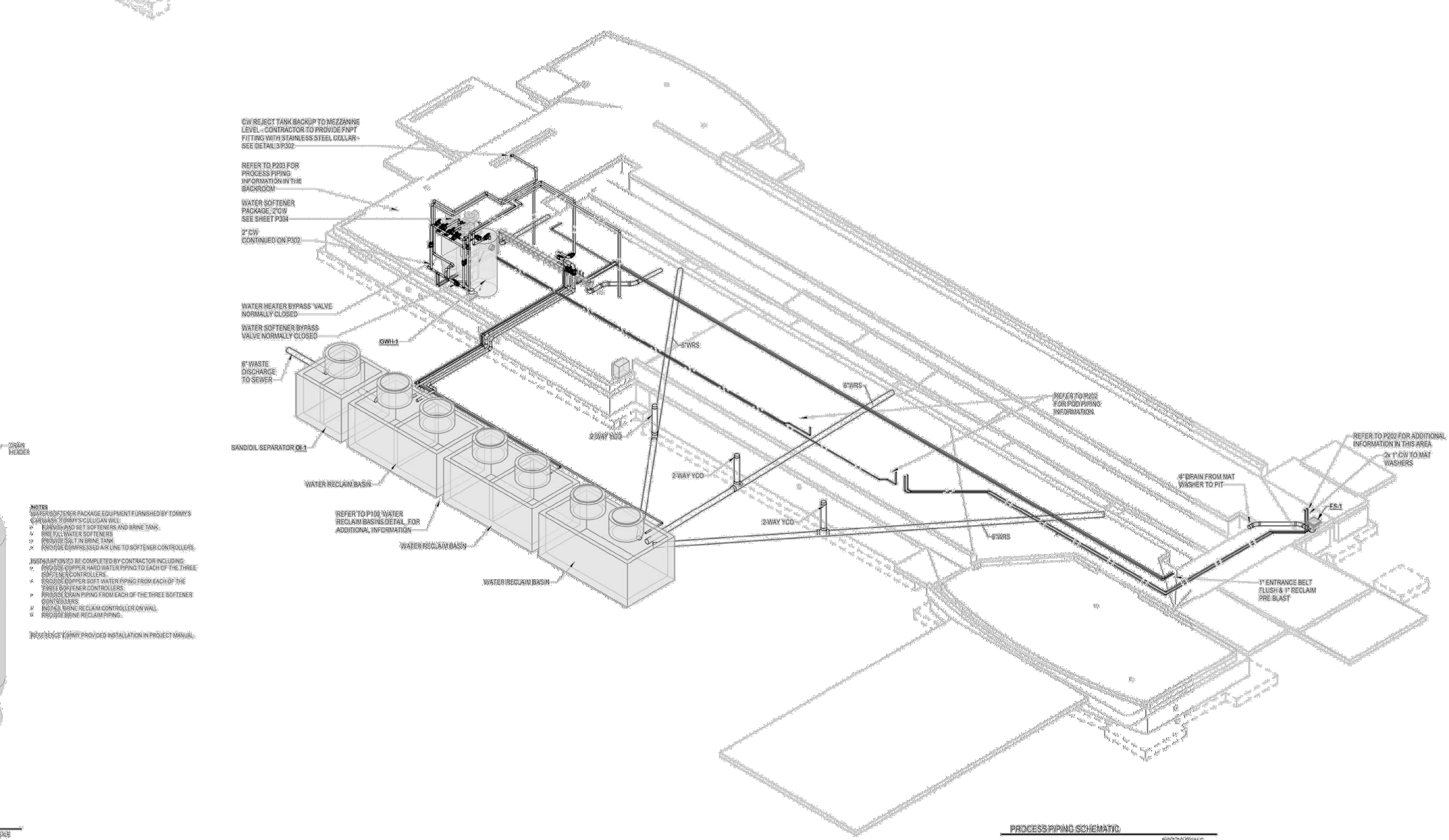
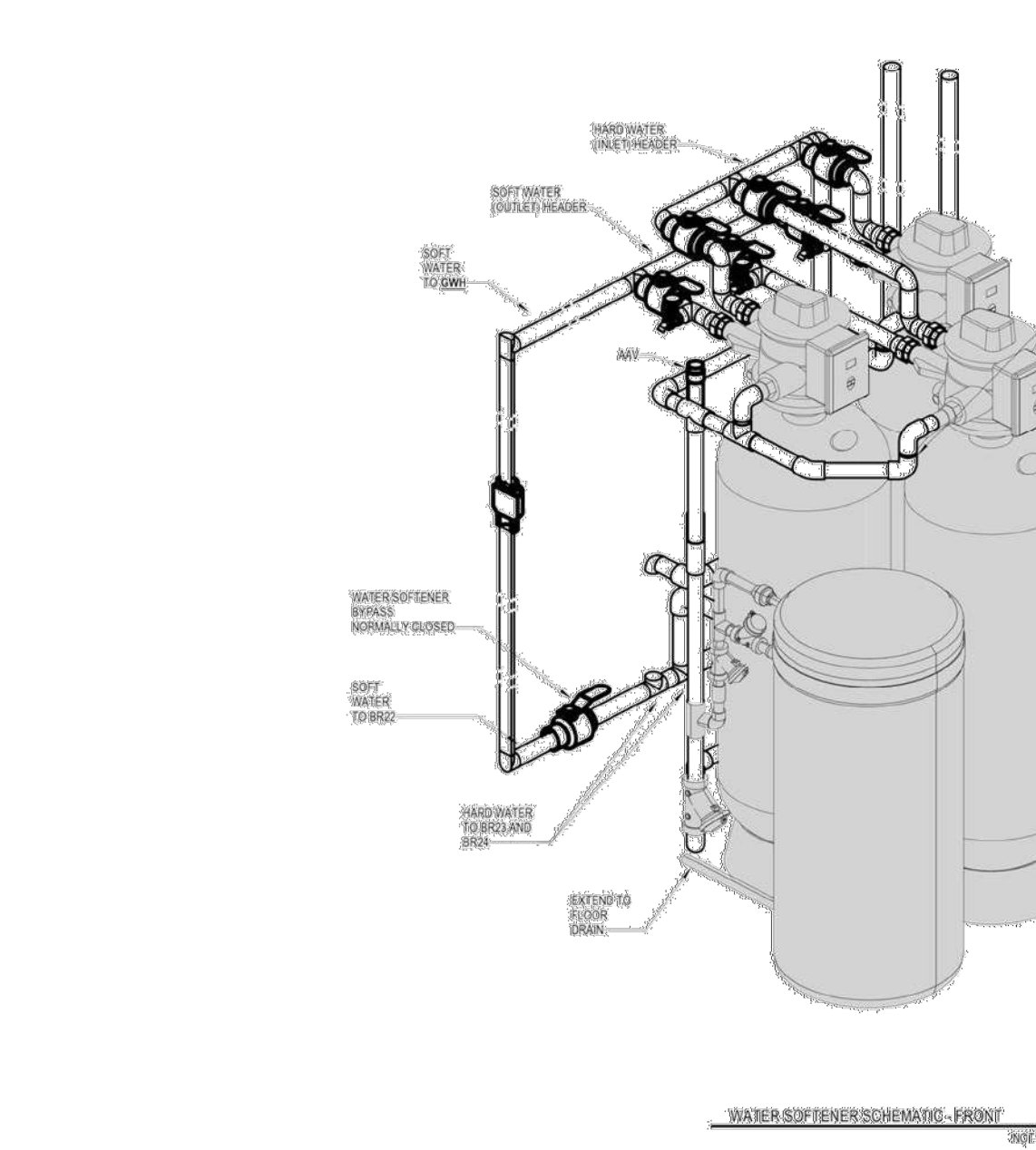
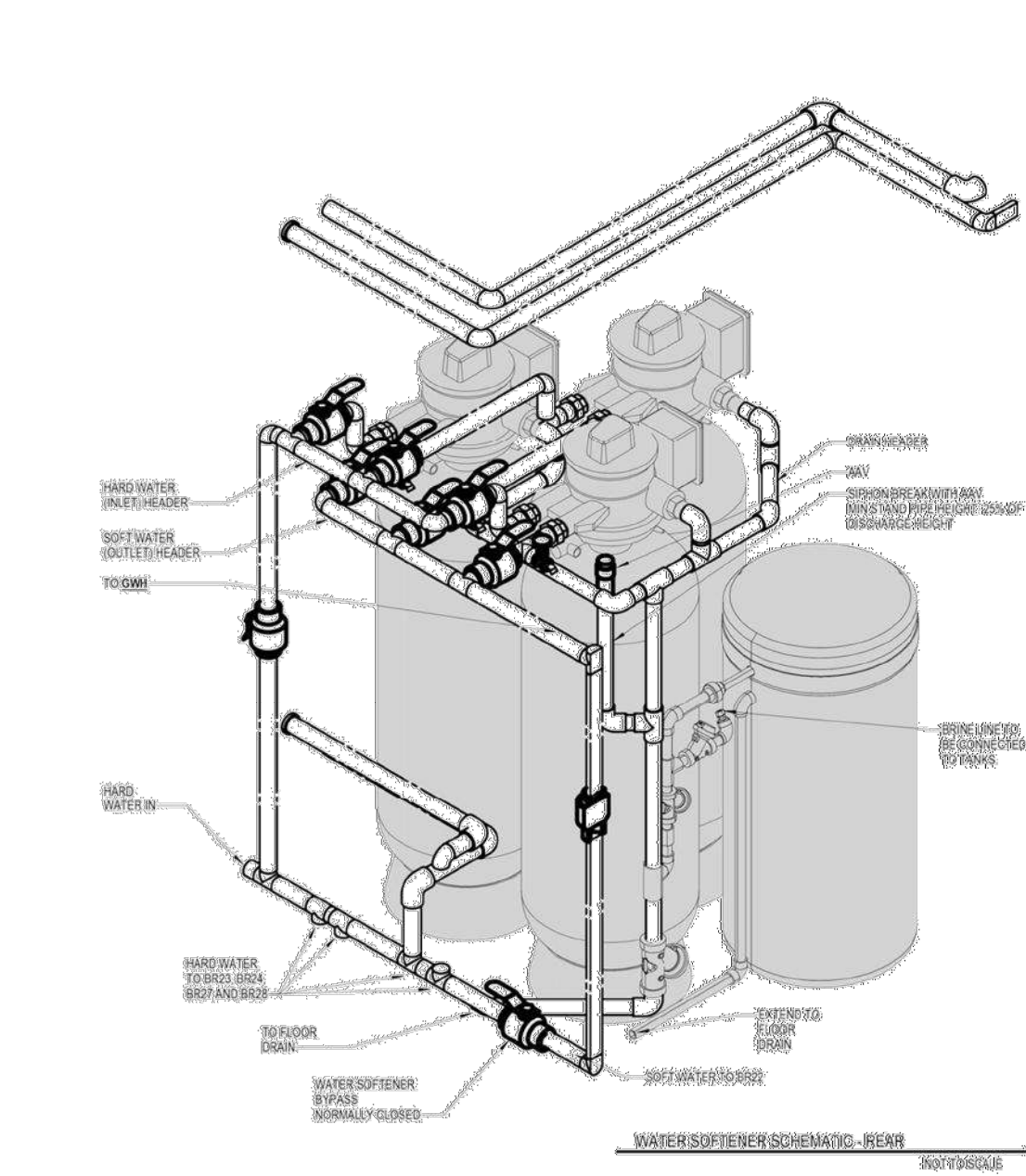
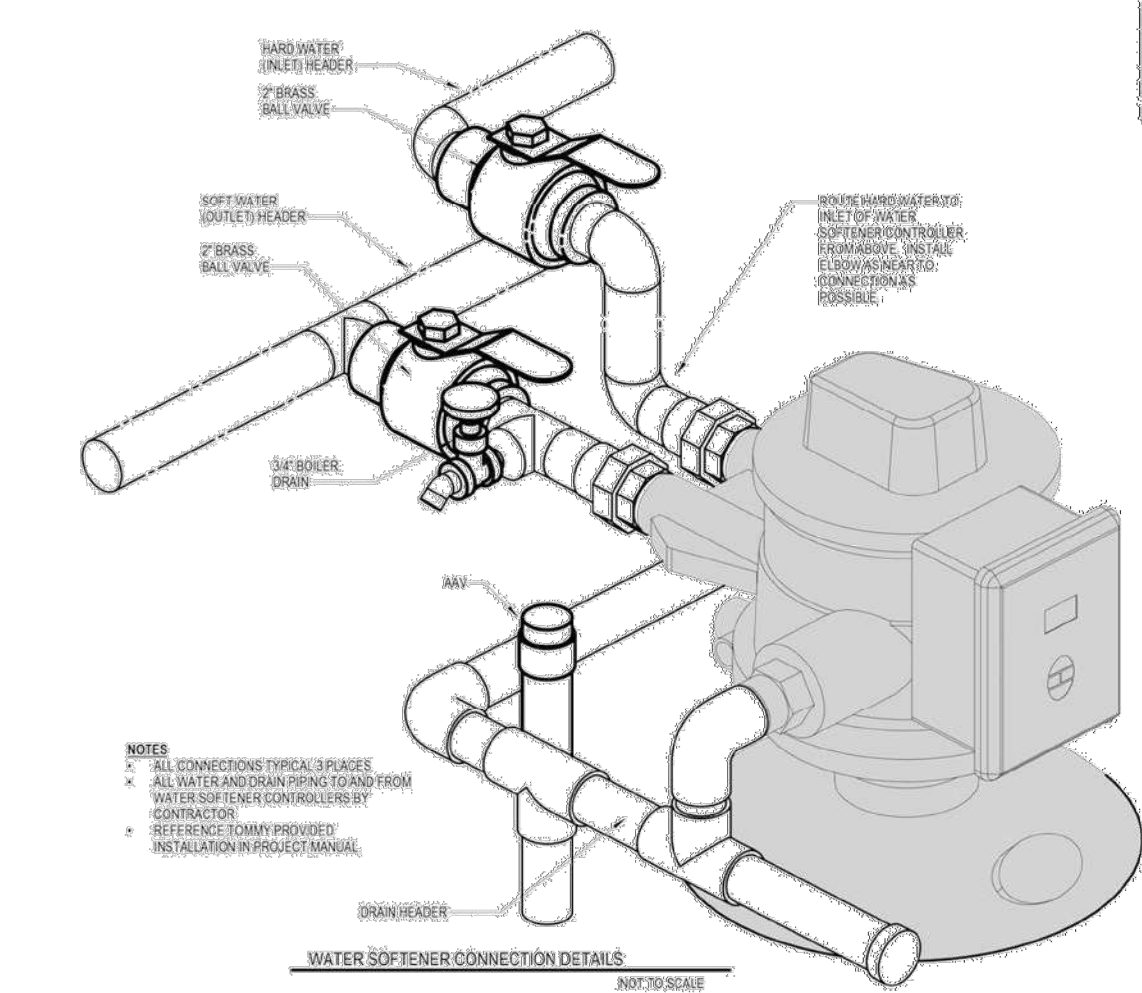
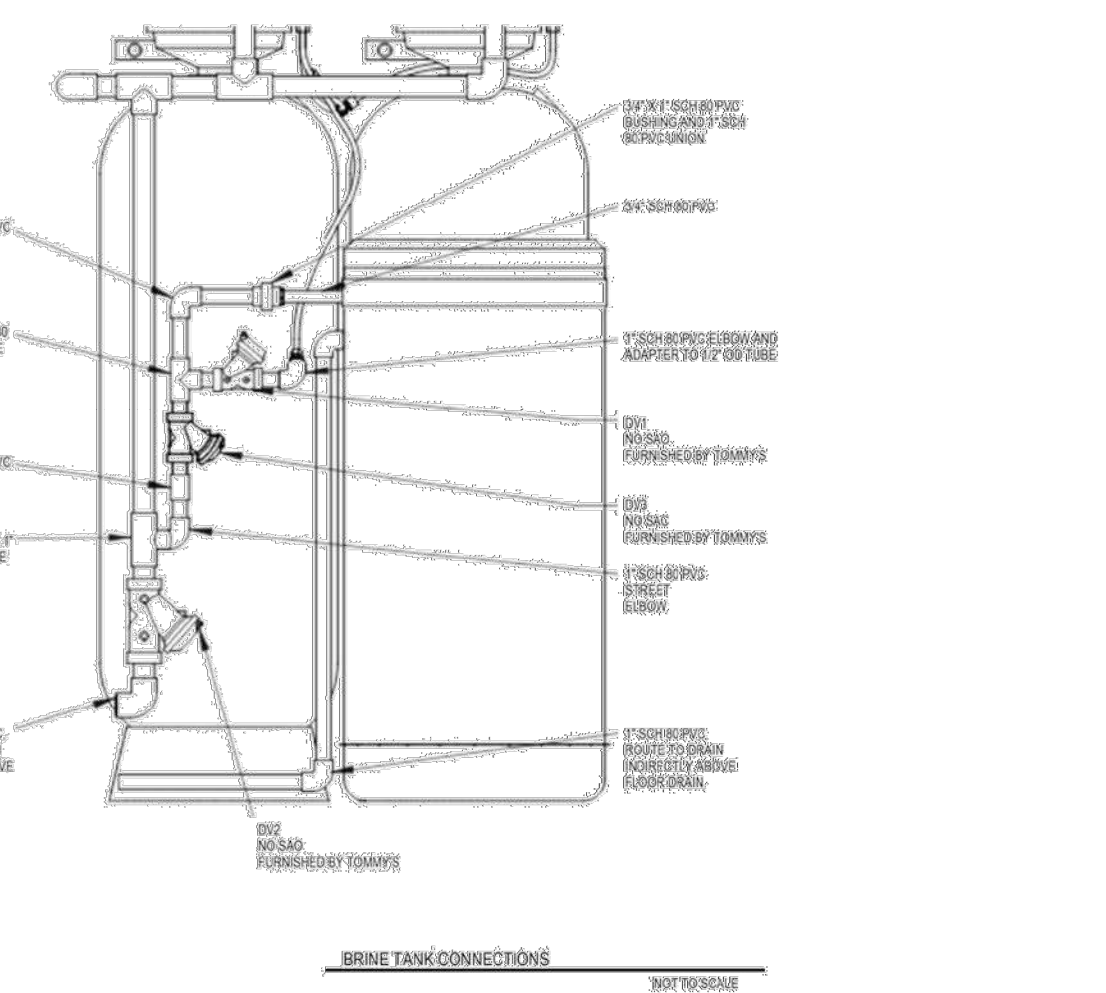
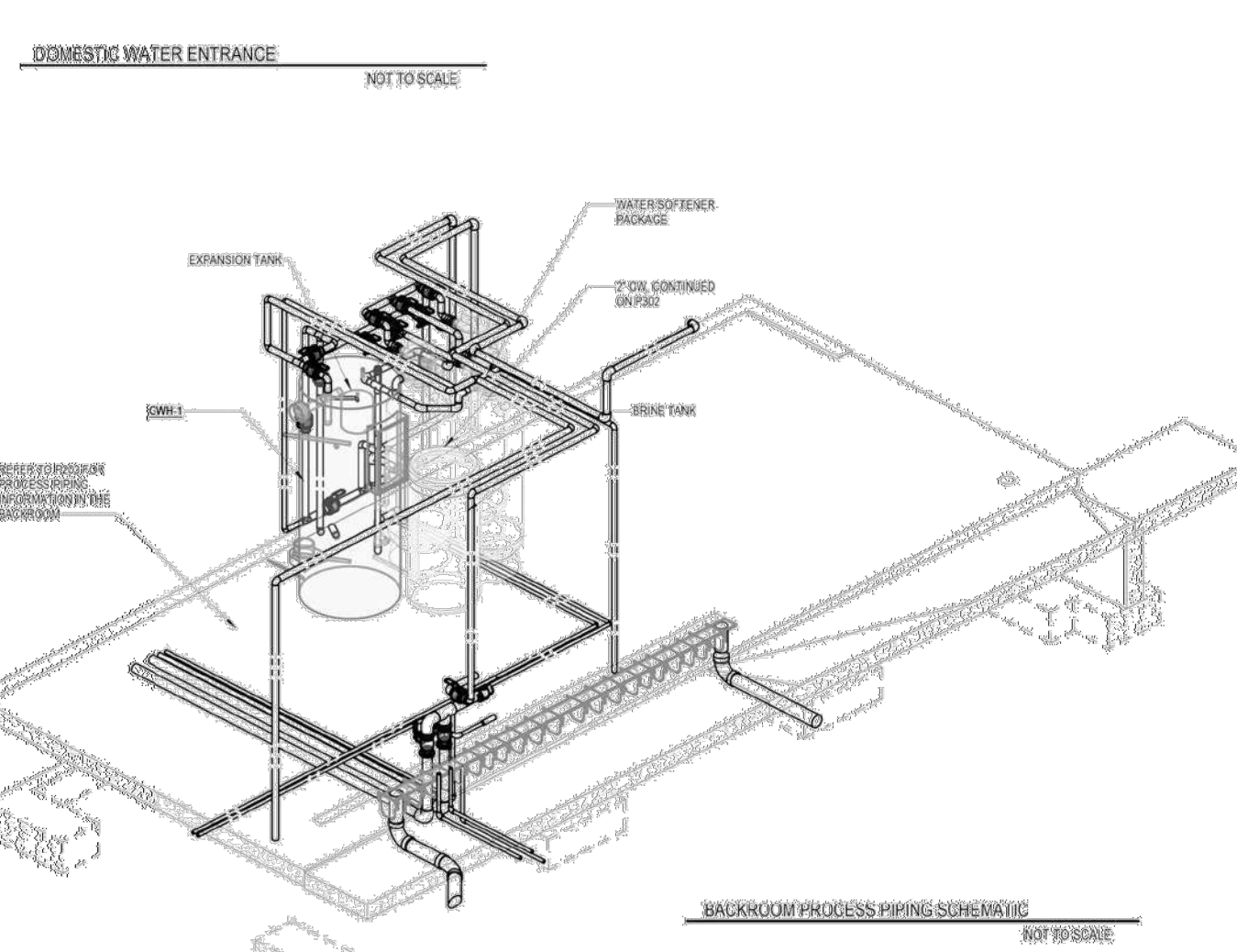
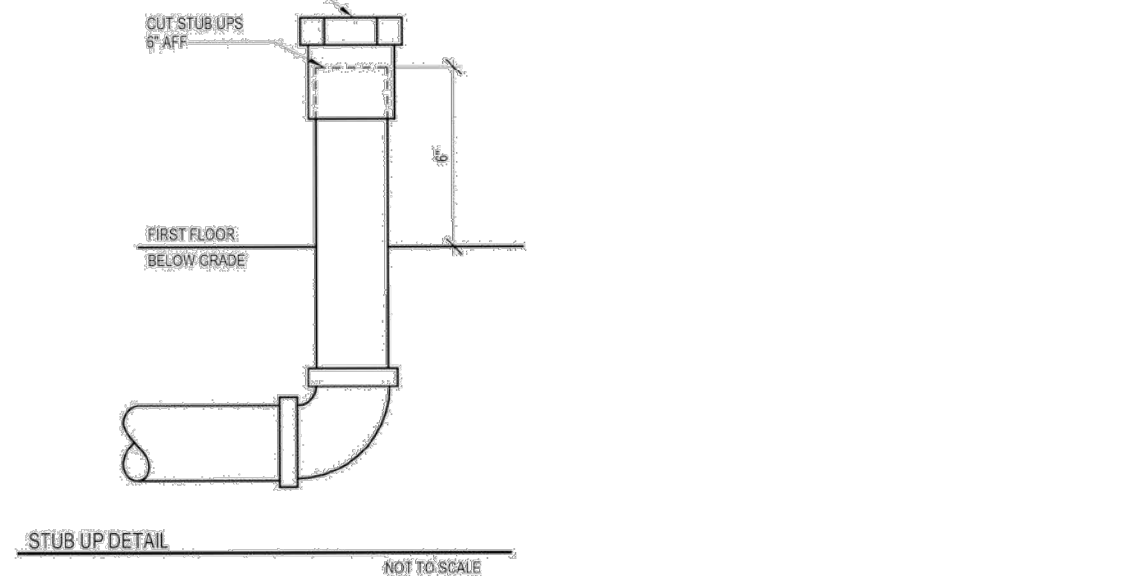
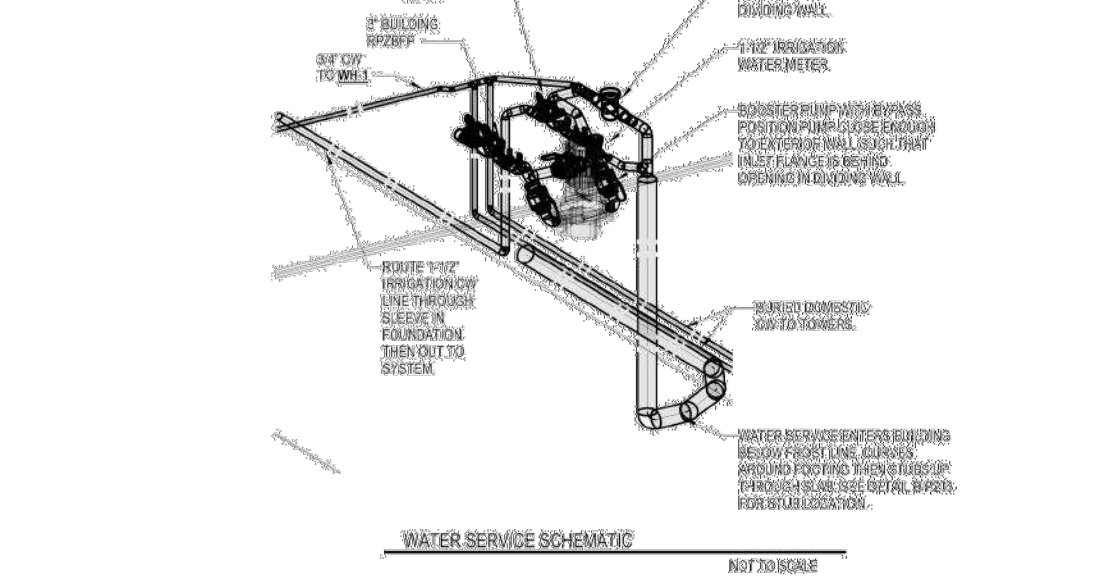
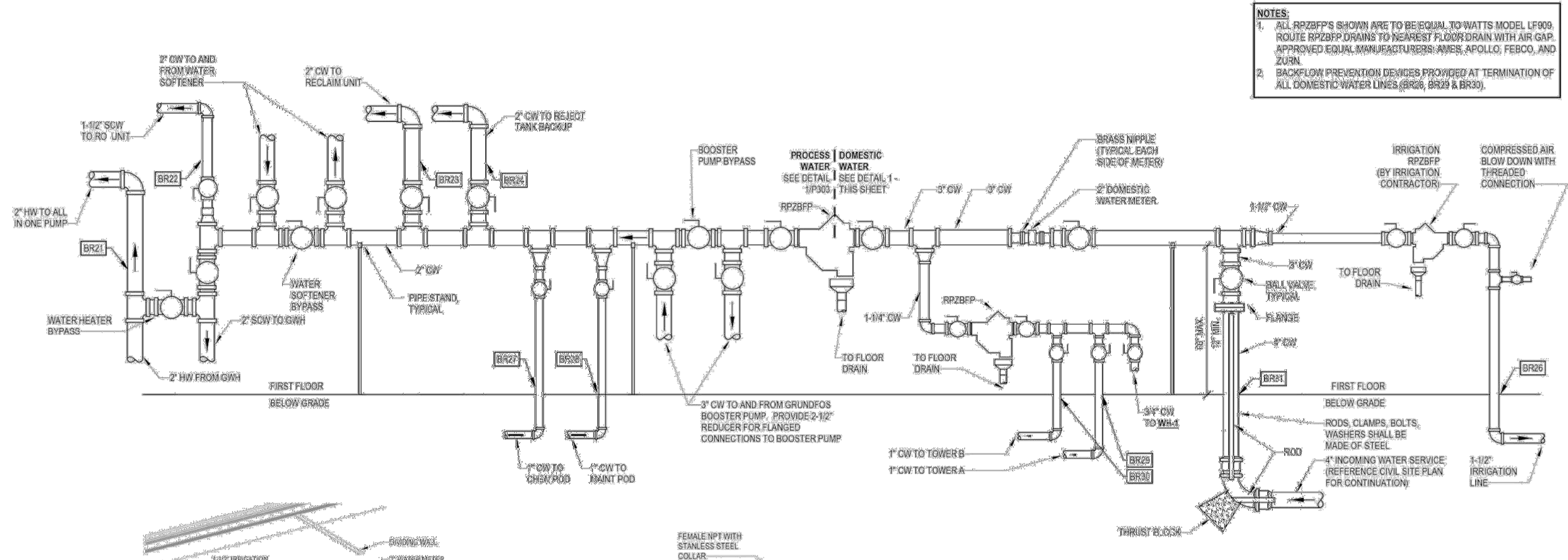
Issued For

Drawn By: M. A.
Checked By: N. C.
Approved By: A. A.

Sheet Title:
PROPOSED CAR WASH
DETAILS
Date: 05/02/2025
Scale: Noted
Project Number: 25-119
Sheet Number:

D-2

NOTES:
1. ALL RP2BPP'S SHOWN ARE TO BE EQUAL TO WATTS MODEL LF008
ROUTE RP2BPP DRAINS TO NEAREST FLOOR DRAIN WITH AIR GAP.
APPROVED EQUAL MANUFACTURERS: AFWES, APOLLO, FESCO, AND
ZUMA
2. BACKFLOW PREVENTION DEVICES PROVIDED AT TERMINATION OF
ALL DOMESTIC WATER LINES (BR2, BR2B & BR3)



APPENDIX B - TRAFFIC COUNTS

**Dexter St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound n/a						Westbound Lincoln Ave						Northbound Dexter St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	1	0	8	0	0	5	3	0	8	16
12:15 AM	0	0	0	0	0	0	0	1	1	0	0	2	0	7	0	3	0	10	0	0	0	4	0	4	16
12:30 AM	0	0	0	0	0	0	0	1	2	0	0	3	0	8	0	0	0	8	0	0	0	7	0	7	18
12:45 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	5	0	0	0	5	0	0	2	4	0	6	12
Hourly Total	0	0	0	0	0	0	0	3	3	0	0	6	0	27	0	4	0	31	0	0	7	18	0	25	62
1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	3	0	7	0	0	0	3	0	3	10
1:15 AM	0	0	0	0	0	0	0	1	2	0	0	3	0	2	0	1	0	3	0	0	1	6	0	7	13
1:30 AM	0	0	0	0	0	0	0	2	2	0	0	4	0	4	0	2	0	6	0	0	5	5	0	10	20
1:45 AM	0	0	0	0	0	0	0	0	3	0	0	3	0	3	0	2	0	5	0	0	2	4	0	6	14
Hourly Total	0	0	0	0	0	0	0	3	7	0	0	10	0	13	0	8	0	21	0	0	8	18	0	26	57
2:00 AM	0	0	0	0	0	0	0	2	6	0	0	8	0	3	0	1	0	4	0	0	1	2	0	3	15
2:15 AM	0	0	0	0	0	0	0	3	5	0	0	8	0	0	0	1	0	1	0	0	1	6	0	7	16
2:30 AM	0	0	0	0	0	0	0	4	3	0	0	7	0	1	0	3	0	4	0	0	1	4	0	5	16
2:45 AM	0	0	0	0	0	0	0	1	2	0	0	3	0	3	0	4	0	7	0	0	0	4	0	4	14
Hourly Total	0	0	0	0	0	0	0	10	16	0	0	26	0	7	0	9	0	16	0	0	3	16	0	19	61
3:00 AM	0	0	0	0	0	0	0	4	3	0	0	7	0	2	0	2	0	4	0	0	2	3	0	5	16
3:15 AM	0	0	0	0	0	0	0	2	3	0	0	5	0	1	0	3	0	4	0	0	4	5	0	9	18
3:30 AM	0	0	0	0	0	0	0	5	12	0	0	17	0	10	0	7	0	17	0	0	1	6	0	7	41
3:45 AM	0	0	0	0	0	0	0	4	16	0	0	20	0	12	0	3	0	15	0	0	3	10	0	13	48
Hourly Total	0	0	0	0	0	0	0	15	34	0	0	49	0	25	0	15	0	40	0	0	10	24	0	34	123
4:00 AM	0	0	0	0	0	0	0	9	17	0	0	26	0	3	0	0	0	3	0	0	0	7	0	7	36
4:15 AM	0	0	0	0	0	0	0	9	8	0	0	17	0	16	0	6	0	22	0	0	5	18	0	23	62
4:30 AM	0	0	0	0	0	0	0	9	16	0	0	25	1	9	0	1	0	11	0	0	9	20	0	29	65
4:45 AM	0	0	0	0	0	0	0	14	15	0	0	29	0	11	0	4	0	15	0	0	12	31	0	43	87
Hourly Total	0	0	0	0	0	0	0	41	56	0	0	97	1	39	0	11	0	51	0	0	26	76	0	102	250
5:00 AM	0	0	0	0	0	0	0	19	16	0	0	35	0	15	0	3	0	18	0	0	14	34	0	48	101
5:15 AM	0	0	0	0	0	0	0	16	32	0	0	48	0	28	0	7	0	35	0	0	16	38	0	54	137
5:30 AM	0	0	0	0	0	0	0	25	51	0	0	76	0	47	0	7	0	54	0	0	33	45	0	78	208
5:45 AM	0	0	0	0	0	0	0	17	40	0	0	57	0	38	0	4	0	42	0	0	34	65	0	99	198
Hourly Total	0	0	0	0	0	0	0	77	139	0	0	216	0	128	0	21	0	149	0	0	97	182	0	279	644
6:00 AM	0	0	0	0	0	0	0	15	36	0	0	51	0	30	0	8	0	38	0	0	19	66	0	85	174
6:15 AM	0	0	0	0	0	0	0	23	51	0	0	74	0	40	0	11	0	51	0	0	14	70	0	84	209
6:30 AM	0	0	0	0	0	0	0	24	54	0	0	78	0	45	0	7	0	52	0	0	21	78	0	99	229
6:45 AM	0	0	0	0	0	0	0	43	39	0	0	82	0	31	0	7	1	38	0	0	29	64	0	93	213
Hourly Total	0	0	0	0	0	0	0	105	180	0	0	285	0	146	0	33	1	179	0	0	83	278	0	361	825
7:00 AM	0	0	0	0	0	0	0	39	50	0	0	89	0	62	0	18	1	80	1	0	50	92	0	143	312
7:15 AM	0	0	0	0	0	0	0	42	71	0	0	113	2	58	0	24	0	84	0	0	50	100	0	150	347
7:30 AM	0	0	0	0	0	0	0	27	49	0	0	76	0	64	0	26	0	90	0	0	58	91	0	149	315
7:45 AM	0	0	0	0	0	0	0	31	56	0	0	87	0	76	0	33	0	109	0	0	53	75	0	128	324
Hourly Total	0	0	0	0	0	0	0	139	226	0	0	365	2	260	0	101	1	363	1	0	211	358	0	570	1298

**Dexter St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound n/a						Westbound Lincoln Ave						Northbound Dexter St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	
8:00 AM	0	0	0	0	0	0	0	27	57	0	1	84	0	56	0	19	0	75	0	0	38	98	0	136	295
8:15 AM	0	0	0	0	0	0	0	38	51	0	1	89	0	54	0	30	0	84	0	0	32	90	0	122	295
8:30 AM	0	0	0	0	0	0	0	34	41	0	0	75	0	56	0	28	0	84	0	0	26	75	0	101	260
8:45 AM	0	0	0	0	0	0	0	26	30	0	0	56	0	56	0	16	0	72	0	0	27	91	0	118	246
Hourly Total	0	0	0	0	0	0	0	125	179	0	2	304	0	222	0	93	0	315	0	0	123	354	0	477	1096
9:00 AM	0	0	0	0	0	0	0	26	42	0	0	68	0	55	0	22	0	77	0	0	19	79	0	98	243
9:15 AM	0	0	0	0	0	0	0	28	32	0	0	60	0	53	0	22	0	75	0	0	24	68	0	92	227
9:30 AM	0	0	0	0	0	0	0	30	29	0	0	59	0	54	0	16	0	70	0	0	28	73	0	101	230
9:45 AM	0	0	0	0	0	0	0	22	34	0	0	56	0	72	0	19	0	91	0	0	30	77	0	107	254
Hourly Total	0	0	0	0	0	0	0	106	137	0	0	243	0	234	0	79	0	313	0	0	101	297	0	398	954
10:00 AM	0	0	0	0	0	0	0	17	23	0	0	40	0	68	0	18	2	86	0	0	26	50	0	76	202
10:15 AM	0	0	0	0	0	0	0	21	32	0	0	53	0	64	0	25	0	89	1	0	29	74	0	104	246
10:30 AM	0	0	0	0	0	0	0	29	32	0	0	61	1	44	0	30	0	75	0	0	24	69	0	93	229
10:45 AM	0	0	0	0	0	0	0	28	31	0	0	59	0	65	0	26	0	91	0	0	27	89	0	116	266
Hourly Total	0	0	0	0	0	0	0	95	118	0	0	213	1	241	0	99	2	341	1	0	106	282	0	389	943
11:00 AM	0	0	0	0	0	0	0	29	27	0	1	56	1	76	0	43	0	120	0	0	39	68	0	107	283
11:15 AM	0	0	0	0	1	0	0	34	30	0	2	64	1	62	0	24	0	87	1	0	24	93	0	118	269
11:30 AM	0	0	0	0	0	0	0	29	25	0	4	54	0	72	0	21	0	93	0	0	29	80	0	109	256
11:45 AM	0	0	0	0	0	0	0	30	30	0	0	60	0	80	0	29	0	109	0	0	27	85	0	112	281
Hourly Total	0	0	0	0	1	0	0	122	112	0	7	234	2	290	0	117	0	409	1	0	119	326	0	446	1089
12:00 PM	0	0	0	0	0	0	0	33	32	0	0	65	0	74	0	37	0	111	0	0	27	83	0	110	286
12:15 PM	0	0	0	0	0	0	0	31	30	0	0	61	0	70	0	32	0	102	0	0	37	84	0	121	284
12:30 PM	0	0	0	0	0	0	0	35	28	0	0	63	0	75	0	24	0	99	0	0	28	89	0	117	279
12:45 PM	0	0	0	0	0	0	0	44	40	0	0	84	0	85	0	40	0	125	0	0	25	80	0	105	314
Hourly Total	0	0	0	0	0	0	0	143	130	0	0	273	0	304	0	133	0	437	0	0	117	336	0	453	1163
1:00 PM	0	0	0	0	0	0	0	32	26	0	0	58	1	89	0	34	0	124	0	0	34	85	0	119	301
1:15 PM	0	0	0	0	0	0	0	27	21	0	0	48	0	106	0	37	0	143	0	0	41	68	0	109	300
1:30 PM	0	0	0	0	0	0	0	34	39	0	0	73	0	79	0	31	0	110	0	0	33	76	0	109	292
1:45 PM	0	0	0	0	0	0	0	30	32	0	0	62	0	87	0	27	0	114	0	0	47	81	0	128	304
Hourly Total	0	0	0	0	0	0	0	123	118	0	0	241	1	361	0	129	0	491	0	0	155	310	0	465	1197
2:00 PM	0	0	0	0	0	0	0	32	42	0	0	74	0	67	0	40	0	107	0	0	55	96	0	151	332
2:15 PM	0	0	0	0	0	0	0	49	37	0	0	86	0	96	0	45	0	141	0	0	56	75	0	131	358
2:30 PM	0	0	0	0	0	0	0	39	59	0	0	98	0	88	0	30	0	118	0	0	51	89	0	140	356
2:45 PM	0	0	0	0	0	0	0	38	53	0	0	91	1	108	0	46	2	155	0	0	46	92	0	138	384
Hourly Total	0	0	0	0	0	0	0	158	191	0	0	349	1	359	0	161	2	521	0	0	208	352	0	560	1430
3:00 PM	0	0	0	0	0	0	0	29	52	0	0	81	0	126	0	51	0	177	0	0	45	68	0	113	371
3:15 PM	0	0	0	0	0	0	0	38	49	0	0	87	0	99	0	34	0	133	0	0	60	81	0	141	361
3:30 PM	0	0	0	0	0	0	0	37	44	0	1	81	0	106	0	53	1	159	0	0	77	98	0	175	415
3:45 PM	0	0	0	0	0	0	0	48	50	0	1	98	1	116	0	43	0	160	0	0	60	100	0	160	418
Hourly Total	0	0	0	0	0	0	0	152	195	0	2	347	1	447	0	181	1	629	0	0	242	347	0	589	1565

**Dexter St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound n/a						Westbound Lincoln Ave						Northbound Dexter St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:00 PM	0	0	0	0	0	0	0	44	52	0	0	96	0	124	0	50	0	174	0	0	72	96	0	168	438
4:15 PM	0	0	0	0	0	0	0	44	45	0	0	89	0	119	0	43	0	162	0	0	65	106	0	171	422
4:30 PM	0	0	0	0	0	0	0	35	54	0	0	89	0	117	0	51	0	168	0	0	72	113	0	185	442
4:45 PM	0	0	0	0	0	0	0	43	57	0	0	100	1	120	0	63	0	184	0	0	59	92	0	151	435
Hourly Total	0	0	0	0	0	0	0	166	208	0	0	374	1	480	0	207	0	688	0	0	268	407	0	675	1737
5:00 PM	0	0	0	0	0	0	0	37	61	0	0	98	0	125	0	56	0	181	0	0	63	91	0	154	433
5:15 PM	0	0	0	0	0	0	0	35	34	0	0	69	1	131	0	51	0	183	0	0	57	81	0	138	390
5:30 PM	0	0	0	0	0	0	0	28	23	0	0	51	0	132	0	41	0	173	1	0	45	87	0	133	357
5:45 PM	0	0	0	0	0	0	0	32	27	0	0	59	1	101	0	44	0	146	0	0	50	78	0	128	333
Hourly Total	0	0	0	0	0	0	0	132	145	0	0	277	2	489	0	192	0	683	1	0	215	337	0	553	1513
6:00 PM	0	0	0	0	0	0	0	34	37	0	0	71	2	69	0	47	0	118	1	0	43	69	0	113	302
6:15 PM	0	0	0	0	0	0	0	36	29	0	0	65	0	98	0	53	0	151	1	0	52	46	0	99	315
6:30 PM	0	0	0	0	0	0	0	31	27	0	0	58	1	79	0	24	0	104	0	0	34	52	0	86	248
6:45 PM	0	0	0	0	0	0	0	19	17	0	0	36	0	66	0	38	0	104	0	0	42	65	0	107	247
Hourly Total	0	0	0	0	0	0	0	120	110	0	0	230	3	312	0	162	0	477	2	0	171	232	0	405	1112
7:00 PM	0	0	0	0	0	0	0	13	24	0	0	37	1	54	0	32	0	87	0	0	31	39	0	70	194
7:15 PM	0	0	0	0	0	0	0	20	27	0	0	47	0	53	0	29	0	82	0	0	21	32	0	53	182
7:30 PM	0	0	0	0	0	0	0	12	15	0	0	27	0	53	0	25	0	78	0	0	22	34	0	56	161
7:45 PM	0	0	0	0	0	0	0	14	11	0	0	25	0	40	0	29	0	69	0	0	27	38	0	65	159
Hourly Total	0	0	0	0	0	0	0	59	77	0	0	136	1	200	0	115	0	316	0	0	101	143	0	244	696
8:00 PM	0	0	0	0	0	0	0	15	17	0	0	32	1	67	0	34	0	102	0	0	17	16	0	33	167
8:15 PM	0	0	0	0	0	0	0	13	21	0	0	34	0	36	0	16	0	52	0	0	13	18	0	31	117
8:30 PM	0	0	0	0	0	0	0	12	10	0	0	22	0	31	0	16	0	47	0	0	24	27	0	51	120
8:45 PM	0	0	0	0	0	0	0	14	7	0	0	21	0	31	0	25	0	56	0	0	20	18	0	38	115
Hourly Total	0	0	0	0	0	0	0	54	55	0	0	109	1	165	0	91	0	257	0	0	74	79	0	153	519
9:00 PM	0	0	0	0	0	0	0	10	17	0	0	27	0	40	0	32	1	72	0	0	11	21	0	32	131
9:15 PM	0	0	0	0	0	0	0	8	19	0	0	27	0	31	0	22	1	53	0	0	14	22	0	36	116
9:30 PM	0	0	0	0	0	0	0	11	20	0	0	31	0	31	0	9	0	40	0	0	11	19	0	30	101
9:45 PM	0	0	0	0	0	0	0	5	6	0	0	11	0	27	0	16	0	43	0	0	14	8	0	22	76
Hourly Total	0	0	0	0	0	0	0	34	62	0	0	96	0	129	0	79	2	208	0	0	50	70	0	120	424
10:00 PM	0	0	0	0	0	0	0	7	11	0	0	18	0	15	0	11	0	26	0	0	17	26	0	43	87
10:15 PM	0	0	0	0	0	0	0	8	9	0	0	17	0	21	0	11	0	32	0	0	10	21	0	31	80
10:30 PM	0	0	0	0	0	0	0	7	6	0	0	13	0	21	0	11	0	32	0	0	16	11	0	27	72
10:45 PM	0	0	0	0	0	0	0	5	4	0	0	9	0	12	0	8	0	20	0	0	3	4	0	7	36
Hourly Total	0	0	0	0	0	0	0	27	30	0	0	57	0	69	0	41	0	110	0	0	46	62	0	108	275
11:00 PM	0	0	0	0	0	0	0	2	2	0	0	4	0	21	0	9	0	30	0	0	3	9	0	12	46
11:15 PM	0	0	0	0	0	0	0	4	3	0	0	7	0	8	0	2	0	10	0	0	5	5	0	10	27
11:30 PM	0	0	0	0	0	0	0	1	1	0	0	2	0	5	0	5	0	10	0	0	4	8	0	12	24
11:45 PM	0	0	0	0	0	0	0	2	1	0	0	3	0	7	0	7	0	14	0	0	7	5	0	12	29
Hourly Total	0	0	0	0	0	0	0	9	7	0	0	16	0	41	0	23	0	64	0	0	19	27	0	46	126
TOTAL	0	0	0	0	1	0	0	2018	2535	0	11	4553	17	4988	0	2104	9	7109	6	0	2560	4931	0	7497	19159
Cars	0	0	0	0	1	0	0	1937	2454	0	11	4391	17	4813	0	2049	9	6879	6	0	2500	4793	0	7299	18569
Heavy Vehicles	0	0	0	0	0	0	0	81	81	0	0	162	0	175	0	55	0	230	0	0	60	138	0	198	590
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.01%	3.20%	0.00%	0.00%	3.56%	0.00%	3.51%	0.00%	2.61%	0.00%	3.24%	0.00%	0.00%	2.34%	2.80%	0.00%	2.64%	3.08%

**Dexter St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
7:00 AM	0	0	0	0	0	0	0	39	50	0	0	89	0	62	0	18	1	80	1	0	50	92	0	143	312
7:15 AM	0	0	0	0	0	0	0	42	71	0	0	113	2	58	0	24	0	84	0	0	50	100	0	150	347
7:30 AM	0	0	0	0	0	0	0	27	49	0	0	76	0	64	0	26	0	90	0	0	58	91	0	149	315
7:45 AM	0	0	0	0	0	0	0	31	56	0	0	87	0	76	0	33	0	109	0	0	53	75	0	128	324
Peak Hour Total	0	0	0	0	0	0	0	139	226	0	0	365	2	260	0	101	1	363	1	0	211	358	0	570	1298
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.827	0.796	0.000	0.000	0.808	0.250	0.855	0.000	0.765	0.250	0.833	0.250	0.000	0.909	0.895	0.000	0.950	0.935
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	4.32%	3.10%	0.00%	0.00%	3.56%	0.00%	4.23%	0.00%	7.92%	0.250	5.23%	0.00%	0.00%	1.42%	2.23%	0.00%	1.93%	3.31%

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:00 PM	0	0	0	0	0	0	0	44	52	0	0	96	0	124	0	50	0	174	0	0	72	96	0	168	438
4:15 PM	0	0	0	0	0	0	0	44	45	0	0	89	0	119	0	43	0	162	0	0	65	106	0	171	422
4:30 PM	0	0	0	0	0	0	0	35	54	0	0	89	0	117	0	51	0	168	0	0	72	113	0	185	442
4:45 PM	0	0	0	0	0	0	0	43	57	0	0	100	1	120	0	63	0	184	0	0	59	92	0	151	435
Peak Hour Total	0	0	0	0	0	0	0	166	208	0	0	374	1	480	0	207	0	688	0	0	268	407	0	675	1737
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.943	0.912	0.000	0.000	0.935	0.250	0.968	0.000	0.821	0.000	0.935	0.000	0.000	0.931	0.900	0.000	0.912	0.982
Heavy Vehicle %	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.61%	2.40%	0.00%	0.00%	2.94%	0.00%	1.88%	0.00%	1.45%	0.000	1.74%	0.00%	0.00%	1.12%	3.44%	0.00%	2.52%	2.30%

**State St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound State St						Westbound Lincoln Ave						Northbound State St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:00 PM	0	100	8	25	0	133	0	2	50	113	0	165	0	1	5	4	0	10	0	29	64	2	0	95	403
4:15 PM	0	92	3	26	0	121	0	2	60	100	0	162	0	2	9	2	0	13	0	20	77	0	0	97	393
4:30 PM	0	78	4	19	0	101	0	2	64	117	0	183	0	0	1	1	0	2	0	29	107	1	0	137	423
4:45 PM	0	72	5	15	0	92	0	2	59	115	0	176	0	1	2	0	0	3	0	23	84	0	0	107	378
Hourly Total	0	342	20	85	0	447	0	8	233	445	0	686	0	4	17	7	0	28	0	101	332	3	0	436	1597
5:00 PM	0	85	6	12	0	103	0	1	55	130	0	186	0	2	3	0	0	5	0	28	61	0	0	89	383
5:15 PM	0	70	5	16	0	91	0	0	52	115	0	167	0	1	3	3	0	7	0	19	64	1	0	84	349
5:30 PM	0	82	9	16	0	107	1	0	51	99	0	151	0	0	6	1	0	7	0	24	52	2	0	78	343
5:45 PM	0	73	4	19	0	96	0	0	46	81	0	127	0	0	1	2	0	3	0	23	54	0	0	77	303
Hourly Total	0	310	24	63	0	397	1	1	204	425	0	631	0	3	13	6	0	22	0	94	231	3	0	328	1378
TOTAL	0	652	44	148	0	844	1	9	437	870	0	1317	0	7	30	13	0	50	0	195	563	6	0	764	2975
Cars	0	629	43	139	0	811	1	9	430	863	0	1303	0	7	29	12	0	48	0	193	552	6	0	751	2913
Heavy Vehicles	0	23	1	9	0	33	0	0	7	7	0	14	0	0	1	1	0	2	0	2	11	0	0	13	62
Heavy Vehicle %	0.00%	3.53%	2.27%	6.08%	0.00%	3.91%	0.00%	0.00%	1.60%	0.80%	0.00%	1.06%	0.00%	0.00%	3.33%	7.69%	0.00%	4.00%	0.00%	1.03%	1.95%	0.00%	0.00%	1.70%	2.08%

**State St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025
PM Peak Hour**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:00 PM	0	100	8	25	0	133	0	2	50	113	0	165	0	1	5	4	0	10	0	29	64	2	0	95	403
4:15 PM	0	92	3	26	0	121	0	2	60	100	0	162	0	2	9	2	0	13	0	20	77	0	0	97	393
4:30 PM	0	78	4	19	0	101	0	2	64	117	0	183	0	0	1	1	0	2	0	29	107	1	0	137	423
4:45 PM	0	72	5	15	0	92	0	2	59	115	0	176	0	1	2	0	0	3	0	23	84	0	0	107	378
Peak Hour Total	0	342	20	85	0	447	0	8	233	445	0	686	0	4	17	7	0	28	0	101	332	3	0	436	1597
PHF	0.000	0.855	0.625	0.817	0.000	0.840	0.000	1.000	0.910	0.951	0.000	0.937	0.000	0.500	0.472	0.438	0.000	0.538	0.000	0.871	0.776	0.375	0.000	0.796	0.944
Heavy Vehicle %	0.00%	2.92%	0.00%	5.88%		3.36%	0.00%	0.00%	2.15%	1.12%		1.46%	0.00%	0.00%	5.88%	0.00%		3.57%	0.00%	0.99%	2.41%	0.00%		2.06%	2.19%

**State St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound State St						Westbound Lincoln Ave						Northbound State St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	
7:00 AM	0	93	8	27	0	128	0	0	45	52	0	97	0	0	3	1	0	4	0	14	42	0	0	56	285
7:15 AM	0	97	10	22	0	129	0	5	77	49	0	131	0	1	4	1	0	6	0	17	43	2	0	62	328
7:30 AM	1	87	10	24	0	122	0	4	39	59	0	102	0	1	0	2	0	3	0	20	42	0	0	62	289
7:45 AM	0	79	5	17	0	101	0	2	76	53	0	131	0	1	2	1	0	4	0	17	52	1	0	70	306
Hourly Total	1	356	33	90	0	480	0	11	237	213	0	461	0	3	9	5	0	17	0	68	179	3	0	250	1208

**State St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound State St						Westbound Lincoln Ave						Northbound State St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	
8:00 AM	0	95	6	25	0	126	0	3	56	54	0	113	0	0	5	0	0	5	0	16	40	2	0	58	302
8:15 AM	0	91	7	27	0	125	0	6	43	62	0	111	0	3	1	4	0	8	0	15	34	5	0	54	298
8:30 AM	0	69	2	19	0	90	0	2	37	63	0	102	0	3	3	3	0	9	0	14	27	1	0	42	243
8:45 AM	0	79	5	18	0	102	0	1	34	47	0	82	0	0	2	0	0	2	0	14	41	0	0	55	241
Hourly Total	0	334	20	89	0	443	0	12	170	226	0	408	0	6	11	7	0	24	0	59	142	8	0	209	1084
TOTAL	1	690	53	179	0	923	0	23	407	439	0	869	0	9	20	12	0	41	0	127	321	11	0	459	2292
Cars	1	660	49	173	0	883	0	19	396	406	0	821	0	9	17	12	0	38	0	121	313	11	0	445	2187
Heavy Vehicles	0	30	4	6	0	40	0	4	11	33	0	48	0	0	3	0	0	3	0	6	8	0	0	14	105
Heavy Vehicle %	0.00%	4.35%	7.55%	3.35%	0.00%	4.33%	0.00%	17.39%	2.70%	7.52%	0.00%	5.52%	0.00%	0.00%	15.00%	0.00%	0.00%	7.32%	0.00%	4.72%	2.49%	0.00%	0.00%	3.05%	4.58%

**State St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025
AM Peak Hour**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	<i>Vehicle Approach Total</i>	
7:15 AM	0	97	10	22	0	129	0	5	77	49	0	131	0	1	4	1	0	6	0	17	43	2	0	62	328
7:30 AM	1	87	10	24	0	122	0	4	39	59	0	102	0	1	0	2	0	3	0	20	42	0	0	62	289
7:45 AM	0	79	5	17	0	101	0	2	76	53	0	131	0	1	2	1	0	4	0	17	52	1	0	70	306
8:00 AM	0	95	6	25	0	126	0	3	56	54	0	113	0	0	5	0	0	5	0	16	40	2	0	58	302
Peak Hour Total	1	358	31	88	0	478	0	14	248	215	0	477	0	3	11	4	0	18	0	70	177	5	0	252	1225
PHF	0.250	0.923	0.775	0.880	0.000	0.926	0.000	0.700	0.805	0.911	0.000	0.910	0.000	0.750	0.550	0.500	0.000	0.750	0.000	0.875	0.851	0.625	0.000	0.900	0.934
Heavy Vehicle %	0.00%	3.63%	3.23%	1.14%		3.14%	0.00%	7.14%	2.82%	3.72%		3.35%	0.00%	0.00%	9.09%	0.00%		5.56%	0.00%	4.29%	1.13%	0.00%		1.98%	3.02%

**Union St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound Union St						Westbound Lincoln Ave						Northbound Union St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:00 PM	0	0	0	0	0	0	0	9	87	2	0	98	0	4	1	4	2	9	0	4	107	8	0	119	226
4:15 PM	0	2	3	5	0	10	0	5	77	0	0	82	0	3	3	4	0	10	0	8	83	8	0	99	201
4:30 PM	0	0	1	4	0	5	0	8	87	1	1	96	0	2	2	11	0	15	0	3	112	1	0	116	232
4:45 PM	0	0	0	3	0	3	0	2	93	1	0	96	0	2	2	4	0	8	0	6	102	5	0	113	220
Hourly Total	0	2	4	12	0	18	0	24	344	4	1	372	0	11	8	23	2	42	0	21	404	22	0	447	879
5:00 PM	0	0	1	2	0	3	0	3	90	0	0	93	0	4	6	5	0	15	0	0	108	11	0	119	230
5:15 PM	0	0	1	4	1	5	0	2	55	0	0	57	0	2	2	3	0	7	0	4	98	2	0	104	173
5:30 PM	0	2	0	3	0	5	0	3	42	2	0	47	0	0	3	2	0	5	0	4	76	0	0	80	137
5:45 PM	0	0	1	2	0	3	0	7	47	3	0	57	0	1	2	1	0	4	0	5	70	12	0	87	151
Hourly Total	0	2	3	11	1	16	0	15	234	5	0	254	0	7	13	11	0	31	0	13	352	25	0	390	691
TOTAL	0	4	7	23	1	34	0	39	578	9	1	626	0	18	21	34	2	73	0	34	756	47	0	837	1570
Cars	0	3	7	21	1	31	0	39	560	7	1	606	0	18	21	34	2	73	0	34	741	47	0	822	1532
Heavy Vehicles	0	1	0	2	0	3	0	0	18	2	0	20	0	0	0	0	0	0	0	0	15	0	0	15	38
Heavy Vehicle %	0.00%	25.00%	0.00%	8.70%	0.00%	8.82%	0.00%	0.00%	3.11%	22.22%	0.00%	3.19%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	1.98%	0.00%	0.00%	1.79%	2.42%

**Union St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025
PM Peak Hour**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
4:15 PM	0	2	3	5	0	10	0	5	77	0	0	82	0	3	3	4	0	10	0	8	83	8	0	99	201
4:30 PM	0	0	1	4	0	5	0	8	87	1	1	96	0	2	2	11	0	15	0	3	112	1	0	116	232
4:45 PM	0	0	0	3	0	3	0	2	93	1	0	96	0	2	2	4	0	8	0	6	102	5	0	113	220
5:00 PM	0	0	1	2	0	3	0	3	90	0	0	93	0	4	6	5	0	15	0	0	108	11	0	119	230
Peak Hour Total	0	2	5	14	0	21	0	18	347	2	1	367	0	11	13	24	0	48	0	17	405	25	0	447	883
PHF	0.000	0.250	0.417	0.700	0.000	0.525	0.000	0.563	0.933	0.500	0.250	0.956	0.000	0.688	0.542	0.545	0.000	0.800	0.000	0.531	0.904	0.568	0.000	0.939	0.952
Heavy Vehicle %	0.00%	50.00%	0.00%	0.00%		4.76%	0.00%	0.00%	2.59%	0.00%		2.45%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	2.96%	0.00%		2.68%	2.49%

**Union St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound Union St						Westbound Lincoln Ave						Northbound Union St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
7:00 AM	0	0	0	6	0	6	0	12	74	1	3	87	0	6	0	0	5	6	0	5	44	20	0	69	168
7:15 AM	0	0	0	2	3	2	0	26	80	0	5	106	0	9	0	13	9	22	0	2	32	24	0	58	188
7:30 AM	0	0	0	4	0	4	0	10	47	2	2	59	0	16	1	14	3	31	0	0	62	21	0	83	177
7:45 AM	0	0	2	1	0	3	0	2	68	0	1	70	0	8	0	4	2	12	0	7	79	4	0	90	175
Hourly Total	0	0	2	13	3	15	0	50	269	3	11	322	0	39	1	31	19	71	0	14	217	69	0	300	708

**Union St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025**

Time	Southbound Union St						Westbound Lincoln Ave						Northbound Union St						Eastbound Lincoln Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
8:00 AM	0	2	0	3	0	5	0	6	72	0	0	78	0	2	0	4	0	6	0	0	54	3	0	57	146
8:15 AM	0	2	0	5	0	7	0	3	75	1	0	79	0	1	0	1	0	2	0	3	54	3	0	60	148
8:30 AM	0	1	3	1	0	5	0	1	64	0	1	65	0	0	0	0	0	0	0	1	56	2	0	59	129
8:45 AM	0	1	1	1	0	3	0	0	53	3	0	56	0	1	1	0	0	2	0	0	44	0	0	44	105
Hourly Total	0	6	4	10	0	20	0	10	264	4	1	278	0	4	1	5	0	10	0	4	208	8	0	220	528
TOTAL	0	6	6	23	3	35	0	60	533	7	12	600	0	43	2	36	19	81	0	18	425	77	0	520	1236
Cars	0	6	4	22	3	32	0	58	508	6	12	572	0	39	1	33	19	73	0	18	398	77	0	493	1170
Heavy Vehicles	0	0	2	1	0	3	0	2	25	1	0	28	0	4	1	3	0	8	0	0	27	0	0	27	66
Heavy Vehicle %	0.00%	0.00%	33.33%	4.35%	0.00%	8.57%	0.00%	3.33%	4.69%	14.29%	0.00%	4.67%	0.00%	9.30%	50.00%	8.33%	0.00%	9.88%	0.00%	0.00%	6.35%	0.00%	0.00%	5.19%	5.34%

**Union St and Lincoln Ave
Ionia Michigan
Tuesday, December 09, 2025
AM Peak Hour**

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	Vehicle Approach Total	
7:00 AM	0	0	0	6	0	6	0	12	74	1	3	87	0	6	0	0	5	6	0	5	44	20	0	69	168
7:15 AM	0	0	0	2	3	2	0	26	80	0	5	106	0	9	0	13	9	22	0	2	32	24	0	58	188
7:30 AM	0	0	0	4	0	4	0	10	47	2	2	59	0	16	1	14	3	31	0	0	62	21	0	83	177
7:45 AM	0	0	2	1	0	3	0	2	68	0	1	70	0	8	0	4	2	12	0	7	79	4	0	90	175
Peak Hour Total	0	0	2	13	3	15	0	50	269	3	11	322	0	39	1	31	19	71	0	14	217	69	0	300	708
PHF	0.000	0.000	0.250	0.542	0.250	0.625	0.000	0.481	0.841	0.375	0.550	0.759	0.000	0.609	0.250	0.554	0.528	0.573	0.000	0.500	0.687	0.719	0.000	0.833	0.941
Heavy Vehicle %	0.00%	0.00%	50.00%	7.69%		13.33%	0.00%	2.00%	4.09%	33.33%		4.04%	0.00%	10.26%	100.00%	6.45%		9.86%	0.00%	0.00%	5.53%	0.00%		4.00%	4.80%

APPENDIX C - 2025 EXISTING CONDITIONS SUMMARY REPORTS

HCM 7th Signalized Intersection Summary

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

12/17/2025

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	211	358	139	226	260	101
Future Volume (veh/h)	211	358	139	226	260	101
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1841	1781
Adj Flow Rate, veh/h	222	377	172	279	313	122
Peak Hour Factor	0.95	0.95	0.81	0.81	0.83	0.83
Percent Heavy Veh, %	2	2	4	4	4	8
Cap, veh/h	390	329	365	782	660	569
Arrive On Green	0.21	0.21	0.11	0.43	0.38	0.38
Sat Flow, veh/h	1870	1581	1753	1841	1753	1510
Grp Volume(v), veh/h	222	377	172	279	313	122
Grp Sat Flow(s),veh/h/ln	1870	1581	1753	1841	1753	1510
Q Serve(g_s), s	6.4	12.5	0.0	6.2	8.1	3.3
Cycle Q Clear(g_c), s	6.4	12.5	0.0	6.2	8.1	3.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	390	329	365	782	660	569
V/C Ratio(X)	0.57	1.14	0.47	0.36	0.47	0.21
Avail Cap(c_a), veh/h	390	329	365	782	660	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.3	23.8	23.2	11.7	14.2	12.7
Incr Delay (d2), s/veh	5.9	94.7	0.9	1.3	2.4	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	13.0	2.2	2.5	3.3	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	27.3	118.4	24.1	13.0	16.6	13.5
LnGrp LOS	C	F	C	B	B	B
Approach Vol, veh/h	599			451	435	
Approach Delay, s/veh	84.7			17.2	15.8	
Approach LOS	F			B	B	
Timer - Assigned Phs	2		5		6	8
Phs Duration (G+Y+Rc), s	32.0		13.0		19.0	28.0
Change Period (Y+Rc), s	6.5		6.5		6.5	5.4
Max Green Setting (Gmax), s	25.5		6.5		12.5	22.6
Max Q Clear Time (g_c+I1), s	0.0		2.0		0.0	0.0
Green Ext Time (p_c), s	0.0		0.2		0.0	0.0
Intersection Summary						
HCM 7th Control Delay, s/veh	44.0					
HCM 7th LOS	D					
Notes						
User approved pedestrian interval to be less than phase max green.						

1772-0001_EX_AM

Anderson, Eckstein & Westrick, Inc.

Synchro 12 Report

Page 1

HCM Signalized Intersection Capacity Analysis

3: N. State St & M21/Lincoln Ave

12/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	177	5	14	248	215	3	11	4	358	31	88
Future Volume (vph)	70	177	5	14	248	215	3	11	4	358	31	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	1854		1752	1845	1568		1734		1752	1639	
Flt Permitted	0.57	1.00		0.63	1.00	1.00		0.97		0.74	1.00	
Satd. Flow (perm)	1062	1854		1163	1845	1568		1693		1368	1639	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.75	0.75	0.75	0.93	0.93	0.93
Adj. Flow (vph)	78	197	6	15	273	236	4	15	5	385	33	95
RTOR Reduction (vph)	0	2	0	0	0	135	0	3	0	0	57	0
Lane Group Flow (vph)	78	201	0	15	273	101	0	21	0	385	71	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	9%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Effective Green, g (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Grp Cap (vph)	453	791		496	788	669		682		551	660	
v/s Ratio Prot		0.11			c0.15						0.04	
v/s Ratio Perm	0.07			0.01		0.06		0.01		c0.28		
v/c Ratio	0.17	0.25		0.03	0.35	0.15		0.03		0.70	0.11	
Uniform Delay, d1	12.4	12.9		11.6	13.5	12.3		12.6		17.4	13.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.8		0.1	1.2	0.5		0.1		7.2	0.3	
Delay (s)	13.2	13.7		11.7	14.7	12.8		12.7		24.6	13.4	
Level of Service	B	B		B	B	B		B		C	B	
Approach Delay (s/veh)		13.5			13.7			12.7			21.8	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			16.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			11.9		
Intersection Capacity Utilization			62.9%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	3.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	217	69	50	269	3	39	1	31	0	2	13
Future Vol, veh/h	14	217	69	50	269	3	39	1	31	0	2	13
Conflicting Peds, #/hr	3	0	19	19	0	3	0	0	11	11	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	76	76	76	60	60	60	63	63	63
Heavy Vehicles, %	0	6	0	2	4	33	10	100	6	0	50	8
Mvmt Flow	17	261	83	66	354	4	65	2	52	0	3	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	361	0	0	364	0	0	843	848	333	798	888	359
Stage 1	-	-	-	-	-	-	356	356	-	490	490	-
Stage 2	-	-	-	-	-	-	487	492	-	307	397	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.2	7.5	6.26	7.1	7	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.2	6.5	-	6.1	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.2	6.5	-	6.1	6	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.59	4.9	3.354	3.5	4.45	3.372
Pot Cap-1 Maneuver	1209	-	-	1195	-	-	275	212	700	307	237	672
Stage 1	-	-	-	-	-	-	645	488	-	563	476	-
Stage 2	-	-	-	-	-	-	547	414	-	707	528	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1205	-	-	1173	-	-	240	193	680	258	216	670
Mov Cap-2 Maneuver	-	-	-	-	-	-	240	193	-	258	216	-
Stage 1	-	-	-	-	-	-	625	472	-	530	448	-
Stage 2	-	-	-	-	-	-	497	390	-	635	511	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.37			1.28			21.66			12.2		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	333	1205	-	-	1173	-	-	524
HCM Lane V/C Ratio	0.355	0.014	-	-	0.056	-	-	0.045
HCM Ctrl Dly (s/v)	21.7	8	-	-	8.3	-	-	12.2
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.6	0	-	-	0.2	-	-	0.1

Queuing and Blocking Report
Baseline

01/09/2026

Intersection: 3: N. State St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	R	LTR	L	TR
Maximum Queue (ft)	103	138	56	200	101	47	250	93
Average Queue (ft)	42	67	12	89	45	9	136	31
95th Queue (ft)	89	119	40	161	79	34	224	66
Link Distance (ft)		423		550		867		771
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		500		250		500	
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	171	150	159	157	180	78
Average Queue (ft)	85	69	72	78	82	27
95th Queue (ft)	148	114	126	140	153	59
Link Distance (ft)	414			1055	808	808
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	300			
Storage Blk Time (%)	1	0				
Queuing Penalty (veh)	3	0				

Intersection: 8: Union St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	23	35	46	30	112	71
Average Queue (ft)	2	2	13	2	39	14
95th Queue (ft)	15	15	38	14	85	49
Link Distance (ft)		748		726	880	538
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		140			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

Baseline

01/09/2026

Intersection: 11: M21/Lincoln Ave (Ped Push Button) & Dummy Node B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	61	48
Average Queue (ft)	5	24
95th Queue (ft)	30	47
Link Distance (ft)	1055	342
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Dummy Node A

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	36	47
Average Queue (ft)	4	19
95th Queue (ft)	21	46
Link Distance (ft)		694
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	250	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 3

HCM 7th Signalized Intersection Summary

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

12/17/2025

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	268	407	166	208	480	207
Future Volume (veh/h)	268	407	166	208	480	207
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1870	1870
Adj Flow Rate, veh/h	295	447	177	221	511	220
Peak Hour Factor	0.91	0.91	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	2	2
Cap, veh/h	387	328	329	789	671	597
Arrive On Green	0.21	0.21	0.11	0.43	0.38	0.38
Sat Flow, veh/h	1856	1572	1767	1856	1781	1585
Grp Volume(v), veh/h	295	447	177	221	511	220
Grp Sat Flow(s),veh/h/ln	1856	1572	1767	1856	1781	1585
Q Serve(g_s), s	9.0	12.5	0.7	4.7	15.0	6.0
Cycle Q Clear(g_c), s	9.0	12.5	0.7	4.7	15.0	6.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	387	328	329	789	671	597
V/C Ratio(X)	0.76	1.36	0.54	0.28	0.76	0.37
Avail Cap(c_a), veh/h	387	328	329	789	671	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.4	23.8	23.8	11.3	16.3	13.5
Incr Delay (d2), s/veh	13.3	182.5	1.7	0.9	8.0	1.7
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.1	21.0	2.3	1.9	6.9	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	35.7	206.2	25.5	12.1	24.3	15.3
LnGrp LOS	D	F	C	B	C	B
Approach Vol, veh/h	742			398	731	
Approach Delay, s/veh	138.4			18.1	21.6	
Approach LOS	F			B	C	
Timer - Assigned Phs	2		5		6	8
Phs Duration (G+Y+Rc), s	32.0		13.0		19.0	28.0
Change Period (Y+Rc), s	6.5		6.5		6.5	5.4
Max Green Setting (Gmax), s	25.5		6.5		12.5	22.6
Max Q Clear Time (g_c+I1), s	0.0		2.7		0.0	0.0
Green Ext Time (p_c), s	0.0		0.2		0.0	0.0
Intersection Summary						
HCM 7th Control Delay, s/veh	67.2					
HCM 7th LOS	E					
Notes						
User approved pedestrian interval to be less than phase max green.						

1772-0001_EX_PM

Anderson, Eckstein & Westrick, Inc.

Synchro 12 Report

Page 1

HCM Signalized Intersection Capacity Analysis

3: N. State St & M21/Lincoln Ave

12/17/2025

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	332	3	8	233	445	4	17	7	342	20	85
Future Volume (vph)	101	332	3	8	233	445	4	17	7	342	20	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	1860		1770	1863	1583		1758		1752	1621	
Flt Permitted	0.60	1.00		0.41	1.00	1.00		0.97		0.73	1.00	
Satd. Flow (perm)	1116	1860		768	1863	1583		1712		1340	1621	
Peak-hour factor, PHF	0.80	0.80	0.80	0.94	0.94	0.94	0.60	0.60	0.60	0.84	0.84	0.84
Adj. Flow (vph)	126	415	4	9	248	473	7	28	12	407	24	101
RTOR Reduction (vph)	0	1	0	0	0	271	0	7	0	0	60	0
Lane Group Flow (vph)	126	418	0	9	248	202	0	40	0	407	65	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	6%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Effective Green, g (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Grp Cap (vph)	476	794		328	795	676		689		539	653	
v/s Ratio Prot		c0.22			0.13						0.04	
v/s Ratio Perm	0.11			0.01		0.13		0.02		c0.30		
v/c Ratio	0.26	0.53		0.03	0.31	0.30		0.06		0.76	0.10	
Uniform Delay, d1	13.0	14.8		11.6	13.3	13.2		12.8		17.9	13.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.4	2.5		0.2	1.0	1.1		0.2		9.5	0.3	
Delay (s)	14.3	17.3		11.8	14.3	14.3		12.9		27.4	13.3	
Level of Service	B	B		B	B	B		B		C	B	
Approach Delay (s/veh)		16.6			14.3			12.9			24.1	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		17.7										
HCM 2000 Volume to Capacity ratio		0.64										
Actuated Cycle Length (s)		70.0								11.9		
Intersection Capacity Utilization		66.6%										
Analysis Period (min)		15										
c Critical Lane Group												

1772-0001_EX_PM

Anderson, Eckstein & Westrick, Inc.

Synchro 12 Report

Page 1

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	405	25	18	347	2	11	13	24	2	5	14
Future Vol, veh/h	17	405	25	18	347	2	11	13	24	2	5	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	95	95	95	80	80	80	60	60	60
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	50	0	0
Mvmt Flow	18	431	27	19	365	2	14	16	30	3	8	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	367	0	0	457	0	0	888	886	445	880	898	366
Stage 1	-	-	-	-	-	-	480	480	-	404	404	-
Stage 2	-	-	-	-	-	-	407	405	-	476	494	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.1	6.5	6.2	7.6	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.5	4	3.3	3.95	4	3.3
Pot Cap-1 Maneuver	1186	-	-	1098	-	-	267	286	617	222	281	683
Stage 1	-	-	-	-	-	-	570	558	-	538	602	-
Stage 2	-	-	-	-	-	-	625	602	-	489	550	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1186	-	-	1098	-	-	242	277	617	192	272	683
Mov Cap-2 Maneuver	-	-	-	-	-	-	242	277	-	192	272	-
Stage 1	-	-	-	-	-	-	562	549	-	529	592	-
Stage 2	-	-	-	-	-	-	585	591	-	444	542	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.31			0.41			16.78			14.2		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	365	1186	-	-	1098	-	-	426
HCM Lane V/C Ratio	0.164	0.015	-	-	0.017	-	-	0.082
HCM Ctrl Dly (s/v)	16.8	8.1	-	-	8.3	-	-	14.2
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.3

Queuing and Blocking Report
Baseline

01/09/2026

Intersection: 3: N. State St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	R	LTR	L	TR
Maximum Queue (ft)	171	261	38	176	154	57	232	72
Average Queue (ft)	74	119	6	78	81	14	122	29
95th Queue (ft)	138	211	26	141	134	45	208	61
Link Distance (ft)		423		547		867		771
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		500		250		500	
Storage Blk Time (%)		1						
Queuing Penalty (veh)		1						

Intersection: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	200	200	160	150	323	164
Average Queue (ft)	109	83	82	67	155	47
95th Queue (ft)	180	142	143	122	257	110
Link Distance (ft)	416			1045	808	808
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	300			
Storage Blk Time (%)	3	1				
Queuing Penalty (veh)	12	2				

Intersection: 8: Union St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	29	35	33	5	59	49
Average Queue (ft)	4	1	6	0	27	17
95th Queue (ft)	22	15	25	4	53	46
Link Distance (ft)		758		726	880	538
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		140			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Queuing and Blocking Report

Baseline

01/09/2026

Intersection: 11: M21/Lincoln Ave (Ped Push Button) & Dummy Node B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	72	25
Average Queue (ft)	11	2
95th Queue (ft)	46	14
Link Distance (ft)	1045	541
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Dummy Node A

Movement	WB
Directions Served	L
Maximum Queue (ft)	12
Average Queue (ft)	1
95th Queue (ft)	7
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	250
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 15

APPENDIX D - BACKGROUND DEVELOPMENT SITE PLAN

NEDERVELD

www.nederveld.com

800.222.1868

GRAND RAPIDS

217 Grandville Ave., Suite 302

Grand Rapids, MI 49503

Phone: 616.575.5190

ANN ARBOR

CHICAGO

COLUMBUS

HOLLAND

INDIANAPOLIS

PREPARED FOR:

Mark Purkey, LLC

Attention: Mark Purkey

891 E Lincoln Avenue

Ionia, MI 48846

REVISIONS:

Title: Preliminary Plan	Drawn: SW	Checked: SW	Date: 02/02/22
Title: Rezone Submittal	Drawn: SW	Checked: SW	Date: 03/15/22
Title: Site Plan	Drawn: SW	Checked: SW	Date: 03/16/22
Title: Site Plan	Drawn: SW	Checked: SW	Date: 03/16/22
Title: Per Drainage	Drawn: SW	Checked: SW	Date: 04/12/22
Title: Per Landscaping	Drawn: SW	Checked: SW	Date: 05/16/22
Title: Per Owner	Drawn: SW	Checked: SW	Date: 05/19/22
Title: Per Owner	Drawn: SW	Checked: SW	Date: 09/17/24
Title: Per Owner	Drawn: SW	Checked: SW	Date: 10/05/24

Mobil Gas Station

Existing Conditions and Demolition Plan

703 and 715 W Lincoln Avenue

PART OF THE NORTHEAST 1/4 OF SECTION 24, T7N, R7W,

CITY OF IONIA, IONIA COUNTY, MICHIGAN

STAMP:

STATE OF MICHIGAN

STEVEN L. WITTE

ENGINEER

No. 46769

LICENSED PROFESSIONAL ENGINEER

PROJECT NO:
21400831

SHEET NO:
C-201
SHEET: 1 OF 5

STRUCTURE INFORMATION

Storm Manhole Point #9 Rim Elev. = 739.33 12" RCP (E) = 735.70 (WATER)	Storm Catch Basin Point #97 Rim Elev. = 738.90 12" RCP (Ely) = 735.17 12" RCP (W) = 735.17	Storm Manhole Point #122 Rim Elev. = 739.41 18" RCP (N) = 732.83 18" RCP (S) = 732.63 12" RCP (E) = 734.76 12" RCP (W) = 734.76	Storm Manhole Point #143 Rim Elev. = 744.35 18" RCP (N) = 738.49 18" RCP (S) = 737.89 12" RCP (E) = 739.41 12" RCP (W) = 738.29 18" RCP (Nely) = 738.09
Storm Manhole Point #148 Rim Elev. = 744.70 12" RCP (N) = 739.15 (WATER) 12" RCP (S) = 739.15 12" RCP (E) = 739.15 4" CLAY (W) = 742.60	Storm Catch Basin Point #205 Rim Elev. = 745.10 4" CLAY (E) = 743.36	Sanitary Manhole Point #329 Rim Elev. = 747.54 8" PVC (N) = 737.47 8" PVC (S) = 737.37	
Storm Manhole Point #386 Rim Elev. = 748.22 18" RCP (W) = 744.15 (WATER) 18" RCP (S) = 744.15	Storm Catch Basin Point #452 Rim Elev. = 748.17 18" CPP (W) = 744.19 (WATER) 18" RCP (E) = 744.19 18" RCP (N) = 744.19	Storm Catch Basin Point #560 Rim Elev. = 749.79 18" CPP (W) = 745.44 18" CPP (E) = 744.49 (WATER)	

REMOVAL / DEMOLITION NOTES

- 1) THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AT LEAST THREE WEEKS PRIOR TO THE BEGINNING OF CONSTRUCTION OPERATIONS. THERE ARE EXISTING UNDERGROUND UTILITIES WHICH CROSS THE PROPOSED REPLACEMENT WORK AREAS. ALTHOUGH THEIR EXACT LOCATION CANNOT BE DETERMINED, IT IS KNOWN THESE UTILITIES ARE LOCATED WHERE DIGGING IS REQUIRED. THE CONTRACTOR SHALL CONDUCT THE REQUIRED EXCAVATION IN THESE AREAS WITH EXTREME CAUTION.
- 2) ALL EXISTING UTILITY INFORMATION SHOWN IS TAKEN FROM EXISTING RECORDS, AND FIELD VERIFIED WHERE ACCESSIBLE. ONLY INFORMATION OBTAINED FROM EXISTING RECORDS MAY NOT BE COMPLETE OR ACCURATE. THE LOCATION OF ALL EXISTING UTILITIES SHOWN ON THIS PLAN HAVE BEEN DETERMINED FROM THE BEST INFORMATION AVAILABLE AND ARE GIVEN FOR THE CONVENIENCE OF THE CONTRACTOR. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THEIR ACCURACY. THE CONTRACTOR SHALL FIELD VERIFY FOR ACCURACY, LOCATION AND CONDITION.
- 3) BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE CITY AND BY THE OWNER, REPRESENTATIVES OF THE CITY, THE OWNER AND THE CONTRACTOR SHALL MAKE AN INSPECTION OF THE EXISTING SEWERS WITHIN THE WORK LIMITS WHICH ARE TO REMAIN IN SERVICE AND WHICH MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING UTILITIES AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS AND EXISTING VIDEO TAPES. RECORDS OF THE INSPECTIONS SHALL BE KEPT IN WRITING BY THE CONTRACTOR.
- 4) THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION WORK.
- 5) ALL EXISTING UTILITIES, SEWERS AND WATER LINES ARE TO REMAIN UNDISTURBED UNLESS OTHERWISE NOTED ON THE PLANS. THE CONTRACTOR SHALL CONTACT AND COORDINATE WITH ALL APPLICABLE UTILITY COMPANIES, MUNICIPALITIES AND AGENCIES BEFORE COMMENCING ANY WORK.
- 6) THE CONTRACTOR SHALL COORDINATE WITH ALL UTILITY COMPANIES REGARDING REMOVAL OF EXISTING POLES, OVERHEAD WIRES, UNDERGROUND UTILITIES, GUY WIRES, GAS LINES, ETC. ALL ADJUSTMENT OR RECONSTRUCTION WORK, EXCEPT FOR THOSE STRUCTURES OTHERWISE NOTED ON THE PLANS, SHALL BE PERFORMED BY THE CONTRACTOR. EXISTING APPURTENANCES SUCH AS UTILITY POLES AND VALVES BOX SHALL NOT BE DISTURBED BY THE CONTRACTOR DURING CONSTRUCTION.
- 7) THE CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICE TO ALL ADJOINING PROPERTIES.
- 8) ALL DEBRIS SHALL BE REMOVED FROM THE SITE, AND NO STOCKPILING ON SITE SHALL BE ALLOWED UNLESS APPROVED BY THE OWNER OR THEIR REPRESENTATIVES.
- 9) THE CONTRACTOR SHALL LIMIT SAWCUT AND PAVEMENT REMOVAL TO ONLY THOSE AREAS WHERE REQUIRED OR AS SHOWN. ALL PAVEMENTS TO BE REMOVED SHALL BE SAWCUT AND REMOVED TO FULL DEPTH AT ALL PAVEMENT LIMITS OR EXISTING JOINTS. IF ANY DAMAGE IS INCURRED TO ANY OF THE SURROUNDING PAVEMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR AT NO ADDITIONAL COST TO ANYONE ELSE, INCLUDING THE CITY OR OWNER.
- 10) ASPHALT AREAS SHOWN TO BE SAWCUT AND REMOVED FULL DEPTH ARE ACTUAL FACE OF PROPOSED CURBS. IT WILL BE NECESSARY TO MAKE OFF-SET SAWCUTS TO PROVIDE CLEARANCE FOR PROPOSED CURBS. THE CONTRACTOR SHALL DETERMINE THE AMOUNT OF OFF-SET NECESSARY TO CONSTRUCT THE PROPOSED CURBS. ADDITIONAL CUTS MAY BE DESIRED TO FACILITATE THE REMOVAL OF THE EXISTING PAVEMENT, BUT THERE WILL BE NO EXTRA PAYMENT FOR ADDITIONAL CUTS. PAVEMENT SHALL BE REMOVED WITHOUT DAMAGING OR UNDERMINING THE REMAINING PAVEMENT. IF ADJACENT PAVEMENT IS DAMAGED, THE CONTRACTOR SHALL MAKE ADDITIONAL FULL DEPTH SAWCUTS AND REMOVE THE DAMAGE AREAS AS NECESSARY.
- 11) ALL PAVEMENT REMOVAL AREAS SHALL BE FULL PAVEMENT CROSS-SECTION REMOVAL DOWN TO NATIVE SOIL LAYER IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
- 12) ALL TREES AND VEGETATION WITHIN THE GRADING LIMITS SHALL BE REMOVED UNLESS OTHERWISE NOTED.

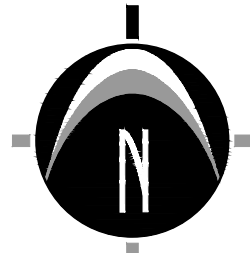
REMOVAL / DEMOLITION NOTES

1. REMOVE EXISTING BUILDINGS.
2. SAWCUT, REMOVE, REPLACE EXISTING ASPHALT AS NECESSARY FOR NEW CONSTRUCTION.
3. REMOVE EXISTING CONCRETE SIDEWALKPADS.
4. REMOVE EXISTING DRIVEWAY.
5. REMOVE EXISTING PUMP HOUSE.
6. REMOVE EXISTING FENCE.
7. REMOVE EXISTING DUMPSTER PAD AND ENCLOSURE.
8. REMOVE EXISTING TREES AND VEGETATION.
9. EXISTING DRIVEWAY APPROACH AND CURBING TO BE REMOVED.
10. EXISTING CURBING TO BE REMOVED.



LOCATION MAP

NOT TO SCALE



0' 10' 20' 40'
SCALE: 1" = 20'

BENCHMARKS

BENCHMARK #3 ELEV. = 750.89 (NAVD88)
Set 1" on top of southern bolt on strain pole, 2.1' above walk, 31' N. & 42' W. of centerline.
BENCHMARK #380 ELEV. = 740.92 (NAVD88)
Set railroad spike, 1' A.G.L., in northwest side of power pole, 8' N. of centerline of north drive to House #465 State Street, & 25' west of centerline of State Street

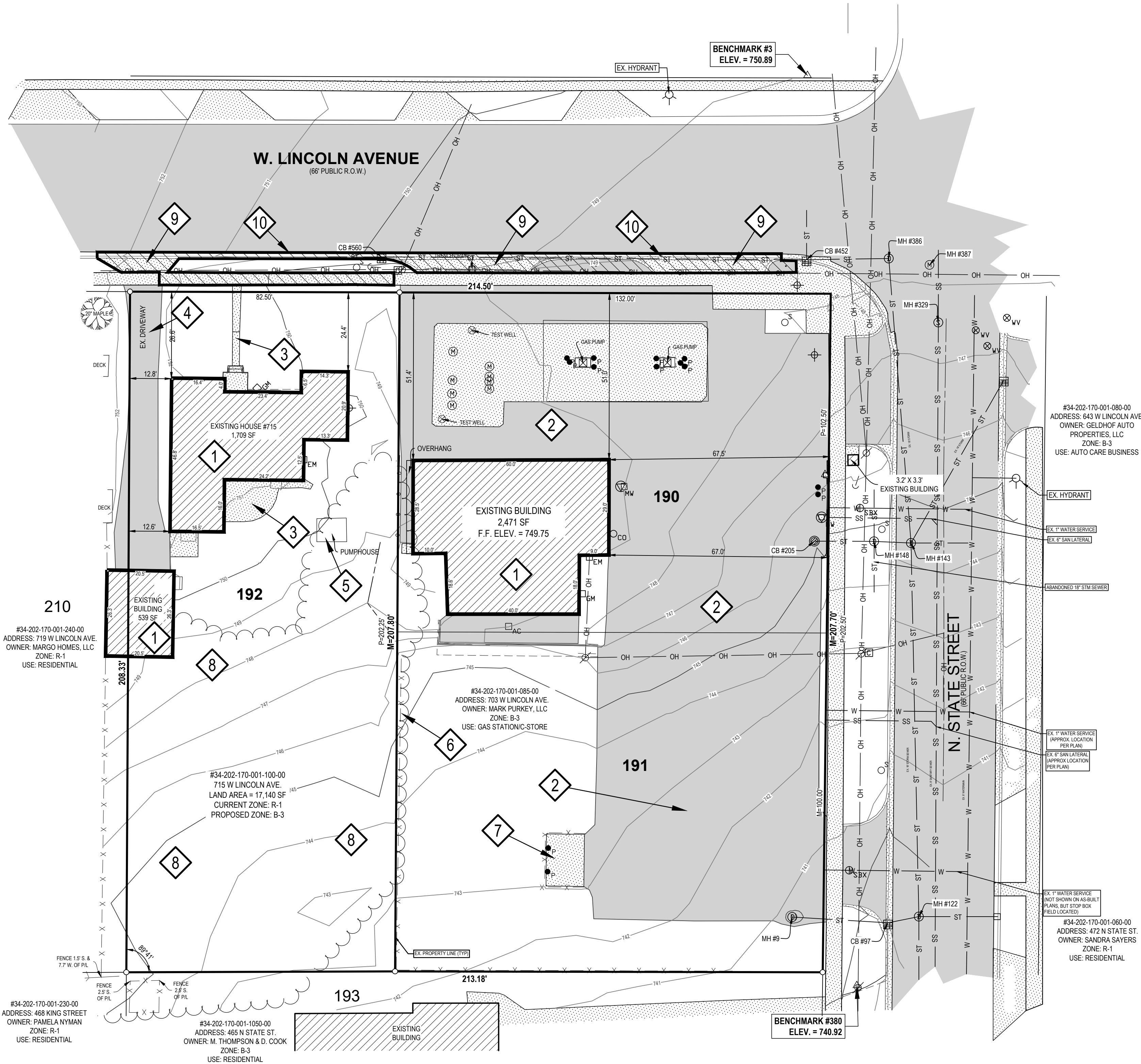
LEGEND

- AC Air Conditioner
- Benchmark / Control Point
- Catch Basin - Round
- Catch Basin - Square
- Cable Riser
- EM Electric Meter
- GM Gas Meter
- Guy Anchor
- Hydrant
- Iron - Found
- Manhole
- Post
- SBX Stop Box
- S Sign
- Sanitary Sewer Manhole
- Transformer
- Utility Pole
- UV Water Valve
- MW Monitor Well
- OH Overhead Utility
- SS Sanitary
- ST Storm
- Guard Rail
- Tree
- Asphalt
- Concrete
- Existing Building
- M= Measured Distance/Bearing
- P= Platted Distance/Bearing

LEGAL DESCRIPTION

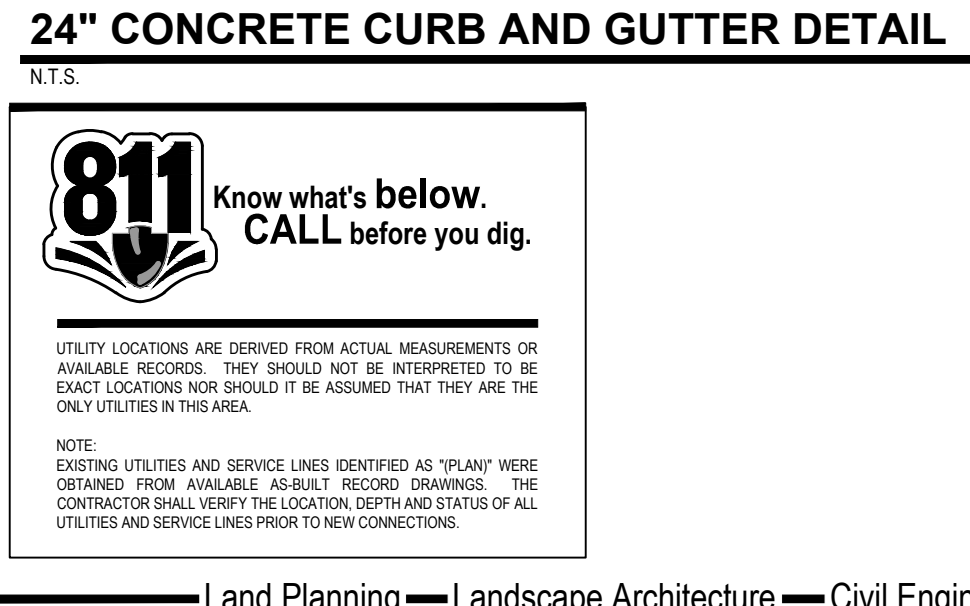
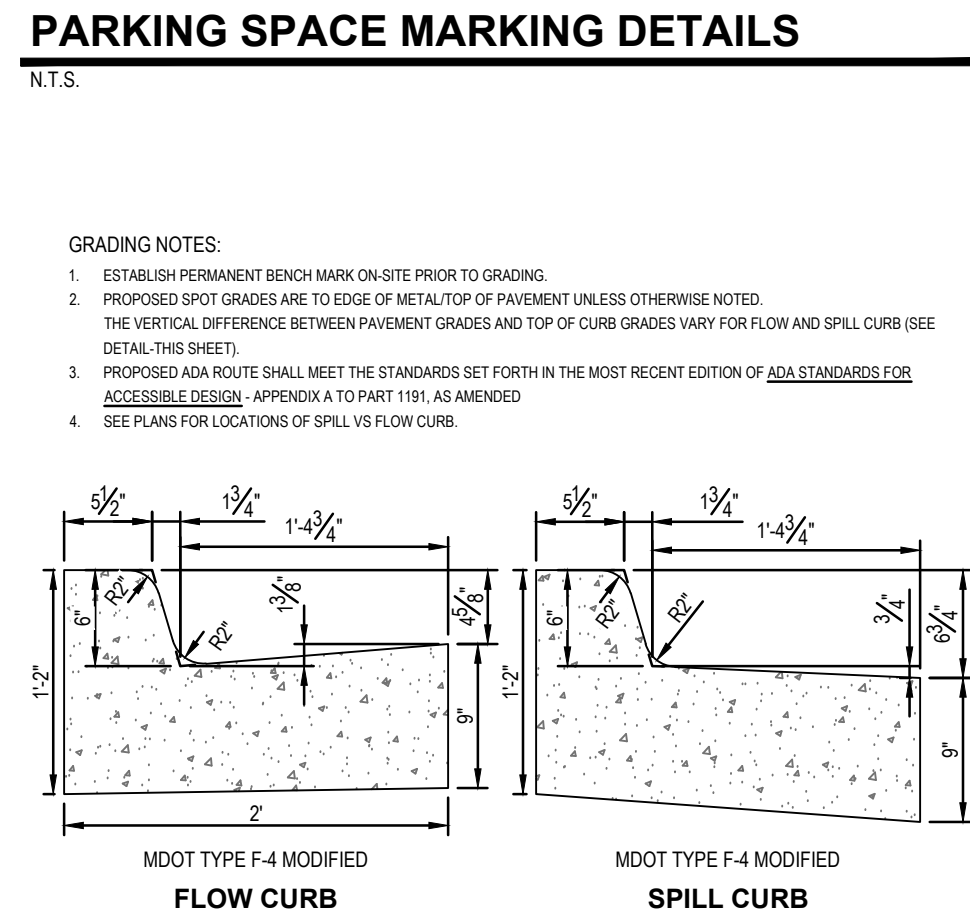
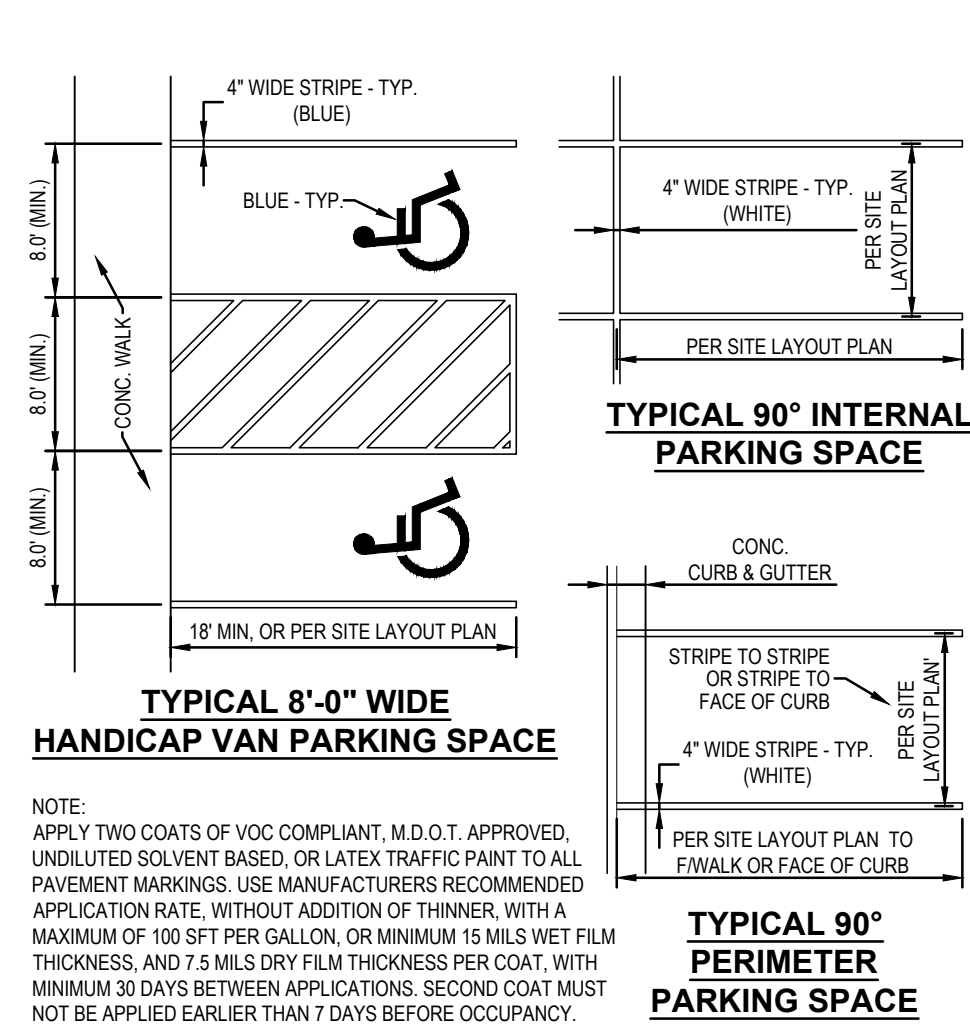
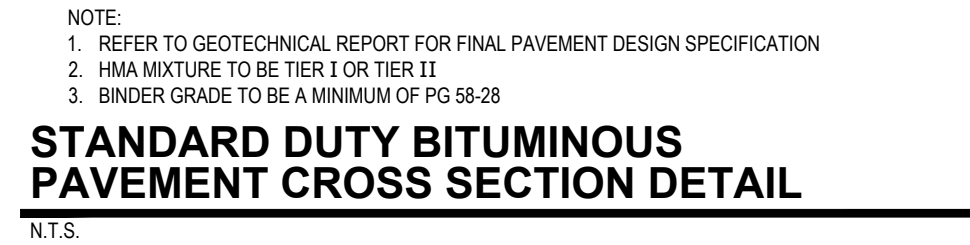
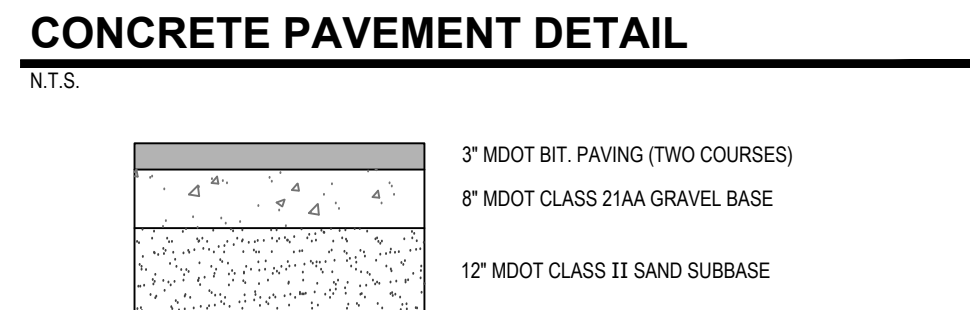
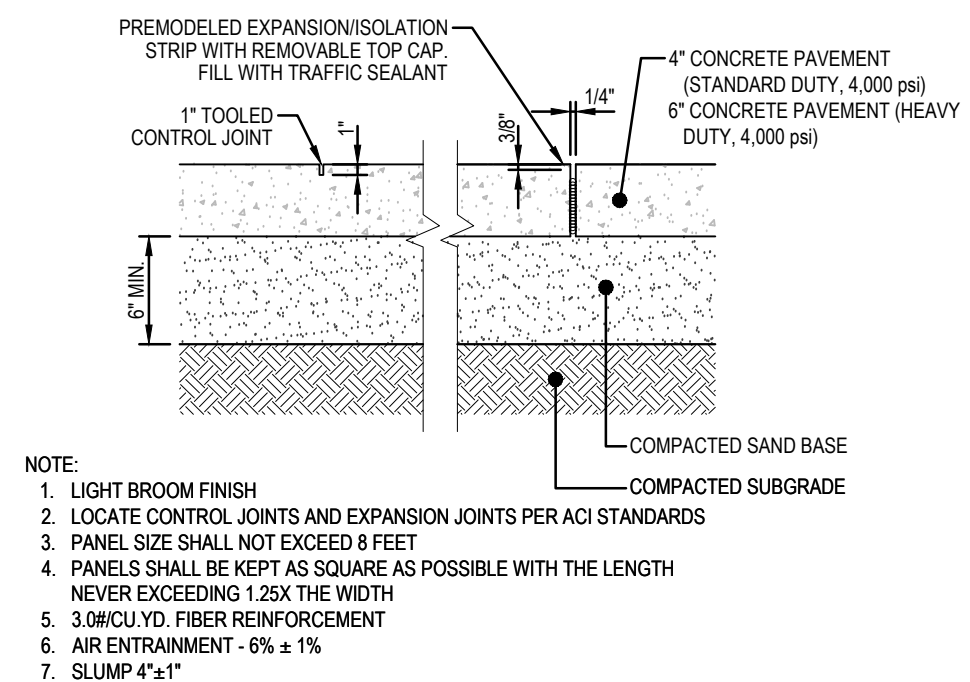
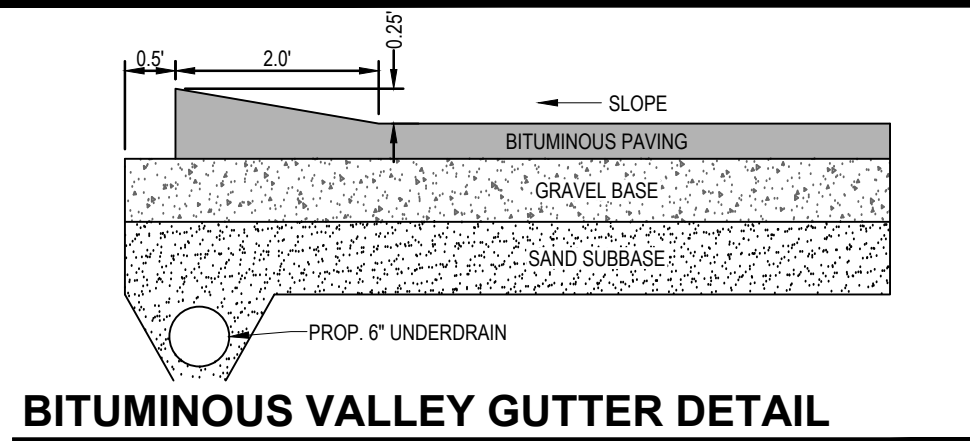
The Description herein is from the tax description.

CITY OF IONIA SUP. VOELKERS ADDITION LOT 190 AND 191, SPLIT/COMBINED ON 12/20/2018 FROM 202-170-001-085-00, 202-170-001-590-00, 202-170-001-595-00;
CITY OF IONIA SUP. VOELKERS ADDITION LOT 192



UTILITY LOCATIONS ARE DERIVED FROM ACTUAL MEASUREMENTS OR AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATIONS NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THIS AREA.

NOTE: EXISTING UTILITIES AND SERVICE LINES IDENTIFIED AS "PLAN" WERE OBTAINED FROM AVAILABLE AS-BUILT RECORD DRAWINGS. THE CONTRACTOR SHALL VERIFY THE LOCATION, DEPTH AND STATUS OF ALL UTILITIES AND SERVICE LINES PRIOR TO NEW CONNECTIONS.



NEDERVELD
www.nederveld.com
800.222.1868
GRAND RAPIDS
217 Grandville Ave., Suite 302
Grand Rapids, MI 49503
Phone: 616.575.5190
ANN ARBOR
CHICAGO
COLUMBUS
HOLLAND
INDIANAPOLIS

PREPARED FOR:
Mark Purkey, LLC
Attention: Mark Purkey

891 E Lincoln Avenue
Ionia, MI 48846

REVISIONS:

Title: Preliminary Plan	Drawn: SW	Checked: SW	Date: 02/02/22
Title: Rezone Submittal	Drawn: SW	Checked: SW	Date: 03/15/22
Title: Site Plan	Drawn: SW	Checked: SW	Date: 03/16/22
Title: Site Plan	Drawn: SW	Checked: SW	Date: 04/12/22
Title: Per Drainage	Drawn: SW	Checked: SW	Date: 05/16/22
Title: Per Landscaping	Drawn: SW	Checked: SW	Date: 05/19/22
Title: Per Owner	Drawn: SW	Checked: SW	Date: 09/17/24
Title: Per Owner	Drawn: SW	Checked: SW	Date: 10/05/24

Mobil Gas Station
Site Layout Plan
703 and 715 W Lincoln Avenue
PART OF THE NORTHEAST 1/4 OF SECTION 24, T7N, R7W,
CITY OF IONIA, IONIA COUNTY, MICHIGAN

STAMP:

STEVEN L. WITTE
ENGINEER
No. 46769
LICENSED PROFESSIONAL ENGINEER

PROJECT NO:
21400831

SHEET NO:
C-205
SHEET: 2 OF 5

APPENDIX E - 2026 BACKGROUND CONDITIONS SUMMARY REPORTS

HCM 7th Signalized Intersection Summary

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

01/10/2026

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↙	↗
Traffic Volume (veh/h)	217	369	140	234	270	102
Future Volume (veh/h)	217	369	140	234	270	102
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1841	1781
Adj Flow Rate, veh/h	228	388	173	289	325	123
Peak Hour Factor	0.95	0.95	0.81	0.81	0.83	0.83
Percent Heavy Veh, %	2	2	4	4	4	8
Cap, veh/h	390	329	362	782	660	569
Arrive On Green	0.21	0.21	0.11	0.43	0.38	0.38
Sat Flow, veh/h	1870	1581	1753	1841	1753	1510
Grp Volume(v), veh/h	228	388	173	289	325	123
Grp Sat Flow(s),veh/h/ln	1870	1581	1753	1841	1753	1510
Q Serve(g_s), s	6.6	12.5	0.0	6.4	8.5	3.3
Cycle Q Clear(g_c), s	6.6	12.5	0.0	6.4	8.5	3.3
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	390	329	362	782	660	569
V/C Ratio(X)	0.59	1.18	0.48	0.37	0.49	0.22
Avail Cap(c_a), veh/h	390	329	362	782	660	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	21.4	23.8	23.3	11.8	14.3	12.7
Incr Delay (d2), s/veh	6.3	107.1	1.0	1.3	2.6	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	14.2	2.2	2.7	3.5	1.1
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	27.7	130.8	24.3	13.1	16.9	13.6
LnGrp LOS	C	F	C	B	B	B
Approach Vol, veh/h	616			462	448	
Approach Delay, s/veh	92.7			17.3	16.0	
Approach LOS	F			B	B	
Timer - Assigned Phs	2		5		6	8
Phs Duration (G+Y+Rc), s	32.0		13.0		19.0	28.0
Change Period (Y+Rc), s	6.5		6.5		6.5	5.4
Max Green Setting (Gmax), s	25.5		6.5		12.5	22.6
Max Q Clear Time (g_c+I1), s	0.0		2.0		0.0	0.0
Green Ext Time (p_c), s	0.0		0.2		0.0	0.0
Intersection Summary						
HCM 7th Control Delay, s/veh			47.3			
HCM 7th LOS			D			
Notes						
User approved pedestrian interval to be less than phase max green.						

HCM Signalized Intersection Capacity Analysis

3: N. State St & M21/Lincoln Ave

01/10/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	190	5	15	262	217	3	12	4	362	33	93
Future Volume (vph)	75	190	5	15	262	217	3	12	4	362	33	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	1855		1752	1845	1568		1734		1752	1640	
Flt Permitted	0.55	1.00		0.62	1.00	1.00		0.97		0.74	1.00	
Satd. Flow (perm)	1031	1855		1148	1845	1568		1693		1367	1640	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.75	0.75	0.75	0.93	0.93	0.93
Adj. Flow (vph)	83	211	6	16	288	238	4	16	5	389	35	100
RTOR Reduction (vph)	0	2	0	0	0	136	0	3	0	0	60	0
Lane Group Flow (vph)	83	215	0	16	288	102	0	22	0	389	75	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	9%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Effective Green, g (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Grp Cap (vph)	440	792		490	788	669		682		550	660	
v/s Ratio Prot		0.12			c0.16						0.05	
v/s Ratio Perm	0.08			0.01		0.06		0.01		c0.28		
v/c Ratio	0.19	0.27		0.03	0.37	0.15		0.03		0.71	0.11	
Uniform Delay, d1	12.5	13.0		11.6	13.6	12.3		12.6		17.5	13.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.8		0.1	1.3	0.5		0.1		7.5	0.4	
Delay (s)	13.4	13.8		11.8	14.9	12.8		12.7		24.9	13.4	
Level of Service	B	B		B	B	B		B		C	B	
Approach Delay (s/veh)		13.7			13.9			12.7			22.0	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			16.9				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			11.9		
Intersection Capacity Utilization			63.8%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	3.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	14	222	71	51	276	3	40	1	31	0	2	13
Future Vol, veh/h	14	222	71	51	276	3	40	1	31	0	2	13
Conflicting Peds, #/hr	3	0	19	19	0	3	0	0	11	11	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	76	76	76	60	60	60	63	63	63
Heavy Vehicles, %	0	6	0	2	4	33	10	100	6	0	50	8
Mvmt Flow	17	267	86	67	363	4	67	2	52	0	3	21

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	370	0	0	372	0	0	862	867	340	815	908	368
Stage 1	-	-	-	-	-	-	363	363	-	502	502	-
Stage 2	-	-	-	-	-	-	499	504	-	313	406	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.2	7.5	6.26	7.1	7	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.2	6.5	-	6.1	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.2	6.5	-	6.1	6	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.59	4.9	3.354	3.5	4.45	3.372
Pot Cap-1 Maneuver	1200	-	-	1186	-	-	267	205	693	298	230	664
Stage 1	-	-	-	-	-	-	640	483	-	555	470	-
Stage 2	-	-	-	-	-	-	539	409	-	702	523	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1196	-	-	1165	-	-	232	187	673	250	209	662
Mov Cap-2 Maneuver	-	-	-	-	-	-	232	187	-	250	209	-
Stage 1	-	-	-	-	-	-	619	468	-	522	442	-
Stage 2	-	-	-	-	-	-	489	384	-	630	506	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.37			1.28			22.66			12.34		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	322	1196	-	-	1165	-	-	514
HCM Lane V/C Ratio	0.373	0.014	-	-	0.058	-	-	0.046
HCM Ctrl Dly (s/v)	22.7	8.1	-	-	8.3	-	-	12.3
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	1.7	0	-	-	0.2	-	-	0.1

Queuing and Blocking Report
Baseline

01/10/2026

Intersection: 3: N. State St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	R	LTR	L	TR
Maximum Queue (ft)	90	167	48	194	92	52	255	88
Average Queue (ft)	43	73	12	92	47	11	140	32
95th Queue (ft)	81	133	38	157	81	37	221	67
Link Distance (ft)		423		550		867		771
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		500		250		500	
Storage Blk Time (%)				0				
Queuing Penalty (veh)				0				

Intersection: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	174	142	130	152	213	97
Average Queue (ft)	98	74	67	84	94	28
95th Queue (ft)	158	118	113	136	170	62
Link Distance (ft)	414			1055	808	808
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	300			
Storage Blk Time (%)	1	0				
Queuing Penalty (veh)	3	0				

Intersection: 8: Union St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	33	14	46	24	117	54
Average Queue (ft)	3	1	14	1	40	11
95th Queue (ft)	19	7	40	11	87	41
Link Distance (ft)		748		726	880	538
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		140			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: M21/Lincoln Ave (Ped Push Button) & Dummy Node B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	62	58
Average Queue (ft)	5	25
95th Queue (ft)	30	49
Link Distance (ft)	1055	342
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Dummy Node A

Movement	WB	WB	NB
Directions Served	L	T	LR
Maximum Queue (ft)	36	7	48
Average Queue (ft)	4	0	19
95th Queue (ft)	21	5	45
Link Distance (ft)		414	694
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Network Summary

Network wide Queuing Penalty: 3

HCM 7th Signalized Intersection Summary

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

01/10/2026

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↙	↑	↙	↗
Traffic Volume (veh/h)	277	419	168	213	493	209
Future Volume (veh/h)	277	419	168	213	493	209
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1870	1870
Adj Flow Rate, veh/h	304	460	179	227	524	222
Peak Hour Factor	0.91	0.91	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	2	2
Cap, veh/h	387	328	325	789	671	597
Arrive On Green	0.21	0.21	0.11	0.43	0.38	0.38
Sat Flow, veh/h	1856	1572	1767	1856	1781	1585
Grp Volume(v), veh/h	304	460	179	227	524	222
Grp Sat Flow(s),veh/h/ln	1856	1572	1767	1856	1781	1585
Q Serve(g_s), s	9.3	12.5	1.0	4.8	15.6	6.1
Cycle Q Clear(g_c), s	9.3	12.5	1.0	4.8	15.6	6.1
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	387	328	325	789	671	597
V/C Ratio(X)	0.79	1.40	0.55	0.29	0.78	0.37
Avail Cap(c_a), veh/h	387	328	325	789	671	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.5	23.8	23.9	11.3	16.5	13.6
Incr Delay (d2), s/veh	14.8	199.3	2.0	0.9	8.8	1.8
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	22.5	2.4	2.0	7.2	2.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	37.3	223.0	25.9	12.2	25.3	15.3
LnGrp LOS	D	F	C	B	C	B
Approach Vol, veh/h	764			406	746	
Approach Delay, s/veh	149.1			18.2	22.3	
Approach LOS	F			B	C	
Timer - Assigned Phs	2		5		6	8
Phs Duration (G+Y+Rc), s	32.0		13.0		19.0	28.0
Change Period (Y+Rc), s	6.5		6.5		6.5	5.4
Max Green Setting (Gmax), s	25.5		6.5		12.5	22.6
Max Q Clear Time (g_c+I1), s	0.0		3.0		0.0	0.0
Green Ext Time (p_c), s	0.0		0.2		0.0	0.0
Intersection Summary						
HCM 7th Control Delay, s/veh	72.0					
HCM 7th LOS	E					
Notes						
User approved pedestrian interval to be less than phase max green.						

HCM Signalized Intersection Capacity Analysis

3: N. State St & M21/Lincoln Ave

01/10/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	349	3	8	246	449	4	18	7	345	21	90
Future Volume (vph)	107	349	3	8	246	449	4	18	7	345	21	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	1860		1770	1863	1583		1760		1752	1620	
Flt Permitted	0.58	1.00		0.39	1.00	1.00		0.97		0.73	1.00	
Satd. Flow (perm)	1086	1860		728	1863	1583		1715		1337	1620	
Peak-hour factor, PHF	0.80	0.80	0.80	0.94	0.94	0.94	0.60	0.60	0.60	0.84	0.84	0.84
Adj. Flow (vph)	134	436	4	9	262	478	7	30	12	411	25	107
RTOR Reduction (vph)	0	1	0	0	0	274	0	7	0	0	64	0
Lane Group Flow (vph)	134	439	0	9	262	204	0	42	0	411	68	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	6%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Effective Green, g (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Grp Cap (vph)	463	794		310	795	676		690		538	652	
v/s Ratio Prot		c0.24			0.14						0.04	
v/s Ratio Perm	0.12			0.01		0.13		0.02		c0.31		
v/c Ratio	0.29	0.55		0.03	0.33	0.30		0.06		0.76	0.10	
Uniform Delay, d1	13.1	15.0		11.6	13.4	13.2		12.8		18.0	13.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.6	2.8		0.2	1.1	1.1		0.2		9.9	0.3	
Delay (s)	14.7	17.8		11.8	14.5	14.3		13.0		27.9	13.4	
Level of Service	B	B		B	B	B		B		C	B	
Approach Delay (s/veh)		17.1			14.4			13.0			24.4	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)		18.0										
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		70.0										
Intersection Capacity Utilization		67.7%										
Analysis Period (min)		15										
c Critical Lane Group												

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	17	415	25	18	353	2	11	13	24	2	5	14
Future Vol, veh/h	17	415	25	18	353	2	11	13	24	2	5	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	95	95	95	80	80	80	60	60	60
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	50	0	0
Mvmt Flow	18	441	27	19	372	2	14	16	30	3	8	23

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	374	0	0	468	0	0	905	903	456	897	915	373
Stage 1	-	-	-	-	-	-	491	491	-	411	411	-
Stage 2	-	-	-	-	-	-	414	412	-	487	504	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.1	6.5	6.2	7.6	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.5	4	3.3	3.95	4	3.3
Pot Cap-1 Maneuver	1179	-	-	1088	-	-	260	279	609	215	275	678
Stage 1	-	-	-	-	-	-	563	552	-	533	599	-
Stage 2	-	-	-	-	-	-	620	598	-	482	544	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1179	-	-	1088	-	-	235	270	608	186	266	678
Mov Cap-2 Maneuver	-	-	-	-	-	-	235	270	-	186	266	-
Stage 1	-	-	-	-	-	-	554	543	-	524	588	-
Stage 2	-	-	-	-	-	-	580	588	-	437	536	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.3			0.4			17.09			14.39		
HCM LOS							C			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	357	1179	-	-	1088	-	-	418
HCM Lane V/C Ratio	0.168	0.015	-	-	0.017	-	-	0.084
HCM Ctrl Dly (s/v)	17.1	8.1	-	-	8.4	-	-	14.4
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.6	0	-	-	0.1	-	-	0.3

Queuing and Blocking Report
Baseline

01/10/2026

Intersection: 3: N. State St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	R	LTR	L	TR
Maximum Queue (ft)	220	294	38	188	182	66	238	81
Average Queue (ft)	88	126	6	83	81	14	126	30
95th Queue (ft)	179	226	28	150	145	47	209	62
Link Distance (ft)		423		547		867		771
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		500		250		500	
Storage Blk Time (%)	1	1		0	0			
Queuing Penalty (veh)	3	2		0	0			

Intersection: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	209	194	168	173	320	193
Average Queue (ft)	109	88	85	68	163	51
95th Queue (ft)	180	146	142	130	262	117
Link Distance (ft)	416			1045	808	808
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)		150	300			
Storage Blk Time (%)	3	1				
Queuing Penalty (veh)	12	2				

Intersection: 8: Union St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	34	31	42	20	63	47
Average Queue (ft)	6	1	6	1	28	14
95th Queue (ft)	26	15	27	9	52	42
Link Distance (ft)		758		726	880	538
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		140			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: M21/Lincoln Ave (Ped Push Button) & Dummy Node B

Movement	EB	SB
Directions Served	LT	LR
Maximum Queue (ft)	101	24
Average Queue (ft)	13	2
95th Queue (ft)	58	14
Link Distance (ft)	1045	541
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 13: Dummy Node A

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	31	9
Average Queue (ft)	2	0
95th Queue (ft)	14	6
Link Distance (ft)		416
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	250	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 19

APPENDIX F - ITE TRIP GENERATION

Query

Filter

Data Plot and Equation

DATA SOURCE:

Trip Generation Manual, 12th Ed

SEARCH BY LAND USE CODE:

934



LAND USE GROUP:

(900-999) Services

LAND USE:

934 - Fast-Food Restaurant with Drive

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Stre

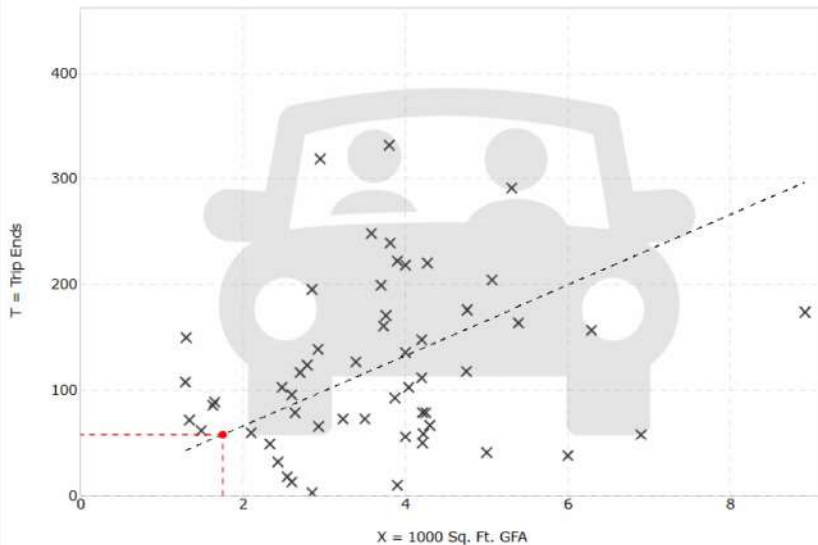
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

1.75

Calculate



DATA STATISTICS

Land Use:

Fast-Food Restaurant with Drive-Through Window (934) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday

Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

55

Avg. 1000 Sq. Ft. GFA:

4

Average Rate:

33.24

Range of Rates:

1.05 - 115.38

Standard Deviation:

22.70

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

51% entering, 49% exiting

Calculated Trip Ends:

Average Rate (R) = 33.24 (1.75 x 33.24)

Query

Filter

Data Plot and Equation

DATA SOURCE:

Trip Generation Manual, 12th Ed

SEARCH BY LAND USE CODE:

934



LAND USE GROUP:

(900-999) Services

LAND USE:

934 - Fast-Food Restaurant with Drive

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Stre

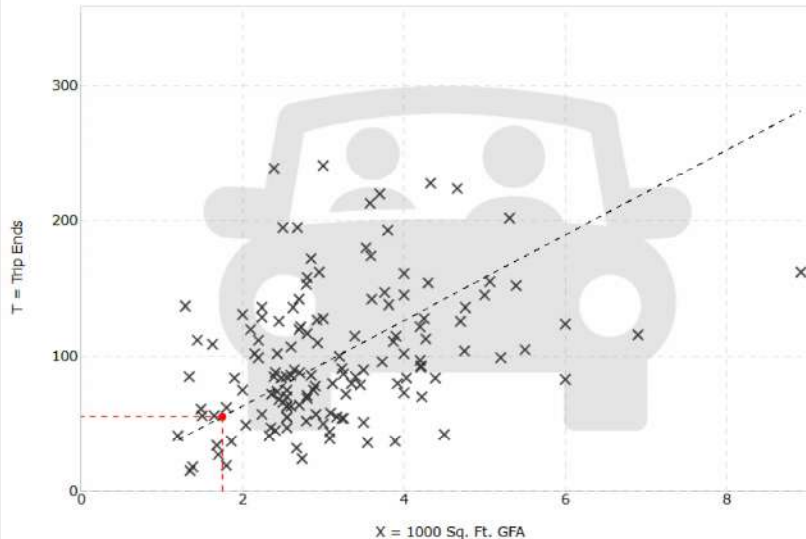
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

1.75

Calculate



Reset Zoom

Restore

DATA STATISTICS

Land Use:

Fast-Food Restaurant with Drive-Through Window (934) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday

Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

139

Avg. 1000 Sq. Ft. GFA:

3

Average Rate:

31.60

Range of Rates:

8.77 - 106.20

Standard Deviation:

16.21

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

52% entering, 48% exiting

Calculated

Average Rate: 55 (Total), 29 (Entry), 26 (Exit)

Query

Filter

Data Plot and Equation

DATA SOURCE:

Trip Generation Manual, 12th Ed

SEARCH BY LAND USE CODE:

945



LAND USE GROUP:

(900-999) Services

LAND USE :

945 - Convenience Store/Gas Station

LAND USE SUBCATEGORY:

GFA (5.5-10k)

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Vehicle Fueling Positions

TIME PERIOD:

Weekday, Peak Hour of Adjacent Stre

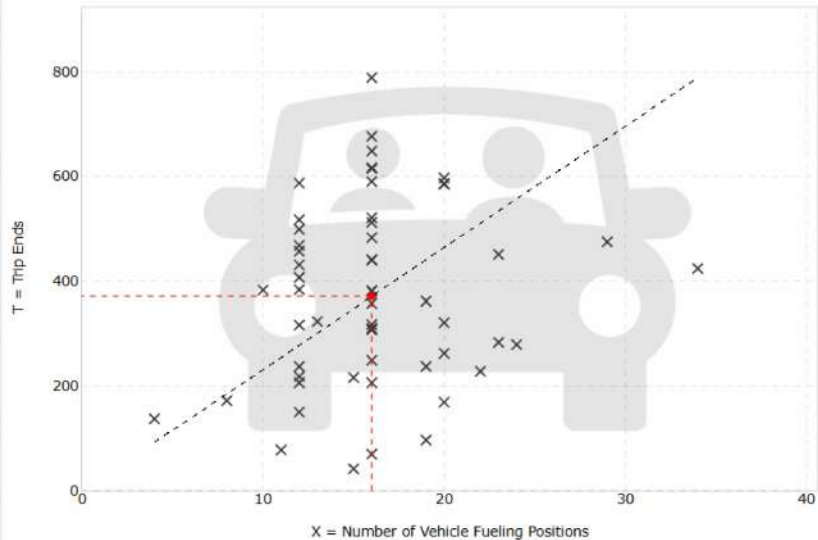
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

16

Calculate



Reset Zoom

Restore

DATA STATISTICS

Land Use:

Convenience Store/Gas Station - GFA (5.5-10k)
(945) [Click for Description and Data Plots](#)

Independent Variable:

Vehicle Fueling Positions

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

55

Avg. Num. of Vehicle Fueling Positions:

16

Average Rate:

23.21

Range of Rates:

2.80 - 49.31

Standard Deviation:

11.79

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate of 23.21 (Exit)

Query

Filter

DATA SOURCE:

Trip Generation Manual, 12th Ed

SEARCH BY LAND USE CODE:

945



LAND USE GROUP:

(900-999) Services

LAND USE:

945 - Convenience Store/Gas Station

LAND USE SUBCATEGORY:

GFA (5.5-10k)

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

Vehicle Fueling Positions

TIME PERIOD:

Weekday, Peak Hour of Adjacent Stre

TRIP TYPE:

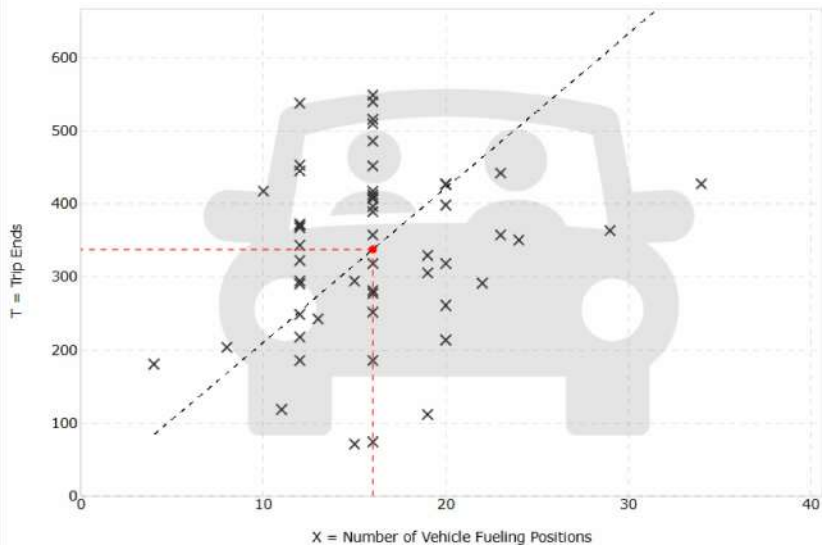
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

16

Calculate

Data Plot and Equation



DATA STATISTICS

Land Use:

Convenience Store/Gas Station - GFA (5.5-10k)
(945) [Click for Description and Data Plots](#)

Independent Variable:

Vehicle Fueling Positions

Time Period:

Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

55

Avg. Num. of Vehicle Fueling Positions:

16

Average Rate:

21.08

Range of Rates:

4.63 - 45.25

Standard Deviation:

8.82

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

50% entering, 50% exiting

Calculated Trip Ends:

Average Rate of 21.08 (Exit)

Query

Filter

Data Plot and Equation

DATA SOURCE:

Trip Generation Manual, 12th Ed

SEARCH BY LAND USE CODE:

948



LAND USE GROUP:

(900-999) Services

LAND USE:

948 - Automated Car Wash

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Stre

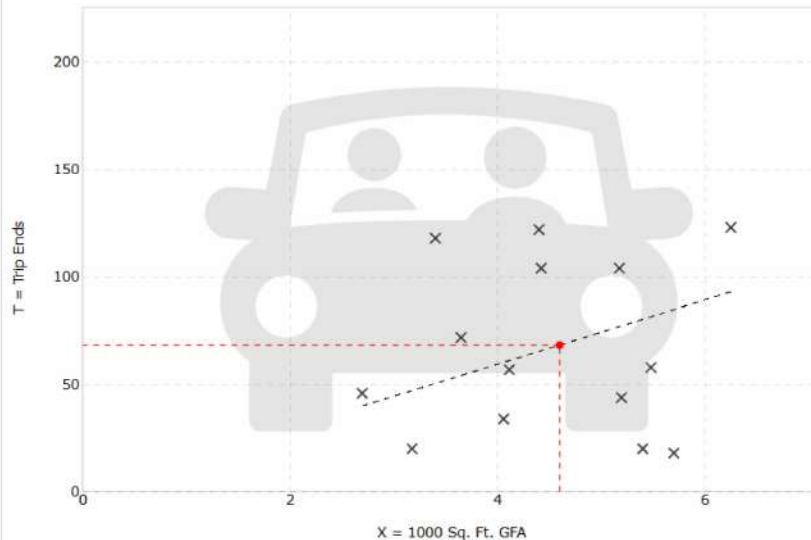
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

4.6

Calculate



Reset Zoom

Restore

X Study Site

--- Average Rate

DATA STATISTICS

Land Use:

Automated Car Wash (948) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday

Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

14

Avg. 1000 Sq. Ft. GFA:

5

Average Rate

14.89

Range of Rates:

3.16 - 34.71

Standard Deviation:

9.20

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

55% entering, 45% exiting

Calculated Trip Ends:

Average Rate: 14.89 (14.89 * 4.6 = 68.394)

Page 120 of 191

Query

Filter

Data Plot and Equation

DATA SOURCE:

Trip Generation Manual, 12th Ed

SEARCH BY LAND USE CODE:

948



LAND USE GROUP:

(900-999) Services

LAND USE :

948 - Automated Car Wash

LAND USE SUBCATEGORY:

All Sites

SETTING/LOCATION:

General Urban/Suburban

INDEPENDENT VARIABLE (IV):

1000 Sq. Ft. GFA

TIME PERIOD:

Weekday, Peak Hour of Adjacent Stre

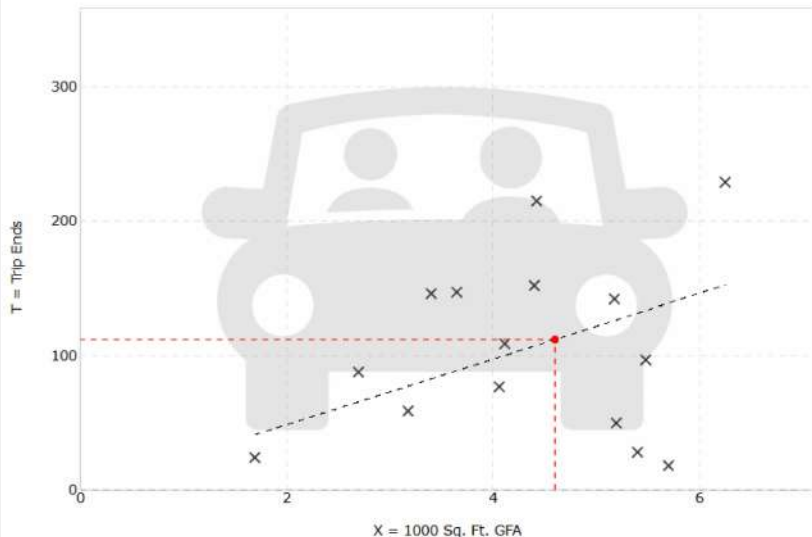
TRIP TYPE:

Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:

4.6

Calculate



Reset Zoom

Restore

X Study Site

--- Average Rate

DATA STATISTICS

Land Use:

Automated Car Wash (948) [Click for Description and Data Plots](#)

Independent Variable:

1000 Sq. Ft. GFA

Time Period:

Weekday

Peak Hour of Adjacent Street Traffic

One Hour Between 4 and 6 p.m.

Setting/Location:

General Urban/Suburban

Trip Type:

Vehicle

Number of Studies:

15

Avg. 1000 Sq. Ft. GFA:

4

Average Rate:

24.40

Range of Rates:

3.16 - 48.62

Standard Deviation:

14.47

Fitted Curve Equation:

Not Given

R²:

Directional Distribution:

49% entering, 51% exiting

Calculated Trip Ends:

Average Rate of 24.40 (Ent) = 112 (Exit)

APPENDIX G - 2026 BUILD CONDITIONS SUMMARY REPORTS

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Vol, veh/h	0	85	309	77	0	517
Future Vol, veh/h	0	85	309	77	0	517
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	92	336	84	0	562

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	210	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.93	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.319	-
Pot Cap-1 Maneuver	0	797	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	797	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.11	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	797
HCM Lane V/C Ratio	-	-	0.116
HCM Ctrl Dly (s/v)	-	-	10.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.4

HCM 7th Signalized Intersection Summary

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

01/10/2026

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↘	↑	↘	↗
Traffic Volume (veh/h)	257	369	148	247	286	108
Future Volume (veh/h)	257	369	148	247	286	108
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1870	1870	1841	1841	1841	1781
Adj Flow Rate, veh/h	271	388	183	305	345	130
Peak Hour Factor	0.95	0.95	0.81	0.81	0.83	0.83
Percent Heavy Veh, %	2	2	4	4	4	8
Cap, veh/h	390	329	341	782	660	569
Arrive On Green	0.21	0.21	0.11	0.43	0.38	0.38
Sat Flow, veh/h	1870	1581	1753	1841	1753	1510
Grp Volume(v), veh/h	271	388	183	305	345	130
Grp Sat Flow(s),veh/h/ln	1870	1581	1753	1841	1753	1510
Q Serve(g_s), s	8.0	12.5	0.5	6.9	9.2	3.5
Cycle Q Clear(g_c), s	8.0	12.5	0.5	6.9	9.2	3.5
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	390	329	341	782	660	569
V/C Ratio(X)	0.70	1.18	0.54	0.39	0.52	0.23
Avail Cap(c_a), veh/h	390	329	341	782	660	569
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.0	23.8	23.7	11.9	14.5	12.8
Incr Delay (d2), s/veh	9.8	107.1	1.7	1.5	2.9	0.9
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	14.2	2.4	2.8	3.8	1.2
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	31.8	130.8	25.3	13.4	17.5	13.7
LnGrp LOS	C	F	C	B	B	B
Approach Vol, veh/h	659			488	475	
Approach Delay, s/veh	90.1			17.8	16.4	
Approach LOS	F			B	B	
Timer - Assigned Phs	2			5	6	8
Phs Duration (G+Y+Rc), s	32.0			13.0	19.0	28.0
Change Period (Y+Rc), s	6.5			6.5	6.5	5.4
Max Green Setting (Gmax), s	25.5			6.5	12.5	22.6
Max Q Clear Time (g_c+I1), s	0.0			2.5	0.0	0.0
Green Ext Time (p_c), s	0.0			0.2	0.0	0.0
Intersection Summary						
HCM 7th Control Delay, s/veh			46.8			
HCM 7th LOS			D			
Notes						
User approved pedestrian interval to be less than phase max green.						

Intersection						
Int Delay, s/veh	3.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	254	111	66	307	88	70
Future Vol, veh/h	254	111	66	307	88	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	276	121	72	334	96	76
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	397	0	814	336
Stage 1	-	-	-	-	336	-
Stage 2	-	-	-	-	477	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1162	-	348	706
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	624	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1162	-	326	706
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	586	-
Approach	EB	WB	NB			
HCM Ctrl Dly, s/v	0	1.47	16.19			
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	326	706	-	-	1162	-
HCM Lane V/C Ratio	0.293	0.108	-	-	0.062	-
HCM Ctrl Dly (s/v)	20.6	10.7	-	-	8.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	1.2	0.4	-	-	0.2	-

HCM Signalized Intersection Capacity Analysis

3: N. State St & M21/Lincoln Ave

01/10/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	204	5	16	282	235	3	12	4	388	33	93
Future Volume (vph)	75	204	5	16	282	235	3	12	4	388	33	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	1856		1752	1845	1568		1734		1752	1640	
Flt Permitted	0.53	1.00		0.61	1.00	1.00		0.97		0.74	1.00	
Satd. Flow (perm)	985	1856		1132	1845	1568		1693		1367	1640	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.75	0.75	0.75	0.93	0.93	0.93
Adj. Flow (vph)	83	227	6	18	310	258	4	16	5	417	35	100
RTOR Reduction (vph)	0	1	0	0	0	148	0	3	0	0	60	0
Lane Group Flow (vph)	83	232	0	18	310	110	0	22	0	417	75	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	9%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Effective Green, g (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Grp Cap (vph)	420	792		483	788	669		682		550	660	
v/s Ratio Prot		0.12			c0.17						0.05	
v/s Ratio Perm	0.08			0.02		0.07		0.01		c0.31		
v/c Ratio	0.20	0.29		0.04	0.39	0.16		0.03		0.76	0.11	
Uniform Delay, d1	12.5	13.1		11.7	13.8	12.4		12.6		18.0	13.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.9		0.1	1.5	0.5		0.1		9.4	0.4	
Delay (s)	13.6	14.1		11.8	15.3	12.9		12.7		27.4	13.4	
Level of Service	B	B		B	B	B		B		C	B	
Approach Delay (s/veh)		13.9			14.1			12.7			24.0	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			17.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			11.9		
Intersection Capacity Utilization			66.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	239	77	51	296	3	43	1	31	0	2	14
Future Vol, veh/h	15	239	77	51	296	3	43	1	31	0	2	14
Conflicting Peds, #/hr	3	0	19	19	0	3	0	0	11	11	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	76	76	76	60	60	60	63	63	63
Heavy Vehicles, %	0	6	0	2	4	33	10	100	6	0	50	8
Mvmt Flow	18	288	93	67	389	4	72	2	52	0	3	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	396	0	0	400	0	0	915	920	364	865	965	394
Stage 1	-	-	-	-	-	-	389	389	-	529	529	-
Stage 2	-	-	-	-	-	-	525	531	-	336	436	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.2	7.5	6.26	7.1	7	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.2	6.5	-	6.1	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.2	6.5	-	6.1	6	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.59	4.9	3.354	3.5	4.45	3.372
Pot Cap-1 Maneuver	1173	-	-	1159	-	-	245	189	672	276	212	642
Stage 1	-	-	-	-	-	-	619	469	-	537	457	-
Stage 2	-	-	-	-	-	-	521	396	-	682	506	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1170	-	-	1138	-	-	212	172	653	231	193	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	212	172	-	231	193	-
Stage 1	-	-	-	-	-	-	598	453	-	504	428	-
Stage 2	-	-	-	-	-	-	470	371	-	610	489	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.37			1.22			26.13			12.65		
HCM LOS							D			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	293	1170	-	-	1138	-	-	496
HCM Lane V/C Ratio	0.427	0.015	-	-	0.059	-	-	0.051
HCM Ctrl Dly (s/v)	26.1	8.1	-	-	8.4	-	-	12.7
HCM Lane LOS	D	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	2	0	-	-	0.2	-	-	0.2

Queuing and Blocking Report
Baseline

01/28/2026

Intersection: 3: N. State St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	R	LTR	L	TR
Maximum Queue (ft)	92	186	47	184	110	44	282	88
Average Queue (ft)	42	73	11	96	51	11	142	33
95th Queue (ft)	83	139	35	166	87	37	239	69
Link Distance (ft)		423		550		867		771
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		500		250		500	
Storage Blk Time (%)		0						
Queuing Penalty (veh)		0						

Intersection: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	199	178	138	166	203	125
Average Queue (ft)	98	76	77	81	92	32
95th Queue (ft)	173	130	122	146	162	77
Link Distance (ft)	416			153	190	190
Upstream Blk Time (%)			0	0	1	0
Queuing Penalty (veh)			0	2	1	0
Storage Bay Dist (ft)		150	300			
Storage Blk Time (%)	2	0	0	0		
Queuing Penalty (veh)	9	0	0	1		

Intersection: 8: Union St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	33	35	46	59	127	59
Average Queue (ft)	5	2	14	3	42	13
95th Queue (ft)	22	15	41	26	85	44
Link Distance (ft)		748		726	880	538
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		140			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: M21/Lincoln Ave (Ped Push Button) & Dummy Node B

Movement	SB
Directions Served	LR
Maximum Queue (ft)	40
Average Queue (ft)	17
95th Queue (ft)	43
Link Distance (ft)	349
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Dummy Node A

Movement	NB
Directions Served	LR
Maximum Queue (ft)	40
Average Queue (ft)	20
95th Queue (ft)	46
Link Distance (ft)	694
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 15: M66/N. Dexter St & Driveway

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	66	9	15
Average Queue (ft)	35	0	1
95th Queue (ft)	58	7	9
Link Distance (ft)	114	680	680
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Driveway & M21/Lincoln Ave (Ped Push Button)

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	23	59	44	97	79
Average Queue (ft)	2	17	2	40	36
95th Queue (ft)	12	48	23	73	62
Link Distance (ft)	153		835	101	101
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)		100			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Network Summary

Network wide Queuing Penalty: 14

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↗			↗
Traffic Vol, veh/h	0	115	638	99	0	599
Future Vol, veh/h	0	115	638	99	0	599
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	125	693	108	0	651
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	401	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	600	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	600	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	12.57	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	600		-		
HCM Lane V/C Ratio	-	0.208		-		
HCM Ctrl Dly (s/v)	-	12.6		-		
HCM Lane LOS	-	B		-		
HCM 95th %tile Q(veh)	-	0.8		-		

HCM 7th Signalized Intersection Summary

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

01/10/2026

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (veh/h)	320	419	180	229	528	225
Future Volume (veh/h)	320	419	180	229	528	225
Initial Q (Qb), veh	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach	No			No	No	
Adj Sat Flow, veh/h/ln	1856	1856	1856	1856	1870	1870
Adj Flow Rate, veh/h	352	460	191	244	562	239
Peak Hour Factor	0.91	0.91	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	3	3	3	2	2
Cap, veh/h	387	328	311	789	671	597
Arrive On Green	0.21	0.21	0.11	0.43	0.38	0.38
Sat Flow, veh/h	1856	1572	1767	1856	1781	1585
Grp Volume(v), veh/h	352	460	191	244	562	239
Grp Sat Flow(s),veh/h/ln	1856	1572	1767	1856	1781	1585
Q Serve(g_s), s	11.1	12.5	1.9	5.2	17.2	6.6
Cycle Q Clear(g_c), s	11.1	12.5	1.9	5.2	17.2	6.6
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	387	328	311	789	671	597
V/C Ratio(X)	0.91	1.40	0.61	0.31	0.84	0.40
Avail Cap(c_a), veh/h	387	328	311	789	671	597
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.2	23.8	24.1	11.4	17.0	13.7
Incr Delay (d2), s/veh	28.0	199.3	3.5	1.0	11.9	2.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	22.5	2.6	2.2	8.4	2.4
Unsig. Movement Delay, s/veh						
LnGrp Delay(d), s/veh	51.2	223.0	27.6	12.4	28.9	15.7
LnGrp LOS	D	F	C	B	C	B
Approach Vol, veh/h	812			435	801	
Approach Delay, s/veh	148.5			19.1	25.0	
Approach LOS	F			B	C	
Timer - Assigned Phs	2		5		6	8
Phs Duration (G+Y+Rc), s	32.0		13.0		19.0	28.0
Change Period (Y+Rc), s	6.5		6.5		6.5	5.4
Max Green Setting (Gmax), s	25.5		6.5		12.5	22.6
Max Q Clear Time (g_c+I1), s	0.0		3.9		0.0	0.0
Green Ext Time (p_c), s	0.0		0.1		0.0	0.0
Intersection Summary						
HCM 7th Control Delay, s/veh	72.7					
HCM 7th LOS	E					
Notes						
User approved pedestrian interval to be less than phase max green.						

Intersection						
Int Delay, s/veh	2.8					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	446	99	55	346	63	73
Future Vol, veh/h	446	99	55	346	63	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	485	108	60	376	68	79

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	592
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	2.218
Pot Cap-1 Maneuver	-	-	983
Stage 1	-	-	-
Stage 2	-	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	983
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	NB
HCM Ctrl Dly, s/v	0	1.22	18.76
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	241	543	-	-	983	-
HCM Lane V/C Ratio	0.284	0.146	-	-	0.061	-
HCM Ctrl Dly (s/v)	25.7	12.8	-	-	8.9	-
HCM Lane LOS	D	B	-	-	A	-
HCM 95th %tile Q(veh)	1.1	0.5	-	-	0.2	-

HCM Signalized Intersection Capacity Analysis

3: N. State St & M21/Lincoln Ave

01/10/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	370	3	9	263	482	4	18	7	367	21	90
Future Volume (vph)	107	370	3	9	263	482	4	18	7	367	21	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	1860		1770	1863	1583		1760		1752	1620	
Flt Permitted	0.56	1.00		0.36	1.00	1.00		0.97		0.73	1.00	
Satd. Flow (perm)	1048	1860		677	1863	1583		1715		1337	1620	
Peak-hour factor, PHF	0.80	0.80	0.80	0.94	0.94	0.94	0.60	0.60	0.60	0.84	0.84	0.84
Adj. Flow (vph)	134	462	4	10	280	513	7	30	12	437	25	107
RTOR Reduction (vph)	0	1	0	0	0	294	0	7	0	0	64	0
Lane Group Flow (vph)	134	466	0	10	280	219	0	42	0	437	68	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	6%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Effective Green, g (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Grp Cap (vph)	447	794		289	795	676		690		538	652	
v/s Ratio Prot		c0.25			0.15						0.04	
v/s Ratio Perm	0.13			0.01		0.14		0.02		c0.33		
v/c Ratio	0.30	0.59		0.03	0.35	0.32		0.06		0.81	0.10	
Uniform Delay, d1	13.2	15.3		11.7	13.5	13.3		12.8		18.6	13.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.7	3.2		0.2	1.2	1.3		0.2		12.6	0.3	
Delay (s)	14.9	18.5		11.9	14.7	14.6		13.0		31.1	13.4	
Level of Service	B	B		B	B	B		B		C	B	
Approach Delay (s/veh)		17.7			14.6			13.0			27.0	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			19.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			11.9		
Intersection Capacity Utilization			70.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	444	27	18	375	2	12	13	24	2	5	15
Future Vol, veh/h	18	444	27	18	375	2	12	13	24	2	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	95	95	95	80	80	80	60	60	60
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	50	0	0
Mvmt Flow	19	472	29	19	395	2	15	16	30	3	8	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	397	0	0	501	0	0	962	960	488	953	973	396
Stage 1	-	-	-	-	-	-	525	525	-	434	434	-
Stage 2	-	-	-	-	-	-	437	435	-	520	539	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.1	6.5	6.2	7.6	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.5	4	3.3	3.95	4	3.3
Pot Cap-1 Maneuver	1156	-	-	1058	-	-	238	259	584	196	254	658
Stage 1	-	-	-	-	-	-	540	533	-	517	585	-
Stage 2	-	-	-	-	-	-	602	584	-	461	525	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1156	-	-	1058	-	-	213	250	584	168	245	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	213	250	-	168	245	-
Stage 1	-	-	-	-	-	-	531	524	-	508	574	-
Stage 2	-	-	-	-	-	-	561	574	-	416	516	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.3	0.39	18.48	14.92
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	328	1156	-	-	1058	-	-	400
HCM Lane V/C Ratio	0.187	0.017	-	-	0.018	-	-	0.092
HCM Ctrl Dly (s/v)	18.5	8.2	-	-	8.5	-	-	14.9
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.1	-	-	0.3

Queuing and Blocking Report
Baseline

01/28/2026

Intersection: 3: N. State St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	R	LTR	L	TR
Maximum Queue (ft)	199	282	30	178	174	67	294	107
Average Queue (ft)	81	136	5	88	85	15	142	31
95th Queue (ft)	163	237	23	155	141	46	238	73
Link Distance (ft)		423		547		867		771
Upstream Blk Time (%)		1						
Queuing Penalty (veh)		0						
Storage Bay Dist (ft)	200		500		250		500	
Storage Blk Time (%)	1	1						
Queuing Penalty (veh)	5	1						

Intersection: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	321	235	130	162	240	166
Average Queue (ft)	155	102	85	86	171	54
95th Queue (ft)	276	205	127	146	245	113
Link Distance (ft)	417			133	172	172
Upstream Blk Time (%)	0		0	1	9	0
Queuing Penalty (veh)	0		0	6	34	1
Storage Bay Dist (ft)		150	300			
Storage Blk Time (%)	13	1	0	1		
Queuing Penalty (veh)	54	2	1	2		

Intersection: 8: Union St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	33	10	29	26	58	50
Average Queue (ft)	5	0	4	1	28	16
95th Queue (ft)	24	7	21	11	53	43
Link Distance (ft)		758		726	880	538
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		140			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: M21/Lincoln Ave (Ped Push Button) & Dummy Node B

Movement	EB
Directions Served	LT
Maximum Queue (ft)	81
Average Queue (ft)	14
95th Queue (ft)	53
Link Distance (ft)	845
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Dummy Node A

Movement	EB	WB	WB
Directions Served	TR	L	T
Maximum Queue (ft)	16	40	28
Average Queue (ft)	1	2	1
95th Queue (ft)	11	18	15
Link Distance (ft)	547		417
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: M66/N. Dexter St & Driveway

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	103	54	48
Average Queue (ft)	45	4	3
95th Queue (ft)	79	26	23
Link Distance (ft)	117	690	690
Upstream Blk Time (%)	1		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Driveway & M21/Lincoln Ave (Ped Push Button)

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	28	64	65	72	73
Average Queue (ft)	1	24	5	31	33
95th Queue (ft)	13	57	35	60	59
Link Distance (ft)	133		845	117	117
Upstream Blk Time (%)					0
Queuing Penalty (veh)					0
Storage Bay Dist (ft)		100			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Network Summary

Network wide Queuing Penalty: 107

APPENDIX H - 2026 MITIGATION CONDITIONS SUMMARY REPORTS

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↗↘			↗
Traffic Vol, veh/h	0	85	309	77	0	517
Future Vol, veh/h	0	85	309	77	0	517
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	92	336	84	0	562

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	210	0
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	6.93	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	3.319	-
Pot Cap-1 Maneuver	0	797	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	797	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	WB	NB	SB
HCM Ctrl Dly, s/v	10.11	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	-	797
HCM Lane V/C Ratio	-	-	0.116
HCM Ctrl Dly (s/v)	-	-	10.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.4

HCM Signalized Intersection Capacity Analysis

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

01/28/2026

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	257	369	148	247	286	108
Future Volume (vph)	257	369	148	247	286	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5	6.5	5.4	5.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.98	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1863	1550	1734	1827	1736	1495
Flt Permitted	1.00	1.00	0.59	1.00	0.95	1.00
Satd. Flow (perm)	1863	1550	1082	1827	1736	1495
Peak-hour factor, PHF	0.95	0.95	0.81	0.81	0.83	0.83
Adj. Flow (vph)	271	388	183	305	345	130
RTOR Reduction (vph)	0	174	0	0	0	98
Lane Group Flow (vph)	271	214	183	305	345	33
Confl. Peds. (#/hr)		1	1			
Heavy Vehicles (%)	2%	2%	4%	4%	4%	8%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	33.1	33.1	33.1	33.1	15.0	15.0
Effective Green, g (s)	33.1	33.1	33.1	33.1	15.0	15.0
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.25	0.25
Clearance Time (s)	6.5	6.5	6.5	6.5	5.4	5.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1027	855	596	1007	434	373
v/s Ratio Prot	0.15			0.17	c0.20	
v/s Ratio Perm		0.14	c0.17			0.02
v/c Ratio	0.26	0.25	0.31	0.30	0.79	0.09
Uniform Delay, d1	7.1	7.0	7.3	7.2	21.1	17.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.7	0.3	0.8	14.0	0.5
Delay (s)	7.7	7.7	7.6	8.0	35.0	17.7
Level of Service	A	A	A	A	D	B
Approach Delay (s/veh)	7.7			7.8	30.3	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			14.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			60.0		Sum of lost time (s)	18.4
Intersection Capacity Utilization			64.4%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	3.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	254	111	66	307	88	70
Future Vol, veh/h	254	111	66	307	88	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	276	121	72	334	96	76
Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	397	0	814	336
Stage 1	-	-	-	-	336	-
Stage 2	-	-	-	-	477	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1162	-	348	706
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	624	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1162	-	326	706
Mov Cap-2 Maneuver	-	-	-	-	326	-
Stage 1	-	-	-	-	724	-
Stage 2	-	-	-	-	586	-
Approach	EB	WB	NB			
HCM Ctrl Dly, s/v	0	1.47	16.19			
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	326	706	-	-	1162	-
HCM Lane V/C Ratio	0.293	0.108	-	-	0.062	-
HCM Ctrl Dly (s/v)	20.6	10.7	-	-	8.3	-
HCM Lane LOS	C	B	-	-	A	-
HCM 95th %tile Q(veh)	1.2	0.4	-	-	0.2	-

HCM Signalized Intersection Capacity Analysis

3: N. State St & M21/Lincoln Ave

01/28/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	204	5	16	282	235	3	12	4	388	33	93
Future Volume (vph)	75	204	5	16	282	235	3	12	4	388	33	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	1856		1752	1845	1568		1734		1752	1640	
Flt Permitted	0.53	1.00		0.61	1.00	1.00		0.97		0.74	1.00	
Satd. Flow (perm)	985	1856		1132	1845	1568		1693		1367	1640	
Peak-hour factor, PHF	0.90	0.90	0.90	0.91	0.91	0.91	0.75	0.75	0.75	0.93	0.93	0.93
Adj. Flow (vph)	83	227	6	18	310	258	4	16	5	417	35	100
RTOR Reduction (vph)	0	1	0	0	0	148	0	3	0	0	60	0
Lane Group Flow (vph)	83	232	0	18	310	110	0	22	0	417	75	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	9%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Effective Green, g (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Grp Cap (vph)	420	792		483	788	669		682		550	660	
v/s Ratio Prot		0.12			c0.17						0.05	
v/s Ratio Perm	0.08			0.02		0.07		0.01		c0.31		
v/c Ratio	0.20	0.29		0.04	0.39	0.16		0.03		0.76	0.11	
Uniform Delay, d1	12.5	13.1		11.7	13.8	12.4		12.6		18.0	13.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.9		0.1	1.5	0.5		0.1		9.4	0.4	
Delay (s)	13.6	14.1		11.8	15.3	12.9		12.7		27.4	13.4	
Level of Service	B	B		B	B	B		B		C	B	
Approach Delay (s/veh)		13.9			14.1			12.7			24.0	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			17.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			11.9		
Intersection Capacity Utilization			66.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	4.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	15	239	77	51	296	3	43	1	31	0	2	14
Future Vol, veh/h	15	239	77	51	296	3	43	1	31	0	2	14
Conflicting Peds, #/hr	3	0	19	19	0	3	0	0	11	11	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	76	76	76	60	60	60	63	63	63
Heavy Vehicles, %	0	6	0	2	4	33	10	100	6	0	50	8
Mvmt Flow	18	288	93	67	389	4	72	2	52	0	3	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	396	0	0	400	0	0	915	920	364	865	965	394
Stage 1	-	-	-	-	-	-	389	389	-	529	529	-
Stage 2	-	-	-	-	-	-	525	531	-	336	436	-
Critical Hdwy	4.1	-	-	4.12	-	-	7.2	7.5	6.26	7.1	7	6.28
Critical Hdwy Stg 1	-	-	-	-	-	-	6.2	6.5	-	6.1	6	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.2	6.5	-	6.1	6	-
Follow-up Hdwy	2.2	-	-	2.218	-	-	3.59	4.9	3.354	3.5	4.45	3.372
Pot Cap-1 Maneuver	1173	-	-	1159	-	-	245	189	672	276	212	642
Stage 1	-	-	-	-	-	-	619	469	-	537	457	-
Stage 2	-	-	-	-	-	-	521	396	-	682	506	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1170	-	-	1138	-	-	212	172	653	231	193	640
Mov Cap-2 Maneuver	-	-	-	-	-	-	212	172	-	231	193	-
Stage 1	-	-	-	-	-	-	598	453	-	504	428	-
Stage 2	-	-	-	-	-	-	470	371	-	610	489	-

Approach	EB			WB			NB			SB		
HCM Ctrl Dly, s/v	0.37			1.22			26.13			12.65		
HCM LOS							D			B		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	293	1170	-	-	1138	-	-	496
HCM Lane V/C Ratio	0.427	0.015	-	-	0.059	-	-	0.051
HCM Ctrl Dly (s/v)	26.1	8.1	-	-	8.4	-	-	12.7
HCM Lane LOS	D	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	2	0	-	-	0.2	-	-	0.2

Queuing and Blocking Report
Baseline

01/28/2026

Intersection: 3: N. State St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	R	LTR	L	TR
Maximum Queue (ft)	119	168	46	217	118	47	276	73
Average Queue (ft)	48	71	12	102	52	10	141	30
95th Queue (ft)	97	132	39	182	92	36	236	60
Link Distance (ft)		423		550		867		771
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		500		250		500	
Storage Blk Time (%)		0		0				
Queuing Penalty (veh)		0		0				

Intersection: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	177	118	131	149	263	254
Average Queue (ft)	63	56	65	57	188	64
95th Queue (ft)	128	96	111	121	295	180
Link Distance (ft)	416			153	190	190
Upstream Blk Time (%)			0	0	29	5
Queuing Penalty (veh)			0	0	57	9
Storage Bay Dist (ft)		150	300			
Storage Blk Time (%)	0	0	0	0		
Queuing Penalty (veh)	2	0	0	0		

Intersection: 8: Union St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	LTR	LTR
Maximum Queue (ft)	33	47	50	31	125	57
Average Queue (ft)	4	2	13	3	40	14
95th Queue (ft)	21	19	40	17	88	44
Link Distance (ft)		748		726	880	538
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	150		140			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: M21/Lincoln Ave (Ped Push Button) & Dummy Node B

Movement	SB
Directions Served	LR
Maximum Queue (ft)	44
Average Queue (ft)	18
95th Queue (ft)	45
Link Distance (ft)	349
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Dummy Node A

Movement	WB	WB	NB
Directions Served	L	T	LR
Maximum Queue (ft)	10	9	43
Average Queue (ft)	0	0	22
95th Queue (ft)	7	7	47
Link Distance (ft)		416	694
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	250		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: M66/N. Dexter St & Driveway

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	127	144	51
Average Queue (ft)	56	25	3
95th Queue (ft)	119	107	25
Link Distance (ft)	114	680	680
Upstream Blk Time (%)	15		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Driveway & M21/Lincoln Ave (Ped Push Button)

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	4	49	36	94	80
Average Queue (ft)	0	19	1	40	34
95th Queue (ft)	3	47	16	72	61
Link Distance (ft)	153		835	101	101
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)		100			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Network Summary

Network wide Queuing Penalty: 69

Timing Report, Sorted By Phase

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

01/28/2026



Phase Number	2	5	6	8
Movement	WBTL	WBL	EBT	NBL
Lead/Lag		Lag	Lead	
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	Max
Maximum Split (s)	39.6	6.5	33.1	20.4
Maximum Split (%)	66.0%	10.8%	55.2%	34.0%
Minimum Split (s)	24.5	11.5	36.5	25.4
Yellow Time (s)	3.4	3.4	3.4	3
All-Red Time (s)	3.1	3.1	3.1	2.4
Minimum Initial (s)	10	5	10	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)			11	7
Flash Don't Walk (s)			19	13
Dual Entry	Yes	No	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	48.5	21.6	48.5	28.1
End Time (s)	28.1	28.1	21.6	48.5
Yield/Force Off (s)	21.6	21.6	15.1	43.1
Yield/Force Off 170(s)	21.6	21.6	56.1	30.1
Local Start Time (s)	0	33.1	0	39.6
Local Yield (s)	33.1	33.1	26.6	54.6
Local Yield 170(s)	33.1	33.1	7.6	41.6

Intersection Summary

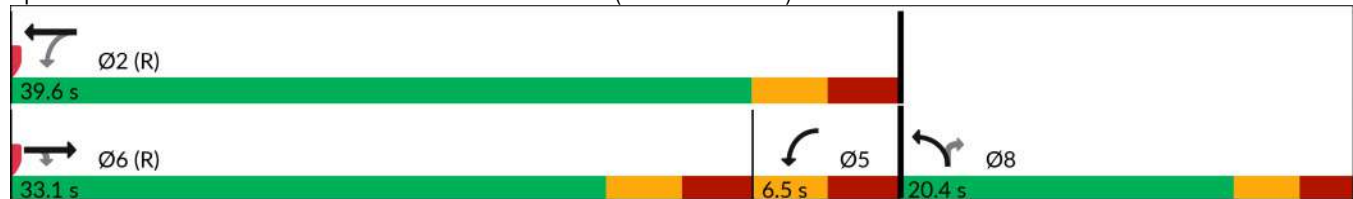
Cycle Length 60

Control Type Actuated-Coordinated

Natural Cycle 75

Offset: 48.5 (81%), Referenced to phase 2:WBTL and 6:EBT, Start of Green

Splits and Phases: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)



Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	115	638	99	0	599
Future Vol, veh/h	0	115	638	99	0	599
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	125	693	108	0	651
Major/Minor	Minor1	Major1		Major2		
Conflicting Flow All	-	401	0	0	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	6.93	-	-	-	-
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	3.319	-	-	-	-
Pot Cap-1 Maneuver	0	600	-	-	0	-
Stage 1	0	-	-	-	0	-
Stage 2	0	-	-	-	0	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	-	600	-	-	-	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Approach	WB	NB		SB		
HCM Ctrl Dly, s/v	12.57	0		0		
HCM LOS	B					
Minor Lane/Major Mvmt	NBT	NBRWBLn1		SBT		
Capacity (veh/h)	-	600		-		
HCM Lane V/C Ratio	-	0.208		-		
HCM Ctrl Dly (s/v)	-	12.6		-		
HCM Lane LOS	-	B		-		
HCM 95th %tile Q(veh)	-	0.8		-		

HCM Signalized Intersection Capacity Analysis

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

01/28/2026

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↗	↘	↑	↘	↗
Traffic Volume (vph)	320	419	180	229	528	225
Future Volume (vph)	320	419	180	229	528	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12
Total Lost time (s)	6.5	6.5	6.5	6.5	5.4	5.4
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1845	1568	1752	1845	1770	1583
Flt Permitted	1.00	1.00	0.46	1.00	0.95	1.00
Satd. Flow (perm)	1845	1568	852	1845	1770	1583
Peak-hour factor, PHF	0.91	0.91	0.94	0.94	0.94	0.94
Adj. Flow (vph)	352	460	191	244	562	239
RTOR Reduction (vph)	0	290	0	0	0	160
Lane Group Flow (vph)	352	170	191	244	562	79
Heavy Vehicles (%)	3%	3%	3%	3%	2%	2%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	6		5	2	8	
Permitted Phases		6	2			8
Actuated Green, G (s)	29.5	29.5	41.5	41.5	26.6	26.6
Effective Green, g (s)	29.5	29.5	41.5	41.5	26.6	26.6
Actuated g/C Ratio	0.37	0.37	0.52	0.52	0.33	0.33
Clearance Time (s)	6.5	6.5	6.5	6.5	5.4	5.4
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	680	578	503	957	588	526
v/s Ratio Prot	c0.19		c0.03	0.13	c0.32	
v/s Ratio Perm		0.11	0.17			0.05
v/c Ratio	0.52	0.29	0.38	0.25	0.96	0.15
Uniform Delay, d1	19.7	17.9	15.1	10.7	26.1	18.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	1.3	0.5	0.6	27.7	0.6
Delay (s)	22.5	19.2	15.6	11.3	53.8	19.4
Level of Service	C	B	B	B	D	B
Approach Delay (s/veh)	20.6			13.2	43.5	
Approach LOS	C			B	D	
Intersection Summary						
HCM 2000 Control Delay (s/veh)			28.0	HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			80.0	Sum of lost time (s)		18.4
Intersection Capacity Utilization			71.4%	ICU Level of Service		C
Analysis Period (min)			15			
c Critical Lane Group						

Intersection								
Int Delay, s/veh	2.8							
Movement	EBT	EBR	WBL	WBT	NBL	NBR		
Lane Configurations								
Traffic Vol, veh/h	446	99	55	346	63	73		
Future Vol, veh/h	446	99	55	346	63	73		
Conflicting Peds, #/hr	0	0	0	0	0	0		
Sign Control	Free	Free	Free	Free	Stop	Stop		
RT Channelized	-	None	-	None	-	None		
Storage Length	-	-	100	-	0	0		
Veh in Median Storage, #	0	-	-	0	0	-		
Grade, %	0	-	-	0	0	-		
Peak Hour Factor	92	92	92	92	92	92		
Heavy Vehicles, %	2	2	2	2	2	2		
Mvmt Flow	485	108	60	376	68	79		
Major/Minor	Major1		Major2		Minor1			
Conflicting Flow All	0	0	592	0	1034	539		
Stage 1	-	-	-	-	539	-		
Stage 2	-	-	-	-	496	-		
Critical Hdwy	-	-	4.12	-	6.42	6.22		
Critical Hdwy Stg 1	-	-	-	-	5.42	-		
Critical Hdwy Stg 2	-	-	-	-	5.42	-		
Follow-up Hdwy	-	-	2.218	-	3.518	3.318		
Pot Cap-1 Maneuver	-	-	983	-	257	543		
Stage 1	-	-	-	-	585	-		
Stage 2	-	-	-	-	612	-		
Platoon blocked, %	-	-		-				
Mov Cap-1 Maneuver	-	-	983	-	241	543		
Mov Cap-2 Maneuver	-	-	-	-	241	-		
Stage 1	-	-	-	-	585	-		
Stage 2	-	-	-	-	575	-		
Approach	EB		WB		NB			
HCM Ctrl Dly, s/v	0		1.22		18.76			
HCM LOS	C							
Minor Lane/Major Mvmt	NBLn1		NBLn2		EBT	EBR	WBL	WBT
Capacity (veh/h)	241		543		-	-	983	-
HCM Lane V/C Ratio	0.284		0.146		-	-	0.061	-
HCM Ctrl Dly (s/v)	25.7		12.8		-	-	8.9	-
HCM Lane LOS	D		B		-	-	A	-
HCM 95th %tile Q(veh)	1.1		0.5		-	-	0.2	-

HCM Signalized Intersection Capacity Analysis

3: N. State St & M21/Lincoln Ave

01/28/2026

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	370	3	9	263	482	4	18	7	367	21	90
Future Volume (vph)	107	370	3	9	263	482	4	18	7	367	21	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.97		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	1.00	
Satd. Flow (prot)	1770	1860		1770	1863	1583		1760		1752	1620	
Flt Permitted	0.56	1.00		0.36	1.00	1.00		0.97		0.73	1.00	
Satd. Flow (perm)	1048	1860		677	1863	1583		1715		1337	1620	
Peak-hour factor, PHF	0.80	0.80	0.80	0.94	0.94	0.94	0.60	0.60	0.60	0.84	0.84	0.84
Adj. Flow (vph)	134	462	4	10	280	513	7	30	12	437	25	107
RTOR Reduction (vph)	0	1	0	0	0	294	0	7	0	0	64	0
Lane Group Flow (vph)	134	466	0	10	280	219	0	42	0	437	68	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	0%	6%	0%	3%	3%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Effective Green, g (s)	29.9	29.9		29.9	29.9	29.9		28.2		28.2	28.2	
Actuated g/C Ratio	0.43	0.43		0.43	0.43	0.43		0.40		0.40	0.40	
Clearance Time (s)	6.1	6.1		6.1	6.1	6.1		5.8		5.8	5.8	
Lane Grp Cap (vph)	447	794		289	795	676		690		538	652	
v/s Ratio Prot		c0.25			0.15						0.04	
v/s Ratio Perm	0.13			0.01		0.14		0.02		c0.33		
v/c Ratio	0.30	0.59		0.03	0.35	0.32		0.06		0.81	0.10	
Uniform Delay, d1	13.2	15.3		11.7	13.5	13.3		12.8		18.6	13.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2	1.7	3.2		0.2	1.2	1.3		0.2		12.6	0.3	
Delay (s)	14.9	18.5		11.9	14.7	14.6		13.0		31.1	13.4	
Level of Service	B	B		B	B	B		B		C	B	
Approach Delay (s/veh)		17.7			14.6			13.0			27.0	
Approach LOS		B			B			B			C	
Intersection Summary												
HCM 2000 Control Delay (s/veh)			19.0				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.70									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			11.9		
Intersection Capacity Utilization			70.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	444	27	18	375	2	12	13	24	2	5	15
Future Vol, veh/h	18	444	27	18	375	2	12	13	24	2	5	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	1	1	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	150	-	-	140	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	95	95	95	80	80	80	60	60	60
Heavy Vehicles, %	3	3	3	3	3	3	0	0	0	50	0	0
Mvmt Flow	19	472	29	19	395	2	15	16	30	3	8	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	397	0	0	501	0	0	962	960	488	953	973	396
Stage 1	-	-	-	-	-	-	525	525	-	434	434	-
Stage 2	-	-	-	-	-	-	437	435	-	520	539	-
Critical Hdwy	4.13	-	-	4.13	-	-	7.1	6.5	6.2	7.6	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.6	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.6	5.5	-
Follow-up Hdwy	2.227	-	-	2.227	-	-	3.5	4	3.3	3.95	4	3.3
Pot Cap-1 Maneuver	1156	-	-	1058	-	-	238	259	584	196	254	658
Stage 1	-	-	-	-	-	-	540	533	-	517	585	-
Stage 2	-	-	-	-	-	-	602	584	-	461	525	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1156	-	-	1058	-	-	213	250	584	168	245	658
Mov Cap-2 Maneuver	-	-	-	-	-	-	213	250	-	168	245	-
Stage 1	-	-	-	-	-	-	531	524	-	508	574	-
Stage 2	-	-	-	-	-	-	561	574	-	416	516	-

Approach	EB	WB	NB	SB
HCM Ctrl Dly, s/v	0.3	0.39	18.48	14.92
HCM LOS			C	B

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	328	1156	-	-	1058	-	-	400
HCM Lane V/C Ratio	0.187	0.017	-	-	0.018	-	-	0.092
HCM Ctrl Dly (s/v)	18.5	8.2	-	-	8.5	-	-	14.9
HCM Lane LOS	C	A	-	-	A	-	-	B
HCM 95th %tile Q(veh)	0.7	0.1	-	-	0.1	-	-	0.3

Queuing and Blocking Report
Baseline

01/28/2026

Intersection: 3: N. State St & M21/Lincoln Ave

Movement	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	L	TR	L	T	R	LTR	L	TR
Maximum Queue (ft)	205	246	43	193	204	67	295	105
Average Queue (ft)	80	131	7	91	93	17	145	30
95th Queue (ft)	161	213	29	164	166	49	243	72
Link Distance (ft)		423		547		867		771
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	200		500		250		500	
Storage Blk Time (%)	1	1						
Queuing Penalty (veh)	5	1						

Intersection: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	284	238	132	169	259	146
Average Queue (ft)	134	85	91	95	219	57
95th Queue (ft)	226	155	138	161	278	111
Link Distance (ft)	417			133	172	172
Upstream Blk Time (%)			1	3	30	0
Queuing Penalty (veh)			0	12	111	0
Storage Bay Dist (ft)		150	300			
Storage Blk Time (%)	5	0	1	3		
Queuing Penalty (veh)	21	0	2	5		

Intersection: 8: Union St & M21/Lincoln Ave

Movement	EB	WB	WB	NB	SB
Directions Served	L	L	TR	LTR	LTR
Maximum Queue (ft)	37	32	22	69	54
Average Queue (ft)	7	6	1	28	16
95th Queue (ft)	29	25	11	54	44
Link Distance (ft)			726	880	538
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)	150	140			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Queuing and Blocking Report

Baseline

01/28/2026

Intersection: 11: M21/Lincoln Ave (Ped Push Button) & Dummy Node B

Movement	EB
Directions Served	LT
Maximum Queue (ft)	108
Average Queue (ft)	20
95th Queue (ft)	71
Link Distance (ft)	845
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 13: Dummy Node A

Movement	EB	WB	WB
Directions Served	TR	L	T
Maximum Queue (ft)	6	31	9
Average Queue (ft)	0	1	0
95th Queue (ft)	4	14	6
Link Distance (ft)	547		417
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		250	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 15: M66/N. Dexter St & Driveway

Movement	WB	NB	NB
Directions Served	R	T	TR
Maximum Queue (ft)	126	135	59
Average Queue (ft)	63	34	5
95th Queue (ft)	113	105	32
Link Distance (ft)	117	690	690
Upstream Blk Time (%)	6		
Queuing Penalty (veh)	0		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Driveway & M21/Lincoln Ave (Ped Push Button)

Movement	EB	WB	WB	NB	NB
Directions Served	TR	L	T	L	R
Maximum Queue (ft)	23	67	110	80	66
Average Queue (ft)	1	25	11	33	33
95th Queue (ft)	10	57	59	65	57
Link Distance (ft)	133		845	117	117
Upstream Blk Time (%)				0	
Queuing Penalty (veh)				0	
Storage Bay Dist (ft)		100			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Network Summary

Network wide Queuing Penalty: 158

Timing Report, Sorted By Phase

6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)

01/28/2026

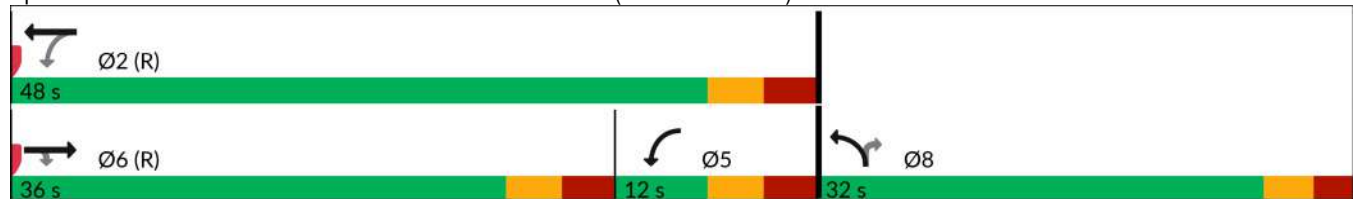


Phase Number	2	5	6	8
Movement	WBTL	WBL	EBT	NBL
Lead/Lag		Lag	Lead	
Lead-Lag Optimize				
Recall Mode	C-Max	None	C-Max	Max
Maximum Split (s)	48	12	36	32
Maximum Split (%)	60.0%	15.0%	45.0%	40.0%
Minimum Split (s)	24.5	11.5	36.5	25.4
Yellow Time (s)	3.4	3.4	3.4	3
All-Red Time (s)	3.1	3.1	3.1	2.4
Minimum Initial (s)	10	5	10	10
Vehicle Extension (s)	3	3	3	3
Minimum Gap (s)	3	3	3	3
Time Before Reduce (s)	0	0	0	0
Time To Reduce (s)	0	0	0	0
Walk Time (s)			11	7
Flash Don't Walk (s)			19	13
Dual Entry	Yes	No	Yes	No
Inhibit Max	Yes	Yes	Yes	Yes
Start Time (s)	0	36	0	48
End Time (s)	48	48	36	0
Yield/Force Off (s)	41.5	41.5	29.5	74.6
Yield/Force Off 170(s)	41.5	41.5	10.5	61.6
Local Start Time (s)	0	36	0	48
Local Yield (s)	41.5	41.5	29.5	74.6
Local Yield 170(s)	41.5	41.5	10.5	61.6

Intersection Summary

Cycle Length	80
Control Type	Actuated-Coordinated
Natural Cycle	80
Offset: 0 (0%), Referenced to phase 2:WBTL and 6:EBT, Start of Green	

Splits and Phases: 6: M66/N. Dexter St & M21/Lincoln Ave (Ped Push Button)



APPENDIX I - CRASH DATA



National Transportation Safety Organization

Crash Detail for 1/1/2020 - 12/31/2024

Criteria: WHERE A.AGENCY_ID = 14 AND CAST(A.CRASH_ID AS VARCHAR) LIKE '101243' AND A.STAT_YEAR = '0'

Study Location ID			County		Community		Study Location						
101243			Ionia		Ionia		N Dexter St AND W Lincoln Ave						
#1	Location: N DEXTER (15.026) 48 feet Sof W LINCOLN AVE							Crash ID: 1980430					
Date:	03/06/2020		Day:	Fri	Hour:	6pm	Weather:	cloudy	Roadway:	dry	Light:	day	
Injy K:	0		Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	2	How:	rr-end	
CVT:	Ionia		Area:		w/i intersection		HBD:	N	Drugs:	N	Complaint #: 54620		
Unit#	Veh Dir	Action Prior	Event 1		Event 2		Event 3		Event 4		Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt		none		none		none		unable to stop	car	ctrfront
2	N	stop on road	veh in transpt		none		none		none		none	car	ctrrear
UD10: 1980430													
#2	Location: W LINCOLN (5.976) 74 feet Eof N DEXTER ST							Crash ID: 1981940					
Date:	03/17/2020		Day:	Tue	Hour:	10a	Weather:	cloudy	Roadway:	dry	Light:	day	
Injy K:	0		Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	2	How:	back	
CVT:	Ionia		Area:		w/i intersection		HBD:	N	Drugs:	N	Complaint #: 62220		
Unit#	Veh Dir	Action Prior	Event 1		Event 2		Event 3		Event 4		Haz Action	Veh Type	Damage
1	W	backing	veh in transpt		none		none		none		unable to stop	pickup	none
2	W	stop on road	veh in transpt		none		none		none		none	car	ctrfront
UD10: 1981940													
#3	Location: N DEXTER (15.034) 5 feet Sof W LINCOLN AVE							Crash ID: 1990896					
Date:	04/03/2020		Day:	Fri	Hour:	3pm	Weather:	clear	Roadway:	dry	Light:	day	
Injy K:	0		Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	2	How:	rr-end	
CVT:	Ionia		Area:		w/i intersection		HBD:	N	Drugs:	N	Complaint #: 73220		
Unit#	Veh Dir	Action Prior	Event 1		Event 2		Event 3		Event 4		Haz Action	Veh Type	Damage
1	N	start on rdwy	veh in transpt		none		none		none		failed to yield	car	rtfront
2	N	stop on road	veh in transpt		none		none		none		none	car	ctrrear
UD10: 1990896													
#4	Location: N DEXTER (15.03) 26 feet Sof W LINCOLN AVE							Crash ID: 1995008					
Date:	04/21/2020		Day:	Tue	Hour:	8pm	Weather:	cloudy	Roadway:	dry	Light:	day	
Injy K:	0		Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	3	How:	rr-end	
CVT:	Ionia		Area:		inter other		HBD:	N	Drugs:	N	Complaint #: 87520		
Unit#	Veh Dir	Action Prior	Event 1		Event 2		Event 3		Event 4		Haz Action	Veh Type	Damage
1	N	stop on road	loss of control		none		none		none		unable to stop	car	ctrfront
2	N	stop on road	veh in transpt		none		none		none		none	car	ctrrear
UD10: 1995008													



National Transportation Safety Organization

#5 Location: N DEXTER (15.007) 148 feet Sof W LINCOLN AVE

Crash ID: 1994703

Date: 04/22/2020 Day: Wed Hour: 12p Weather: cloudy

Roadway: wet

Light: day

Injy K: 0 Injy A: 0 Injy B: 0 Injy C: 0

Injy 0: 2

How: ss-opp

CVT: Ionia

Area: inter other

HBD: N

Drugs: N

Complaint #: 87920

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	right turn	loss of control	none	none	none	speeding	pickup	lftfront
2	N	stop on road	veh in transpt	none	none	none	none	car	lftside

UD10: [1994703](#)

#6 Location: W LINCOLN (5.989) 143 feet Eof DEXTER

Crash ID: 1998280

Date: 04/28/2020 Day: Tue Hour: 9pm Weather: rain

Roadway: wet

Light: dark/ltd

Injy K: 0 Injy A: 0 Injy B: 0 Injy C: 0

Injy 0: 2

How: angle

CVT: Ionia

Area: inter driveway

HBD: N

Drugs: N

Complaint #: 20 945

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	left turn	veh in transpt	none	none	none	failed to yield	car	lftside
2	W	go straight	veh in transpt	none	none	none	none	car	ctrfront

UD10: [1998280](#)

#7 Location: N DEXTER (15.007) 148 feet Sof W LINCOLN AVE

Crash ID: 2078279

Date: 07/01/2020 Day: Wed Hour: 9pm Weather: clear

Roadway: dry

Light: dark/ltd

Injy K: 0 Injy A: 0 Injy B: 0 Injy C: 0

Injy 0: 2

How: rr-end

CVT: Ionia

Area: straight

HBD: N

Drugs: N

Complaint #: 225220

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	uncoded	none
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2078279](#)

#8 Location: N DEXTER (15) 185 feet Sof W LINCOLN AVE

Crash ID: 2060278

Date: 08/14/2020 Day: Fri Hour: 1pm Weather: clear

Roadway: dry

Light: day

Injy K: 0 Injy A: 0 Injy B: 0 Injy C: 0

Injy 0: 3

How: head-on/lt

CVT: Ionia

Area: inter driveway

HBD: N

Drugs: N

Complaint #: 197920

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	SE	left turn	veh in transpt	none	none	none	imprp turn	car	rtfront
2	N	go straight	veh in transpt	none	none	none	none	car	ctrfront

UD10: [2060278](#)



National Transportation Safety Organization

#9 **Location:** W LINCOLN (5.998) 190 feet Eof N DEXTER ST **Crash ID:** 2073277
Date: 08/17/2020 **Day:** Mon **Hour:** 1pm **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end/lt
CVT: Ionia **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 200920

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	left turn	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2073277](#)

#10 **Location:** N DEXTER (15.016) 100 feet Sof W LINCOLN AVE **Crash ID:** 2093545
Date: 09/28/2020 **Day:** Mon **Hour:** 10a **Weather:** rain **Roadway:** wet **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 246220

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: [2093545](#)

#11 **Location:** W LINCOLN (5.956) 32 feet Wof N DEXTER ST **Crash ID:** 2111734
Date: 10/12/2020 **Day:** Mon **Hour:** 12p **Weather:** cloudy **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 6 **How:** rr-end
CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 259620

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	start on rdwy	veh in transpt	none	none	none	unable to stop	car	lftfront
2	W	start on rdwy	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2111734](#)

#12 **Location:** N DEXTER (15.005) 160 feet Sof W LINCOLN AVE **Crash ID:** 2111736
Date: 10/15/2020 **Day:** Thu **Hour:** 6pm **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 263420

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2111736](#)



National Transportation Safety Organization

#13 Location: N DEXTER (14.997) 200 feet Sof W LINCOLN AVE

Crash ID: 2117742

Date: 10/26/2020

Day: Mon **Hour:** 12p **Weather:** rain

Roadway: wet

Light: day

Injy K: 0

Injy A: 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 3

How: ss-same

CVT: Ionia

Area: straight

HBD: N

Drugs: N

Complaint #: 272220

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	failed to yield	pickup	rtside
2	N	go straight	veh in transpt	none	none	none	none	pickup	lftside

UD10: [2117742](#)

#14 Location: N DEXTER (15) 185 feet Sof W LINCOLN AVE

Crash ID: 2131283

Date: 11/06/2020

Day: Fri **Hour:** 4pm **Weather:** clear

Roadway: dry

Light: day

Injy K: 0

Injy A: 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 3

How: angle

CVT: Ionia

Area: driveway

HBD: N

Drugs: N

Complaint #: 280320

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	left turn	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	car	lftside

UD10: [2131283](#)

#15 Location: N DEXTER (15.02) 79 feet Sof W LINCOLN AVE

Crash ID: 2157172

Date: 12/08/2020

Day: Tue **Hour:** 11a **Weather:** clear

Roadway: dry

Light: day

Injy K: 0

Injy A: 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 2

How: ss-opp

CVT: Ionia

Area: inter driveway

HBD: N

Drugs: N

Complaint #: 306120

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	left turn	veh in transpt	none	none	none	failed to yield	car	rtfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtrear

UD10: [2157172](#)

#16 Location: W LINCOLN (5.966) 21 feet Eof N DEXTER ST

Crash ID: 2177039

Date: 01/06/2021

Day: Wed **Hour:** 3pm **Weather:** cloudy

Roadway: dry

Light: day

Injy K: 0

Injy A: 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 4

How: rr-end

CVT: Ionia

Area: w/i intersection

HBD: N

Drugs: N

Complaint #: 5320

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	W	slow/stop on rd	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: [2177039](#)



National Transportation Safety Organization

#17 Location: W LINCOLN (5.99) 148 feet Eof N DEXTER ST **Crash ID:** 2203268
Date: 01/16/2021 **Day:** Sat **Hour:** 10a **Weather:** cloudy **Roadway:** wet **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 1 **How:** angle
CVT: Ionia **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 12521

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	veh in transpt	none	none	none	failed to yield	car	rtside
2	W	go straight	veh in transpt	none	none	none	none	car	ctrfront

UD10: [2203268](#)

#18 Location: N DEXTER (15.015) 106 feet Sof W LINCOLN AVE **Crash ID:** 2187530
Date: 01/17/2021 **Day:** Sun **Hour:** 6pm **Weather:** snow **Roadway:** wet **Light:** dark/ltd
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 13621

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	equip fail	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	lftrear

UD10: [2187530](#)

#19 Location: N DEXTER (15.007) 148 feet SEof W LINCOLN AVE **Crash ID:** 2193206
Date: 01/28/2021 **Day:** Thu **Hour:** 2pm **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end/lft
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 23821

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	start on rdwy	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2193206](#)

#20 Location: N DEXTER (15.024) 58 feet SWof W LINCOLN AVE **Crash ID:** 2198817
Date: 02/04/2021 **Day:** Thu **Hour:** 5pm **Weather:** snow **Roadway:** snow **Light:** dusk
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** ss-opp
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 30621

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	right turn	loss of control	none	none	none	speeding	car	lftfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	lftfront

UD10: [2198817](#)



National Transportation Safety Organization

#21 **Location:** W LINCOLN (5.979) 90 feet Eof N DEXTER ST **Crash ID:** 2203270
Date: 02/05/2021 **Day:** Fri **Hour:** 4pm **Weather:** snow **Roadway:** snow **Light:** dusk
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** ss-same
CVT: Ionia **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 31521

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	change lanes	veh in transpt	none	none	none	failed to yield	car	rtfront
2	W	go straight	veh in transpt	none	none	none	none	pickup	lftfront

UD10: [2203270](#)

#22 **Location:** W LINCOLN (5.956) 32 feet Wof N DEXTER ST **Crash ID:** 2216072
Date: 02/09/2021 **Day:** Tue **Hour:** 5am **Weather:** snow **Roadway:** snow **Light:** dark/ltd
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 34721

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2216072](#)

#23 **Location:** N DEXTER (14.997) 201 feet SEof W LINCOLN AVE **Crash ID:** 2229897
Date: 03/15/2021 **Day:** Mon **Hour:** 5pm **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 65721

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	start on rdwy	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2229897](#)

#24 **Location:** W LINCOLN (5.995) 174 feet Eof N DEXTER ST **Crash ID:** 2237889
Date: 03/26/2021 **Day:** Fri **Hour:** 8pm **Weather:** cloudy **Roadway:** dry **Light:** dark/ltd
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 1 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 77721

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	change lanes	veh in transpt	none	none	none	unable to stop	car	lftfront
2	W	stop on road	veh in transpt	none	none	none	none	car	rtrear

UD10: [2237889](#)



National Transportation Safety Organization

#25 Location: N DEXTER (14.997) 201 feet Sof W LINCOLN AVE

Crash ID: 2247119

Date: 04/13/2021 **Day:** Tue **Hour:** 3pm **Weather:** clear

Roadway: dry

Light: day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 2

How: rr-end

CVT: Ionia **Area:** driveway

HBD: N

Drugs: N

Complaint #: 95621

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2247119](#)

#26 Location: W LINCOLN (5.966) 21 feet Eof N DEXTER ST

Crash ID: 2346353

Date: 08/18/2021 **Day:** Wed **Hour:** 5pm **Weather:** clear

Roadway: dry

Light: day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 1

How: back

CVT: Ionia **Area:** inter other

HBD: N

Drugs: N

Complaint #: 231021

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	backing	veh parked	none	none	none	unknown	other	none
2	W	stop on road	veh in transpt	none	none	none	none	car	ctrfront

UD10: [2346353](#)

#27 Location: W LINCOLN (6) 201 feet Eof DEXTER ST

Crash ID: 2354562

Date: 08/31/2021 **Day:** Tue **Hour:** 12p **Weather:** clear

Roadway: dry

Light: day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 2

How: head-on/lt

CVT: Ionia **Area:** driveway

HBD: N

Drugs: N

Complaint #: 246421

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	SE	left turn	veh in transpt	none	none	none	imprp turn	car	lftfront
2	N	left turn	veh in transpt	none	none	none	none	car	lftrear

UD10: [2354562](#)

#28 Location: W LINCOLN (5.955) 37 feet Wof N DEXTER ST

Crash ID: 2363686

Date: 09/10/2021 **Day:** Fri **Hour:** 5pm **Weather:** clear

Roadway: dry

Light: day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 2

How: rr-end

CVT: Ionia **Area:** inter other

HBD: N

Drugs: N

Complaint #: 255521

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	start on rdwy	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2363686](#)



Crash ID: 2424085

Light: day

How: rr-end

Complaint #: 312821

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 2424085

Crash ID: 2455450

Light: dark/ltd

How: single

Complaint #: 320021

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	other noncoll	none	none	none	other	car	undercrash

UD10: 2455450

Crash ID: 2453277

Light: day

How: back

Complaint #: 327921

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	backing	veh in transpt	none	none	none	imprp lane use	truck/bus	none
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrfront

UD10: 2453277

Crash ID: 2453276

Light: dark/ltd

How: rr-end

Complaint #: 332621

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2453276



National Transportation Safety Organization

#33 **Location:** W LINCOLN (5.958) 21 feet Wof N DEXTER ST **Crash ID:** 2559897

Date: 04/01/2022 **Day:** Fri **Hour:** 9am **Weather:** cloudy **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 77422

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	lftfront
2	E	slow/stop on rd	veh in transpt	none	none	none	none	car	lftrear

UD10: [2559897](#)

#34 **Location:** N DEXTER (15.032) 16 feet Sof W LINCOLN AVE **Crash ID:** 2568784

Date: 05/03/2022 **Day:** Tue **Hour:** 8pm **Weather:** rain **Roadway:** wet **Light:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** angle

CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 105922

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	rtfront
2	N	left turn	veh in transpt	none	none	none	none	car	lftside

UD10: [2568784](#)

#35 **Location:** N DEXTER (15.029) 32 feet Sof W LINCOLN AVE **Crash ID:** 2589805

Date: 05/17/2022 **Day:** Tue **Hour:** 5pm **Weather:** clear **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 118322

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	rtfront
2	N	stop on road	veh in transpt	none	none	none	none	car	lftrear

UD10: [2589805](#)

#36 **Location:** N DEXTER (15.007) 148 feet Sof E W LINCOLN AVE **Crash ID:** 2666578

Date: 09/01/2022 **Day:** Thu **Hour:** 7pm **Weather:** clear **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 219822

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2666578](#)



National Transportation Safety Organization

#37 Location: N DEXTER (14.997) 200 feet Sof W LINCOLN AVE

Crash ID: 2713701

Date: 10/31/2022 **Day:** Mon **Hour:** 3pm **Weather:** cloudy

Roadway: dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 3 **How:** rr-end

CVT: Ionia **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 273922

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrear

UD10: [2713701](#)

#38 Location: W LINCOLN (5.977) 79 feet Eof N DEXTER ST

Crash ID: 2825334

Date: 02/17/2023 **Day:** Fri **Hour:** 5pm **Weather:** cloudy

Roadway: wet **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 3 **How:** angle

CVT: Ionia **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 38823

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	veh in transpt	none	none	none	failed to yield	car	lftfront
2	W	go straight	veh in transpt	none	none	none	none	car	lftside

UD10: [2825334](#)

#39 Location: W LINCOLN (5.997) 185 feet Eof N DEXTER ST

Crash ID: 2838291

Date: 03/14/2023 **Day:** Tue **Hour:** 11a **Weather:** clear

Roadway: dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 2 **How:** head-on/lt

CVT: Ionia **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 57823

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	NE	left turn	veh in transpt	none	none	none	failed to yield	pickup	rtfront
2	W	go straight	veh in transpt	none	none	none	none	car	lftfront

UD10: [2838291](#)

#40 Location: W LINCOLN (5.962) 0 feet Xof N DEXTER ST

Crash ID: 2839982

Date: 03/15/2023 **Day:** Wed **Hour:** 3pm **Weather:** clear

Roadway: dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 1 **How:** other

CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 59123

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		left turn	veh in transpt	none	none	none	disrgd traffic cntrl	uncoded	none
2	E	go straight	veh in transpt	none	none	none	none	car	lftfront

UD10: [2839982](#)



National Transportation Safety Organization

#41 **Location:** W LINCOLN (5.959) 16 feet Wof N DEXTER ST **Crash ID:** 2875406
Date: 05/02/2023 **Day:** Tue **Hour:** 10a **Weather:** cloudy **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** other
CVT: Ionia **Area:** straight **HBD:** N **Drugs:** Y **Complaint #:** 97523

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	ran off road/r	none	none	none	carels driving	pickup	ctrfront
2	N	nodriver parked	cargo fall	none	none	none	none	car	rtrear

UD10: [2875406](#)

#42 **Location:** N DEXTER (15.033) 11 feet Sof W LINCOLN AVE **Crash ID:** 2881342
Date: 05/02/2023 **Day:** Tue **Hour:** 6am **Weather:** cloudy **Roadway:** wet **Light:** dawn
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 64231823

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	pickup	rtfront
2	E	go straight	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2881342](#)

#43 **Location:** W LINCOLN (5.981) 100 feet Eof N DEXTER ST **Crash ID:** 2879596
Date: 05/10/2023 **Day:** Wed **Hour:** 7pm **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 106623

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	lftfront
2	E	slow/stop on rd	veh in transpt	none	none	none	none	car	rtrear

UD10: [2879596](#)

#44 **Location:** N DEXTER (15.035) 0 feet Nof W LINCOLN AVE **Crash ID:** 2897133
Date: 05/26/2023 **Day:** Fri **Hour:** 11a **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** single
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 122023

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	utility pole	none	none	none	imprp lane use	car	ctrfront

UD10: [2897133](#)



National Transportation Safety Organization

#45 **Location:** W LINCOLN (5.954) 42 feet Wof N DEXTER ST **Crash ID:** 2908370
Date: 06/11/2023 **Day:** Sun **Hour:** 6pm **Weather:** cloudy **Roadway:** wet **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 138523

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	slow/stop on rd	veh in transpt	none	none	none	unable to stop	pickup	rtfront
2	E	stop on road	veh in transpt	none	none	none	none	car	lftrear

UD10: [2908370](#)

#46 **Location:** N DEXTER (15.002) 174 feet Sof W LINCOLN AVE **Crash ID:** 2974681
Date: 09/06/2023 **Day:** Wed **Hour:** 6pm **Weather:** rain **Roadway:** wet **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle
CVT: Ionia **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 220023

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	enter rdwy	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	pickup	rtside

UD10: [2974681](#)

#47 **Location:** W LINCOLN (5.961) 5 feet Wof N DEXTER ST **Crash ID:** 3061623
Date: 10/12/2023 **Day:** Thu **Hour:** 6am **Weather:** clear **Roadway:** dry **Light:** dark/ltd
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 2 **How:** angle
CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** Y **Complaint #:** 255123

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	lftfront
2	N	left turn	veh in transpt	none	none	none	none	pickup	lftrear

UD10: [3061623](#)

#48 **Location:** W LINCOLN (5.981) 100 feet Eof N DEXTER ST **Crash ID:** 3065818
Date: 12/09/2023 **Day:** Sat **Hour:** 2pm **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 298223

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: [3065818](#)



National Transportation Safety Organization

#49 Location: N DEXTER (15.025) 53 feet Sof W LINCOLN AVE

Crash ID: 3098013

Date: 01/17/2024 **Day:** Wed **Hour:** 7pm **Weather:** blowing snow

Roadway: snow

Light: dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 3

How: rr-end

CVT: Ionia

Area: inter other

HBD: N

Drugs: N

Complaint #: 12724

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	lftfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	pickup	rtrear

UD10: [3098013](#)

#50 Location: W LINCOLN (5.962) 0 feet Xof N DEXTER ST

Crash ID: 3201750

Date: 05/31/2024 **Day:** Fri **Hour:** 12p **Weather:** clear

Roadway: dry

Light: day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 1

How: single

CVT: Ionia

Area: w/i intersection

HBD: N

Drugs: N

Complaint #: 124124

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	loss of control	none	none	none	none	motorcycle	lftside

UD10: [3201750](#)

#51 Location: N DEXTER (15.021) 74 feet Sof W LINCOLN AVE

Crash ID: 3277260

Date: 08/29/2024 **Day:** Thu **Hour:** 3pm **Weather:** clear

Roadway: dry

Light: day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 2

How: rr-end

CVT: Ionia

Area: w/i intersection

HBD: N

Drugs: N

Complaint #: 207524

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	backing	equip fail	none	none	none	other	pickup	ctrrear
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrfront

UD10: [3277260](#)

#52 Location: N DEXTER (15.029) 30 feet Sof W LINCOLN AVE

Crash ID: 3347735

Date: 11/18/2024 **Day:** Mon **Hour:** 11a **Weather:** cloudy

Roadway: dry

Light: day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0

Injy 0: 2

How: back

CVT: Ionia

Area: inter other

HBD: N

Drugs: N

Complaint #: 268524

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	backing	veh in transpt	none	none	none	imprp backing	car	none
2	N	stop on road	veh in transpt	none	none	none	none	car	rtfront

UD10: [3347735](#)



National Transportation Safety Organization

#53 **Location:** N DEXTER (15.023) 63 feet Sof W LINCOLN AVE **Crash ID:** 3354632

Date: 11/25/2024 **Day:** Mon **Hour:** 11a **Weather:** clear **Roadway:** dry **Light:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** other

CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 274124

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		stop on road	veh in transpt	none	none	none	unknown	car	none
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrfront

UD10: [3354632](#)



National Transportation Safety Organization

Crash Type

Count	Type
0	uncoded
3	single
0	head-on
3	head-on/lt
7	angle
26	rr-end
2	rr-end/lt
0	rr-end/rt
2	ss-same
3	ss-opp
4	back
3	other
0	unknown
Totals	53

Lighting Conditions

Count	Type
0	uncoded
40	day
1	dawn
2	dusk
10	dark/ltld
0	dark/unltd
0	other
0	unknown
Totals	53

Weather Conditions

Count	Type
0	uncoded
25	clear
17	cloudy
0	fog
5	rain
5	snow
0	wind
0	sleet/hail
1	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	53

Road Condition

Count	Type
0	uncoded
36	dry
13	wet
0	ice
4	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	53

Crashes by Month

Count	Type
5	January
4	February
6	March
6	April
7	May
1	June
1	July
5	August
4	September
5	October
5	November
4	December
Totals	53

Hazardous Action

Count	Type
51	none
2	speeding
0	spd too slow
10	failed to yield
3	disrgd traffic cntrl
0	wrong way
0	left of center
0	imprp passing
2	imprp lane use
2	imprp turn
0	imprp/no signal
1	imprp backing
27	unable to stop
2	other
2	unknown
0	reckls driving
1	carels driving
Totals	103

Unit Type

Count	Type
0	Bicyclist
0	Engineer
103	Vehicle
0	Pedestrian
Totals	103

Crashes by Year

Count	Type
15	2020
17	2021
5	2022
11	2023
5	2024
Totals	53



National Transportation Safety Organization

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	0	4	0	4
Crashes	0	0	0	4	49	53

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	1	1
Not Drinking	0	0	0	4	48	52
Totals	0	0	0	4	49	53

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	1	0	0	0	0	0	0	1
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	1	0	0	0	0	1
6a-7a	0	0	1	0	1	0	0	2
7a-8a	0	0	0	0	0	0	0	0
8a-9a	0	0	0	0	0	0	0	0
9a-10a	0	0	0	0	0	1	0	1
10a-11a	0	1	2	1	0	0	1	5
11a-12p	0	2	2	0	0	1	0	5
12p-1p	0	2	1	1	0	1	0	5
1p-2p	0	1	0	0	0	1	0	2
2p-3p	0	0	0	0	1	0	1	2
3p-4p	0	1	1	2	1	2	0	7
4p-5p	0	0	0	0	0	2	0	2
5p-6p	0	1	1	1	2	2	0	7
6p-7p	2	0	0	1	1	1	0	5
7p-8p	0	0	0	2	1	0	0	3
8p-9p	0	0	2	0	0	1	0	3
9p-10p	0	0	1	1	0	0	0	2
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	0	0	0
Totals	3	8	12	9	7	12	2	53



National Transportation Safety Organization

Crash Detail for 1/1/2020 - 12/31/2024

Criteria: WHERE A.AGENCY_ID = 14 AND CAST(A.CRASH_ID AS VARCHAR) LIKE '101247' AND A.STAT_YEAR = '0'

Study Location ID			County		Community		Study Location					
101247			Ionia		Ionia		N State Rd AND W Lincoln Ave					
#1	Location: N STATE (0.295) 100 feet Nof W LINCOLN AVE						Crash ID: 2044738					
Date:	07/14/2020	Day:	Tue	Hour:	9am	Weather:	clear	Roadway:	dry	Light:	day	
Injy K:	0	Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	7	How:	rr-end	
CVT:	Ionia		Area:		inter other		HBD:	N	Drugs:	N	Complaint #:	168020
Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage			
1	S	go straight	veh in transpt	none	none	none	unable to stop	pickup	none			
2	S	stop on road	veh in transpt	none	none	none	none	pickup	ctrfront			
3	S	stop on road	veh in transpt	none	none	none	none	car	none			
UD10: 2044738												
#2	Location: N STATE (0.304) 148 feet Nof W LINCOLN AVE						Crash ID: 2049557					
Date:	07/19/2020	Day:	Sun	Hour:	6pm	Weather:	clear	Roadway:	dry	Light:	day	
Injy K:	0	Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	2	How:	back	
CVT:	Ionia		Area:		inter driveway		HBD:	N	Drugs:	N	Complaint #:	174320
Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage			
1	E	backing	veh in transpt	none	none	none	imprp backing	car	lftrear			
2	S	go straight	veh in transpt	none	none	none	none	car	lftrear			
UD10: 2049557												
#3	Location: N STATE (0.279) 16 feet Nof W LINCOLN AVE						Crash ID: 2092887					
Date:	09/25/2020	Day:	Fri	Hour:	4pm	Weather:	clear	Roadway:	dry	Light:	day	
Injy K:	0	Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	3	How:	rr-end	
CVT:	Ionia		Area:		w/i intersection		HBD:	N	Drugs:	N	Complaint #:	243520
Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage			
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront			
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrear			
UD10: 2092887												
#4	Location: N STATE (0.276) 0 feet Xof W LINCOLN AVE						Crash ID: 2111735					
Date:	10/16/2020	Day:	Fri	Hour:	12p	Weather:	cloudy	Roadway:	dry	Light:	day	
Injy K:	0	Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	1	How:	rr-end/lt	
CVT:	Ionia		Area:		w/i intersection		HBD:	N	Drugs:	N	Complaint #:	263820
Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage			
1	S	unknown	veh in transpt	none	none	none	unknown	uncoded	none			
2	S	left turn	veh in transpt	none	none	none	none	car	rtrear			
UD10: 2111735												



National Transportation Safety Organization

#5 **Location:** N STATE (0.285) 50 feet NWof W LINCOLN AVE **Crash ID:** 2117743
Date: 10/23/2020 **Day:** Fri **Hour:** 1pm **Weather:** rain **Roadway:** wet **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end/lt
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 269520

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: [2117743](#)

#6 **Location:** W LINCOLN (5.766) 15 feet Eof N STATE ST **Crash ID:** 2151351
Date: 11/24/2020 **Day:** Tue **Hour:** 5pm **Weather:** rain **Roadway:** wet **Light:** dark/lt
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** head-on/lt
CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 295720

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	left turn	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront
2	W	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	pickup	rtfront

UD10: [2151351](#)

#7 **Location:** W LINCOLN (5.774) 60 feet NEof N STATE ST **Crash ID:** 2162227
Date: 12/12/2020 **Day:** Sat **Hour:** 2pm **Weather:** rain **Roadway:** wet **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 309220

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	start on rdwy	veh in transpt	none	none	none	unable to stop	pickup	none
2	W	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2162227](#)

#8 **Location:** W LINCOLN (5.752) 58 feet SWof N STATE ST **Crash ID:** 2216071
Date: 02/24/2021 **Day:** Wed **Hour:** 3pm **Weather:** cloudy **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 47421

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	lftfront
2	E	slow/stop on rd	veh in transpt	none	none	none	none	car	rtrear

UD10: [2216071](#)



National Transportation Safety Organization

#9 **Location:** N STATE (0.296) 106 feet Nof W LINCOLN AVE **Crash ID:** 2287714
Date: 06/03/2021 **Day:** Thu **Hour:** 7am **Weather:** fog **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 150521

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	truck/bus	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	truck/bus	ctrfront
3	S	stop on road	veh in transpt	none	none	none	none	truck/bus	ctrrear

UD10: [2287714](#)

#10 **Location:** W LINCOLN (5.746) 90 feet Wof N STATE RD **Crash ID:** 2436619
Date: 11/09/2021 **Day:** Tue **Hour:** 12p **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** angle
CVT: Ionia **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 309721

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	veh in transpt	none	none	none	failed to yield	uncoded	lftfront
2	E	go straight	veh in transpt	none	none	none	none	car	rtfront

UD10: [2436619](#)

#11 **Location:** W LINCOLN (5.763) 0 feet Xof N STATE RD **Crash ID:** 2431471
Date: 11/12/2021 **Day:** Fri **Hour:** 4am **Weather:** rain **Roadway:** wet **Light:** dark/ltd
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** head-on/lt
CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 312621

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	SE	left turn	veh in transpt	none	none	none	failed to yield	car	rtfront
2	N	go straight	veh in transpt	none	none	none	none	car	ctrfront

UD10: [2431471](#)

#12 **Location:** W LINCOLN (5.747) 84 feet Wof N STATE RD **Crash ID:** 2431472
Date: 11/19/2021 **Day:** Fri **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end
CVT: Ionia **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 319321

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	W	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: [2431472](#)



Crash ID: 2469940

Light: day

How: rr-end

Complaint #: 353421

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2469940

Crash ID: 2476369

Light: day

How: ss-same

Complaint #: 356621

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	enter rdwy	veh in transpt	none	none	none	failed to yield	car	lftfront
2	E	go straight	veh in transpt	none	none	none	none	pickup	rtfront

UD10: 2476369

Crash ID: 2499581

Light: day

How: ss-opp

Complaint #: 25622

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	NW	right turn	veh in transpt	none	none	none	speeding	car	lftfront
2	S	stop on road	veh in transpt	none	none	none	none	pickup	lftfront

UD10: 2499581

Crash ID: 2570442

Light: dawn

How: head-on

Complaint #: 100622

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	cross ctrline	none	none	none	imprp lane use	car	lftfront
2	W	stop on road	veh in transpt	none	none	none	none	pickup	lftfront

UD10: 2570442



UD10: 2647769

UD10: 2712487

UD10: 2844021

UD10: 2844022



National Transportation Safety Organization

#21 **Location:** W LINCOLN (5.797) 180 feet Eof N STATE RD **Crash ID:** 2907496
Date: 06/11/2023 **Day:** Sun **Hour:** 2pm **Weather:** cloudy **Roadway:** wet **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 0 **How:** single
CVT: Ionia **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 137923

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	NW	leaving rdwy	ran off road/r	none	none	none	carels driving	car	rtfront

UD10: [2907496](#)

#22 **Location:** W LINCOLN (5.761) 11 feet Wof N STATE RD **Crash ID:** 2939413
Date: 07/12/2023 **Day:** Wed **Hour:** 2pm **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 166023

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	stop on road	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: [2939413](#)

#23 **Location:** W LINCOLN (5.736) 143 feet Wof N STATE RD **Crash ID:** 2967693
Date: 08/24/2023 **Day:** Thu **Hour:** 1pm **Weather:** rain **Roadway:** wet **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** angle
CVT: Ionia **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 209523

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	E	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: [2967693](#)

#24 **Location:** N STATE (0.285) 48 feet Nof W LINCOLN AVE **Crash ID:** 2989231
Date: 09/20/2023 **Day:** Wed **Hour:** 2pm **Weather:** clear **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** back
CVT: Ionia **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 235823

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	backing	veh in transpt	none	none	none	unable to stop	car	ctrrear
2	S	stop on road	veh in transpt	none	none	none	none	car	rtfront

UD10: [2989231](#)



Crash ID: 3033772

Light: dark/ltd

How: head-on/lt

Complaint #: 270123

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	left turn	veh in transpt	none	none	none	failed to yield	pickup	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	car	lftfront

UD10: 3033772

Crash ID: 3045236

Light: day

How: rr-end

Complaint #: 277423

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	truck/bus	ctrfront
2	W	go straight	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3045236

Crash ID: 3128353

Light: day

How: single

Complaint #: 313523

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	pedestrian	none	none	none	failed to yield	car	ctrfront
2		crossing at inter	veh in transpt	none	none	none	none	uncoded	none

UD10: 3128353

Crash ID: 3150318

Light: day

How: back

Complaint #: 63324

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	backing	veh in transpt	none	none	none	failed to yield	uncoded	lftrear
2	S	go straight	veh in transpt	none	none	none	none	pickup	rtside

UD10: 3150318



Crash ID: 3174559

Light: day

How: rr-end

Complaint #: 92024

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		go straight	veh in transpt	none	none	none	unable to stop	uncoded	none
2	S	left turn	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3174559

Crash ID: 3183863

Light: day

How: rr-end

Complaint #: 93324

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	W	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3183863

Crash ID: 3258615

Light: day

How: angle

Complaint #: 189824

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	left turn	veh in transpt	none	none	none	failed to yield	car	rtside
2	W	go straight	veh in transpt	none	none	none	none	car	rtfront

UD10: 3258615

Crash ID: 3264581

Light: day

How: rr-end

Complaint #: 199224

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	uncoded	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear
3		stop on road	veh in transpt	none	none	none	none	uncoded	none

UD10: 3264581



UD10: 3294584

UD10: 3297114

UD10: 3302299

UD10: 3369373



Crash ID: 3353657

Light: day

How: angle

Complaint #: 269524

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1		left turn	veh in transpt	none	none	none	failed to yield	uncoded	rtside
2	N	go straight	veh in transpt	none	none	none	none	pickup	rtfront

UD10: 3353657

Crash ID: 3400906

Light: day

How: back

Complaint #: 295324

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	backing	veh in transpt	none	none	none	imprp backing	car	ctrrear
2	E	stop on road	veh in transpt	none	none	none	none	car	ctrfront

UD10: 3400906

Crash ID: 3388740

Light: dark/ltd

How: head-on

Complaint #: 64731724

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	left of center	car	lftfront
2	W	change lanes	veh in transpt	none	none	none	none	car	ctrfront

UD10: 3388740



National Transportation Safety Organization

Crash Type

Count	Type
0	uncoded
4	single
2	head-on
5	head-on/lt
6	angle
14	rr-end
2	rr-end/lt
0	rr-end/rt
1	ss-same
1	ss-opp
4	back
0	other
0	unknown
Totals	39

Lighting Conditions

Count	Type
0	uncoded
33	day
2	dawn
0	dusk
4	dark/ltd
0	dark/unltd
0	other
0	unknown
Totals	39

Weather Conditions

Count	Type
0	uncoded
24	clear
8	cloudy
1	fog
5	rain
1	snow
0	wind
0	sleet/hail
0	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	39

Road Condition

Count	Type
0	uncoded
29	dry
9	wet
0	ice
1	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	39

Crashes by Month

Count	Type
0	January
2	February
3	March
3	April
0	May
2	June
3	July
4	August
4	September
4	October
8	November
6	December
Totals	39

Hazardous Action

Count	Type
40	none
1	speeding
0	spd too slow
12	failed to yield
3	disrgd traffic cntrl
0	wrong way
1	left of center
0	imprp passing
2	imprp lane use
0	imprp turn
0	imprp/no signal
2	imprp backing
16	unable to stop
1	other
1	unknown
0	reckls driving
1	carels driving
Totals	80

Unit Type

Count	Type
0	Bicyclist
0	Engineer
79	Vehicle
1	Pedestrian
Totals	80

Crashes by Year

Count	Type
7	2020
7	2021
4	2022
9	2023
12	2024
Totals	39



National Transportation Safety Organization

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	4	4	0	8
Crashes	0	0	1	3	35	39

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	0	0
Not Drinking	0	0	1	3	35	39
Totals	0	0	1	3	35	39

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	0	0	0	0	0
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	1	0	1
5a-6a	0	0	0	0	1	0	0	1
6a-7a	0	1	0	0	0	0	0	1
7a-8a	0	0	0	0	1	0	0	1
8a-9a	0	0	0	1	1	0	0	2
9a-10a	0	0	1	1	0	1	0	3
10a-11a	0	0	0	0	0	0	0	0
11a-12p	0	0	0	0	0	1	0	1
12p-1p	1	0	1	0	0	1	0	3
1p-2p	2	1	0	1	2	1	0	7
2p-3p	1	1	0	3	1	1	1	8
3p-4p	0	0	0	1	0	0	0	1
4p-5p	0	0	1	0	0	2	0	3
5p-6p	0	0	2	0	2	0	0	4
6p-7p	1	0	0	0	0	0	0	1
7p-8p	0	0	0	0	1	0	0	1
8p-9p	0	0	0	0	0	0	0	0
9p-10p	0	0	0	0	0	0	1	1
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	0	0	0
Totals	5	3	5	7	9	8	2	39



National Transportation Safety Organization

Crash Detail for 1/1/2020 - 12/31/2024

Criteria: WHERE A.AGENCY_ID = 14 AND CAST(A.CRASH_ID AS VARCHAR) LIKE '101237' AND A.STAT_YEAR = '0'

Study Location ID			County		Community		Study Location					
101237			Ionia		Ionia		Union St AND W Lincoln Ave					
#1	Location: W LINCOLN (6.306) 100 feet NWof UNION ST						Crash ID: 2078280					
Date:	09/01/2020		Day:	Tue	Hour:	4pm	Weather:	cloudy	Roadway:	dry	Light:	day
Injy K:	0		Injy A:	0	Injy B:	0	Injy C:	2	Injy 0:	0	How:	rr-end
CVT:	Ionia		Area:		straight		HBD:	N	Drugs:	N	Complaint #: 218120	
Unit#	Veh Dir	Action Prior	Event 1		Event 2		Event 3	Event 4	Haz Action	Veh Type	Damage	
1	W	go straight	veh parked		none		none	none	unable to stop	car	rtfront	
2	W	nodriver parked	veh in transpt		none		none	none	none	truck/bus	lftrear	
UD10: 2078280												
#2	Location: E LINCOLN (6.334) 48 feet Eof UNION ST						Crash ID: 2243229					
Date:	04/01/2021		Day:	Thu	Hour:	10a	Weather:	cloudy	Roadway:	dry	Light:	day
Injy K:	0		Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	4	How:	rr-end
CVT:	Ionia		Area:		inter other		HBD:	N	Drugs:	N	Complaint #: 83421	
Unit#	Veh Dir	Action Prior	Event 1		Event 2		Event 3	Event 4	Haz Action	Veh Type	Damage	
1	W	go straight	veh in transpt		none		none	none	unable to stop	car	ctrfront	
2	W	slow/stop on rd	veh in transpt		none		none	none	none	car	ctrrear	
UD10: 2243229												
#3	Location: W LINCOLN (6.336) 60 feet Eof UNION ST						Crash ID: 2455451					
Date:	12/01/2021		Day:	Wed	Hour:	3pm	Weather:	cloudy	Roadway:	dry	Light:	day
Injy K:	0		Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	4	How:	rr-end
CVT:	Ionia		Area:		straight		HBD:	N	Drugs:	N	Complaint #: 330821	
Unit#	Veh Dir	Action Prior	Event 1		Event 2		Event 3	Event 4	Haz Action	Veh Type	Damage	
1	W	go straight	veh in transpt		none		none	none	unable to stop	pickup	ctrfront	
2	W	go straight	veh in transpt		none		none	none	none	car	ctrrear	
UD10: 2455451												
#4	Location: W LINCOLN (6.327) 11 feet Eof UNION ST						Crash ID: 2827782					
Date:	02/23/2023		Day:	Thu	Hour:	2pm	Weather:	clear	Roadway:	wet	Light:	day
Injy K:	0		Injy A:	0	Injy B:	0	Injy C:	0	Injy 0:	2	How:	rr-end
CVT:	Ionia		Area:		inter other		HBD:	N	Drugs:	N	Complaint #: 42023	
Unit#	Veh Dir	Action Prior	Event 1		Event 2		Event 3	Event 4	Haz Action	Veh Type	Damage	
1	W	go straight	veh in transpt		none		none	none	unable to stop	car	ctrfront	
2	W	slow/stop on rd	veh in transpt		none		none	none	none	car	ctrrear	
UD10: 2827782												



National Transportation Safety Organization

#5 **Location:** W LINCOLN (6.325) 0 feet Xof UNION ST **Crash ID:** 2894028
Date: 05/22/2023 **Day:** Mon **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 1 **How:** angle
CVT: Ionia **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 118423

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	start on rdwy	veh in transpt	none	none	none	failed to yield	car	rtfront
2	E	go straight	veh in transpt	none	none	none	none	motorcycle	multiple

UD10: [2894028](#)

#6 **Location:** W LINCOLN (6.313) 63 feet Wof UNION ST **Crash ID:** 3294585
Date: 09/23/2024 **Day:** Mon **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **Light:** day
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end
CVT: Ionia **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 228524

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	rtfront
2	E	go straight	veh in transpt	none	none	none	none	car	lftrear

UD10: [3294585](#)

#7 **Location:** UNION (0.259) 16 feet Sof W LINCOLN AVE **Crash ID:** 3294583
Date: 09/24/2024 **Day:** Tue **Hour:** 7am **Weather:** rain **Roadway:** wet **Light:** dark/ltd
Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 0 **How:** single
CVT: Ionia **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 229124

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	pedestrian	none	none	none	other	car	none
2	N	crossing at inter	veh in transpt	none	none	none	none	uncoded	none

UD10: [3294583](#)



National Transportation Safety Organization

Crash Type

Count	Type
0	uncoded
1	single
0	head-on
0	head-on/lt
1	angle
5	rr-end
0	rr-end/lt
0	rr-end/rt
0	ss-same
0	ss-opp
0	back
0	other
0	unknown
Totals	7

Lighting Conditions

Count	Type
0	uncoded
6	day
0	dawn
0	dusk
1	dark/ltd
0	dark/unltd
0	other
0	unknown
Totals	7

Weather Conditions

Count	Type
0	uncoded
1	clear
5	cloudy
0	fog
1	rain
0	snow
0	wind
0	sleet/hail
0	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	7

Road Condition

Count	Type
0	uncoded
5	dry
2	wet
0	ice
0	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	7

Crashes by Month

Count	Type
0	January
1	February
0	March
1	April
1	May
0	June
0	July
0	August
3	September
0	October
0	November
1	December
Totals	7

Hazardous Action

Count	Type
7	none
0	speeding
0	spd too slow
1	failed to yield
0	disrgd traffic cntrl
0	wrong way
0	left of center
0	imprp passing
0	imprp lane use
0	imprp turn
0	imprp/no signal
0	imprp backing
5	unable to stop
1	other
0	unknown
0	reckls driving
0	carels driving
Totals	14

Unit Type

Count	Type
0	Bicyclist
0	Engineer
13	Vehicle
1	Pedestrian
Totals	14

Crashes by Year

Count	Type
1	2020
2	2021
2	2023
2	2024
Totals	7



National Transportation Safety Organization

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	1	3	0	4
Crashes	0	0	1	2	4	7

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	0	0
Not Drinking	0	0	1	2	4	7
Totals	0	0	1	2	4	7

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	0	0	0	0	0
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	0	0	0	0	0	0
6a-7a	0	0	0	0	0	0	0	0
7a-8a	0	0	1	0	0	0	0	1
8a-9a	0	0	0	0	0	0	0	0
9a-10a	0	0	0	0	0	0	0	0
10a-11a	0	0	0	0	1	0	0	1
11a-12p	0	0	0	0	0	0	0	0
12p-1p	0	0	0	0	0	0	0	0
1p-2p	0	0	0	0	0	0	0	0
2p-3p	0	0	0	0	1	0	0	1
3p-4p	0	0	0	1	0	0	0	1
4p-5p	0	2	1	0	0	0	0	3
5p-6p	0	0	0	0	0	0	0	0
6p-7p	0	0	0	0	0	0	0	0
7p-8p	0	0	0	0	0	0	0	0
8p-9p	0	0	0	0	0	0	0	0
9p-10p	0	0	0	0	0	0	0	0
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	0	0	0
Totals	0	2	2	1	2	0	0	7



STAFF REPORT FOR PLANNING COMMISSION AGENDA ITEM

Agenda Item: VIII.1

TO: Planning Commissioners

FROM: Jonathan Bowman, Assistant City Manager

DATE: August 12, 2026

RE: Joint Work Session with City Council

Background:

As data centers have become a hot topic in recent years, staff believe it would be beneficial to schedule a joint work session between Planning Commission and City Council on September 9 to discuss data centers and their potential role and impacts within the City of Ionia. The workshop is being coordinated in collaboration with Michigan State University Extension and will feature a presentation by Associate Professor Jean Hardy, Ph.D., of the College of Communication Arts & Sciences at Michigan State University.

Dr. Hardy will provide an overview of data centers, including background and examples from communities across Michigan. The presentation will provide an opportunity to better understand the nature of data center development, current trends, and the potential community impacts associated with these facilities. Dr. Hardy will also facilitate a discussion focused on identifying and addressing common myths and misconceptions surrounding data centers, allowing City officials to consider the topic from an informed and balanced perspective.

The discussion is particularly timely as the City recently created the T – Technology Innovation Business District and purchased 80 acres for the anticipated development of a high-tech business park on the former Deerfield Correctional Facility property. As the City considers the types of businesses and industries that may be appropriate for this area, it is important for City officials to understand the opportunities, infrastructure considerations, economic development potential, and community impacts that may be associated with data centers.

The September 9 work session is intended as an educational and exploratory conversation. It will provide the Planning Commission and City Council with additional information to inform future discussions regarding land use, zoning, economic development, infrastructure, and the City's overall approach to technology-oriented development within the Technology Innovation Business District and the future high-tech business park. The public will be welcome to attend this work session to listen to the presentation and conversation.

Requested Action / Motion:

Schedule a special work session on data centers for Wednesday, September 9, 2026, at 5:30 PM.

Motion By:

Seconded By: