AUGUST 16, 2024

PROJECT NO: 1909-5772

SENT VIA: EMAIL
JOSIANE.GERVAIS@OTTAWA.CA

City of Ottawa
Planning, Development, and Building Services
Department Metro Hall
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Attention: **Josiane Gervais, P.Eng.**
Project Manager, Infrastructure Approvals

RE: **TRANSPORTATION IMPACT ASSESSMENT UPDATE LETTER**
6160 THUNDER ROAD AND 5348 BOUNDARY ROAD
CITY OF OTTAWA

Dear Josiane,

C.F. Crozier & Associates Inc. (Crozier) was retained by Avenue 31 Capital Inc. to undertake a Transportation Impact Assessment Update Letter in support of a Site Plan Application (SPA) for a proposed car auction lot development located at 6160 Thunder Road and 5348 Boundary Road in the City of Ottawa. The purpose of this letter is to evaluate the transportation related impacts of the proposed development and to recommend mitigation measures, if warranted.

1.0 Background

The 6160 Thunder Road subject property covers an area of approximately 15 hectares and is located in a rural area east of the urban core of Ottawa. The subject property is located south of Highway 417 and near the Amazon Facility east of Boundary Road, and is bound by Thunder Road to the north, treed areas to the south and west, and Boundary Road to the east. With the exception of two dwelling units at Boundary Road, the subject property is vacant and consists of vegetated lands. **Figure 1** outlines the subject property site location.

Per the Site Plan prepared by McRobie Architects and Interior Designers, the car auction lot development proposal consists of several components. A single storey, 745m^2 Gross Floor Area (GFA) operations building and a mechanical shed with 559m^2 of GFA are the two structures included in the development proposal. A loading zone is proposed to facilitate truck access and drop off of vehicles to be sold by the car auction business. Another drop off zone for vehicle pickup is also proposed, with the remainder of the facility serving as the storage area for cars to be auctioned, with a drive aisle network allowing for vehicle access to and from the storage area. **Figure 2** displays the Site Plan, detailing the main characteristics of the development proposal.

Previously, a Transportation Impact Assessment (TIA) was prepared for this same property by Crozier (updated April 2023) in support of Official Plan Amendment (OPA), Zoning By-Law

Amendment (ZBA), and Site Plan Approval (SPA) applications. This study was subsequently cleared by City of Ottawa staff per email correspondence received in October 2023 (refer to **Attachment A**). However, the approved TIS assessed a different development proposal that included three industrial buildings with a total GFA of 58,771m^2. **Attachment B** contains relevant excerpts from that previously completed TIA study.

Given the previous study provided a comprehensive assessment under the old development proposal, it was determined to be appropriate to prepare a TIA update letter in lieu of a full TIA assessment, and only assess differences between the two development proposals relating to the requirements of the City of Ottawa Transportation Impact Assessment Guidelines' (dated June 2017). This approach, along with the noted required scope for the letter listed below, was confirmed with Josiane Gervais of City of Ottawa Infrastructure Approvals:

- Trip Generation Comparison (to the previous industrial warehouse proposal in the approved TIA). This is to check if the new vehicle trips forecasted for the proposal are similar or below what was previously forecasted, which would confirm that adverse traffic impacts will not be introduced.
- A review of the proposed site access connections from a safety perspective. This involves reviewing sight lines and access spacing (per the requirements of the City of Ottawa Private Approach By-Law and the Geometric Design Guide for Canadian Roads).
- Vehicle turning diagrams to outline how the expected design vehicles will navigate the site.
- A review of the proposed parking supply and whether expected parking demands can be accommodated.

The following sections assess the new development proposal based on the City requirements outlined in the Transportation Impact Assessment Guidelines (June 2017).

2.0 Trip Generation

Vehicle trip generation for the proposed development was estimated using information obtained from the proponent (i.e., the vehicle auction business) regarding their operations at similar facilities. Based on the obtained information, approximately 50 trucks per day are expected to visit the site with approximately 30 at the drop zone and 20 at the loading zone, respectively. The proponent notes that most of the truck trips are off peak (i.e., outside for usual commuter rush hours). However, for this assessment, it was assumed that 15% of these truck trips occur in each of the a.m. and p.m. peak hours.

Furthermore, approximately 25 vehicles are expected to travel to the employee / visitor parking area over the course of the day. For the purposes of conservative analysis, it was assumed that 50% of these trips will occur in each of the weekday peak hours, an assumption that captures both employee traffic and vehicle pickups from the online auction process.

Table 1 outlines the trip generation estimates for the previous and current development proposals and a comparison between the two.

Table 1: ITE Trip Generation Estimates

Development Proposal	Peak Hour	Site Trip Generation		
		In	Out	Total
Previous Industrial Development (April 2023)[1]	A.M.	103	31	134
	P.M.	38	105	143
Current Vehicle Auction Facility Development (July 2024)	A.M.	21	21	42
	P.M.	21	21	42
Comparison	A.M.	-82	-10	-92
	P.M.	-17	-84	-101

Note 1: Previous development proposal trip generation taken directly from Table 4-2 of the 6150 Thunder Road TIA (by Crozier, dated April 2023).

As presented in **Table 1**, the proposed development is expected to generate less trips both when considering inbound / outbound trips and when considering each of the critical peak hour analysis periods. In addition, the proposed development trip generation estimate of 42 two-way vehicle trips in both the a.m. and p.m. peak hours represents a relatively low number of trips that is not typically associated with adverse development associated traffic operational impacts.

Given these findings, it is expected that the proposed development will not impose significant impacts on traffic operations in the immediate vicinity of the subject site. The development is expected to have a lesser impact than the previously approved TIA and therefore supported from an traffic impact perspective. Further, no external roadway or transportation related improvements are required to mitigate traffic operations impacts associated with the development proposal. The remaining sections review the site plan from a transportation engineering perspective, with consideration for the site accesses and internal vehicle circulation.

3.0 Site Access Safety Review

This section reviews the proposed site accesses from a transportation safety perspective. The review encompasses the requirements outlined in the City of Ottawa TIA Guidelines Module 4.4 – Access Intersections Design. The safety review includes assessment of the sight distances required and available at each proposed access, spacings between the proposed accesses and to intersections, and the design parameters of the proposed accesses.

There are four site accesses included for the development proposal, each connecting to Thunder Road, are shown on the Site Plan in **Figure 2**. For the purposes of this assessment, the accesses are numbered one to four as follows:

- Access #1: Outbound only access at Loading zone area
- Access #2: Inbound only access at Loading zone area
- Access #3: Full-moves access to employee (passenger car) parking area
- Access #4: Full-moves access at drop zone area

Sight Distance Analysis

The available sightlines at the proposed site accesses were measured and compared to the standards set out in the Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads (GDGCR), June 2017. Sight distance was measured from the site access using the following assumptions:

- A standard driver eye height of 1.08 metres for a passenger car, and 2.3 metres for a typical combination truck, and
- A 4.4 metres setback from the approximate extension of the outer curb to represent a vehicle waiting to exit the site.

Intersection sight distance is calculated using equation 9.9.1 from the GDGCR as outlined below:

*ISD = 0.278 * V major * tg*

Where;
ISD = Intersection Sight Distance
V major = design speed of roadway (km/h)
tg = assumed time gap for vehicles to turn from stop onto roadway (s)

Thunder Road has a posted speed limit of 60 km/h, and an assumed design speed of 70 km/h (*i.e.* 10 km/h addition) is consistent with standard practice in Ontario. Required and available sight distances are outlined in **Table 2**.

Table 2: Sight Distance Analysis

Parameter	Thunder Road and Proposed Site Access #1	Thunder Road and Proposed Site Access #3	Thunder Road and Proposed Site Access #4
Access Type	Outbound Only	Full-Moves	Full-Moves
Design Vehicle	Combination Truck (WB-19)	Passenger Car	Combination Truck (WB-19)
Posted Speed Limit	60 km/h		
Assumed Design Speed	70 km/h		
Base Time Gap (right turn)	10.5 s	6.5 s	10.5 s
Base Time Gap (left turn)	11.5 s	7.5 s	11.5 s
Grade of Roadway	Less than 3%		
Required Sight Distance (right turn)	205 m	130 m	205 m
Required Sight Distance (left turn)	225 m	150 m	225 m
Available Sight Distance (right turn / look left)	> 250 m	> 200 m	> 250 m
Available Sight Distance (left turn / look right)	>250 m	>170 m	To Boundary Road / Thunder Road intersection (facing east)
Minimum Sight Distances Satisfied?	Yes	Yes	Yes

Note 1: Proposed site access #2 permits inbound traffic only, therefore, no sight distance requirements apply.

As outlined in **Table 2**, the minimum sight distance requirements are satisfied at the proposed site access on Thunder Road. It is noted that the sight lines from each of the accesses when looking right (for the left-turn case) go through the field to the east of Thunder Road. While there exists some vegetation that may partially obstruct visibility, visibility is maintained to see vehicles from each of the accesses to the Boundary Road and Thunder Road intersection. However, this is not expected to be a constraint as most of the vegetation will be cut as part of developing the site; while those that remain will be expected to also impact on street visibility reducing operating speeds in line with the visibility from the access. The proponent has noted that some existing trees along Thunder Road are to be removed as part of clearing on the site, and trees will be replanted well back of the stopping location for vehicles, which will improve sight line visibility at the site accesses. In addition, the sight distance requirements noted herein are expected to be conservative for the looking right (left turn) case as the operational speed is expected to be well below the design speed given the proximity of the Boundary Road intersection and the horizontal curvature of Thunder Road, which forces vehicles to operate at lower speeds.

Attachment D contains sketches of the sight lines to demonstrate the visibility requirements and available visibility from the proposed site accesses.

Vehicle Maneuvering Assessment

Vehicle maneuvering diagrams were completed for the design vehicles expected to operate onsite. These include a combination truck (similar to a WB-19 truck) expected at the loading / drop off areas, a pumper fire truck for emergency servicing, and a passenger vehicle (per TAC GDGCR standards) for demonstrating maneuverability throughout the site. The vehicle maneuvering assessment considered where vehicles are expected to operate within the site and demonstrates how the vehicles will maneuver to and from the site accesses within the site footprint without conflicts.

Vehicle turning analysis indicates that there are no expected maneuverability constraints within the site. **Attachment C** contains the vehicle turning diagrams for each vehicle profile.

Adjacent Driveways

Adjacent driveways were considered in the previous TIA study from April 2023. The nearby existing private driveways not located within the subject property limits are spaced more than nine metres from the proposed 6160 Thunder Road site accesses, in accordance with the City's Private Approach By-law No. 2003-477, Section 25.1.g. In addition, the proposed site accesses are also each spaced a minimum of nine metres apart from the end of their curb return radii. Therefore, spacing to adjacent driveways is adequate.

Number of Proposed Accesses

Section 25(1)(a) of the City of Ottawa private Approach By-Law No. 2003-447 defines requirements related to maximum number of site accesses to properties based on property frontage to an adjacent roadway. Given the property frontage of 6160 Thunder Road is approximately 250m long, the 4th and 5th requirement pertaining to Section 25(1)(a) was used in the evaluation, and are listed below:

iv) 46 metres to 150 metres of frontage, one two-way private approach and two on-way private approaches or two two-way private approaches; and

v) For each additional 90 metres of frontage in excess of 150 metres, one two-way private approach or two one-way private approaches.

Therefore, apply both provisions to the site frontage of 250m, which is more than 90 metres in excess of 150m (ie. provision five), the following cases of maximum number of accesses are permissible by the By-Law for the 6160 Thunder Road site frontage:

- One two-way private approach and four one-way private approaches
- Two two-way private approaches and two one-way private approaches
- Three two-way private approaches

Given the development proposes two two-way and two one-way private approaches, the proposed development adheres to the Section 25(1)(a) maximum number of private approaches City requirement.

Access Widths

The widths of the proposed site accesses were compared to the requirements of the City of Ottawa Private Approach By-Law No. 2003-447 Section 25(1)(c-d). The maximum widths at the street line of one-way and two-way accesses are stated in the by-law as 7.5 metres and 9 metres, respectively. As shown on the Site Plan in **Figure 2,** the proposed development adheres to this requirement, with accesses ranging between 7.5m and 9m in width depending on its function.

4.0 Parking and Loading Assessment

This section outlines the parking supply of the development proposal and a comparison of this supply to both the requirements of the City of Ottawa Zoning By-law No. 2008-250, as well as estimated parking demands using information obtained from the proponent. The parking supply assessed includes standard vehicle parking, as well as bicycle parking and loading spaces.

Parking Space Requirements

Part 4, Section 101 of the City of Ottawa Zoning By-Law were used to determine the parking requirements for the proposed development. The "Storage Yard" land use was assessed to be most appropriate for evaluating the proposed parking supply. Section 54 of the By-Law states the definition of Storage Yard to be the following:

> *Storage yard means land used for outdoor storage, including the storage of vehicles, including an automobile salvage operation or scrap yard.*

Therefore, the rates for Storage Yard were applied for the parking assessment. Additionally, given the site falls within Area D "Rural" on Schedule 1A of the City of Ottawa Official Plan, rates from column four that are applicable to that area were applied for the assessment.

Table 3 summarizes the results of the City of Ottawa Zoning By-Law parking requirements and assessment of the parking supply of the development proposal.

Table 3: City of Ottawa Zoning By-Law 2008-250 Parking Space Requirements Evaluation

Land Use	Gross Floor Area	Minimum Vehicle Parking Rate	Minimum Vehicle Parking Required
Storage Yard	1,304 m^2	1 space per 100m^2 GFA	13 spaces
Actual Supply			**26 spaces**
Comparison			**+13 spaces**

As illustrated in **Table 4**, the development proposes a parking supply above the amount required by the City of Ottawa.

It is acknowledged that Element 4.2.1 of the City of Ottawa TIA Guidelines, in addition to requiring assessment by the Zoning By-law, requires a parking demand estimate by first principles to determine if the proposed parking supply is adequate. Based on information obtained from the proponent using expectations at one of their similar facility, a maximum of twenty-five

employees and visitors are expected at the facility at any given time. Given the parking supply of twenty-six spaces, even if each employee and visitor uses a separate vehicle to travel to the site, the parking supply will be adequate to accommodate projected parking demands. **Attachment A** contains correspondence excerpts from the proponent confirming this information.

Bicycle Space Requirements

Per provision 111(1) of the City of Ottawa Zoning By-Law, "Bicycle Parking Space Rates and Provisions", bicycle parking requirements only apply to Downtown, Urban, and Suburban areas or noted villages. Given the subject property falls outside each of these areas, no bicycle parking is required onsite to accommodate the development proposal. This is also aligned with the use of the site and taking into account the site's location relative to any existing residential neighbourhood for potential employees.

Loading Space Requirements

Per provision 113(1)(d) of the City of Ottawa Zoning By-Law, "Loading Space Rates and Provisions", the proposed development is required to have one loading space given the proposed buildings total GFA above 1000m^2. The proposed development includes large loading areas that allow multiple trucks to parking and drop off vehicles for the vehicle auction facility. Therefore, the proposed development satisfies the required loading space provisions of the City's By-Law.

5.0 Conclusions

This Letter is an Addendum to the previously approved 6160 Thunder Road and 5348 Boundary Road Transportation Impact Assessment (dated April 2023) which considered an older development plan (a warehouse). The current development proposal is a car auction centre with a storage facility of approximately 1314m^2 of total building GFA, and four site access connections to Thunder Road.

This Letter has assessed the transportation impacts of the proposed development. The analysis herein regarding the proposed development has resulted in the following key findings:

- Based on a comparison of trip generation forecasts between the previous development proposal and the current one, the currently proposed development is expected to generate fewer two-way trips during both of the weekday peak hour periods.
    - A conservative estimate of 41 two-way trips in each of the weekday a.m. and p.m. peak hours is forecast and well below the approved previous development.
    - The development is not expected to impose any adverse traffic impacts on the surrounding road network, consistent with the previously completed 6160 Thunder Road TIA.

- A sight-line review of the proposed site accesses to Thunder Road was undertaken using the Transportation Association of Canada's Geometric Design Manual for Canadian Roads (TAC Manual) to determine if sufficient sight distances are met. It was determined that the proposed full moves site access can be supported from a transportation

engineering perspective as sight distances fall within acceptable ranges outlined in the TAC Manual.

- Additional safety checks regarding the site accesses were made and confirmed the adequacy of the setup, including access widths, maximum number of accesses, and access spacing. These elements are also consistent with the City of Ottawa Zoning By-Law.
- The proposed parking supply was evaluated against the City of Ottawa Zoning By-Law parking requirements. The proposed vehicle, bicycle, and loading space parking supplies each conform to the applicable Zoning By-Law parking provision requirements.

We trust that this letter has assessed and addressed any concerns the City may have from a transportation engineering perspective regarding the proposed development. Any minor changes to the site plan will not materially affect the conclusions contained within this letter. Should you have any questions or require further information, please contact the undersigned.

Sincerely,

C.F. CROZIER & ASSOCIATES INC.

Peter Apasnore, MASc., P.Eng., PTOE
Project Manager, Transportation

C.F. CROZIER & ASSOCIATES INC.

Aidan Hallsworth, EIT
Engineering Intern, Transportation

/AH

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Figure List

Figure 1: Site Location
Figure 2: Site Plan

Attachments List

Attachment A: City and Proponent Correspondence
Attachment B: 6160 Thunder Road TIA Study Excerpts
Attachment C: Vehicle Turning Diagrams
Attachment D: Sight Line Sketches

ATTACHMENTS

Attachment A - City and Proponent Correspondence

Aidan Hallsworth

From: Gervais, Josiane <josiane.gervais@ottawa.ca>
Sent: July 22, 2024 7:55 AM
To: Aidan Hallsworth
Cc: Peter Apasnore
Subject: Re: Transportation Study Update - Scope Confirmation: 6150 Thunder Road, Ottawa

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Aidan,

The proposed scope for a short memo is acceptable.
As the site has low site generated volumes, I'm most concerned about the sight lines for the proposed accesses and ensuring they meet the PABL (number of accesses, distances between accesses, etc.)

Thank you,

Josiane Gervais, P.Eng.
Project Manager, Infrastructure Approvals | GPRJ Approbation des demandes d'infrastructure
Planning, Development, and Building Services Department | Direction générale des services de la planification, de l'aménagement et du bâtiment
City of Ottawa | Ville d'Ottawa
Tel |Tél. : 613-580- 2424 ext. | poste 21765
web | Site Web : www.ottawa.ca

From: Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Sent: July 15, 2024 1:21 PM
To: Gervais, Josiane <josiane.gervais@ottawa.ca>
Cc: Peter Apasnore <papasnore@cfcrozier.ca>
Subject: Transportation Study Update - Scope Confirmation: 6150 Thunder Road, Ottawa

Good afternoon Josiane,

Nice to e-meet you, hope you had an enjoyable summer weekend. C.F. Crozier & Associates (Crozier) has been retained to undertake transportation engineering services in support of a development application located at 6150 Thunder Road in the City of Ottawa. We are providing a Terms of Reference for an updated development application. We ask if you could review and confirm (or provide comments

on) our proposed scope so we may proceed with our work. We can also arrange a conference call to discuss if you prefer. Any questions, please let us know.

Terms of Reference

Previously, Crozier submitted a Transportation Impact Assessment (Thunder Road & Boundary Road Proposed Industrial Development TIA, dated April 2023) in support of the 6150 Thunder Road warehouse development proposal. All transportation related comments associated with this proposal were cleared by City of Ottawa staff by October of 2023. However, since this time, a new proposal has been brought forward for the same site (see attached). A car auction vehicle storage facility is now proposed, with a one storey administrative building (8,020 ft^2 GFA) and a maintenance structure (6,017 ft^2 GFA), with associated parking areas and accesses being proposed. Compared to the previous development proposal, which included 349,800 ft^2 GFA of industrial warehouse space, the current proposed development significantly reduces the total proposed building floor area.

Crozier requests that the new development proposal be subject to, from a transportation engineering review perspective, a Transportation Update Memo that will consider the following:

- A Trip Generation Comparison (to the previous industrial warehouse proposal in the TIA). This is to check if the new vehicle trips forecasted for the proposal are similar or below what was previously forecasted, which would confirm that adverse traffic impacts will not be introduced.
- A review the proposed site access connections from a safety perspective. This will involve reviewing sight lines and access spacing (per the requirements of the City of Ottawa Private Approach By-Law / TAC).
- Vehicle turning diagrams to outline how the expected design vehicles will navigate the site.
- A review of the proposed parking supply and whether expected parking demands can be accommodated.

We have provided the following preliminary analysis work to allow for more context as to the key issues the memo will review:

Preliminary Trip Generation Comparison

Vehicle Trip Generation (Weekday Peak Hours)		IN	OUT	TOTAL
Previous development proposal Industrial Warehouse development	A.M.	103	31	134
	P.M.	38	105	143
New proposed development Car Auction Facility	A.M.	21	21	42
	P.M.	21	21	42
Comparison	A.M.	-82	-10	-92
	P.M.	-17	-84	-101

Note 1: Previous development proposal trip generation taken directly from Table 4-2 of the 6150 Thunder Road TIA (by Crozier, dated April 2023).
Note 2: Trip Generation for the new development proposal was determined through information provided from the proponent. Approximately 50 trucks are expected to go the drop zone for vehicle drop off over the course of the day. It was assumed that 15% of these truck trips occur in each of the a.m. and p.m. peak hours. Furthermore, approximately 25 vehicles are expected to travel to the employee / visitor parking area over the course of the day. For the purposes of conservative analysis, it was assumed that 50% of these trips are to occur in the each of the weekday peak hours, which is a safe assumption that captures vehicle pickups from the online auction process.

Preliminary Private Approach By-Law Requirements

By-Law No. 2003-447
Site Frontage = ~280m
Maximum number of accesses permitted [per Clause 25(1)(a)(iv-v)] →
"46 metres to 150 metres of frontage, one two-way private approach and two one-way private approaches or two two-way private approaches; and"
"For each additional 90 metres of frontage in excess of 150 metres, one two-way private approach or two one-way private approaches."
Two two-way private approaches (Clause iv) plus two one-way private approaches (Clause v) are provided, in accordance with the By-Law.
In addition, per Clause (25)(1)(g), private approaches associated with the same property are required to be spaced a minimum of 9m apart. This provision has been followed as shown by the measurements of access spacing on the attached site plan.

We look forward to hearing back.

Thanks,

Aidan Hallsworth, EIT
Engineering Intern, Transportation
Office: 905.693.4712
Collingwood | Milton | Toronto | Bradford | Guelph

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CROZIER

From: Geoff Boole
Sent: Thursday, July 11, 2024 1:17 PM
To: Peter Apasnore <papasnore@cfcrozier.ca>
Cc: James Salem <Salem@mcrobie.com>; Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Subject: FW: Thunder Road Site Plan To Be Used for IAAI as the base plan

Peter

Yes go ahead and use this drawing **R9 NP >>>>** as this is the approved plan.

I have also attached drawing R9 which was a previous version same layout but identification related to parking spots in the drop zone, that there is a clear lane through the drop zone and how IAAI intends to layout the yard space. We do not want to show the city the yard and Drop Zone layout as this will just raise too many questions about the IAAI operation. The Drop Zone is the space that vehicles are dropped off and Load out is the pick up area and the yard is for storage of product. You can use the R9 >>> plan for your inhouse information to understand the pathways to travel but not to provide all the details to the city staff.

I assume you are ok with this.

You can also reach out to the city staff member to discuss traffic numbers and provide them this R9 NP drawing.

Now in the first meeting it was noted that you would be providing a listing of question for IAAI to confirm or provide quantities or details about whatever you need them to confirm

- Staff numbers including visitors – we know is 25
- Truck sizes and there was an e-mail from IAAI which was sent to you earlier which identifies truck types and lengths
- Chris Cathcart who manages the local office said in a meeting that there was a total of 55 vehicles in total coming to site to pick up and drop off. But I have not received anything from IAAI confirming this. I would feel more conformable if IAAI confirmed this.
-

Where I am heading, as I would like you to prepare a listing of any question you need IAAI to confirm so you can complete the traffic reply

If you think you don't need any further information we can note this at the next meeting minutes and move forward.

From: Peter Apasnore <papasnore@cfcrozier.ca>
Sent: Thursday, July 11, 2024 12:35 PM
To: Geoff Boole <gboole@ave31.com>
Cc: James Salem <Salem@mcrobie.com>; Aidan Hallsworth <ahallsworth@cfcrozier.ca>
Subject: FW: Thunder Road Site Plan To Be Used for IAAI as the base plan

Hi Geoff,

Can you confirm if we're cleared to use the attached PDF to coordinate our Study terms with City transportation staff.

Thanks,

Aidan Hallsworth

From: Geoff Boole <gboole@ave31.com>
Sent: July 17, 2024 2:03 PM
To: Peter Apasnore
Cc: Aidan Hallsworth; James Salem
Subject: FW: Takeaway from yesterdays design meeting you are going to follow on the following

Follow Up Flag: Follow up
Flag Status: Flagged

Peter

IAAI has confirmed that the 55 vehicles number is correct for the transport vehicles coming to drop off and pickup from site as a total number. As we chatted about earlier the number could increase slightly if there was a situation where there was a higher incident rate of insurance claimed vehicles that were written off do to weather conditions. As examples, the winter storm or large hail that would create a possible increase in product that would be directed toward this location.

But again the 55 number is in the ballpark. 20% go to the haul out area and the balance to the transport carriers go to the Drop Zone

If you have any questions let me know.

Attachment B - 6160 Thunder Road TIA Study Excerpts

TRANSPORTATION IMPACT ASSESSMENT (TIA)

THUNDER ROAD & BOUNDARY ROAD
PROPOSED INDUSTRIAL DEVELOPMENT
CITY OF OTTAWA

PREPARED FOR:
THUNDER ROAD DEVELOPMENTS (2019) INC.

PREPARED BY:

C.F. CROZIER & ASSOCIATES INC.
211 YONGE STREET, SUITE 600
TORONTO, ON, M5B 1M4

ORIGINAL: APRIL 2021
UPDATED: APRIL 2023

CFCA FILE NO. 1909-5772

CROZIER
CONSULTING ENGINEERS

Executive Summary

Background

C.F. Crozier & Associates Inc. (Crozier) was retained by Thunder Road Developments (2019) Inc. to prepare a Transportation Impact Assessment in support of the Official Plan Amendment (OPA), Zoning By-Law Amendment (ZBA) and Site Plan Approval (SPA) applications for the proposed industrial development located at Thunder Road and Boundary Road in the City of Ottawa.

An original TIA (dated April 2021) was previously submitted assessing the site specific requirements and impacts of the proposed industrial development on the boundary road network and recommended required mitigation measures, as warranted. This Updated TIA Study addresses the City and MTO comments (dated June 29, 2022) regarding the second submission TIA. A comment response letter highlighting how each comment was addressed is provided separately as part of this resubmission to ease the review process.

The proposed development has an anticipated buildout by 2025 and includes three industrial buildings with a total Gross Floor Area (GFA) of 32,496 sq. m. This current proposal is a reduction from the site plan from the previous submission, which had a total of 41,625 sq. m GFA used for the previous submission.

- Industrial Buildings A and B each consist of 14,493 sq. m of GFA. A total of 248 auto parking spaces and two full-moves accesses to Thunder Road are also proposed for these industrial buildings.
- Industrial Building C: consists of 3,510 sq. m of GFA, 43 auto parking spaces and a full-moves access to Boundary Road opposite the South Amazon access.

The 6150 Thunder Road site is outside of this site plan; however, the building was maintained in analysis herein as done in the original study. The site consists of 3,850.8 sq. m of GFA, 33 auto parking spaces and a separate full-moves access to Thunder Road.

The proposed industrial development is projected to generate a total of 104 and 110 two-way vehicle trips during the weekday a.m. and p.m. peak hours, respectively.

Existing Traffic Operations

Under 2020 existing traffic conditions, the study intersections are projected to operate at the Level of Services (LOS) below.

- The stop-controlled Highway 417 Westbound Ramp Terminal at Boundary Road is operating below capacity at a LOS "C" or better during the a.m. and p.m. peak hours.

- The signalized intersections of Boundary Road with Highway 417 Eastbound Ramp Terminal and Thunder Road/Amazon Way are operating at a LOS "D" or better during the a.m. and p.m. peak hours.

- The stop-controlled South Amazon Access at Boundary Road is operating below capacity at a LOS "D" or better during the a.m. and p.m. peak hours.

- The stop-controlled Mitch Owens Road connection to Boundary Road is operating below capacity at a LOS "E" for the eastbound left turn during the a.m. and p.m. peak hours. All other movements at the intersection are at a LOS "A".

Future Background Traffic Operations

Under the 2025, 2030 and 2035 future background conditions:

- The stop-controlled Highway 417 Westbound Ramp Terminal at Boundary Road is forecast to operate at a LOS "F" during the a.m. peak hour of 2035 and LOS "E" or better under remaining study horizons. The intersection is forecast to operate at a LOS" B" or better during the p.m. peak hour.

- The signalized intersections of Boundary Road with Highway 417 Eastbound Ramp Terminal and Thunder Road/Amazon Way are both forecast to operate at a LOS "E" or better during the a.m. and p.m. peak hours. Both intersections are forecast to have at least one turning movement near or at capacity.

- The stop-controlled South Amazon Access at Boundary Road is projected to operate at a LOS "E" and "F" during the a.m. and p.m. peak hours, respectively.

- The stop-controlled Mitch Owens Road connection to Boundary Road is expected to operate at a LOS "F" during the a.m. and p.m. peak hours. However, similar to Novatech's recommendation, adding a northbound left turn lane (2025 horizon) and implementing traffic signals (2035 horizon) is expected to result in a forecasted LOS "D" and average traffic delays less than 18 seconds during the a.m. and p.m. peak hours.

Future Total Traffic Operations

For the 2025, 2030 and 2035 total traffic conditions (includes site generated trips and 6150 Thunder Road future development), the study intersections are projected to operate similarly to their respective future background conditions as follows:

- The stop-controlled Highway 417 Westbound Ramp Terminal at Boundary Road is forecast to operate at a LOS "F" or better during the a.m. peak hour and a LOS "B" or better during the p.m. peak hour.

- The signalized intersections of Boundary Road with Highway 417 Eastbound Ramp Terminal and Thunder Road/Amazon Way are both forecast to operate at a LOS "E" or better during the a.m. and p.m. peak hours, similar to the future background conditions.

- The stop-controlled Mitch Owens Road connection to Boundary Road is expected to operate at a LOS "F" during the a.m. and p.m. peak hours under the ultimate 2035 horizon. Similar to the future background conditions, adding the northbound left turn lane (2025 horizon) and implementing traffic signals (2035 horizon) is expected to result in a forecasted LOS "D" or better during the a.m. and p.m. peak hours.

- The stop-controlled South Amazon Access at Boundary Road is projected to operate at a LOS "F" during the a.m. and p.m. peak hours under the ultimate 2035 horizon. This is a future background issue and is attributable to an increase in through volumes on Boundary Road and associated future delays to traffic from the Amazon access.

- The proposed three stop-controlled site access connections to Thunder Road are projected to operate below capacity at a LOS "B" or better during the a.m. and p.m. peak hours, under all study horizons.

A signal warrant assessment based on the ultimate 2035 traffic volumes indicates that traffic signals are not warranted at the intersections of Boundary Road and South Amazon Access / Site Access and Thunder Road with the proposed three Site Accesses. Additionally, no left or right turn auxiliary lanes are warranted on Thunder Road or Boundary Road at the site access connections.

The proposed site accesses are projected to operate efficiently and safely without any issues related to sight-lines, corner clearance, access conflicts, truck movements and transit operational conflicts.

The vehicle parking supply of for each of the three buildings exceeds the City's Zoning By-Law minimum parking requirements.

Recommendations and Conclusion

Given the analysis herein, the recommendations presented in the **Table E-1** should be considered to support the proposed development.

Table E-1: Summary of Recommendations for Development Full build-Out

Category	Improvement	Responsibility	Timeline
Parking	Provide bicycle parking spaces for each building per City of Ottawa Zoning By-Law 2008-250 requirements	Developer	Full build-out (2025)
Roadway Improvements	**Boundary Road and Site Access / South Amazon Access:** Repurpose existing runout lane at south approach to provide auxiliary northbound left-turn with 15 metres of storage	Developer	Full build-out (2025)
TDM Measures	Provide cycling provisions such as secure bicycle parking, lockers, and showers	Developer	Full build-out (2025)
	Provide preferred carpool parking spaces to promote carpooling	Developer	Full build-out (2025)
	Co-ordinate with City to list development on the City's ride-matching portal and/or implement an internal ride-matching service to help employees find carpool partners	Tenant	Full build-out (2025)
	Implement an Emergency Ride Home program to guarantee employees a ride home in the case of an emergency	Tenant	Full build-out (2025)
	Provide information on available TDM opportunities through promotion and education	Tenant	Full build-out (2025)
	Establish a TDM program to monitor implementation and effectiveness of TDM measures	Tenant	Full build-out (2025)

Further, given the future background traffic operations, we recommend that the City and MTO consider the following in future:

- Similar to the Novatech's recommendation, we recommend adding a northbound left turn lane (in 2025 horizon) and implementing traffic signals (in 2035 horizon) at the intersection of Boundary Road and Mitch Owens Road.

- Signals are not warranted at Boundary Road intersections with Highway 417 Westbound Ramp Terminal and the South Amazon Access; however, signals may be considered in future if the City and MTO identify safety issues from extended delays to the minor street.

- Signal optimization to redistribute intersection capacity (effective green time) may be required in the future (i.e., 2030 onwards) to maintain the target LOS "D" at the intersections of Boundary Road with Highway 417 Eastbound Ramp Terminal and Thunder Road/Amazon Way.

- Boundary Road and Highway 417 Eastbound Ramp Terminal: The EBR movement is expected to experience v/c ratios greater than 0.75, largely due to limited capacity for the yield EBR movement created by through traffic on Boundary Road. The MTO and City may consider optimizing the existing signal timing plan in future to create more capacity for the yield controlled EBR movement.

- The southbound traffic queues on Boundary Road at the Thunder Road intersection are forecast to occasionally extend beyond the Highway 417 Ramp in the 2035 horizon during the p.m. peak hours. However, this is a future background condition and not attributable to the proposed development. This issue is a long-term forecast and should be monitored by the City and reviewed as part of the City's ongoing Transportation Master Plan Update.

- It is noted the City is currently completing its Official Plan Update, as well as undertaking a Transportation Master Plan and Infrastructure Master Plan updates. Any potential widening of Boundary Road and major road improvements should be monitored and may be reviewed as part of the ongoing Plan updates.

- In addition to the City's existing road network volume monitoring program to assess capacity constrained zones, given the potential long term impact of the Covid-19 pandemic on home-work trips, the forecasted future volumes herein may be overstated, it is important to monitor intersection volumes in future to confirm if any roadway improvements and or traffic signal modifications are needed for optimal performance of the relevant surrounding intersections.

Based on this study findings, it is our conclusion that the traffic generated by the proposed industrial development at Thunder Road and Boundary Road can be accommodated by the boundary road network. The Official Plan Amendment (OPA), Zoning By-Law Amendment (ZBA) and Site Plan Approval (SPA) applications can be supported from a traffic operations perspective as the boundary road system is forecast to adequately accommodate the increase in traffic volumes attributable to the proposed development.

Table 3-6: Possible Exemptions

Module	Element	Exemption Condition	Development Status
Design Review Component			
Development Design	Circulation and Access	Only required for Site Plans	Not exempt
	New Street Networks	**Only required for Plans of Subdivision**	**Exempt**
Parking	Parking Supply	Only required for Site Plans	Not exempt
	Spillover Parking	**Only required for Site Plans where parking supply is 15% below unconstrained demand**	**Exempt**
Transportation Demand Management	All elements	Not required for Site Plans expected to have fewer than 60 employees and/or students on location at any given time	Not exempt
Neighbourhood Traffic Management	**Adjacent Neighbourhoods**	**Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds**	**Exempt**
Network Concept	---	Only required when proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by established zoning	Not exempt

Therefore, the TIA will contain analysis of Circulation and Access, Parking Supply, Transportation Demand Management, and Network Concept (changes to Transportation Master Plan concepts for auto and transit use).

4.0 Forecasting

4.1 Trip Generation Forecasts

Trip generation for the proposed development was forecasted using published data from the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The ITE Trip Generation Manual is a compendium of industry collected trip generation data across North America for a variety of land uses and is used industry wide as a source for trip generation forecasts. Though the 11th Edition of the manual is now available, the 10th Edition rates continue to be used to maintain a consistent approach for trip generation forecasting compared to prior submissions.

4.1.1. Auto Trip Generation

The trip generation rates for Land Use Category (LUC) 150 "Warehousing" were applied to the proposed industrial buildings to forecast auto trips generated by the buildings. The fitted curve equation was applied to the proposed building GFAs from which a trip generation rate (trips generated per 1,000 sq. ft) was reverse calculated to determine non-auto trip generation rates.

The total trip generation for the proposed industrial buildings was categorized into passenger cars and heavy truck traffic. Per the ITE Trip Generation Handbook (3rd Edition), Table I.1, approximately 20% of site traffic generated by LUC 150 "Warehousing" on a weekday is heavy truck traffic. Site traffic generated by similar land use LUC 130 "Industrial Park" consists of between 1-31% of heavy truck traffic during the weekday peak hours with an average of 13%, and site traffic generated by similar land use

LUC 152 "High-Cube Warehouse/Distribution Centre" consists of between 9-29% of heavy truck traffic during the weekday peak hours. Therefore, an estimate of 20% for heavy truck traffic is considered reasonable.

Table 4-1 outlines the total auto trip generation for the proposed development. A comparison in the Table between the trip generation totals under both the current and the previous submission for the development proposal is also provided.

Table 4-1: Auto Trip Generation

Building	GFA	Land use	Trips Generated – A.M. Peak			Trips Generated – P.M. Peak		
			In	Out	Total	In	Out	Total
Previous Submission Trip Generation (September 2021)								
A & B	400,041 sq. ft	Industrial	**56** *(77%)*	**17** *(23%)*	**73** *(0.18)*	**20** *(27%)*	**56** *(73%)*	**76** *(0.19)*
6150 Thunder Road	41,449 sq. ft	Industrial	**23** *(77%)*	**7** *(23%)*	**30** *(0.72)*	**9** *(27%)*	**24** *(73%)*	**33** *(0.80)*
C	48,007 sq. ft	Industrial	**24** *(77%)*	**7** *(23%)*	**31** *(0.65)*	**9** *(27%)*	**25** *(73%)*	**34** *(0.71)*
DEVELOPMENT TOTAL:			**103**	**31**	**134**	**38**	**105**	**143**
Current Submission Trip Generation								
A & B	312,000 sq. ft	Industrial	**49** *(77%)*	**14** *(23%)*	**63** *(0.20)*	**18** *(27%)*	**47** *(73%)*	**65** *(0.21)*
6150 Thunder Road	41,449 sq. ft	Industrial	**23** *(77%)*	**7** *(23%)*	**30** *(0.72)*	**9** *(27%)*	**24** *(73%)*	**33** *(0.80)*
C	37,800 sq. ft	Industrial	**23** *(77%)*	**7** *(23%)*	**30** *(0.65)*	**9** *(27%)*	**23** *(73%)*	**32** *(0.71)*
DEVELOPMENT TOTAL:			**95**	**28**	**123**	**36**	**94**	**130**
Net Difference								
A & B	-80,041 sq. ft	Industrial	-7	-3	-10	-2	-9	-11
6150 Thunder Road	0 sq. ft	Industrial	0	0	0	0	0	0
C	-10,207 sq. ft	Industrial	-1	0	-1	0	-2	-2
DEVELOPMENT TOTAL:			**-8**	**-3**	**-11**	**-2**	**-11**	**-13**

The proposed development (excluding the adjacent 6150 Thunder Road future development) is projected to generate 104 and 110 two-way vehicle trips in the a.m. and p.m. peak hours, respectively. Given the estimated 20% split for heavy truck traffic, this constitutes a total of 84 and 88 two-way passenger car trips, and 20 and 22 two-way truck trips, both in the a.m. and p.m. peak hours, respectively.

Given the minor reduction (less than 10%) of the site trip generation compared to the trip generation of the previous submission that was used in the traffic analysis, no update to the traffic analysis has been performed. While trip distribution is applied separately to each of the building components which could result in differing impacts in certain circumstances, the trip generation for each building component is the same or is slightly less than the previous submission, ensuring that forecasted traffic operational impacts under a revised analysis would either be the same or slightly better at the study

intersections.
Table 4-2 continues the outlined auto trip generation methodology using the trip generation from the previous submission to determine the passenger car and truck trips that were used for traffic analysis.

Table 4-2: Passenger Car and Truck Trip Generation – Traffic Analysis

Building	GFA	Land use	Trips Generated – A.M. Peak			Trips Generated – P.M. Peak		
			In	Out	Total	In	Out	Total
Total Auto Trip Generation								
A & B	400,041 sq. ft	Industrial	**56** *(77%)*	**17** *(23%)*	**73** *(0.17)*	**20** *(27%)*	**56** *(73%)*	**76** *(0.17)*
6150 Thunder Road	41,449 sq. ft	Industrial	**23** *(77%)*	**7** *(23%)*	**30** *(0.72)*	**9** *(27%)*	**24** *(73%)*	**33** *(0.80)*
C	48,007 sq. ft	Industrial	**24** *(77%)*	**7** *(23%)*	**31** *(0.91)*	**9** *(27%)*	**25** *(73%)*	**34** *(1.00)*
DEVELOPMENT TOTAL:			**103**	**31**	**134**	**38**	**105**	**143**
Passenger Car Trip Generation (80%)								
A & B	400,041 sq. ft	Industrial	**45**	**14**	**59**	**16**	**45**	**61**
6150 Thunder Road	41,449 sq. ft	Industrial	**18**	**6**	**24**	**7**	**19**	**26**
C	48,007 sq. ft	Industrial	**19**	**6**	**25**	**7**	**20**	**27**
DEVELOPMENT TOTAL:			**82**	**26**	**108**	**30**	**84**	**114**
Heavy Truck Trip Generation (20%)								
A & B	400,041 sq. ft	Industrial	**11**	**3**	**14**	**4**	**11**	**15**
6150 Thunder Road	41,449 sq. ft	Industrial	**5**	**1**	**6**	**2**	**5**	**7**
C	48,007 sq. ft	Industrial	**5**	**1**	**6**	**2**	**5**	**7**
DEVELOPMENT TOTAL:			**21**	**5**	**26**	**8**	**21**	**29**

Given that the proposed development is solely industrial use, no trip synergy is expected between the buildings and no pass-by trips are expected to be generated by the development. Therefore, no internal trip synergy reductions or pass-by trip reductions were applied.

4.1.2. Non-Auto Trip Generation

The City's TIA Guidelines provide methodology for forecasting non-auto trips using the ITE Trip Generation Rates, as follows:

- Assume a 10% non-auto mode share for trips generated by the proposed development for low-density areas with low transit mode shares; and
- Assume an average vehicle occupancy of 1.15 for the purposes of translating auto trips to person trips.

5.4 Access Intersections Analysis and Design

5.4.1. Access Location

5.4.1.1 Adjacent Driveways

As detailed in the Screening & Scoping Report (March 2021), there are several existing driveways on the boundary road network within 200 metres of the proposed site accesses as described below:

- Four driveways to residential dwellings on the south side of Thunder Road, west of the proposed site access to the 6150 Thunder Road property;
- One driveway to a residential dwelling on the south side of Thunder Road, between the proposed site accesses to the 6150 Thunder Road property and the subject lands. This driveway will be removed as part of the development proposal;
- One driveway to a gas station on the south side of Thunder Road, at the southwest corner of Thunder Road and Boundary Road;
- One driveway to a gas station on the west side of Boundary Road, at the southwest corner of Thunder Road and Boundary Road;
- One driveway to a restaurant on the west side of Boundary Road, north of the proposed site access to Building C;
- Two driveways to residential dwellings on the west side of Boundary Road, south of the proposed site access to Building C (these dwelling units are within the development boundary and thus would be replaced by the development build-out);
- One driveway to a commercial use on the west side of Boundary Road, south of the proposed site access to Building C;
- One driveway to a residential dwelling on the east side of Boundary Road at the southeast corner of Thunder Road and Amazon Way;
- Two driveways to a commercial use on the east side of Boundary Road, north of the proposed site access to Building C;
- One driveway to the Amazon Facility on the east side of Boundary Road, opposite the proposed site access to Building C;
- Two driveways to commercial properties on the east side of Boundary Road, south of the proposed site access to Building C; and
- One driveway to a residential dwelling on the east side of Boundary Road, south of the proposed site access to Building C.

The existing private driveways not located within the subject property limits are spaced more than 15 metres from the proposed 6150 Thunder Road and Building C site accesses to Thunder Road and Boundary Road and spaced more than 60 metres from the proposed site accesses along Thunder Road serving Buildings A and B (per the City's Private Approach By-law No. 2003-477, Section 25.1.m.ii).

5.4.1.2 Number of Proposed Accesses

Per the City's Private Approach By-law No. 2003-477, Section 25.1.a., the maximum number of private approaches permitted to a property is:

- One two-way access with frontage less than 35 metres;
- Two two-way accesses with frontage between 35 – 150 metres; and
- An additional two-way access for every 90 metres of frontage exceeding 150 metres.

The property frontage for Building A and Building B along Thunder Road is approximately 300 metres; thus, technically permitting four two-way accesses to Thunder Road. The development proposes two two-way accesses to Thunder Road, thus satisfying the City's By-law.

The property frontage to 6150 Thunder Road along Thunder Road is approximately 135 metres; thus, technically permitting two two-way accesses to Thunder Road. The development proposes one two-way access to Thunder Road, thus satisfying the City's By-law.

The property frontage to Building C along Boundary Road is approximately 85 metres; thus, technically permitting two two-way accesses to Boundary Road. The development proposes one two-way access to Boundary Road, thus satisfying the City's By-law.

5.4.1.3 Sight Distance Analysis

The available sightlines at the proposed accesses were assessed for conformance with the minimum sight distance requirements set out in the TAC GDGCR. The design speed of a collector roadway in a rural environment is typically 10-20 km/h greater than the posted speed limit. The posted speed limit on Thunder Road is 60 km/h.

However, the sharp horizontal curve on Thunder Road approaching Boundary Road currently has a curve advisory speed of 30 km/h which would lower design speeds as a result. Thus, a conservative design speed of 50 km/h was applied to the 6150 Thunder Road access facing east.

There is another horizontal curve on Thunder Road west of the subject property which, while not as tight as the horizontal curve approaching Boundary Road, would reduce operating speeds along Thunder Road approaching the curve and within the straight segment between the two curves. Therefore, a design speed of 70 km/h was applied to the site accesses west of the 6150 Thunder Road Access.

A design speed of 100 km/h was assumed for Boundary Road given the 80 km/h posted speed limit. **Table 5-7** outlines the required sight distance at the site accesses.

Table 5-7: Sight Distance Requirements

Parameter	Thunder Road and Site Access A	Thunder Road and Site Access B	Thunder Road and 6150 Thunder Road Access	Boundary Road and Site Access / South Amazon Access
Design Vehicle	WB-20 Tractor Semi-Trailer	WB-20 Tractor Semi-Trailer	WB-20 Tractor Semi-Trailer	WB-20 Tractor Semi-Trailer
Posted Speed Limit of Roadway	60 km/h	60 km/h	60 km/h	80 km/h
Assumed Design Speed	70 km/h	70 km/h	70 km/h facing west) 50 km/h (facing east)	100 km/h
Base Time Gap	11.5 s [1]	11.5 s [1]	11.5 s [1]	11.5 s [1]
Additional Time Gap	None	None	None	None
Vertical Alignment of Roadway	Relatively flat	Relatively flat	Relatively flat	Relatively flat
Horizontal Alignment of Roadway	Curves east and west of subject property	Curves east and west of subject property	Curves east and west of subject property	Straight
Sight Distance Required	225 m [2]	225 m [2]	225 m [2] (facing west) 160 m [2] (facing east)	320 m [2]
Sight Distance Available	>250 m (facing west) To Boundary Road / Thunder Road intersection (facing east)	>250 m (facing east and west)	>250 m ((facing east and west)	>350 m (facing north and south)

Note 1: Time gap for left-turning WB-20 trucks from a stop onto a two-lane highway with no median and with a grade less than 3%. Value from Table 9.9.3 in the GDGCR.
Note 2: Sight distance values calculated from Intersection Sight Distance equation 9.9.1 in the GDGCR.

The proposed site access locations satisfy minimum sight distance requirements, as demonstrated in the Sight Distance assessment drawings included in **Appendix O**. Further, the sight distance requirements herein are conservative as speed is expected to be lower than the design speed given the curvature on Thunder Road and the higher driver eye height of the design vehicle may further improve available sightlines.

5.4.2. Access Width

Per the City's Private Approach By-law No. 2003-477, the maximum width of a private approach cannot exceed 9.0 metres, but a higher width may be permitted for transport loading areas.

The proposed accesses to Thunder Road and Boundary Road range in width from 8.0 – 9.4 metres, thus exceeding 9.0 metres. However, these accesses will be utilized by heavy trucks to access the trucking areas for each building, thus justifying the excess width of 0.4 metres.

Access alignment and geometrics can be confirmed at a later stage in the project.

5.7.7. Basis of Future Total Assessment

The site generated traffic volumes illustrated in **Figures 8 and 9** were added to the 2025, 2030 and 2035 future background traffic volumes in . **Figures 5, 6 and 7**, respectively, to determine the 2025, 2030 and 2035 future total traffic volumes. **Figures 10, 11 and 12** outline the 2025, 2030 and 2035 future total traffic volumes, respectively.

5.7.8. Future Total Auto Operations

The future total auto intersection operations at the study intersections were analyzed using the 2025, 2030 and 2035 future total traffic volumes illustrated in **Figures 10, 11 and 12,** respectively, and optimized signal timings. Detailed capacity analysis worksheets are included in **Appendix M**.

Given that a significant portion of site traffic entering and exiting the site accesses is heavy truck traffic, heavy truck percentages were calculated and modelled for all movements on the road network to reflect the increase in heavy truck percentages under future total conditions.

Tables 5-17, 5-18 and 5-19 outline the 2025, 2030 and 2035 future total traffic operations, respectively.

Table 5-17: 2025 Future Total Traffic Operations

Intersection	Control	Peak Hour	Intersection V/C Ratio	Level of Service	Control Delay	Critical v/c ratio	95th Percentile Queue Length > Storage Length
Boundary Road and Highway 417 Westbound Ramp Terminal	Stop (Minor)	A.M.	**0.97**	D	33.3s (WBLR)	0.62 (WBLR)	None
		P.M.	0.43	B	13.9s (WBLR)	0.13 (WBLR)	None
Boundary Road and Highway 417 Eastbound Ramp Terminal	Signal	A.M.	0.71	C	14.5 s	0.83 (NBT)	32.3m > 25 m (EBR)
		P.M.	0.90	D	22.0 s	0.94 (EBR)	122.7 m > 25 m (EBR)
Boundary Road and Thunder Road/Amazon Way	Signal	A.M.	0.90	D	22.6 s	0.90 (NBT)	261.7m(NBT)
		P.M.	0.82	D	18.1 s	0.88 (SBT)	None
Boundary Road and South Amazon Access / Site Access	Stop (Minor)	A.M.	0.65	E	44.6s (WBLR)	0.09 (WBLR)	None
		P.M.	0.62	D	38.0s (WBLTR)	0.14 (WBLTR)	None
Boundary Road and Mitch Owens Road	Stop (Minor)	A.M.	0.79	F	53.0s (EBL)	0.54 (EBL)	None
		P.M.	0.74	E	44.2s (EBL)	0.60 (EBL)	27.4m > 25m (EBL)
Site Access A and Thunder Road	Stop (Minor)	A.M.	0.25	A	8.7s (NBLR)	0.02 (NBLR)	None
		P.M.	0.22	A	9.2s (NBLR)	0.07 (NBLR)	None
Site Access B and Thunder Road	Stop (Minor)	A.M.	0.22	A	9.6s (NBLR)	0.01 (NBLR)	None
		P.M.	0.18	A	10.0s (NBLR)	0.04 (NBLR)	None
6150 Thunder Road Access and Thunder Road	Stop (Minor)	A.M.	0.22	A	8.7s (NBLR)	0.01 (NBLR)	None
		P.M.	0.21	A	9.0s (NBLR)	0.03 (NBLR)	None

Notes:
[1] Level of Service – The Level of Service (LOS) of a signalized intersection is based on the intersection volume to capacity ratio as per the City of Ottawa Multi-Modal Levels of Service (MMLOS) Guidelines. The LOS of an unsignalized intersection is based on the worst average approach delay.
[2] Critical V/C Ratio – illustrates the maximum and other lane volume to capacity ratios greater than 0.90.

Table 5-18: 2030 Future Total Traffic Operations

Intersection	Control	Peak Hour	Intersection V/C Ratio	Level of Service	Control Delay	Critical v/c ratio	95th Percentile Queue Length > Storage Length
Boundary Road and Highway 417 Westbound Ramp Terminal	Stop (Minor)	A.M.	**1.05**	E	49.5s (WBLR)	0.76 (WBLR)	None
		P.M.	0.46	B	14.7s (WBLR)	0.15 (WBLR)	None
Boundary Road and Highway 417 Eastbound Ramp Terminal	Signal	A.M.	0.76	C	17.2 s	0.89 (NBT) 0.77 (EBR)	35.3m > 25 m (EBR)
		P.M.	**0.94**	**E**	27.9 s	0.97 (EBR)	163.6 m > 25 m (EBR)
Boundary Road and Thunder Road/Amazon Way	Signal	A.M.	**0.97**	**E**	34.0 s	0.97 (NBT)	304.8m(NBT)
		P.M.	0.88	D	21.3 s	0.91 (SBT)	291.1m (SBT)
Boundary Road and South Amazon Access / Site Access	Stop (Minor)	A.M.	0.70	F	52.8s (WBLR)	0.12 (WBLR)	None
		P.M.	0.66	E	65.0s (WBLTR)	0.24 (WBLTR)	None
Boundary Road and Mitch Owens Road	Stop (Minor)	A.M.	0.87	F	85.3s (EBL)	0.72 (EBL)	32.3m > 25m (EBL)
		P.M.	0.80	F	72.4.s (EBL)	0.78 (EBL)	41.8m > 25m (EBL)
Site Access A and Thunder Road	Stop (Minor)	A.M.	0.25	A	8.7s (NBLR)	0.02 (NBLR)	None
		P.M.	0.26	A	9.2s (NBLR)	0.06 (NBLR)	None
Site Access B and Thunder Road	Stop (Minor)	A.M.	0.23	A	9.6s (NBLR)	0.01 (NBLR)	None
		P.M.	0.18	B	10.0s (NBLR)	0.02 (NBLR)	None
6150 Thunder Road Access and Thunder Road	Stop (Minor)	A.M.	0.22	A	8.7s (NBLR)	0.01 (NBLR)	None
		P.M.	0.21	A	9.0s (NBLR)	0.06 (NBLR)	None

Notes:
[1] Level of Service – The Level of Service (LOS) of a signalized intersection is based on the intersection volume to capacity ratio as per the City of Ottawa Multi-Modal Levels of Service (MMLOS) Guidelines. The LOS of an unsignalized intersection is based on the worst average approach delay.
[2] Critical V/C Ratio – illustrates the maximum and other lane volume to capacity ratios greater than 0.90.

Table 5-19: 2035 Future Total Traffic Operations

Intersection	Control	Peak Hour	Intersection V/C Ratio	Level of Service	Control Delay	Critical v/c ratio	95th Percentile Queue Length > Storage Length
Boundary Road and Highway 417 Westbound Ramp Terminal	Stop (Minor)	A.M.	**1.14**	F	88.3s (WBLR)	0.94 (WBLR)	None
		P.M.	0.49	B	15.8s (WBLR)	0.18 (WBLR)	None
Boundary Road and Highway 417 Eastbound Ramp Terminal	Signal	A.M.	0.82	D	20.7 s	0.94 (NBT) 0.80 (EBR)	42.6m > 25 m (EBR)
		P.M.	**1.00**	**E**	41.8 s	1.06 (EBR)	208.2 m > 25 m (EBR)
Boundary Road and Thunder Road/Amazon Way	Signal	A.M.	**1.03**	**F**	53.1 s	1.07 (NBT) 1.00 (SBL)	352.5 m (NBT)
		P.M.	**0.94**	**E**	29.2 s	0.95 (SBT)	337.6m (SBT)
Boundary Road and South Amazon Access / Site Access	Stop (Minor)	A.M.	0.76	F	71.9s (WBLR)	0.17 (WBLR)	None
		P.M.	0.72	F	387.0s (WBLTR)	0.92 (WBLTR)	None
Boundary Road and Mitch Owens Road	Stop (Minor)	A.M.	**0.94**	**F**	164.1s (EBL)	0.99 (EBL)	48.4m > 25m (EBL)
		P.M.	0.87	F	143.8.s (EBL)	1.04 (EBL)	64.1m > 25m (EBL)
	Signal	A.M.	0.81	D	14.6s	0.81 (NBT)	34.3m > 25m (EBL) 18.5m > 15m (NBL)
		P.M.	0.82	D	18.9s	0.87 (SBT)	51.1m > 25m (EBL)
Site Access A and Thunder Road	Stop (Minor)	A.M.	0.25	A	8.8s (NBLR)	0.04 (NBLR)	None
		P.M.	0.27	A	9.3s (NBLR)	0.06 (NBLR)	None
Site Access B and Thunder Road	Stop (Minor)	A.M.	0.23	A	9.7s (NBLR)	0.01 (NBLR)	None
		P.M.	0.18	B	10.1s (NBLR)	0.04 (NBLR)	None
6150 Thunder Road Access and Thunder Road	Stop (Minor)	A.M.	0.23	A	8.8s (NBLR)	0.01 (NBLR)	None
		P.M.	0.22	A	9.1s (NBLR)	0.03 (NBLR)	None

Notes:
[1] Level of Service – The Level of Service (LOS) of a signalized intersection is based on the intersection volume to capacity ratio as per the City of Ottawa Multi-Modal Levels of Service (MMLOS) Guidelines. The LOS of an unsignalized intersection is based on the worst average approach delay.
[2] Critical V/C Ratio – illustrates the maximum and other lane volume to capacity ratios greater than 0.90.

The intersections of Boundary Road and Highway 417 Westbound Ramp Terminal, Boundary Road and Thunder Road / Amazon Way, and Boundary Road and South Amazon Access / Site Access are expected to operate beyond capacity under 2035 future total conditions. Several movements on the road network are expected to operate near capacity and with 95th percentile queue lengths exceeding available storage lengths. These results are mainly attributed to fifteen years of steady

traffic growth in the study area, and heavy forecasted volumes on Boundary Road exceeding typical arterial roadway capacity and are overall consistent with 2035 future background conditions.

When intersections are operating near or beyond capacity under future background conditions, the addition of even a minor amount of site traffic to the intersection can exponentially increase control delays. Therefore, even with the forecasted 2035 future total operations, the addition of site traffic to the road network is not expected to significantly impact traffic operations.

Network concept changes such as identifying future background improvements to Boundary Road (e.g., road widening) would be expected to significantly improve traffic operations on the road network and increase capacity for individual movements. Additionally, the implementation of the recommended Novatech improvements at the intersection of Boundary Road and Mitch Owens Road is expected to improve the LOS from "F" to "D."

The proposed site accesses to Thunder Road are expected to operate at LOS "B" or better with minor control delays and no critical movements nor 95th percentile queue lengths.

As presented in **Tables 5-17** to **5-19**, improvements may be required in future to ensure the required target LOS "D" is met at some of the study intersections. However, these issues are future background related as noted in **Section 5.7.5**, and it is recommended that the City and the MTO monitor traffic volumes at the subject intersections in future to confirm if the noted improvements under **Section 5.7.5** are optimal.

6.0 Conclusions and Recommendations

This Transportation Impact Assessment (TIA) has assessed the transportation impacts of the proposed industrial development at the Thunder Road and Boundary Road site in the City of Ottawa. The analysis contained within this report has resulted in the following key findings:

- The proposed industrial development is projected to generate a total of 104 and 110 two-way auto trips during the weekday a.m. and p.m. peak hours, respectively.

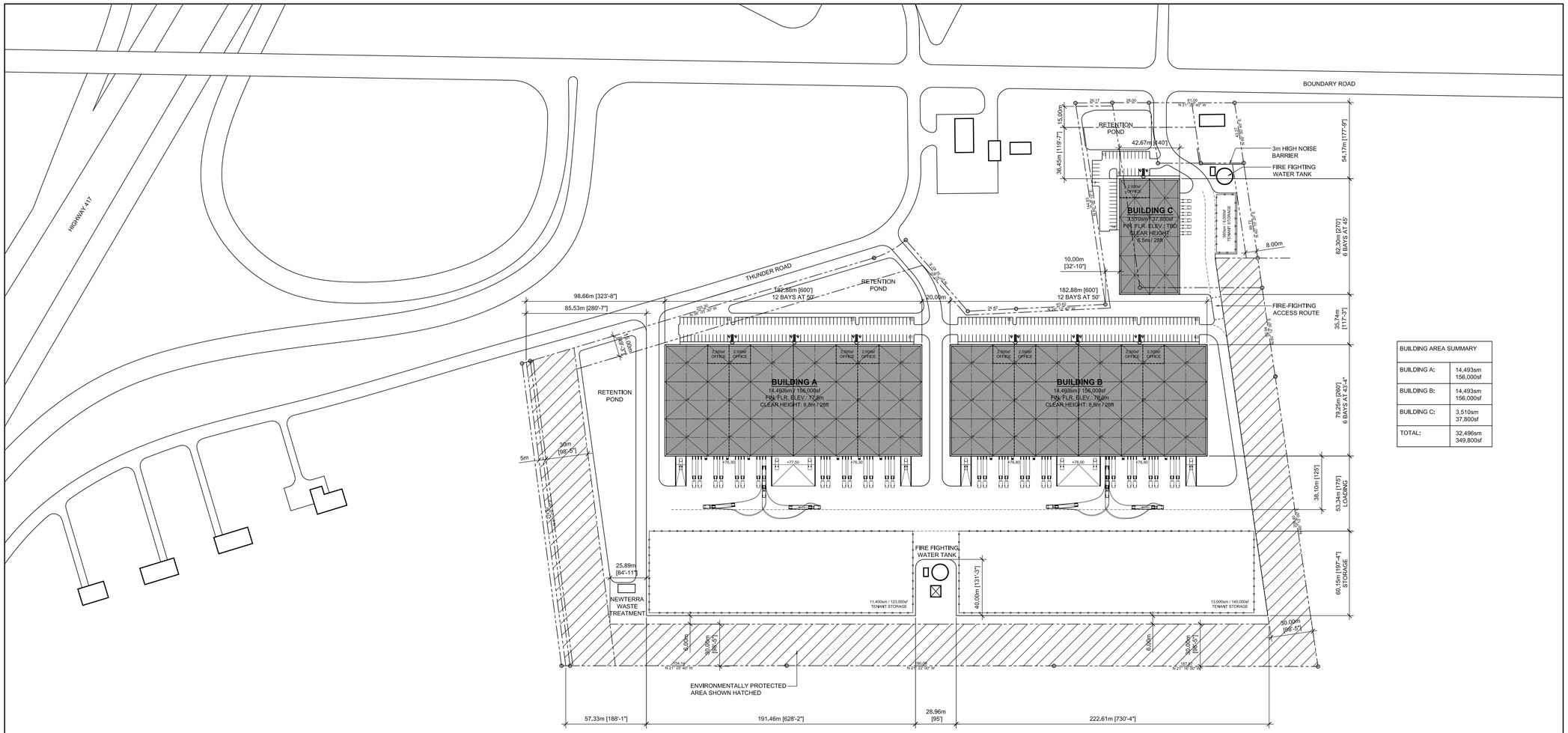
- Under 2020 existing traffic conditions, the study intersections are projected to operate at the Level of Services (LOS) below.

    - The stop-controlled Highway 417 Westbound Ramp Terminal at Boundary Road is operating below capacity at a LOS "C" or better during the a.m. and p.m. peak hours.

    - The signalized intersections of Boundary Road with Highway 417 Eastbound Ramp Terminal and Thunder Road/Amazon Way are operating at a LOS "D" or better during the a.m. and p.m. peak hours.

    - The stop-controlled South Amazon Access at Boundary Road is operating below capacity at a LOS "D" or better during the a.m. and p.m. peak hours.

    - The stop-controlled Mitch Owens Road connection to Boundary Road is operating below capacity at a LOS "E" for the eastbound left turn during the a.m. and p.m. peak hours. All other movements at the intersection are at a LOS "A".



BUILDING AREA SUMMARY	
BUILDING A:	14,493sm 156,000sf
BUILDING B:	14,493sm 156,000sf
BUILDING C:	3,510sm 37,800sf
TOTAL:	32,496sm 349,800sf

03 SITE PLAN

SPA-01 SCALE: 1:1500

ZONING MECHANISM: ZONING BY-LAW 2008-250 CONSOLIDATION		REQUIRED	PROVIDED
ZONING: RG[908R]-h RURAL GENERAL INDUSTRIAL ZONE		LIGHT INDUSTRIAL LIMITED COMMERCIAL	LIGHT INDUSTRIAL USE WAREHOUSE (N95)
MINIMUM LOT AREA		0.4HA	AREA 1: 13.89HA AREA 2: 1.46HA TOTAL: 15.35HA 37.93 ACRES
MINIMUM LOT WIDTH		30m	425m THUNDER ROAD 82m BOUNDARY ROAD
MAXIMUM LOT COVERAGE		50.0%	AREA 1: 20.8% (2.90HA) AREA 2: 24.0% (0.35HA) TOTAL: 21.17% (3.25HA)
MINIMUM FRONT YARD		15m	COMPLIANT WITH ZONING
MINIMUM CORNER SIDE YARD		12m	COMPLIANT WITH ZONING
MINIMUM INTERIOR YARD SETBACK	ABUTTING A RG, RH OR RC ZONE	3m	COMPLIANT WITH ZONING
	ALL OTHER CASES	8m	COMPLIANT WITH ZONING
MINIMUM REAR YARD		15m	COMPLIANT WITH ZONING
MAXIMUM FLOOR SPACE INDEX		2	COMPLIANT WITH ZONING
MAXIMUM BUILDING HEIGHT		15m	10.5m
OUTDOOR STORAGE	NOT PERMITTED WITHIN ANY REQUIRED FRONT OR CORNER YARD		COMPLIANT WITH ZONING
	STORAGE MUST BE SCREEN WHEN ABUTTING RESIDENTIAL ZONES AND PUBLIC STREETS		COMPLIANT WITH ZONING

ZONING MECHANISM: ZONING BY-LAW 2008-250 CONSOLIDATION		REQUIRED	PROVIDED
MINIMUM WIDTH OF LANDSCAPING		3m	COMPLIANT WITH ZONING
PARKING - TYPICAL SECTION 101 0.8 SPACES PER 100m2 FOR FIRST 5,000m2 0.4 SPACES PER 100m2 AFTER FIRST 5,000m2 LIGHT INDUSTRIAL USE WAREHOUSE (N95) PARKING - BARRIER-FREE SECTION 111 PART C BYLAW 2017-301 AND SECTION 3.1 - CITY OF OTTAWA ACCESSIBILITY DESIGN STANDARDS	BUILDING A: 14,493sm	78 TYPICAL 1 BARRIER-FREE	117 TYPICAL 3 BARRIER-FREE TYPE A 3 BARRIER-FREE TYPE B
	BUILDING B: 14,493sm	78 TYPICAL 1 BARRIER-FREE	121 TYPICAL 3 BARRIER-FREE TYPE A 3 BARRIER-FREE TYPE B
	BUILDING C: 3,510sm	27 TYPICAL 1 BARRIER-FREE	40 TYPICAL 1 BARRIER-FREE TYPE A 1 BARRIER-FREE TYPE B
	TOTAL	183 TYPICAL 3 BARRIER-FREE	278 TYPICAL 7 BARRIER-FREE TYPE A 7 BARRIER-FREE TYPE B
BICYCLE PARKING SECTION 111 WAREHOUSE 1 SPACE PER 2000m2 BY-LAW 2015-190	BUILDING A: 14,493sm	8 SPACES	8 - LOCATION TO BE DETERMINED
	BUILDING B: 14,493sm	8 SPACES	8 - LOCATION TO BE DETERMINED
	BUILDING C: 3510sm	2 SPACES	4 - LOCATION TO BE DETERMINED

ZONING MECHANISM: ZONING BY-LAW 2008-250 CONSOLIDATION		REQUIRED	PROVIDED
LOADING SPACE SECTION 113 LIGHT INDUSTRIAL USE	BUILDING A	2 OVERSIZED (4.3m X 13m)	20 OVERSIZED (1 PER 8,000sf)
	BUILDING B	2 OVERSIZED (4.3m X 13m)	20 OVERSIZED (1 PER 8,000sf)
	BUILDING C	2 OVERSIZED (4.3m X 13m)	6 OVERSIZED (1 PER 6,000sf)

BUILDING CLASSIFICATION:

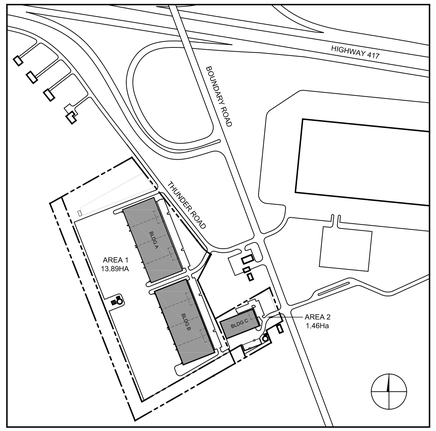
3.2.2.67: GROUP F, DIVISION 2, ANY HEIGHT, ANY AREA SPRINKLERED
- NON-COMBUSTIBLE CONSTRUCTION
- FLOOR ASSEMBLIES SHALL HAVE A MIN 2HR FIRE RESISTANCE RATING
- MEZZANINES SHALL HAVE A MIN 1HR FIRE RESISTANCE RATING
- LOAD BEARING WALLS AND COLUMNS SHALL HAVE A FIRE RESISTANCE RATING NOT LESS THAN SUPPORTED ASSEMBLIES

3.2.3.1: SPATIAL SEPARATION - TABLE 3.2.3.1.E
- 15m MINIMUM SPATIAL SEPARATION FOR 100% AREA OF UNPROTECTED OPENINGS (EBF > 200m2)
- 10m MINIMUM SPATIAL SEPARATION FOR 50% AREA OF UNPROTECTED OPENINGS (EBF > 200M2)
- 9m SPATIAL SEPARATION FOR 100% AREA OF UNPROTECTED OPENINGS WHEN FACING A STREET

3.4.2.5: LOCATION OF EXITS
- 45m MAXIMUM TRAVEL DISTANCE

02 SITE DATA AND ZONING INFORMATION

SP-A01 SCALE:



01 LOCATION PLAN

SP-A01 SCALE: NTS

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

Avenue31

North

Revisions

No.	By	Description	Date
01	ERM	ISSUED FOR REVIEW	2023-02-06
02	ERM	ISSUED FOR COORDINATION	2023-02-14
03	ERM	ISSUED FOR COORDINATION	2023-03-24

Project

THUNDER ROAD INDUSTRIAL PARK

6160 THUNDER ROAD, OTTAWA

Drawing

LOCATION PLAN, ZONING REVIEW AND SITE PLAN C3

Scale: AS NOTED

Stamp

Drawn: ERM

Checked: JAS

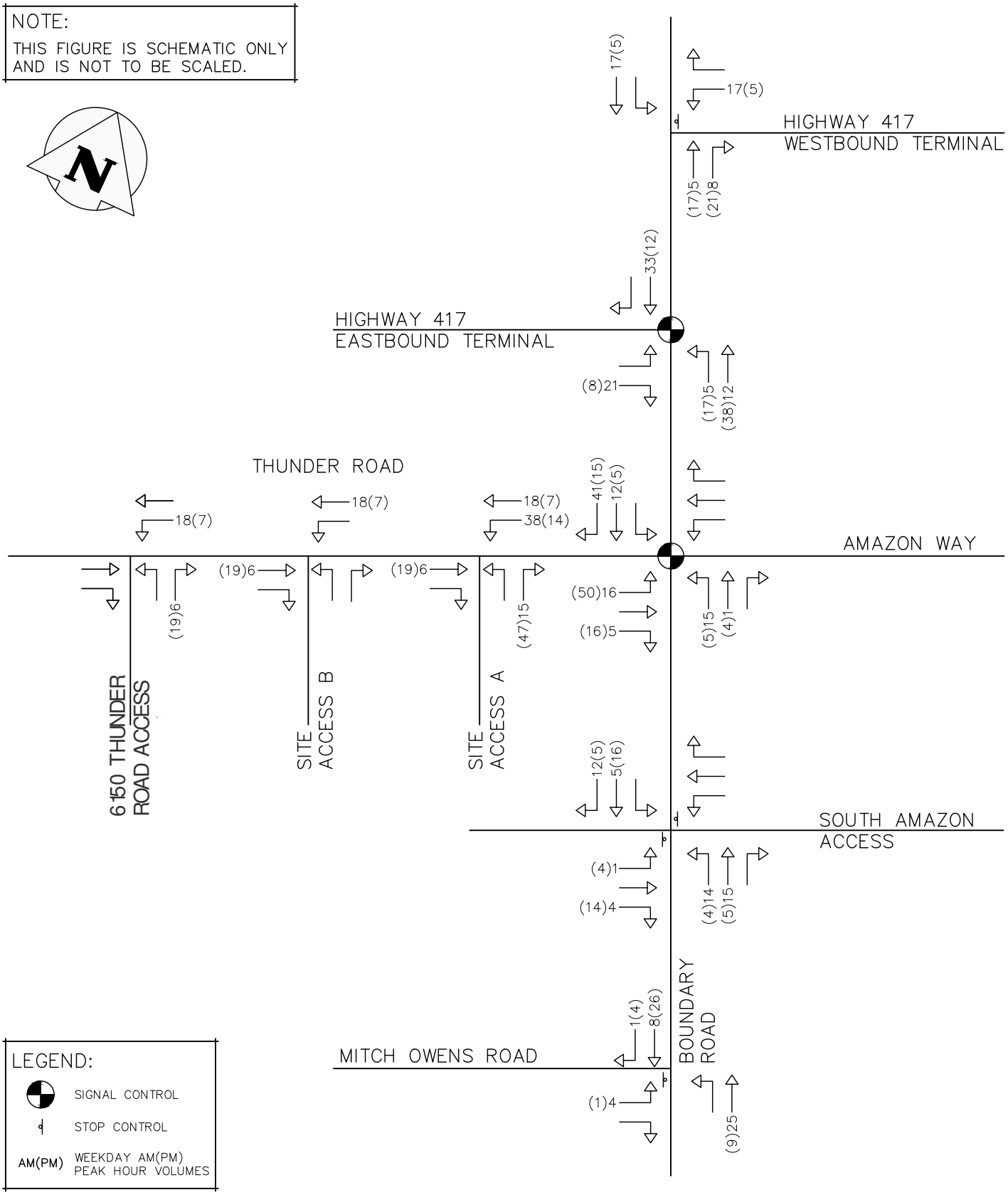
Project No.: 21-135

Drawing No.: SPA-01

Date: APRIL 2021

24 X 36 – PLOT ARCH D

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- AM(PM) WEEKDAY AM(PM) PEAK HOUR VOLUMES

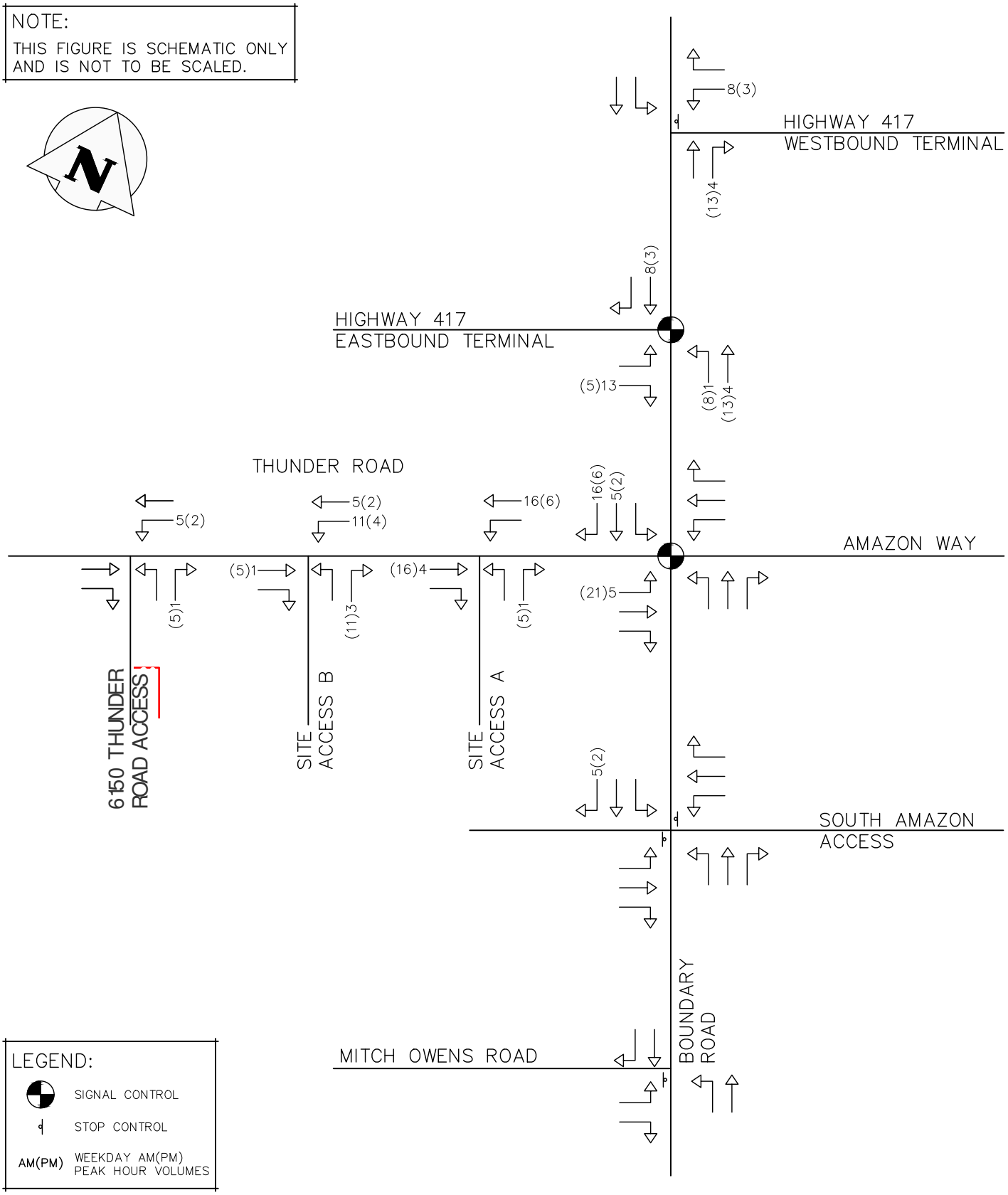
THUNDER ROAD & BOUNDARY ROAD
CITY OF OTTAWA

SITE TRIP ASSIGNMENT – EMPLOYEES

CROZIER & ASSOCIATES Consulting Engineers
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
905 875-0026 T
905 875-4915 F
www.cfcrozier.ca

Drawn	Design	Project No.	
S.K./T.D.S.	S.K.		1909–5772
Date	Check	Scale	Dwg.
2023/03/14	A.H.	N.T.S	FIG. 08

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- AM(PM) WEEKDAY AM(PM) PEAK HOUR VOLUMES

THUNDER ROAD & BOUNDARY ROAD
CITY OF OTTAWA

SITE TRIP ASSIGNMENT – TRUCKS

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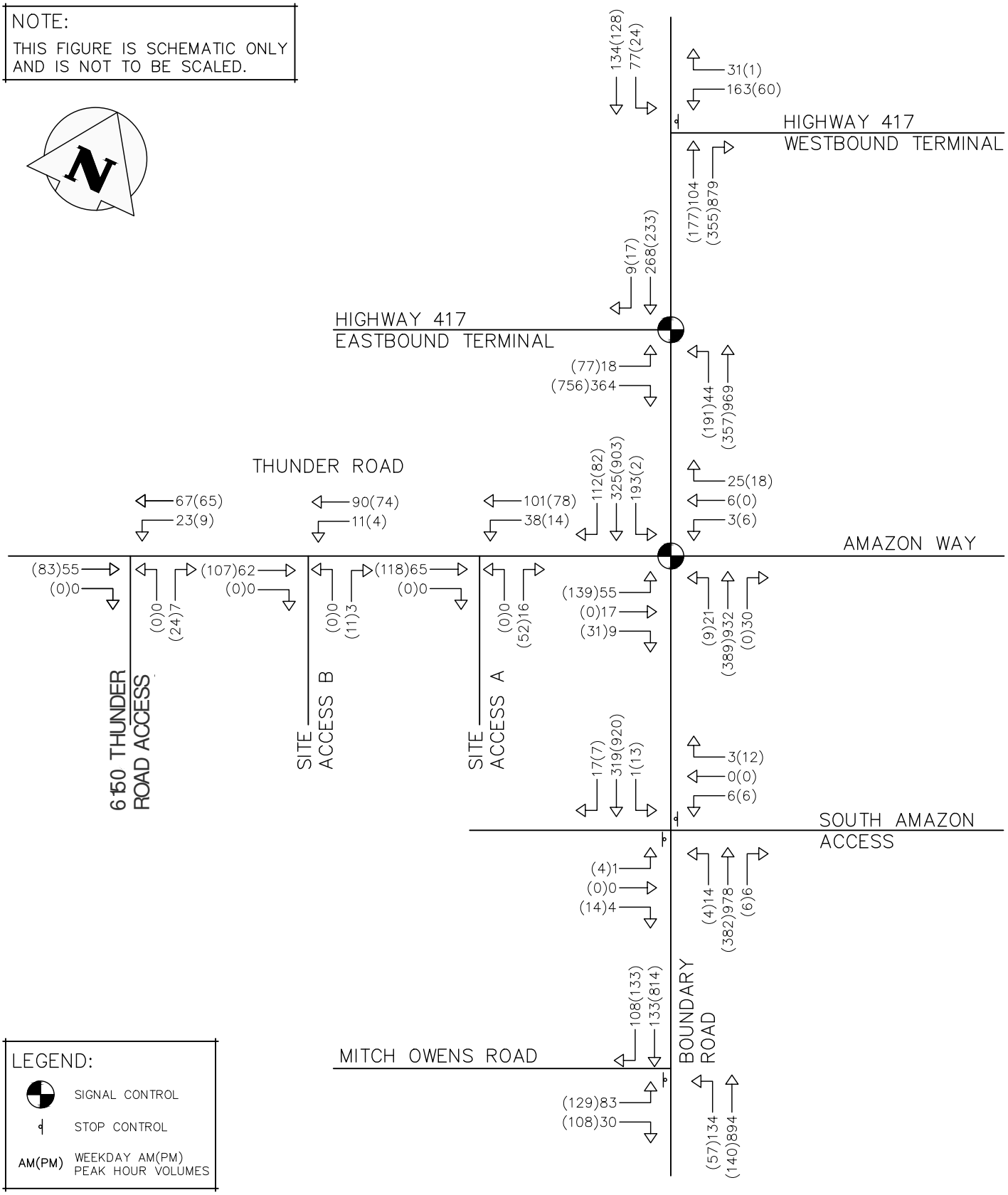
Drawn	Design	Project No.	
S.K./T.D.S.	S.K.	1909–5772	
Date	Check	Scale	Dwg.
2023/03/14	A.H.	N.T.S	FIG. 09

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- AM(PM) WEEKDAY AM(PM) PEAK HOUR VOLUMES

THUNDER ROAD & BOUNDARY ROAD
CITY OF OTTAWA

2025 FUTURE TOTAL TRAFFIC VOLUMES

CROZIER & ASSOCIATES
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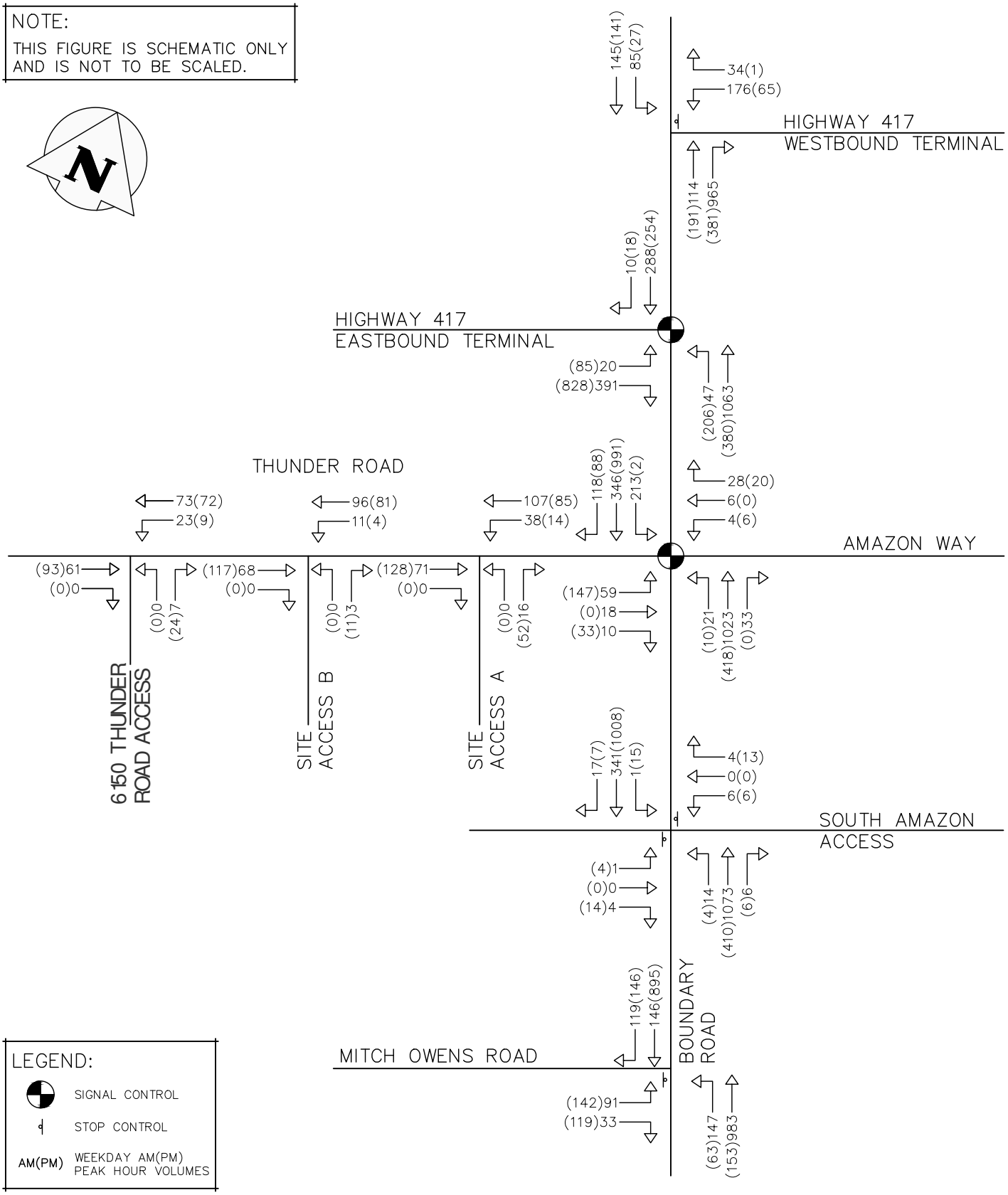
Drawn	Design	Project No.
S.K./T.D.S.	S.K.	1909-5772
Date	Check	Scale / Dwg.
2023/03/14	A.H.	N.T.S / FIG. 10

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



LEGEND:

- SIGNAL CONTROL
- STOP CONTROL
- AM(PM) WEEKDAY AM(PM) PEAK HOUR VOLUMES

THUNDER ROAD & BOUNDARY ROAD
CITY OF OTTAWA

2030 FUTURE TOTAL TRAFFIC VOLUMES

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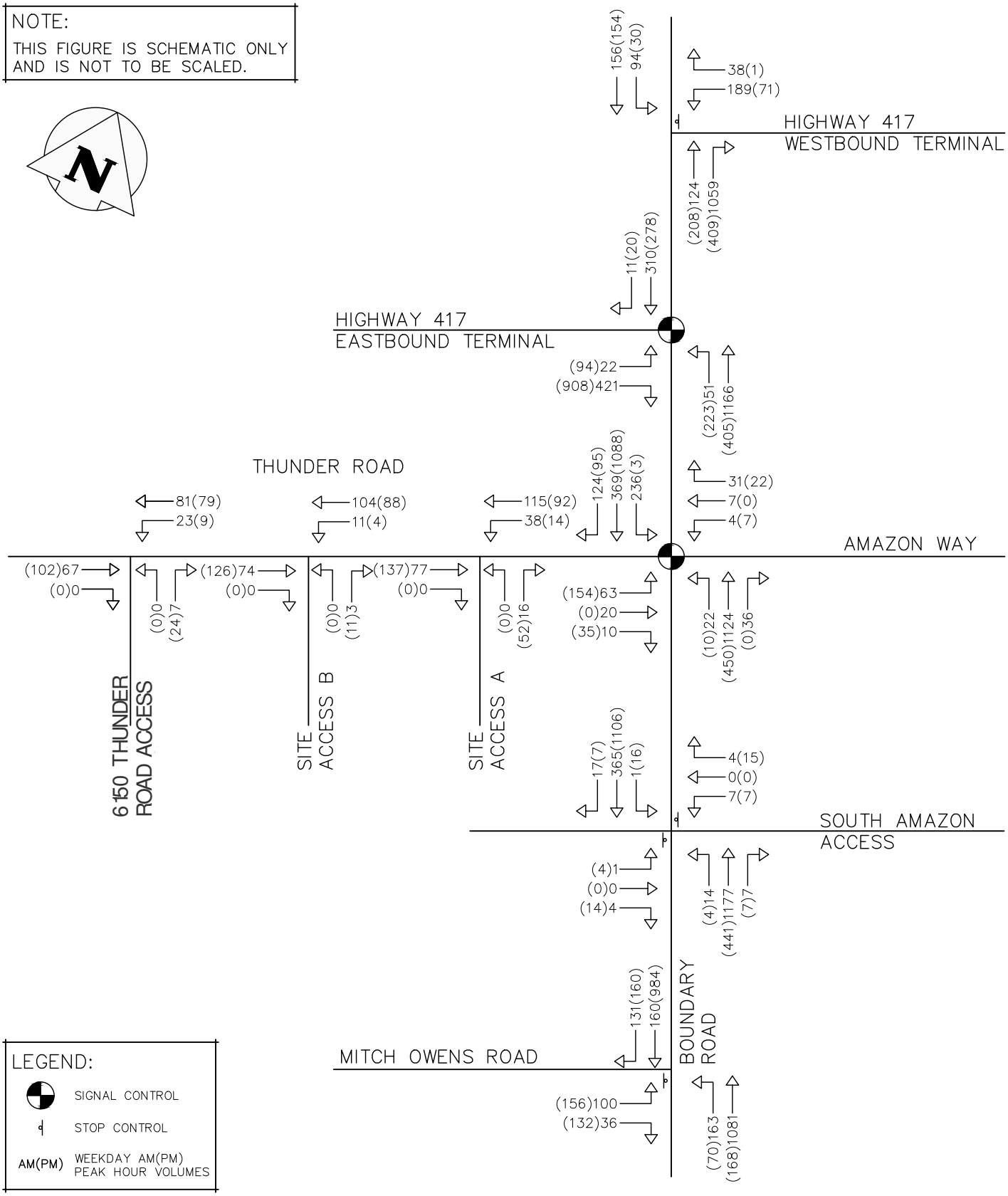
Drawn	Design	Project No.	
S.K./T.D.S.	S.K.		1909–5772
Date	Check	Scale	Dwg.
2023/03/14	A.H.	N.T.S	FIG. 11

NOTE:
THIS FIGURE IS SCHEMATIC ONLY AND IS NOT TO BE SCALED.



THUNDER ROAD & BOUNDARY ROAD
CITY OF OTTAWA

2035 FUTURE TOTAL TRAFFIC VOLUMES

CROZIER & ASSOCIATES Consulting Engineers
2800 High Point Drive
Suite 100
Milton, ON L9T 6P4
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905 875-4915 F
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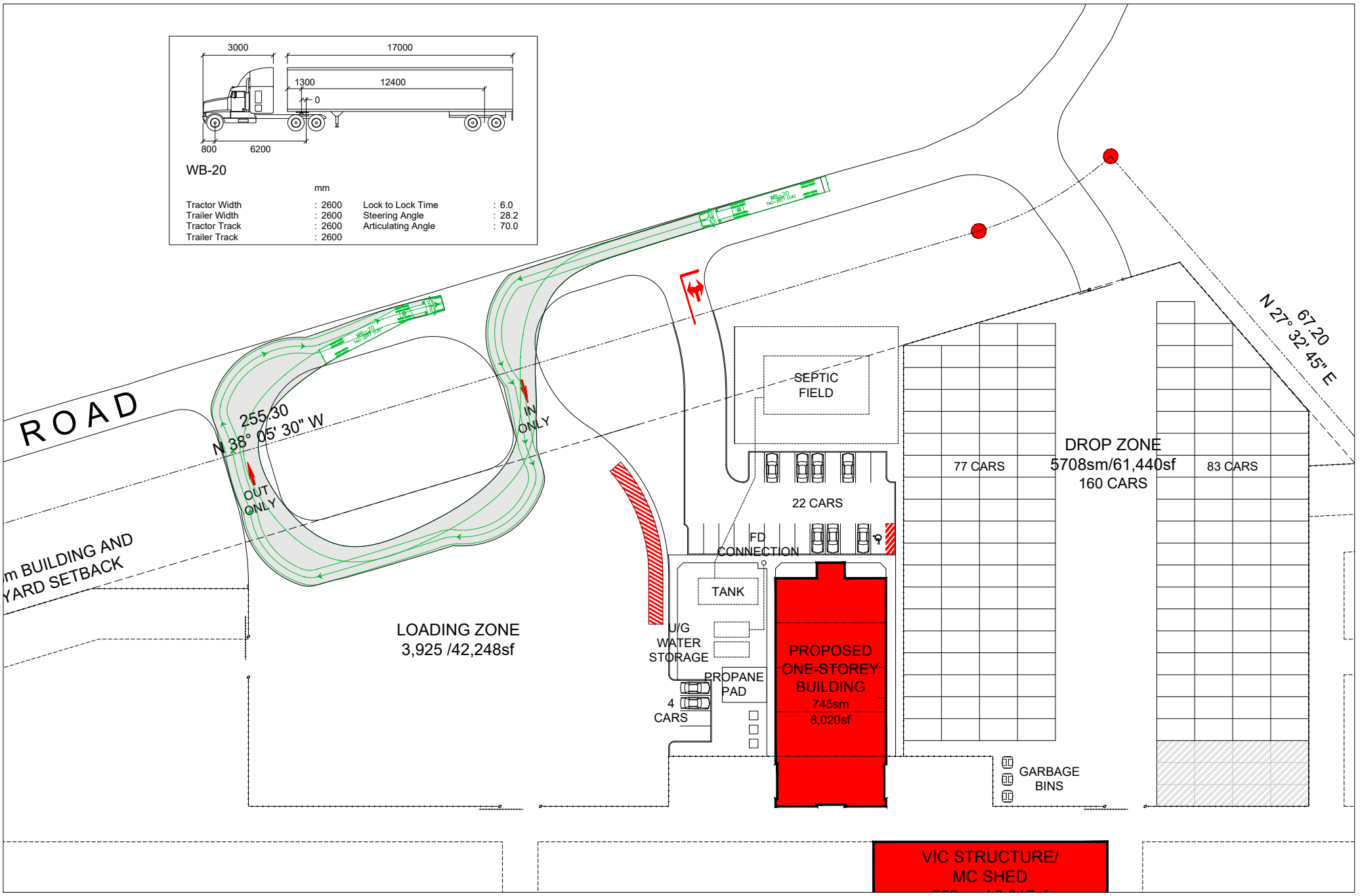
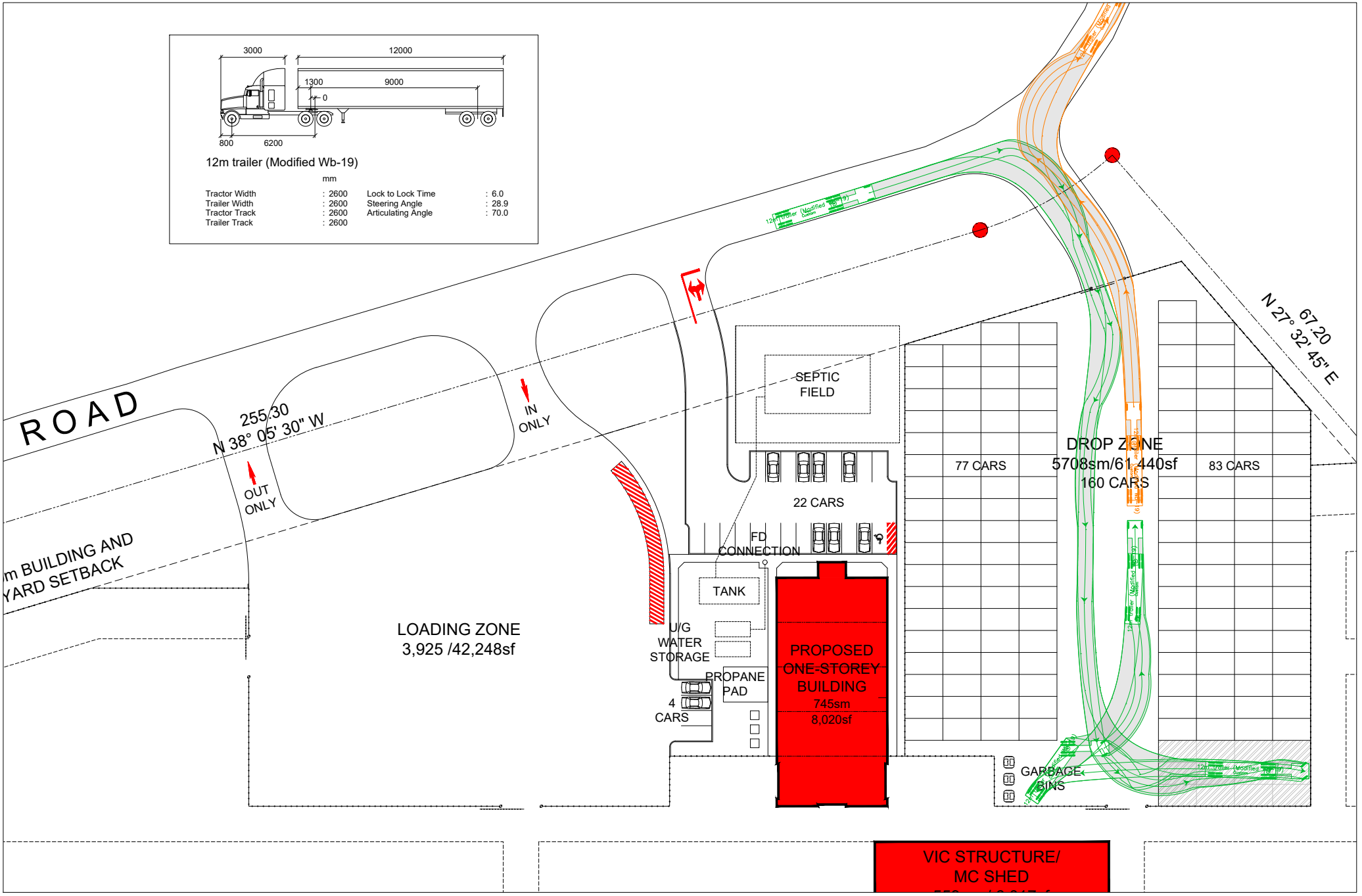
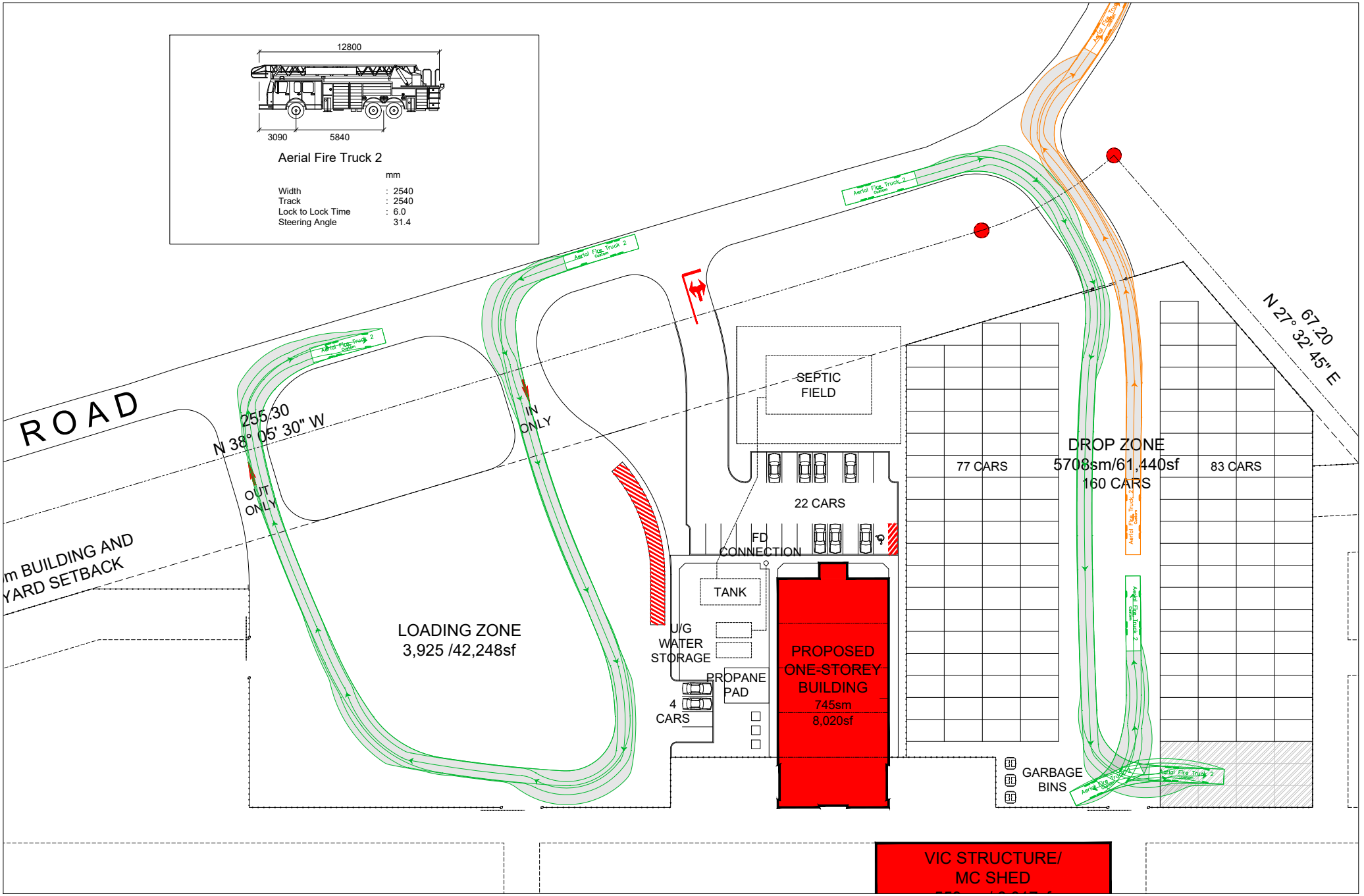
Drawn	Design	Project No.	
S.K./T.D.S.	S.K.		1909–5772
Date	Check	Scale	Dwg.
2023/03/14	A.H.	N.T.S	FIG. 12

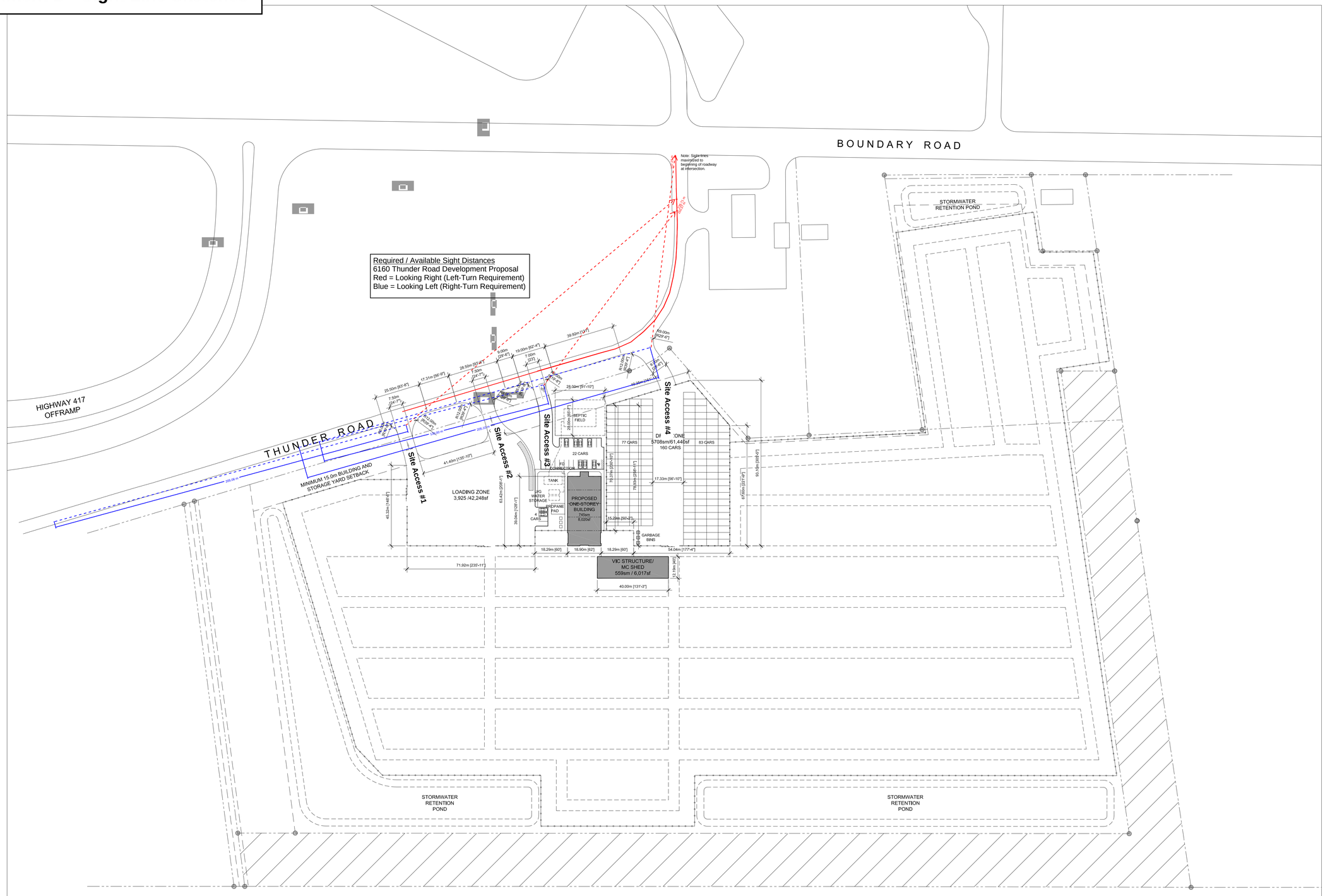
Attachment C - Vehicle Turning Diagrams




3000
12000
1300
9000
0
800
6200
12m trailer (Modified Wb-19)
mm
Tractor Width : 2600
Trailer Width : 2600
Tractor Track : 2600
Trailer Track : 2600
Lock to Lock Time : 6.0
Steering Angle : 28.9
Articulating Angle : 70.0
ROAD
255.30
N 38° 05' 30" W
OUT ONLY
IN ONLY
m BUILDING AND
YARD SETBACK
LOADING ZONE
3,925 /42,248sf
SEPTIC FIELD
22 CARS
FD CONNECTION
TANK
U/G WATER STORAGE
PROPANE PAD
4 CARS
PROPOSED ONE-STOREY BUILDING
745sm
8,020sf
77 CARS
DROP ZONE
5708sm/61,440sf
160 CARS
83 CARS
GARBAGE BINS
N 27° 32' 45" E
67.20
VIC STRUCTURE/
MC SHED


12800
3090
5840
Aerial Fire Truck 2
mm
Width : 2540
Track : 2540
Lock to Lock Time : 6.0
Steering Angle 31.4
ROAD
255.30
N 38° 05' 30" W
OUT ONLY
IN ONLY
m BUILDING AND
YARD SETBACK
LOADING ZONE
3,925 /42,248sf
SEPTIC FIELD
22 CARS
FD CONNECTION
TANK
U/G WATER STORAGE
PROPANE PAD
4 CARS
PROPOSED ONE-STOREY BUILDING
745sm
8,020sf
77 CARS
DROP ZONE
5708sm/61,440sf
160 CARS
83 CARS
GARBAGE BINS
N 27° 32' 45" E
67.20
VIC STRUCTURE/
MC SHED

Attachment D - Sight Line Sketches



01 SITE PLAN
SPA-01 SCALE: 1:1000

24 X 36 – PLOT ARCH D

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

Avenue31

North

Revisions

No.	By	Description	Date
01	JAS	REVISED FOR REVIEW	2024-06-21
02	JAS	REVISED FOR REVIEW	2024-06-24
03	JAS	ISSUED FOR APPROVAL	2024-06-26

Project

THUNDER ROAD
INDUSTRIAL PARK

6160 THUNDER ROAD, OTTAWA

Drawing

SITE PLAN

Scale
AS NOTED

Stamp

Drawn
ERM

Checked
JAS

Project No.
21-135

Drawing No.
SPA-01

Date
APRIL 2021

FIGURES

THUNDER ROAD & BOUNDARY ROAD
CITY OF OTTAWA

SITE LOCATION PLAN

CROZIER & ASSOCIATES
Consulting Engineers

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Suite 100
Milton, ON L9T 6P4
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905 875-4915 F
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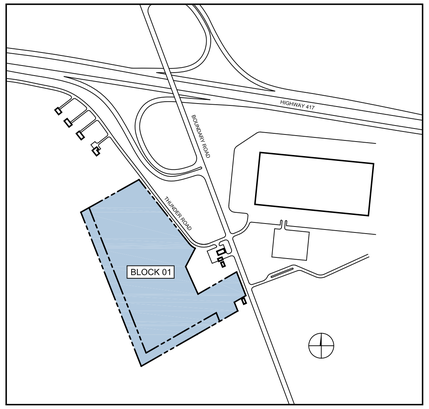
Drawn	Project No.	
T.D.S.	1909–5772	
Date	Scale	Dwg.
2024/ 08/ 07	N.T.S	FIG. 01



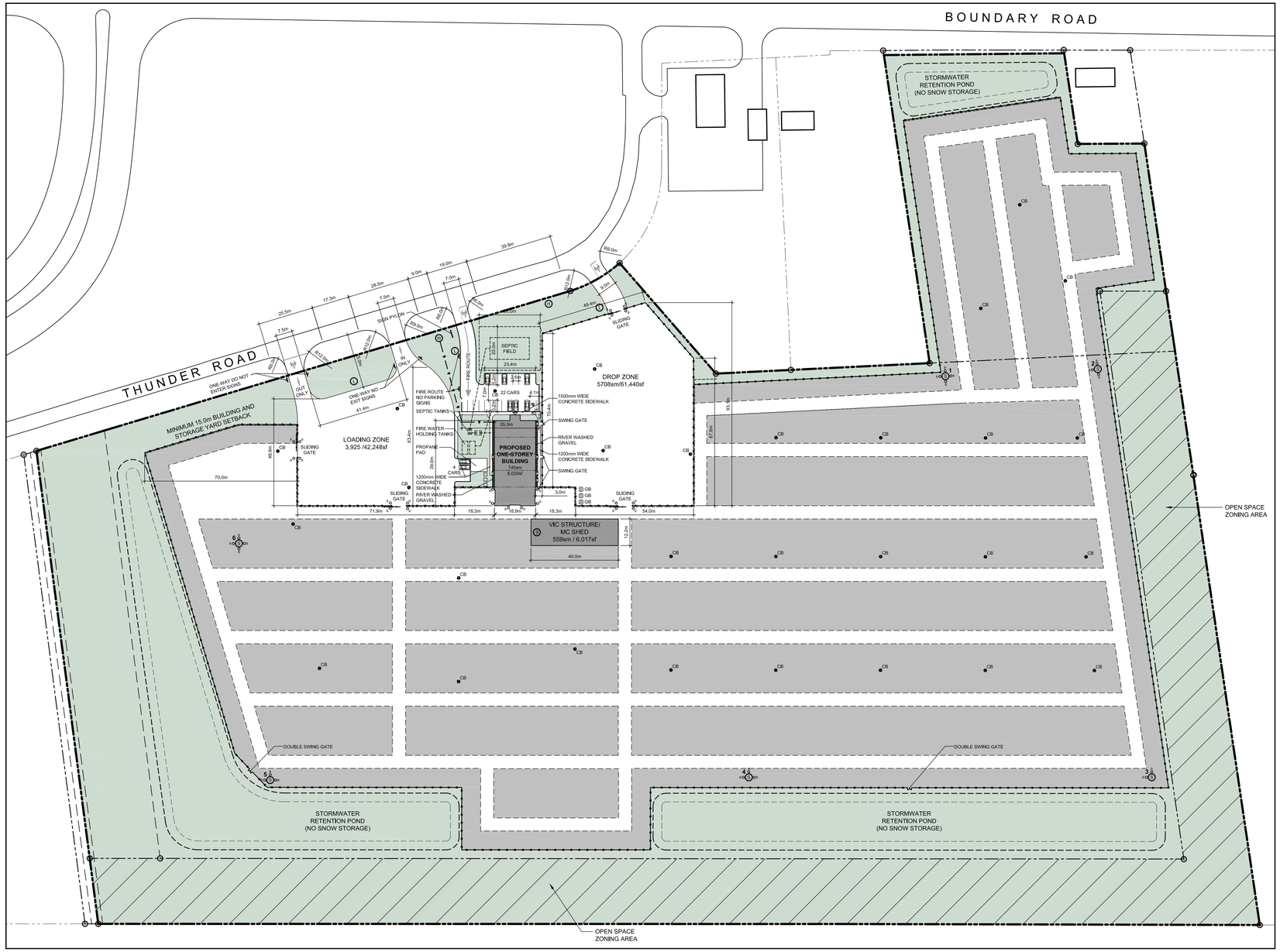
01 SP-A01 LOCATION PLAN
SCALE: NTS

SITE AREA SUMMARY

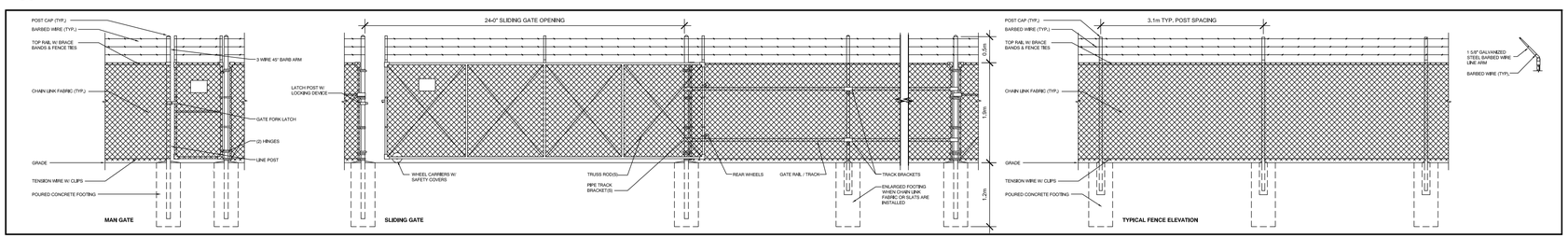
	GROSS AREA	OPEN SPACE ZONING AREA	DEVELOPABLE NET AREA
BLOCK 01	15,16 HA 37,46 ACRES	2,38 HA 5,88 ACRES	12,78 HA 31,58 ACRES

ZONING MECHANISM: ZONING BY-LAW 2008-250 CONSOLIDATION		REQUIRED	PROVIDED
ZONING:	RG[908R]-h RURAL GENERAL INDUSTRIAL ZONE	LIGHT INDUSTRIAL LIMITED COMMERCIAL	LIGHT INDUSTRIAL USE WAREHOUSE (N95)
MINIMUM LOT AREA		0,4HA	TOTAL: 15,16HA 37,46 ACRES
MINIMUM LOT WIDTH		30m	425m THUNDER ROAD 82m BOUNDARY ROAD
MAXIMUM LOT COVERAGE		50,0% MAX	__%
MINIMUM FRONT YARD		15m	
MINIMUM CORNER SIDE YARD		12m	
MINIMUM INTERIOR YARD SETBACK	ABUTTING A RG, RH OR RC ZONE	3m	
	ALL OTHER CASES	8m	
MINIMUM REAR YARD		15m	
MAXIMUM FLOOR SPACE INDEX		2	
MAXIMUM BUILDING HEIGHT		15m	
OUTDOOR STORAGE	NOT PERMITTED WITHIN ANY REQUIRED FRONT OR CORNER YARD		
	STORAGE MUST BE SCREEN WHEN ABUTTING RESIDENTIAL ZONES AND PUBLIC STREETS		
ZONING MECHANISM: ZONING BY-LAW 2008-250 CONSOLIDATION		**REQUIRED**	**PROVIDED**
MINIMUM WIDTH OF LANDSCAPING		3.0m	
PARKING - TYPICAL SECTION 101			
LOADING 101			
BICYCLE PARKING SECTION 111 WAREHOUSE 1 SPACE PER 2000m2 BY-LAW 2015-190			

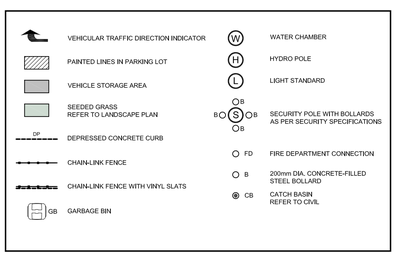
02 SP-A01 SITE & ZONING DATA & STATISTICS
SCALE: NTS



03 SP-A SITE PLAN
SCALE: 1:1500



04 SP-A01 FENCE DETAILS
SCALE: 1:50



05 SP-A01 SYMBOLS LEGEND
SCALE: NTS

24 X 36 – PLOT ARCH D

MCROBIE
ARCHITECTS + INTERIOR DESIGNERS

North

Revisions

No.	By	Description	Date
01	JAS	REVISED FOR REVIEW	2024-06-21
02	JAS	REVISED FOR REVIEW	2024-06-24
03	JAS	ISSUED FOR APPROVAL	2024-06-26
04	JAS	ISSUED FOR COORDINATION	2024-07-22
05	JAS	REVISED FOR COORD.	2024-07-30

Project
THUNDER ROAD INDUSTRIAL PARK

6160 THUNDER ROAD, OTTAWA

Drawing
LOCATION PLAN, ZONING REVIEW AND SITE PLAN

Scale: AS NOTED
Stamp
Drawn: ERM
Checked: JAS

Project No.: 21-135
Drawing No.: SP-A01
Date: APRIL 2021