2M architects inc.
115 lake Street Street
St. Catharines, ON
Canada L2R 5X7
Tel: (905) 687-9777
Fax: (905) 687-9997
2Marchitects@cogeco.net

■ **Luigi Marcantonio**
b.tech, m.arch, oaa, mraic

■ **Michael Mirynech**
bes, b.arch, oaa, mraic

Proposed 6 Storey Residential Building

Shadow Study

825 Garrison Road,
Fort Erie, ON

2M architects inc
July 24, 2025

Summary of the Development Proposal and Background Information:

The Site is proposed to be developed to include a 6 Storey Residential Building with 100 Residential Units and 125 parking spaces at grade.

Property Description:

The subject property is located at the south side of Garrison Road (Highway No.3) between Kraft Road on the West and Helena Street on the East in Fort Erie, ON. It measures approximately 100m of lot frontage along the south side of Garrison Road and approximately 130 of lot depth, for an approximate lot area of 1.27Ha

Forth Erie, ON longitude is 78.94 West, latitude is 42.90 North and time zone is EST (-5 UTC)

Surrounding Land Use:

The surrounding land uses are as follows:

North: Across Garrison Road (Highway No.3) the neighbouring properties are Neighbourhood Development ND Zone, Residential Multiple RM2 Zone and Highway Commercial C3 Zone.

East: The immediate neighbouring properties are Highway Commercial C3 Zone and an Enviromental Protection EP Zone.

South: The immediate neighbouring property is Neighbourhood Development ND Zone.

West: The immediate neighbouring properties are Residential R1 Zone.

Methodology:

This Study is based in the information from National Research Council Canada and provides shadow diagrams for 4 times of the year including its patterns over the course of the day on Dec 21, Mar 21 / Sep 21, Apr 21 and Jun 21.

Northern hemisphere cities, such as Fort Erie, are more frequently impacted by the location of the sun but in this case due to the orientation and positioning of the building the impact by shadows from this development are almost none.

Adjacent properties on the West and North sides are not shrouded by any shadow and the adjacent property on the East side in not shrouded by shadow for more than 2 consecutive hours.

It should be noted that in December, the average amount of sunshine is 25%, and on average 69 hours or 18 days of direct sunlight. Compared to 61% of sunshine, and on average 280 hours or 28 days of direct sunlight in June.

Diagrams on Dec 21 includes shadow patterns from 10:15am (Solar Noon -2hr) to 4:15pm (Solar Noon +4hr). See SK1 dwg

Diagrams on Mar 21 / Sep 21 includes shadow patterns from 9:15am (Solar Noon -3hr) to 5:15pm (Solar Noon +5hr). See SK2 dwg

Diagrams on Jun 21 includes shadow patterns from 9:15am (Solar Noon -3hr) to 5:15pm (Solar Noon +5hr). See SK3 dwg

Diagrams on Apr 21 includes shadow patterns from 9:15am (Solar Noon -3hr) to 5:15pm (Solar Noon +5hr). See SK4 dwg

Please note that 1hr needs to be added to listed times for the diagrams on Mar 21 / Sep 21, Jun 21 and Apr 21 as daylight saving time is in effect.

Impact Surrounding Land Use:

Based on Urban Design Guidelines, buildings should minimize adverse shadow impacts on adjacent buildings and streets, ensuring no shadows are cast on public spaces or private amenity areas for more than four consecutive hours during the spring and summer months (April 21 to September 21)

i) Outdoor Residential Amenity Spaces on Adjacent Properties, are not covered in shadow.

ii) Outdoor Residential Amenity Spaces within the Property, is not covered in shadow for more than two consecutive hours.

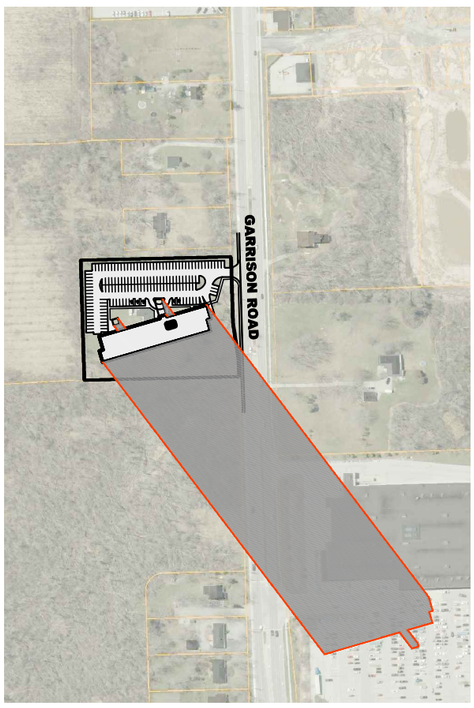
iii) Sidewalk areas and boulevards along the frontage of the development, are not covered in shadow.

Conclusion:

It is our conclusion that general daylight is unaffected. Direct sunlight is affected by shadow in a period of low direct sunlight from November to January mostly at sunrise and sunset and never for more than 2 consecutive hours on the East side of the property.

The design adheres to Urban Design Guidelines, which emphasize the importance of ensuring that new buildings do not negatively impact the surrounding public and private spaces in a way that prevents from casting shadows for more than four consecutive hours during the day.

DEC 21 - 4:15PM (SN +4HR)



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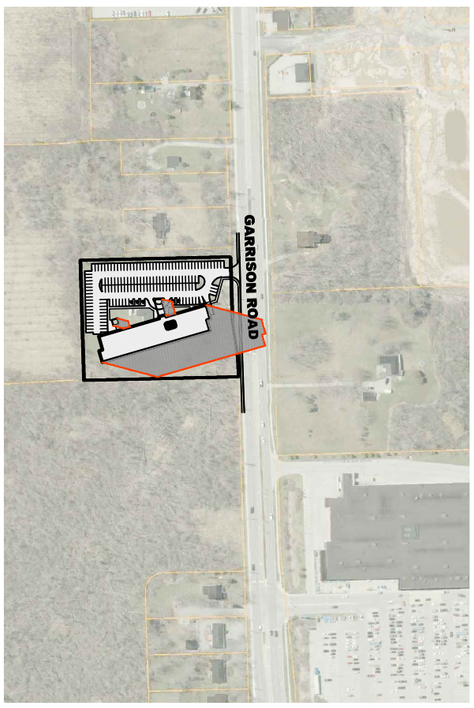

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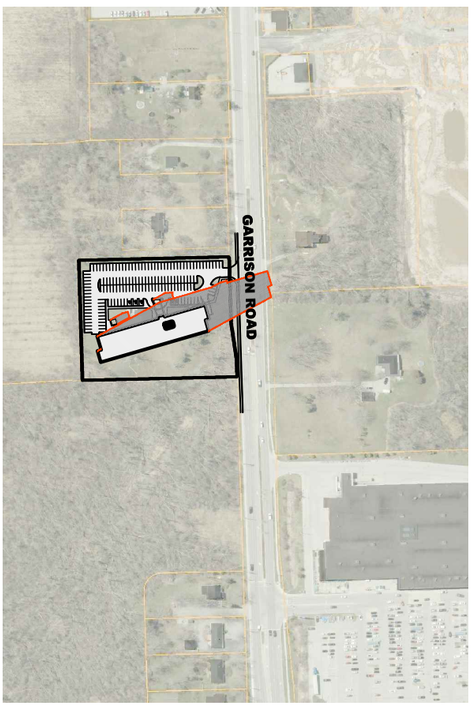

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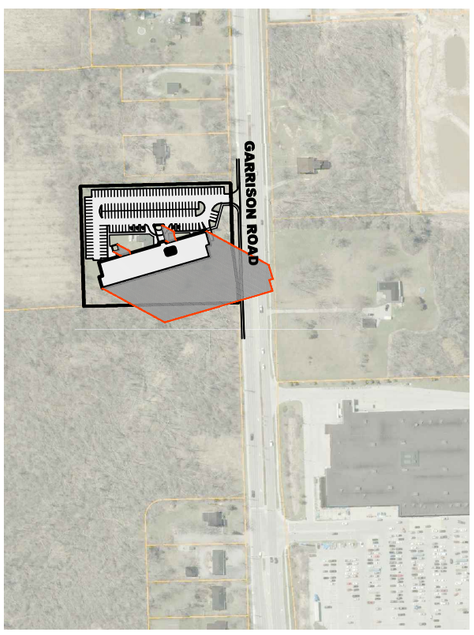

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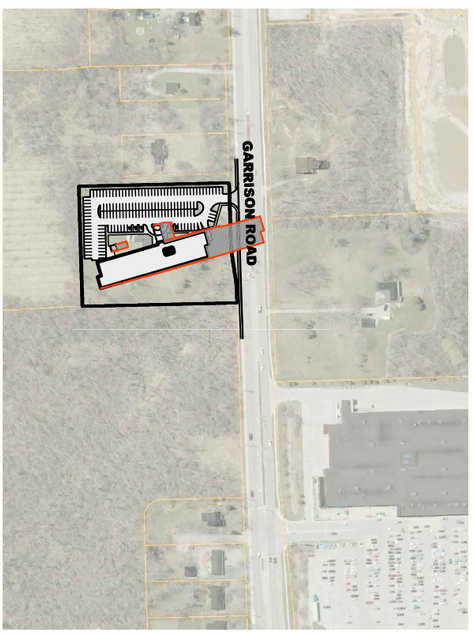

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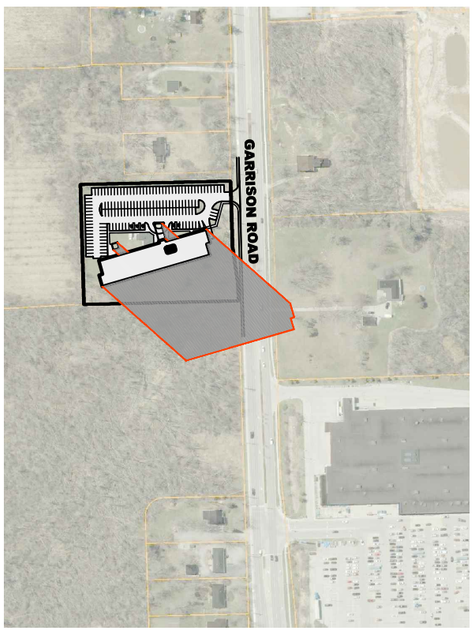

DEC 21 - 12:15PM (SOLAR NOON)

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LATITUDE: 42.90 N
TIME ZONE: EST (-5 UTC)
SUNRISE: 7:43am
SUNSET: 4:44pm

PROP'D SHADOW

100.00m

SCALE 1:5000

job number: 24–40 | revision number:

drawing number: **SK1**

project title: PROPOSED DEVELOPMENT
825 GARRISON ROAD
FORT ERIE, ON

drawing title: DEC 21 – SHADOW STUDY

drawn by: EH
design by: LJM | plot scale: 1:1
approved by: MRM | scale: AS NOTED
date: JUL 24, 2025

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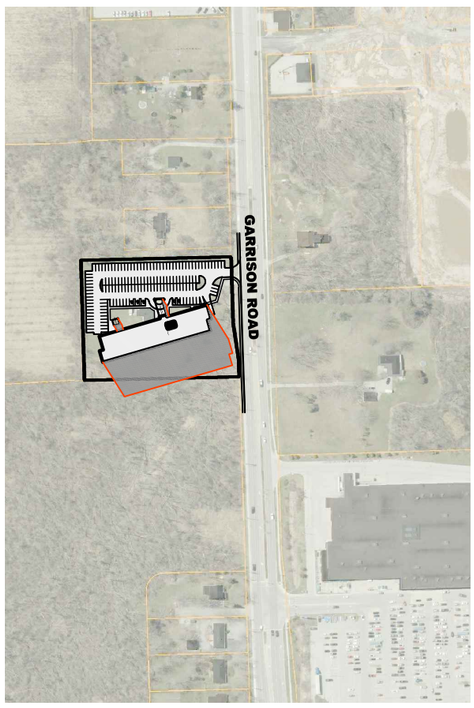
MAR/SEP 21 - 3:15PM (SN +3HR)



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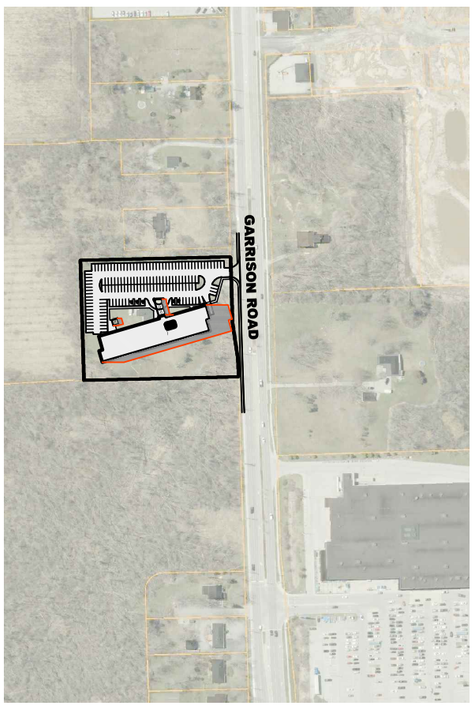

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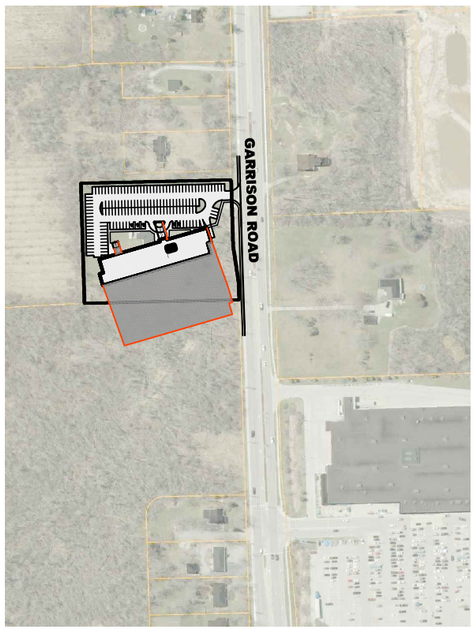
MAR/SEP 21 - 4:15PM (SN +4HR)



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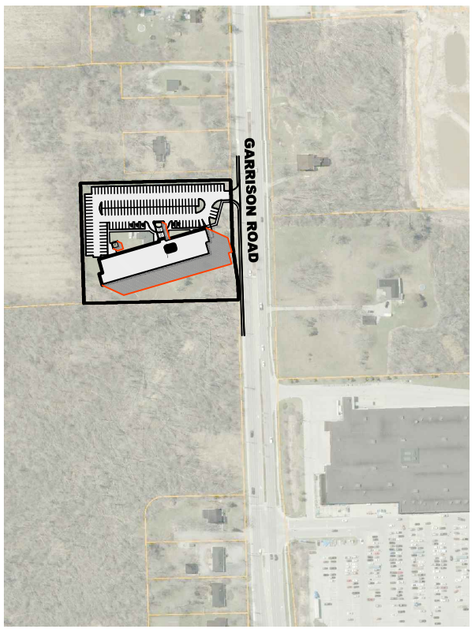

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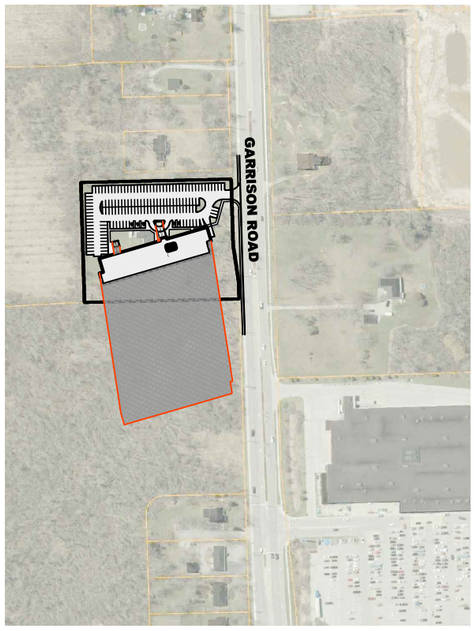

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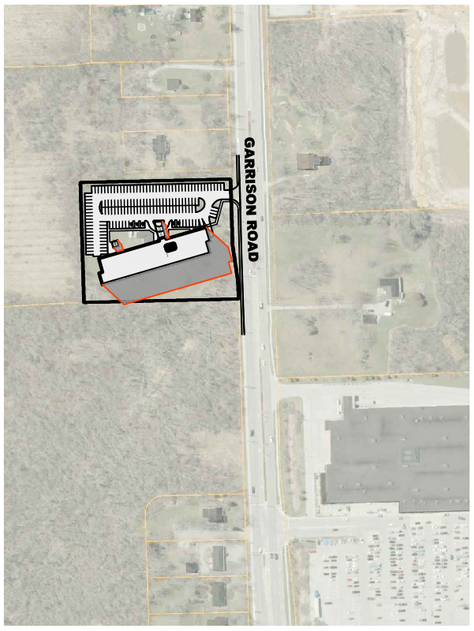

MAR/SEP 21 - 11:15AM (SN -1HR)

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LONGITUDE: 78.94 W
LATITUDE: 42.90 N
TIME ZONE: EST (-5 UTC)
SUNRISE: 6:16am
SUNSET: 6:29pm
ADD 1HR TO LISTED TIMES - DAYLIGHT SAVING TIME IN EFFECT

PROP'D SHADOW

100.00m

SCALE 1:5000

job number: 24–40 | revision number:

drawing number: **SK2**

project title: PROPOSED DEVELOPMENT
825 GARRISON ROAD
FORT ERIE, ON

drawing title: MAR/SEP 21 – SHADOW STUDY

drawn by: EH
design by: LJM | plot scale: 1:1
approved by: MRM | scale: AS NOTED
date: JUL 24, 2025

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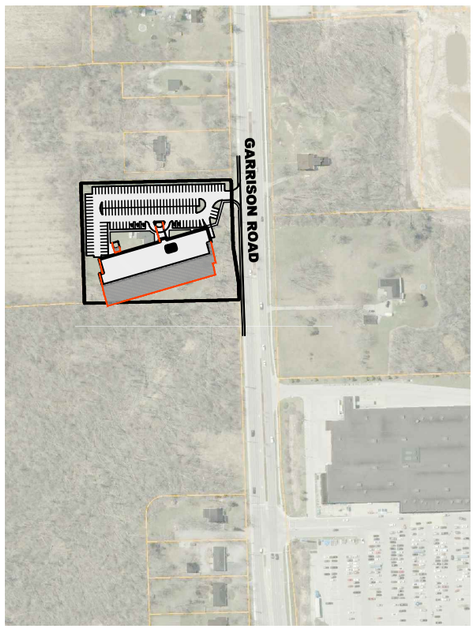
JUN 21 - 3:15PM (SN +3HR)



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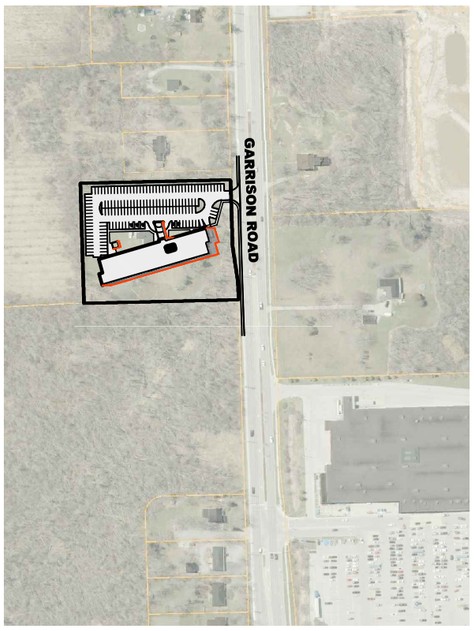

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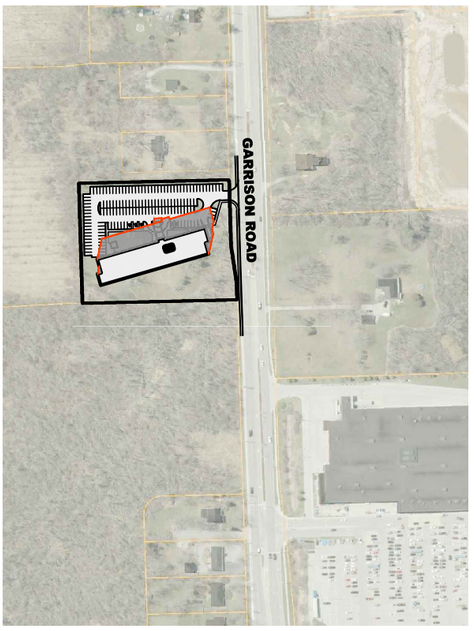

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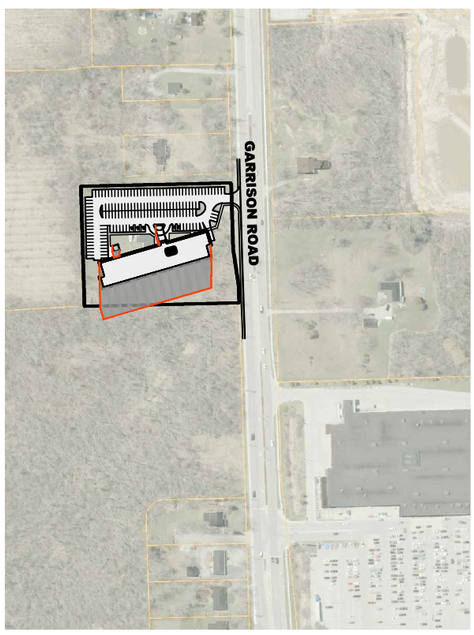

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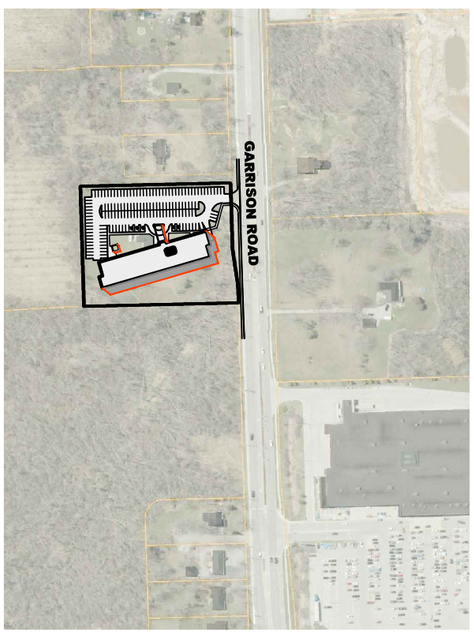

JUN 21 - 10:15AM (SN -2HR)

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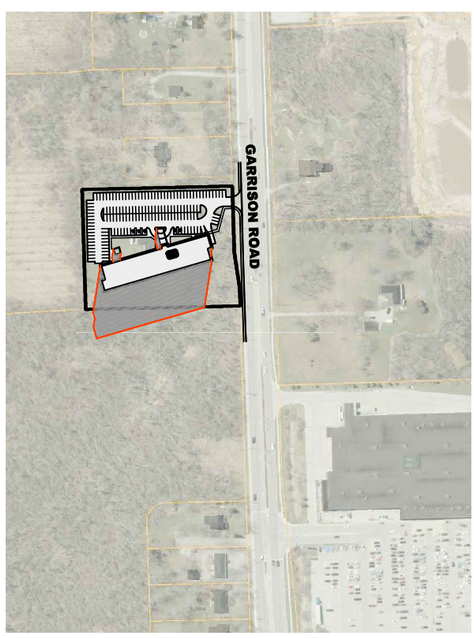

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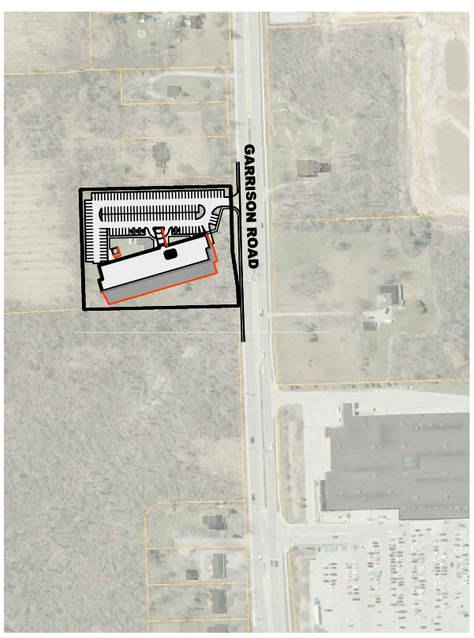

JUN 21 - 11:15AM (SN -1HR)

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LATITUDE: 42.90 N
TIME ZONE: EST (-5 UTC)
SUNRISE: 4:37am
SUNSET: 7:58pm
ADD 1HR TO LISTED TIMES - DAYLIGHT SAVING TIME IN EFFECT

PROP'D SHADOW

100.00m

SCALE 1:5000

job number: 24–40 | revision number:

drawing number: **SK3**

project title: PROPOSED DEVELOPMENT
825 GARRISON ROAD
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drawing title: JUN 21 – SHADOW STUDY

drawn by: EH
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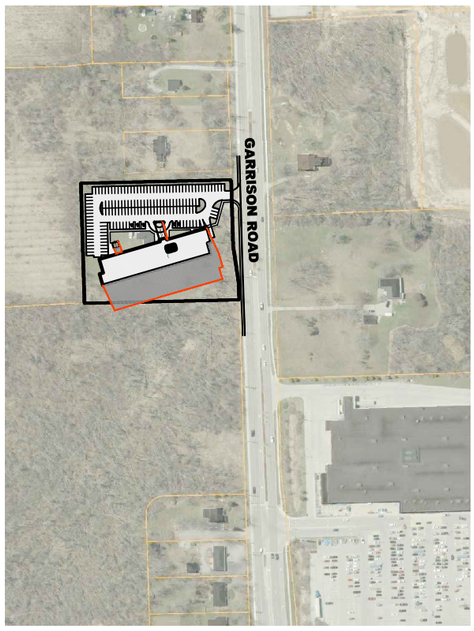
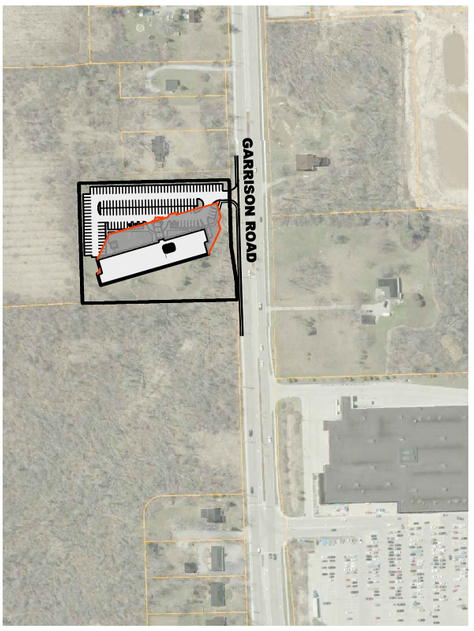
APR 21 - 3:15PM (SN +3HR)



APR 21 - 12:15PM (SOLAR NOON)

APR 21 - 9:15AM (SN -3HR)



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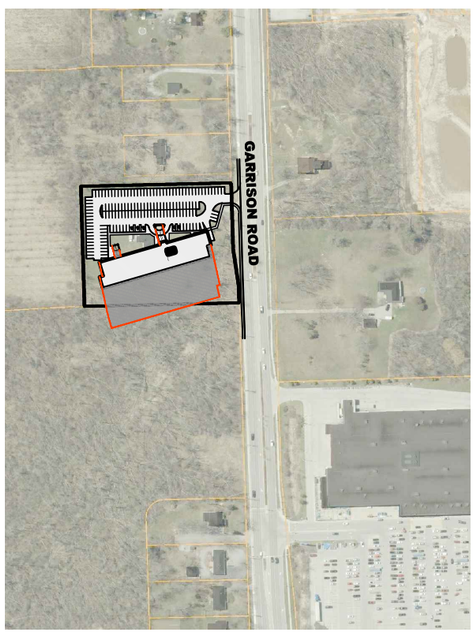

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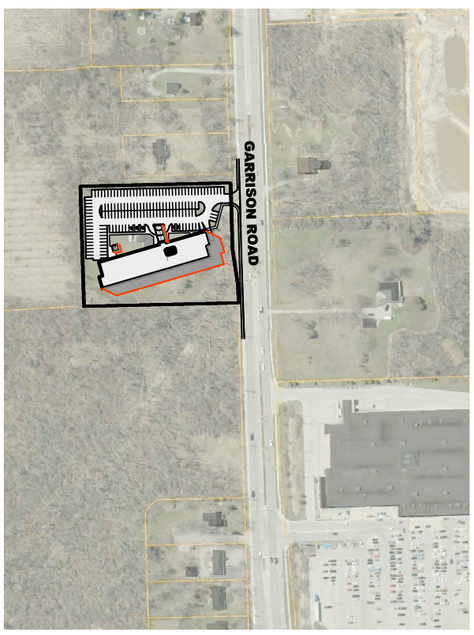

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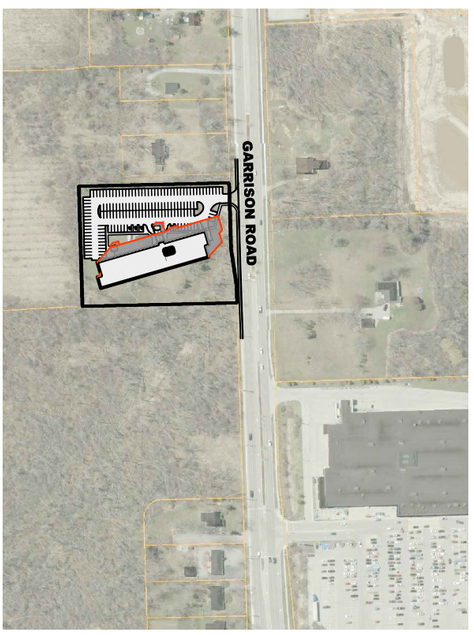

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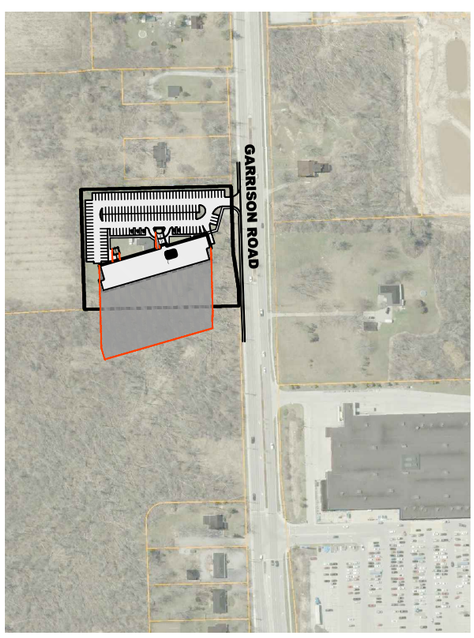

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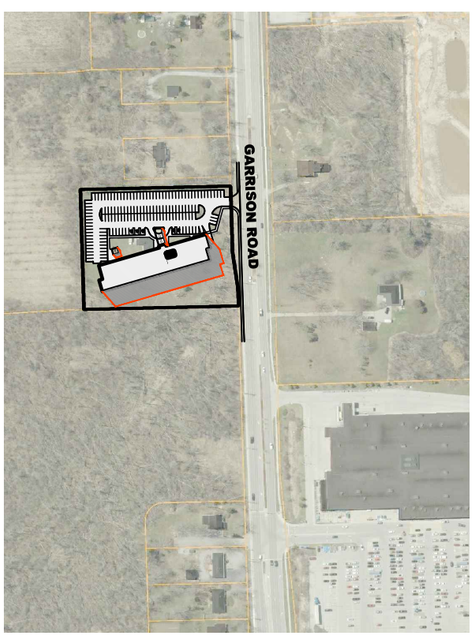

APR 21 - 11:15AM (SN -1HR)

SUN POSITION FOR FORT ERIE, ON ON APR 21
LONGITUDE: 78.94 W
LATITUDE: 42.90 N
TIME ZONE: EST (-5 UTC)
SUNRISE: 5:24am
SUNSET: 7:05pm
ADD 1HR TO LISTED TIMES - DAYLIGHT SAVING TIME IN EFFECT

PROP'D SHADOW

100.00m

SCALE 1:5000

job number: 24–40 | revision number:

drawing number: **SK4**

project title: PROPOSED DEVELOPMENT
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drawn by: EH
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