



TROY CITY COUNCIL

REGULAR MEETING AGENDA

FEBRUARY 27, 2023

CONVENING AT 7:30 P.M.

**Submitted By
The City Manager**

NOTICE: Persons with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk at (248) 524-3316 or via e-mail at clerk@troymi.gov at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations.



500 West Big Beaver
Troy, MI 48084
troymi.gov

The Honorable Mayor and City Council Members

City of Troy
500 West Big Beaver
Troy, MI 48084

Dear Mayor and City Council Members:

In this packet, you will find the agenda for the City Council meeting. To help facilitate an informed discussion, the packet provides you with agenda items and additional details. The packet also contains recommended courses of action for your consideration and seeks to aid you in adopting sound policy decisions for the City of Troy.

This comprehensive agenda has been put together through the collaborative efforts of management and staff members. We have made all attempts to obtain accurate supporting information. It is the result of many meetings and much deliberation, and I would like to thank the staff for their efforts.

If you need any further information, staff is always available to provide more information and answer questions that may arise. You can contact me at CityManager@troymi.gov or 248.524.3330 with questions.

Respectfully,

A handwritten signature in black ink, appearing to read "Mark F. Miller". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Mark F. Miller,
City Manager



Chapter 14A – Elected and Appointed Persons’ Ethics Ordinance
Section 14.3 Annual Training and Acknowledgement

We, the undersigned Members of Troy City Council, have reviewed *Chapter 14A – Elected and Appointed Persons’ Ethics Ordinance*, understand its contents, and agree to be bound by its provisions.

Signed this 14th day of November, 2022.

A blue ink signature of Mayor Ethan Baker, written in a cursive style.

Mayor Ethan Baker

A black ink signature of Council Member Edna Abraham, written in a cursive style.

Council Member Edna Abraham

A black ink signature of Mayor Pro Tem Rebecca Chamberlain-Creanga, written in a cursive style.

Mayor Pro Tem Rebecca Chamberlain-Creanga

A black ink signature of Council Member David Hamilton, written in a cursive style.

Council Member David Hamilton

A black ink signature of Council Member Theresa Brooks, written in a cursive style.

Council Member Theresa Brooks

A blue ink signature of Council Member Ann Erickson Gault, written in a cursive style.

Council Member Ann Erickson Gault

A black ink signature of Council Member Ellen Hodorek, written in a cursive style.

Council Member Ellen Hodorek



CITY COUNCIL AGENDA

February 27, 2023 – 7:30 PM

City Council Chambers

500 W. Big Beaver Rd.

Troy, MI 48084

(248) 524-3316

View the Meeting Live at: www.troymi.gov/webcast

or on Local Access Cable Channels

(WOW – Ch 10, Comcast – Ch 17, AT&T – Ch 99)

INVOCATION: Troy Police Department Chaplain Robert Cornwall 1

PLEDGE OF ALLEGIANCE: 1

A. CALL TO ORDER: 1

B. ROLL CALL: 1

C. CERTIFICATES OF RECOGNITION AND SPECIAL PRESENTATIONS: 1

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D-1 No Carryover Items 1

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November 13, 2023 Regular Meeting 15
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INVOCATION: Troy Police Department Chaplain Robert Cornwall

PLEDGE OF ALLEGIANCE:

A. CALL TO ORDER:

B. ROLL CALL:

- a) Mayor Ethan Baker
- Edna Abraham
- Theresa Brooks
- Rebecca A. Chamberlain-Creanga
- Ann Erickson Gault
- David Hamilton
- Ellen Hodorek

Excuse Absent Council Members:

Suggested Resolution

Resolution #2023-02-

Moved by

Seconded by

RESOLVED, That Troy City Council hereby **EXCUSES** the absence of _____ at the Regular City Council of February 27, 2023, due to _____.

Yes:

No:

C. CERTIFICATES OF RECOGNITION AND SPECIAL PRESENTATIONS:

C-1 No Certificates of Recognition and Special Presentations

D. CARRYOVER ITEMS:

D-1 No Carryover Items

E. PUBLIC HEARINGS:

E-1 Public Hearing - Planned Unit Development (File Number PUD 019 JPLN2022-0013) – Proposed Village of Troy PUD, South Side of Long Lake, West of Rochester (Parcels #88-20-15-201-046 and #88-20-15-201-033), Section 15, Currently Zoned RT (One Family Attached Residential), R-1C (One Family Residential) and CB (Community Business) District

Suggested Resolution

Resolution #2023-02-

Moved by

Seconded by

WHEREAS, The applicant, Robertson Brothers Homes, seeks Conceptual Development Plan (CDP) and Preliminary Development Plan (PDP) approval for the Village of Troy Planned Unit Development (PUD), located on the south side of Long Lake, west of Rochester, in Section 15, approximately 20.48 acres in area; and,

WHEREAS, The Village of Troy PUD features 20 detached single-family homes, 56 attached single-family homes (2 stories) and 70 attached townhomes (3 stories); and,

WHEREAS, The PUD provides a walkable urban environment that is compact, designed to human scale, and exhibits contextual integration of buildings and city spaces; and,

WHEREAS, The PUD provides a compatible mix of open space, landscaped areas and pedestrian amenities, including incorporation of a regional trail way system; and,

WHEREAS, The PUD proposes appropriate land use transitions between the PUD and surrounding properties; and,

WHEREAS, The PUD will reasonably mitigate impacts to the transportation system and enhance non-motorized facilities and amenities; and,

WHEREAS, The PUD provides a complementary variety of housing types;

BE IT RESOLVED, That CDP Approval and PDP Approval for the proposed Village of Troy PUD, **BE GRANTED**.

BE IT FURTHER RESOLVED, That Troy City Council hereby **GRANTS** CDP Approval and PDP Approval for the proposed amendment to Village of Troy PUD.

BE IT FURTHER RESOLVED, The subject property is hereby **REZONED** to Planned Unit Development (PUD #19).

BE IT FURTHER RESOLVED, That Troy City Council hereby **APPROVES** the proposed PUD Agreement, attached hereto, subject to further such minor, conforming and clarifying changes consistent with the terms thereof as may be approved by the Community Development Director, in consultation with the City Manager and City Attorney.

BE IT FURTHER RESOLVED, That the Mayor and City Clerk are hereby **AUTHORIZED TO EXECUTE** the PUD Agreement for Village of Troy PUD on behalf of the City; a copy of which shall be **ATTACHED** to the original Minutes of this meeting.

BE IT FURTHER RESOLVED, That Troy City Council hereby **AUTHORIZES** City Administration to record the executed Village of Troy PUD Agreement with the Oakland County Register of Deeds.

BE IT FINALLY RESOLVED, That Troy City Council hereby **AUTHORIZES** the petitioner to submit the Final Development Plan pursuant to Section 11.08 of Chapter 39.

Yes:
No:

F. PUBLIC COMMENT FOR ITEMS ON THE AGENDA FROM TROY RESIDENTS AND BUSINESSES:

In accordance with the Rules of Procedure for the City Council:

Any person not a member of the City Council may address the Council with recognition of the Chair, after clearly stating the nature of his/her inquiry or comment. ***NOTE TO THE PUBLIC:*** *City Council requests that if you do have a question or concern, to bring it to the attention of the appropriate department(s) whenever possible. If you feel that the matter has not been resolved satisfactorily, you are encouraged to bring it to the attention of the City Manager, and if still not resolved satisfactorily, to the Mayor and Council.*

- Petitioners of items that are included in the pre-printed agenda booklet shall be given a fifteen (15) minute presentation time that may be extended with the majority consent of City Council.
- Any member of the public, not a petitioner of an item, shall be allowed to speak for up to three (3) minutes to address any Public Hearing item.
- Any member of the public, not a petitioner of an item, does not have the right to engage in discussion or debate with City Council during the Public Comment portions of the meeting.
- All members of the public who wish to address the Council at a meeting shall be allowed to speak only if they have signed up to speak within thirty minutes before or within fifteen minutes after the meeting's start time. Signing up to speak requires each speaker provide his or her name. If the speaker is addressing an item(s) that appears on the pre-printed agenda, then the speaker shall also identify each such agenda item number(s) to be addressed.
- City Council may waive the requirements of this section by a consensus of the City Council.
- Agenda items that are related to topics where there is significant public input anticipated should initiate the scheduling of a special meeting for that specific purpose.

Prior to Public Comment, the Mayor may provide a verbal notification of the rules of decorum for City Council meetings or refer to the pre-printed agenda booklet, which will include the following language, as approved by City Council:

Please direct your comments to the City Council as a whole rather than to any individual. Please do not use expletives or make derogatory or disparaging comments about any individual or group. If you do, there may be immediate consequences, including being muted and having your comments omitted from any re-broadcast of the meeting. Please abide by these rules in order to minimize the possibility of disrupting the meeting.

G. CITY COUNCIL/CITY ADMINISTRATION RESPONSE/REPLY TO PUBLIC COMMENT FOR ITEMS ON THE AGENDA FROM TROY RESIDENTS AND BUSINESSES:

H. POSTPONED ITEMS:

H-1 No Postponed Items

I. REGULAR BUSINESS:

I-1 Board and Committee Appointments: a) Mayoral Appointments – None; b) City Council Appointments – Election Commission, Traffic Committee

a) Mayoral Appointments: None

b) City Council Appointments:

Suggested Resolution

Resolution #2023-02-

Moved by

Seconded by

RESOLVED, That Troy City Council hereby **APPOINTS** the following nominated person(s) to serve on the Boards and Committees as indicated:

Election Commission

Appointed by Council

2 Regular Members and 1 Charter Member

1 Year Term

Nominations to the Election Commission:

Term Expires: 1/31/2024

Stephen Sadlier

Democrat

Term currently held by: Stephen Sadlier

Term Expires: 1/31/2024

Ray Watts

Republican

Term currently held by: Ray Watts
(Republican Party Recommendation)

Traffic Committee

Appointed by Council

7 Regular Members

3 Year Term

Nominations to the Traffic Committee:

Term Expires: 7/31/2023

Deepti Aggarwal

Student

Term currently held by: Tyler Koralewski

Term Expires: 1/31/2026

Richard Kilmer

Term currently held by: Richard Kilmer

Term Expires: 1/31/2026

Al Petruilis

Term currently held by: Al Petruilis

Term Expires: 1/31/2026 **Peter Ziegenfelder**

Term currently held by: Peter Ziegenfelder

Yes:
No:

I-2 Board and Committee Nominations: a) Mayoral Nominations – Downtown Development Authority, Local Development Finance Authority; b) City Council Nominations – Animal Control Appeal Board, Charter Revision Committee, Historic District Commission

a) Mayoral Nominations:

Suggested Resolution
Resolution #2023-02-
Moved by
Seconded by

RESOLVED, That the Mayor of the City of Troy hereby **FORWARDS** the following nominated person(s) to serve on the Boards and Committees as indicated to the next Regular City Council Meeting for action:

Downtown Development Authority

Appointed by Mayor
13 Regular Members
4 Year Term

Current Members:

Last Name	First Name	App Res Expire	Appointment Expire	Notes 1	Notes 2
Baker	Ethan		11/13/2023	At Large	City Council exp. 11/13/23
Blair	Timothy	6/17/2017	9/30/2023	In District	
Garmo	Kathleen	6/17/2024	9/30/2026	In District	Resident Member
Keisling	Laurence	9/11/2022	9/30/2024	At Large	
Kiriluk	Alan	9/29/2022	9/30/2024	In District	
Knollenberg	Martin	6/28/2021	9/30/2023	In District	
Koza	Kenny	9/18/2019	9/30/2025	In District	
Kuppa	Padma		9/30/2026	At Large	
MacLeish	Daniel	6/28/2023	9/30/2025	In District	
Reschke	Ernest	7/5/2024	9/30/2026	At Large	
Stone	David	3/11/2023	9/30/2023	In District	
Tomcsik-Husak	Tara	9/22/2022	3/30/2024	In District	

Vacancy			9/30/2024	In District	Cheryl Bush resigned 9/22/21
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Nominations to the Downtown Development Authority:**Unexpired Term Expiring: 9/30/2024**

Term currently held by: Vacancy-Cheryl Bush resigned 9/22/21

Term Expiring: 9/30/2026**In District (Resident Member)**

Term currently held by: Kathleen Garmo resigned 1/12/2023

Interested Applicants:

Last Name	First Name	App Resume Expire	Notes 1	Notes 2
Battle	Timothy	10/28/2024	At Large	
Beyer	Joseph	12/13/2024	In District	
Dicker	Susanne Forbes	1/3/2025	At Large	Historic Dist. Comm exp 3/1/2023
Forster	Jeffrey	12/15/2024	At Large	Personnel Bd exp 4/30/24
Goetz	John	3/4/2023	At Large	
Kornacki	Rosemary	12/6/2024	At Large	Brownfield Redev Auth exp 4/30/23
Sekhri	Suneel	11/5/2023	At Large	
Thattai	Govindrajan	5/20/2024	At Large	Parks & Rec Bd exp 9/30/22
von Oeyen	Schuyler	7/20/2024	At Large	

Local Development Finance Authority (LDFA)

Appointed by Mayor
5 Regular Members
Staggered 4 Year Term

Current Members:

Last Name	First Name	App Res Expire	Appointment Expire	Notes 1	Notes 2
Bachert	Sandra	11/18/2023	6/30/2023	Resident Member	
Baker	Ethan		11/13/2023	Alternate; City Council	City Council exp. 11/13/23; DDA; GTAC, LDFA
Hodorek	Ellen		City Council Term	Alternate; City Council	City Council exp 11/10/2025
Rosenblum	Anthony	11/10/2024	6/30/2026	Resident Member	

Schmitz	Jim	9/14/2024	6/30/2024	Resident Member	
Starks	Louis			Oakland County Designee	
Vacancy			6/30/2024	Resident Member	John Sharp resigned 11/1/19; Term exp 6/30/20
Vacancy			6/30/2023	Resident Member	Nickolas Vitale resigned 7/17/21

Nominations to the Local Development Finance Authority (LDFA):

Unexpired Term Expiring: 6/30/2023

Resident Member

Term currently held by: Vacant – N. Vitale resigned 7/17/21

Term Expires: 6/30/2024

Resident Member

Term currently held by: Vacant – J. Sharp resigned 11/1/19

Interested Applicants:

Last Name	First Name	App Resume Expire	Notes 1
Battle	Timothy	10/28/2024	
Christiansen	Dale	11/22/2024	
Mudaliar	Vinodh Kumar	3/2/2024	
Vassallo	Joseph	3/4/2023	Brownfield Redev Auth exp 4/30/24

Yes:

No:

b) City Council Nominations:

Suggested Resolution

Resolution #2023-02-

Moved by

Seconded by

RESOLVED, That Troy City Council hereby **FORWARDS** the following nominated person(s) to serve on the Boards and Committees as indicated to the next Regular City Council Meeting for action:

[Animal Control Appeal Board](#)

Appointed by Council

5 Regular Members

3 Year Term

Current Members:

Last Name	First Name	App Res Expire	Appointment Expire	Notes 1	Notes 2
Dombrowski	Douglas	10/11/2022	9/30/2023		
Petrulis	Al	7/19/2023	9/30/2024		Traffic Comm. exp 1/31/23; Historic Dist. Comm. exp 3/1/23
Saeger	Jayne	9/22/2022	9/30/2023		
Vacancy			9/30/2024	Patrick Floch resigned 12/29/2022	
Vacancy			9/30/2025	Patrick Carolan-NO Reappointment	

Nominations to the Animal Control Appeal Board:

Unexpired Term Expiring: 9/30/2024

Term currently held by: Vacancy - Patrick Floch resigned 12/29/2022

Term Expires: 9/30/2025

Term currently held by: Vacancy - Patrick Carolan (NO Reappointment)

Interested Applicants:

Last Name	First Name	App Resume Expire	Notes 1
Abdullah	Nehar	1/18/2025	

Charter Revision Committee

Appointed by Council
7 Regular Members
3 Year Term

Current Members:

Last Name	First Name	App Res Expire	Appointment Expire	Notes 1
Bartnik	Mark	4/6/2023	4/30/2024	
Beltramini	Robin	3/1/2024	4/30/2025	
Buechner	Toby	3/22/2023	4/30/2024	
Howrylak	Frank	4/28/2022	4/30/2023	
Vacancy			4/30/2024	Sue Matthews resigned 1/3/2023
Vacancy			4/30/2025	Tyler Fox resigned 1/5/2023

Wilsher	Cynthia	4/28/2022	4/30/2023	Traffic Comm. exp 1/31/2021
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Nominations to the Charter Revision Committee:

Term Expires: 4/30/2025

Term currently held by: Vacancy – Tyler Fox resigned 1/5/2023

Term Expires: 4/30/2024

Term currently held by: Vacancy – Susan Simonte Matthews resigned 1/3/2023

Interested Applicants:

Last Name	First Name	App Resume Expire	Notes 1
Comiskey	Ann	12/22/2024	

Historic District Commission

Appointed by Council
7 Regular Members
3 Year Term

Current Members:

Last Name	First Name	App Res Expire	Appointment Expire	Notes 1	Notes 3
Adams	John Howard	3/8/2023	5/15/2024	BOR exp 1/31/26; HDC exp 5/15/24	
Chambers	Barbara A	1/18/2025	3/1/2023	HC Recommendation	Requests Reappointment
Chanda	Hirak	3/22/2023	5/15/2024		
Dicker	Susanne Forbes	8/15/2022	3/1/2023		No Reappointment
McGee	Timothy S	3/23/2020	5/15/2024		
Petrulis	Al	12/16/2021	3/1/2023	ACAB exp 9/30/24; Traffic Comm exp 1/31/23; HDC exp 3/1/23	Requests Reappointment
Voigt	W. Kent	11/18/2023	3/1/2025	HC Recommendation	

Nominations to the Historic District Commission:

Term Expires: 3/1/2026

Term currently held by: Barbara Chambers – Requests Reappointment

Term Expires: 3/1/2026

Term currently held by: Susanne Forbes Dicker – No Reappointment

Term Expires: 3/1/2026

Term currently held by: Al Petrusis – Requests Reappointment

Interested Applicants:

Last Name	First Name	App Resume Expire	Notes 1
Emerson	Rosalyn	7/20/2024	
MacDonell	Sharon	4/13/2023	

Yes:

No:

I-3 Request for Closed Session

Suggested Resolution

Resolution #2023-02-

Moved by

Seconded by

BE IT RESOLVED, That Troy City Council **SHALL MEET** in Closed Session, as permitted by MCL 15.267 (h)(MCL 15.243 (g)).

Yes:

No:

I-4 Standard Purchasing Resolution 4: OMNIA Partners Purchasing Cooperative – Troy Public Library Bookmobile (Introduced by: Emily Dumas, Library Director, and Olivia Olson, Librarian)

Suggested Resolution

Resolution #2023-02-

Moved by

Seconded by

BE IT RESOLVED, That in the best interest of the City, Troy City Council hereby **WAIVES** the bid process and **AWARDS** a contract to *Farber Specialty Vehicles of Columbus, OH* for the purchase of a customized Farber Sprinter Bookmobile for an estimated cost of \$249,867 as detailed in the attached quote dated 2/17/2023 and as per the OMNIA Partners Cooperative Purchasing Contract #128867; not to exceed budgetary limitations.

Yes:

No:

J. CONSENT AGENDA:

J-1a Approval of “J” Items NOT Removed for DiscussionSuggested Resolution

Resolution #2023-02-

Moved by

Seconded by

RESOLVED, That Troy City Council hereby **APPROVES** all items on the Consent Agenda as presented with the exception of Item(s) _____, which shall be **CONSIDERED** after Consent Agenda (J) items, as printed.

Yes:

No:

J-1b Address of “J” Items Removed for Discussion by City Council

J-2 Approval of City Council MinutesSuggested Resolution

Resolution #2023-02-

RESOLVED, That Troy City Council hereby **APPROVES** the following Minutes as submitted:

- a) City Council Minutes-Draft – February 13, 2023

J-3 Proposed City of Troy Proclamations:Suggested Resolution

Resolution #2023-02-

- a) Proclamation to Honor Lieutenant Thomas O'Herron 2022 Firefighter of the Year

J-4 Standard Purchasing Resolutions:

- a) **Standard Purchasing Resolution 4: Sourcewell Purchasing Cooperative – Utility Tractor with Trailer and Related Equipment**

Suggested Resolution

Resolution #2023-02-

RESOLVED, That Troy City Council hereby **APPROVES** a contract to purchase a Kubota Utility Tractor with Trailer and related equipment from the authorized Michigan dealer; *ROSY BROS., INC. of Dryden, Michigan* utilizing the Sourcewell Cooperative Contract #031121-KBA for an estimated total cost of \$69,926.55 as detailed in the attached quote, a copy of which shall be **ATTACHED** to the original Minutes of this meeting; not to exceed budgetary limitations.

**b) Standard Purchasing Resolution 4: Oakland County Extended Purchasing Contract
– 52-4 District Court Exterior Envelope Repairs**

Suggested Resolution

Resolution #2023-02-

RESOLVED, That in the best interest of the City, Troy City Council hereby **WAIVES** the bid process and **AWARDS** a contract to *National Restoration of Milford, MI*, for the 52-4 District Court Exterior Envelope Repairs for an estimated amount of \$60,000 as detailed in the attached proposal per the Oakland County Extended Purchasing Contract #006325, a copy of which shall be **ATTACHED** to the original Minutes of this meeting; not to exceed budgetary limitations.

BE IT FURTHER RESOLVED, That the award is **CONTINGENT** upon the submission of properly executed contract documents, insurance certificates and all other specified requirements.

**c) Standard Purchasing Resolution 2: Award to Low Bidders Meeting Specifications
– Asphalt Paving Materials – Hot Patch**

Suggested Resolution

Resolution #2023-02-

RESOLVED, That Troy City Council hereby **AWARDS** a one (1) year contract to provide Asphalt Paving Materials – Hot Patch with an option to renew for one (1) additional year to the lowest bidder(s) by line item to *Cadillac Asphalt of Farmington Hills, MI* as the primary supplier for items #1, #2, #3, #4, #5, #6 and #7 and *Sealmaster of Michigan/GemSeal of Romulus, MI* as the primary supplier for items #8, #9, #10 and #11 at unit prices contained in the bid tabulation opened February 16, 2023, a copy of which shall be **ATTACHED** to the original Minutes of this meeting; to be ordered on an as needed basis and based on proximity; contracts expiring December 31, 2024.

BE IT FURTHER RESOLVED, That Troy City Council hereby **AUTHORIZES** the City to use secondary suppliers, *Ajax Materials Corporation of Troy, MI* for items #1, #2, #3, #6, #7 and #8 and *Cadillac Asphalt of Farmington Hills, MI* for item #9 in the event that the primary supplier is unable to provided materials as specified under the same pricing, terms and conditions as originally bid; to be ordered on an as needed basis and based on proximity.

BE IT FINALLY RESOLVED, That the award is **CONTINGENT** upon contractor submission of properly executed bid and contract documents, including insurance certificates and all other specified requirements.

J-5 2023 Specialized Services Operating Assistance Program

Suggested Resolution

Resolution #2023-02-

RESOLVED, That Troy City Council hereby **APPROVES** the agreement between SMART and the City of Troy for the Specialized Services Operating Assistance Program that includes

\$27,692 in revenue, which will be used for the Troy R.Y.D.E transportation service, and the Mayor and City Clerk are **AUTHORIZED** to execute the necessary documents; a copy of this agreement shall be **ATTACHED** to the original Minutes of this meeting.

J-6 Request for Recognition as a Nonprofit Organization from REACH Homeschool

Suggested Resolution
Resolution #2023-02-

RESOLVED, That Troy City Council hereby **APPROVES** the request from REACH Homeschool, asking that they be recognized as a nonprofit organization operating in the community for the purpose of obtaining a charitable gaming license as recommended by City Management.

K. MEMORANDUMS AND FUTURE COUNCIL AGENDA ITEMS:

K-1 Announcement of Public Hearings:

- a) March 13, 2023 – Long Lake and Crooks Planned Unit Development (File Number PUD2020-0018) – Revised Concept Development Plan, Northwest Corner of Long Lake and Crooks, Section 8, Currently Zoned O (Office) District
- b) March 13, 2023 – Zoning Ordinance Text Amendment (File Number ZOTA 257) – Places of Worship

K-2 Memorandums (Items submitted to City Council that may require consideration at some future point in time): None Submitted

L. PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA FROM TROY RESIDENTS AND BUSINESSES:

M. CITY COUNCIL/CITY ADMINISTRATION RESPONSE/REPLY TO PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA FROM TROY RESIDENTS AND BUSINESSES:

N. COUNCIL REFERRALS:

Items Advanced to the City Manager by the Mayor and City Council Members for Placement on the Agenda

N-1 No Council Referrals Submitted

O. REPORTS:

O-1 Minutes – Boards and Committees: None Submitted

O-2 Department Reports:

- a) Requested Revisions to Troy Historic Society and Troy Nature Society Agreements

O-3 Letters of Appreciation: None Submitted

O-4 Proposed Proclamations/Resolutions from Other Organizations: None Submitted

P. COUNCIL COMMENTS:

P-1 No Council Comments

Q. PUBLIC COMMENT FOR ITEMS ON OR NOT ON THE AGENDA FROM MEMBERS OF THE PUBLIC OUTSIDE OF TROY (NOT RESIDENTS OF TROY AND NOT FROM TROY BUSINESSES):

R. CLOSED SESSION

R-1 Closed Session

S. ADJOURNMENT:

Respectfully submitted,



Mark F. Miller
City Manager

2023 SCHEDULED SPECIAL CITY COUNCIL MEETINGS:

April 10, 2023.....Special Meeting – Budget
April 17, 2023.....Special Meeting – Budget

2023 SCHEDULED REGULAR CITY COUNCIL MEETINGS:

March 13, 2023..... Regular Meeting
March 20, 2023..... Regular Meeting
April 10, 2023..... Regular Meeting
April 17, 2023..... Regular Meeting
May 8, 2023 Regular Meeting
May 22, 2023 Regular Meeting
June 12, 2023 Regular Meeting
June 26, 2023 Regular Meeting
July 10, 2023..... Regular Meeting
July 24, 2023..... Regular Meeting
August 7, 2023..... Regular Meeting
August 21, 2023..... Regular Meeting
September 11, 2023 Regular Meeting
September 18, 2023 Regular Meeting
October 2, 2023 Regular Meeting
October 16, 2023 Regular Meeting
November 13, 2023 Regular Meeting
November 20, 2023 Regular Meeting
December 4, 2023 Regular Meeting
December 11, 2023 Regular Meeting



500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Date: February 17, 2023

To: Mark F. Miller, City Manager

From: Robert J. Bruner, Assistant City Manager
R. Brent Savidant, Community Development Director

Subject: PUBLIC HEARING – PLANNED UNIT DEVELOPMENT (File Number PUD 019 JPLN2022-0013) – Proposed Village of Troy PUD, South side of Long Lake, West of Rochester (Parcels 88-20-15-201-046 & 88-20-15-201-033), Section 15, Currently Zoned RT (One Family Attached Residential), R-1C (One Family Residential) and CB (Community Business) District.

The applicant Robertson Brothers Homes seeks approval of a Planned Unit Development (PUD). The subject site is 20.48 acres in area. The applicant proposes a 146-unit mixed residential development comprised of 20 detached single-family homes, 56 attached single-family homes (2 stories) and 70 attached townhomes (3 stories). Site amenities include a pedestrian path connecting Long Lake with the DPW property to the south, pocket park, multi-season hill, traffic calming measures, and enhanced landscaping along Long Lake.

PUD approval is generally a two-step process. Step one is approval of the Conceptual Development Plan (CDP), which includes approval of a concept, rezoning of the property to “PUD” and approval of the PUD Agreement. Step two is Preliminary Development Plan (PDP) approval, which approves the Preliminary Site Plan for each phase of the project. This two-step approach provides flexibility to develop the project over times as market conditions change. For this project, the applicant does not require market flexibility and seeks CDP and PDP approval concurrently. Therefore, City Council approval would have the effect of rezoning the parcel to PUD, approving the PUD Agreement and granting preliminary site plan approval.

The Planning Commission considered the application at a public hearing on December 13, 2022. The Planning Commission recommended approval of the application by a 7-1 vote.

A City Council public hearing has been scheduled for February 27, 2023.

Legal Review

This item was submitted to the City Attorney for review pursuant to City Charter Section 3.17.

Attachments:

1. Maps.
2. Minutes from December 13, 2022 Planning Commission Regular meeting.
3. Agenda packet from December 13, 2022 Planning Commission Regular meeting (includes Preliminary Site Plan).
4. Public comment.



500 West Big Beaver
Troy, MI 48084
troymi.gov

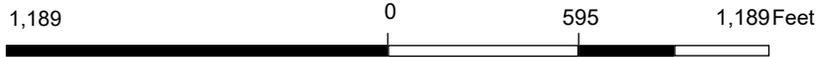
CITY COUNCIL AGENDA ITEM

5. PUD Agreement (draft).

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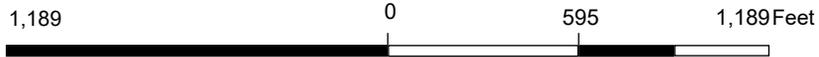
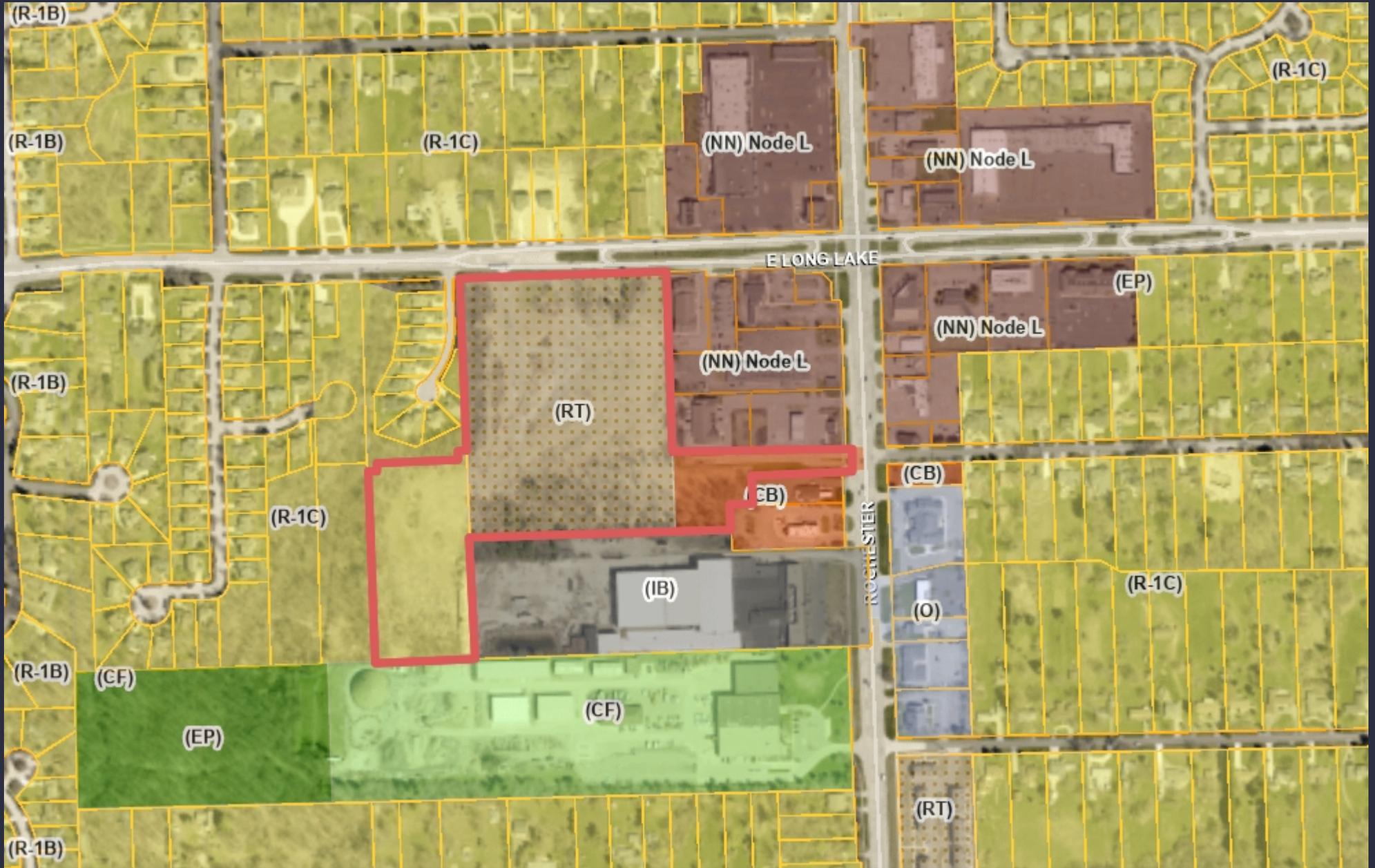
GIS Online



Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.



GIS Online



Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

PLANNED UNIT DEVELOPMENTS

8. **PLANNED UNIT DEVELOPMENT (File Number PUD 019 JPLN2022-0013)** – Proposed Village of Troy PUD, South side of Long Lake, West of Rochester (Parcels 88-20-15-201-046 and 88-20-15-201-033), Section 15, Currently Zoned RT (One Family Attached Residential), R-1C (One Family Residential) and CB (Community Business) District

Mr. Tagle disclosed his firm is currently working with Robertson Brothers Homes on a project that has no association with the project before the Board this evening. He assured Board members that he can act upon the project in an unbiased way.

Board members agreed there is no reason for Mr. Tagle to recuse himself.

Mr. Carlisle said the Village of Troy Planned Unit Development (PUD) application has been before the Board multiple times for review. Mr. Carlisle reviewed discussion points during the September 13, 2022 meeting and changes to the application since last reviewed by the Planning Commission. Mr. Carlisle displayed comparisons between the September 2022 site plan and the Site Plan before the Board this evening.

In summary, Mr. Carlisle said as part of the deliberation the Planning Commission should consider:

- Has the applicant sufficiently redesigned/improved plan to address comments from the Planning Commission and public?
- Has the applicant met the site plan standards?
- Has the applicant met the PUD standards?
- Has the applicant presented a project where the benefits are commensurate with requested deviations?

Tim Loughrin and Darian Neubecker of Robertson Brothers Homes were present.

Some items Mr. Loughrin addressed in a PowerPoint presentation were:

- Various revisions to the plan.
- Project renderings/drawings from different perspectives.
- Village concept, project summary, highlights, product design, housing options and pedestrian conveyance.

There was discussion, some comments related to:

- Redesign of southwest corner to offer a year-round amenity.
- Development phases/ stages.
- Establishment of Master Homeowners Association (HOA).
- Homebuyers' preferences would determine number of ranch style homes.
- Architecture, exterior building materials; consideration to adding elements to flat area.
- Energy efficiency resources; electric vehicle charging stations.
- Long Lake and Rochester Road entrances.

Mr. Neubecker of Robertson Brothers addressed energy efficiency resources proposed for the development.

Mr. Neubecker stated that development phases have not yet clearly been defined. He indicated single family homes, amenities and the regional detention pond would be most likely the first phase and the townhomes would be the second phase.

Ms. Dufrane addressed the draft PUD Agreement. She asked the applicant to flush out the development phases prior to the City Council presentation and indicated there would be forthcoming changes relating to the regional detention pond.

Chair Lambert opened the floor for public comment. Acknowledging there was no one present who wished to speak, Chair Lambert closed the floor for public comment.

City Traffic Consultant Stephen Dearing of OHM addressed:

- Rochester Road entrance in relation to imminent road widening and expansion.
- Long Lake entrance as relates to vehicular turning lanes.
- Neighborhood safety issues associated with the plan layout.
- Fire Department approval for no T-turnarounds in multi-family townhome aisles.
- Dimensions of proposed curb radii.

Resolution # PC-2022-12-064

Moved by: Faison

Seconded by: Krent

WHEREAS, The applicant Robertson Brothers Homes seeks Conceptual Development Plan (CDP) and Preliminary Development Plan (PDP) approval for the Village of Troy Planned Unit Development (PUD), located on the south side of Long Lake, west of Rochester, in Section 15, approximately 20.48 acres in area; and

WHEREAS, The Village of Troy PUD features 20 detached single-family homes, 56 attached single-family homes (2 stories) and 70 attached townhomes (3 stories); and

WHEREAS, The PUD provides a walkable urban environment that is compact, designed to human scale, and exhibits contextual integration of buildings and city spaces; and

WHEREAS, The PUD provides a compatible mix of open space, landscaped areas and pedestrian amenities, including incorporation of a regional trailway system; and

WHEREAS, The PUD proposes appropriate land use transitions between the PUD and surrounding properties, and

WHEREAS, The PUD will reasonably mitigate impacts to the transportation system and enhance non-motorized facilities and amenities; and

WHEREAS, The PUD provides a complementary variety of housing types; and

BE IT RESOLVED, That the Planning Commission recommends to City Council that Concept Development Plan Approval and Preliminary Development Plan Approval for the proposed Village of Troy, be granted.

Discussion on the motion on the floor.

Comments related to whether the Resolution should reference development phases and Fire Department approval for no T-turnarounds in multi-family aisles.

Chair Lambert thanked the applicant for working with the Planning Commission and City staff.

Vote on the motion on the floor.

Yes: All present (7)
Absent: Hutson, Perakis

MOTION CARRIED

DATE: December 8, 2022

TO: Planning Commission

FROM: R. Brent Savidant, Community Development Director

SUBJECT: PLANNED UNIT DEVELOPMENT (File Number PUD 019 JPLN2022-0013) – Proposed Village of Troy PUD, South side of Long Lake, West of Rochester (Parcels 88-20-15-201-046 & 88-20-15-201-033), Section 15, Currently Zoned RT (One Family Attached Residential), R-1C (One Family Residential) and CB (Community Business) District.

The applicant Robertson Brothers Homes seeks Conceptual Development Plan (CDP) and Preliminary Development Plan (PDP) approval for the Village of Troy Planned Unit Development (PUD). The project features 20 detached single-family homes, 56 attached single-family homes (2 stories) and 70 attached townhomes (3 stories).

The Planning Commission is a recommending body for this application. The Planning Commission held a public hearing on this item on September 13, 2022 as required by law.

The attached report prepared by Carlisle/Wortman Associates, Inc. (CWA), the City's Planning Consultant, summarizes the project as revised. CWA prepared the report with input from various City departments including Planning, Engineering, Public Works and Fire. City Management supports the findings of fact contained in the report and the recommendations included therein.

Attachments:

1. Maps
2. Minutes from September 13, 2022 Planning Commission Regular meeting.
3. Report prepared by Carlisle/Wortman Associates, Inc.
4. PUD Application/Site Plan
5. Traffic Impact Study, prepared by F&V, dated June 22, 2022.
6. Traffic Impact Study Review, memo prepared by OHM dated November 23, 2022.
7. Public comment.

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PLANNED UNIT DEVELOPMENT

5. **PUBLIC HEARING - PLANNED UNIT DEVELOPMENT (File Number PUD 019 JPLN2022-0013)**
– Proposed Village of Troy PUD, South side of Long Lake, West of Rochester (Parcels 88-20-15-201-046 and 88-20-15-201-033), Section 15, Currently Zoned RT (One Family Attached Residential), R-1C (One Family Residential) and CB (Community Business) Districts

Mr. Tagle disclosed his firm is currently working with Robertson Brothers Homes on a project that has no association with the project before the Board this evening. He assured Board members that he can act upon the project in an unbiased way.

Board members agreed there is no reason for Mr. Tagle to recuse himself.

Mr. Savidant summarized the Planned Unit Development (PUD) review and approval process. He stated the applicant this evening is bundling together the Concept Development Plan and Preliminary Site Plan applications. Mr. Savidant addressed the location, natural features, wetlands and woodlands, zoning, access and circulation, proposed residential housing, parking and how the plan relates to the Master Plan.

Mr. Savidant reviewed items discussed at the January 11, 2022 Planning Commission meeting. He noted the applicant maintained the townhome concept contrary to the Board's suggestion to consider alternative housing options. Mr. Savidant reviewed the proposed changes to the Site Plan since January 2022. He addressed dimensional deviations, benefits characterized by the applicant and the PUD Standards in Section 11.03 B of the Zoning Ordinance. Various elevations and housing types proposed by the applicant were displayed.

Mr. Savidant stated the City Traffic Engineer Consultant OHM recommends approval of the traffic impact study prepared by Fleis & Vanderbrink, dated June 22, 2022, with two exceptions as noted in the Planning Consultant report dated September 6, 2022. He announced Stephen Dearing of OHM is present in the audience should Board members have any questions.

In summary, Mr. Savidant said as part of the deliberation, the Planning Commission should consider:

- Does the applicant meet the intent and standards of a Planned Unit Development?
- Difference/distinction from attached townhomes and attached single-family homes.
- If alternatives to townhomes were considered?
- Are the proposed benefits commensurate with the relief requested?
- Materials and architectural details.
- Has the applicant sufficiently redesigned the site and provided a “villaging” concept as requested by the Planning Commission?

Mr. Savidant stated the role of the Planning Commission is to make a recommendation to City Council. He indicated another public hearing would be scheduled at the time City Council considers the application.

Tim Loughrin, Director of Land Acquisition for Robertson Brothers Homes, conducted a PowerPoint presentation. Some items addressed by Mr. Loughrin were:

- Village concept interconnecting various housing styles.
- Reduction in density; cut 40% townhomes.
- Increase of open space; 7 pocket parks, central park, pavilion.
- Parallel plan; what could be built under existing zoning.
- Elevations; design, square footage, building material, floor plans, price point.
- Sledding hill; quasi-public space located in southwest corner.
- Pedestrian pathway(s).
- Stormwater management; regional pond.
- Over 40% of site is active or passive recreational.
- Owner occupied homes.
- Surrounding zoning and area.
- PUD Standards.

Several members shared individual views on orientation of buildings, location of access drives, internal road design, public amenities and “village” concept. The applicant was encouraged to create something impactful that might attract one’s eyes within the project’s internal design such as a fountain or sculpture.

There was discussion, some comments related to:

- Quasi-public open space; liability, activity schedules.
- Orientation of homes, access drives, centrally located terminus drives.
- Screening on north and south sides; landscaping, berms, fencing.
- Stormwater management; regional pond.
- Parking; formula used to factor required number of spaces; consideration to landbank spaces if determined overparked.
- Building material; color scheme, cost, and maintenance of material.
- Board’s objection to vinyl siding.
- Potential to create additional pedestrian connections.
- Establishment of homeowners’ associations.

PUBLIC HEARING OPENED

- Leonard Joseph, 4909 River Bank Court; addressed concerns with screening, asked about type of screening and additional tree line if trees are removed, asked if retention pond is connected to residents on River Bank Court and if streets are private.
- Susheel Vu, 4921 River Bank Court; addressed concerns with increase in traffic, left turn lane, noise and lights.
- Gary Osak, 4919 Davis Court; addressed concerns with density, increase in traffic, stormwater management, encouraged quality building materials and screening.
- Deepan Shrivastava, 4969 River Bank Court; addressed concerns with increase in traffic, no left turn, internal road design and wetlands.

- Sendhil Damodavan, 4933 River Bank Court; addressed project design and concerns with effect on property values.

PUBLIC HEARING CLOSED

Chair Lambert stated one email communication was received from Harpreet Singh. The resident asked that a tree line for screening be maintained and addressed concerns with property values.

Questions posed during public hearing were addressed as follows:

- Applicant is receptive to address concerns with screening.
- Applicant acknowledged the streets are private.
- Applicant will work with EGLE (Environment, Great Lakes, & Energy) with respect to wetland regulations.
- Applicant addressed stormwater management; regional pond; no connection with residents on River Bank Court.
- Applicant addressed amenities that might be incorporated in pocket parks.

City Traffic Consultant Stephen Dearing of OHM addressed the proposed project’s traffic impact as relates to access points, future reconfiguration of median and westbound left turn lane, crossover traffic, trip distribution analysis and planned future road improvements.

Ms. Malalahalli stated she would like to see the applicant take into consideration Planning Commission feedback and public comment expressed this evening and come back to the Board.

Resolution # PC-2022-09-051

Moved by: Malalahalli
 Support by: Krent

RESOLVED, To postpone the Village of Troy PUD application to allow the developer an opportunity to take into consideration the direction given by the Board and public comment and to meet some of the PUD Standards cited in Section 11.03 B of the Zoning Ordinance that the Board feels have not been met.

Yes: All present (8)
 Absent: Faison

MOTION CARRIED

Mr. Savidant clarified there would be no public hearing when the application comes back to the Planning Commission. He encouraged residents to view agendas posted on the City website to find out the meeting date the application would be considered again.

Ms. Dufrane asked the applicant to share with their attorney that revisions to the application might necessitate changes in the draft PUD agreement.



Carlisle | Wortman
ASSOCIATES, INC.

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

Date: January 20, 2022
March 22, 2022
September 6, 2022
December 6, 2022

PUD and Preliminary Development Plan Approval Review For City of Troy, Michigan

Applicant:	Robertson Homes
Project Name:	Village of Troy PUD
Plan Date:	November 7, 2022
Location:	West of southwest corner of Long Lake Road and Rochester Road
Zoning:	RT, R-1C, and CB
Action Requested:	PUD and Preliminary Development Plan Approval

SITE DESCRIPTION

The subject site is located on the west side of the southwest corner of Long Lake Road and Rochester Road. The site is approximately 20.48 acres in area and is proposed for mixed housing type development. The applicant is proposing 146 new for-sale units. Breakout of the units include:

- 20 detached single-family homes
- 56 attached single-family homes (2 stories)
- 70 attached townhomes (3 stories)

Access is via E Long Lake Road and Rochester Road. Most of the property (approximately 15 acres) is zoned RT (residential transitional), with the remaining areas zoned R1-C (one family residential) and C-B (community business).

The applicant is seeking Planned Unit Development approval in order to allow for townhomes on currently zoned CB, Commercial Business district, and for dimensional relief. More details of dimensional relief are noted below.

Site Location:



Proposed Uses of Subject Parcel:

One hundred and forty-six (146) single-family detached homes, attached homes, and townhomes.

Current Use of Subject Property:

Vacant

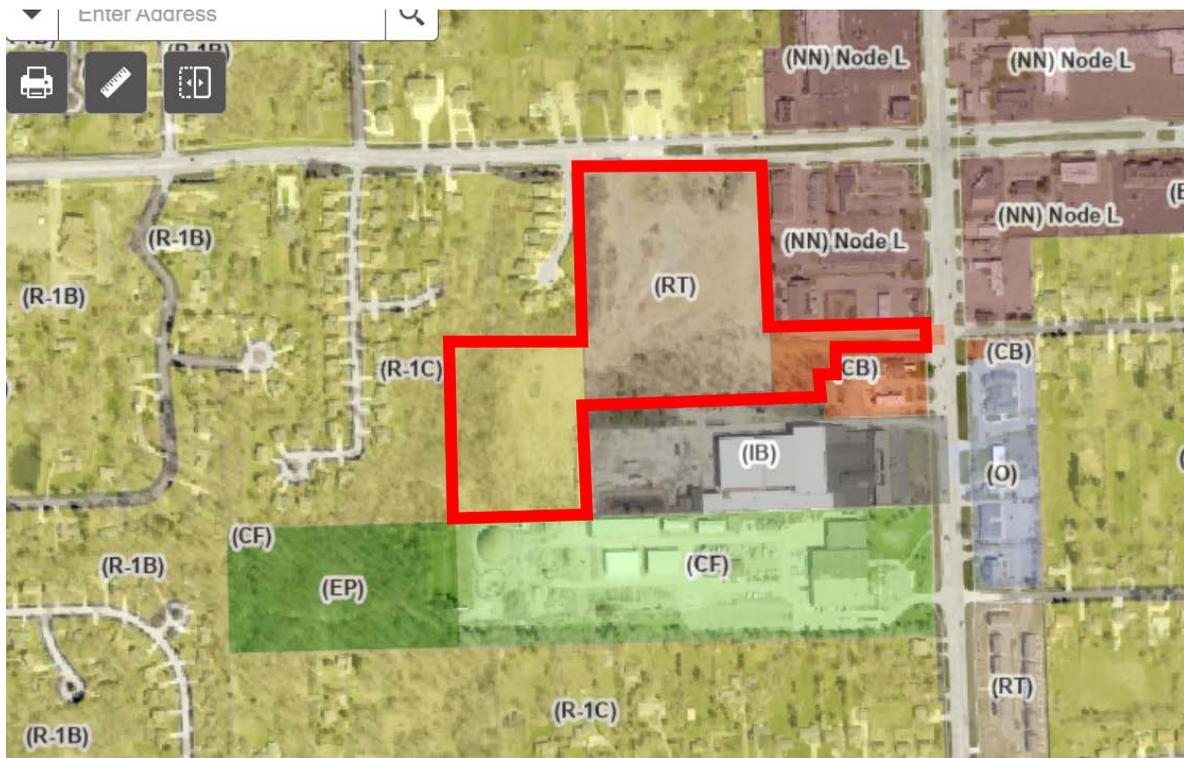
Current Zoning:

The property is currently zoned RT (residential transitional), R1-C (one family residential), and C-B (community business).

Surrounding Property Details:

Direction	Zoning	Use
North	NN, Neighborhood Node and R1-C, Single Family	Commercial and Residential
South	IB, Industrial and Business, CB, Community Business, and CF, Community Facility	Commercial, Industrial, and DPW Yard
East	NN, Neighborhood Node	Commercial
West	R1-C, Single Family	Single Family Residential

ZONING



The site includes a mix of zoned RT (residential transitional), R1-C (one family residential) and C-B (community business) zoning.

HOUSING DETAILS

The applicant is offering the following housing types:

Detached single-family homes

- 20 Units
- 2 options
 - One-story ranches at 1,850 square feet; or
 - Two-story homes ranging from 1,900 to 3,100 square feet in size

Attached single-family homes (2 stories)

- 56 units
- 1,600 square feet that provides for the option of 2 or 3-bedrooms and includes an attached two car garage.

Attached townhomes (3 stories)

- 70 units
- The entry price point will consist of attached townhomes ranging between 1,200 and 1,350 square feet with private attached single car garages.

MASTER PLAN

The site is designated as a future land use of single family residential, Rochester Road, and partially neighborhood node.

The Planning Commission has spent a lot of time discussing both the neighborhood node concept and the proposed improvements and future development patterns within and adjacent to the nodes.



PUD PROCESS

A Planned Unit Development project is viewed as an integrated development concept. To that end, the provisions of this Article are not intended to be used as a device for avoiding the zoning requirements that would otherwise apply, but rather to allow flexibility and mixture of uses, and to improve the design, character and quality of new development. The use of a Planned Unit Development to permit variations from other requirements of this Ordinance shall only be

approved when such approval results in improvements to the public health, safety and welfare in the area affected, and in accordance with the intent of this Article.

The approval of a Planned Unit Development (PUD) is a three-step process:

Step 1-Concept Plan: *The first step shall be application for and approval of a Concept Development Plan, which requires a legislative enactment amending the zoning district map so as to reclassify the property as a Planned Unit Development. A proposed Development Agreement shall be included and incorporated with the Concept Development Plan, to be agreed upon and approved coincident with said Plan. The Concept Development Plan and Development Agreement shall be approved by the City Council following the recommendation of the Planning Commission. Such action, if and when approved, shall confer upon the applicant approval of the Concept Development Plan and shall rezone the property to PUD in accordance with the terms and conditions of the Concept Development Plan approval.*

Step 2- Preliminary Development Plan Approval: *The second step of the review and approval process shall be the application for and approval of a Preliminary Development Plan (preliminary site plan) for the entire project, or for any one or more phases of the project. City Council shall have the final authority to approve and grant Preliminary Development Plan approvals, following a recommendation by the Planning Commission.*

Step 3- Final Development Plan Approval: *The third step of the review and approval process shall be the review and approval of a Final Development Plan (final site plan) for the entire project, or for any one or more phases of the project, and the issuance of building permits. Final Development Plans for Planned Unit Developments shall be submitted to the Zoning Administrator for administrative review, and the Zoning Administrator, with the recommendation of other appropriate City Departments, shall have final authority for approval of such Final Development Plans.*

The applicant is seeking a recommendation of approval for their Preliminary Development Plan.

PUD INTENT

As set forth in Section 11.01, the intent of the Planned Unit Development option is to permit flexibility in the design and use of residential and non-residential land which, through the implementation of an overall development plan, when applicable to the site, will:

1. Encourage developments that will result in a long-term contribution to social, environmental and economic sustainability in the City of Troy.
2. Permit development patterns that respond to changing public and private needs.

3. Encourage flexibility in design and use that will result in a higher quality of development and a better overall project than would be accomplished under conventional zoning, and which can be accommodated without sacrificing established community values.
4. Provide for the long-term protection and/or preservation of natural resources, natural features, and/or historic and cultural resources.
5. Promote the efficient use and conservation of energy.
6. Encourage the use, redevelopment and improvement of existing sites where current ordinances do not provide adequate protection and safeguards for the site or its surrounding areas, or where current ordinances do not provide the flexibility to consider redevelopment, replacement, or adaptive re-use of existing structures and sites.
7. Provide for enhanced housing, employment, recreation, and shopping opportunities for the citizens of Troy.
8. Ensure the compatibility of design and use between various components within the PUD and with neighboring properties and uses.
9. Ensure development that is consistent with the intent of the Master Plan.

SITE PLAN REVIEW STANDARDS

Site Plan review standards provide the Planning Commission with direction when reviewing the proposed site plan and design features of this development.

Section 8.06 outlines Site Plan Review Design Standards.

- *Development shall ensure compatibility to existing commercial districts and provide a transition between land uses.*
 - a. *Building design shall enhance the character of the surrounding area in relation to building and parking placement, landscape and streetscape features, and architectural design.*
 - b. *Street fronts shall provide a variety of architectural expression that is appropriate in its context and prevents monotony.*
 - c. *Building design shall achieve a compatible transition between areas with different height, massing, scale, and architectural style.*
- *Development shall incorporate the recognized best architectural building design practices.*
 - a. *Foster a lasting impact on the community through the provision of high quality design, construction, and detailing.*
 - b. *Provide high quality, durable materials, such as but not limited to stone, brick, glass, and metal. E.I.F.S. or material equivalent shall only be used as an accent material.*
 - c. *Develop buildings with creativity that includes balanced compositions and forms.*
 - d. *Design roofs that are appropriate to the architectural style of the building and create an appropriate visual exterior mass of the building given the context of the site.*

- e. *For commercial buildings, incorporate clearly defined, highly visible customer entrances using features such as canopies, porticos, arcades, arches, wing walls, ground plane elements, and/or landscape planters.*
- f. *Include community amenities that add value to the development such as patio/seating areas, water features, art work or sculpture, clock towers, pedestrian plazas with park benches or other features located in areas accessible to the public.*
- *Enhance the character, environment and safety for pedestrians and motorists.*
 - a. *Provide elements that define the street and the pedestrian realm.*
 - b. *Create a connection between the public right of way and ground floor activities.*
 - c. *Create a safe environment by employing design features to reduce vehicular and pedestrian conflict, while not sacrificing design excellence.*
 - d. *Enhance the pedestrian realm by framing the sidewalk area with trees, awnings, and other features.*
 - e. *Improve safety for pedestrians through site design measures.*

PUD AGREEMENT

The applicant has submitted a PUD Agreement, which is being reviewed by the City Attorneys office.

PUD STANDARDS

When reviewing the PUD, the Planning Commission shall consider the following standards as set forth in Section 11.03:

1. *A mixture of land uses that would otherwise not be permitted without the use of the PUD provided that other objectives of this Article are also met.*
2. *A public improvement or public facility (e.g. recreational, transportation, safety and security) which will enhance, add to or replace those provided by public entities, thereby furthering the public health, safety and welfare.*
3. *A recognizable and material benefit to the ultimate users of the project and to the community, where such benefit would otherwise be infeasible or unlikely to be achieved absent these regulations.*
4. *Long-term protection and preservation of natural resources, natural features, and historic and cultural resources, of a significant quantity and/or quality in need of protection or preservation, and which would otherwise be unfeasible or unlikely to be achieved absent these regulations.*
5. *A compatible mixture of open space, landscaped areas, and/or pedestrian amenities.*
6. *Appropriate land use transitions between the PUD and surrounding properties.*
7. *Design features and techniques, such as green building and low impact design, which will promote and encourage energy conservation and sustainable development.*
8. *Innovative and creative site and building designs, solutions and materials.*
9. *The desirable qualities of a dynamic urban environment that is compact, designed to human scale, and exhibits contextual integration of buildings and city spaces.*

10. *The PUD will reasonably mitigate impacts to the transportation system and enhance non-motorized facilities and amenities.*
11. *For the appropriate assembly, use, redevelopment, replacement and/ or improvement of existing sites that are occupied by obsolete uses and/or structures.*
12. *A complementary variety of housing types that is in harmony with adjacent uses.*
13. *A reduction of the impact of a non-conformity or removal of an obsolete building or structure.*
14. *A development consistent with and meeting the intent of this Article, which will promote the intent of the Master Plan or the intent of any applicable corridor or sub-area plans. If conditions have changed since the Plan, or any applicable corridor or sub-area plans were adopted, the uses shall be consistent with recent development trends in the area.*
15. *Includes all necessary information and specifications with respect to structures, heights, setbacks, density, parking, circulation, landscaping, amenities and other design and layout features, exhibiting a due regard for the relationship of the development to the surrounding properties and uses thereon, as well as to the relationship between the various elements within the proposed Planned Unit Development. In determining whether these relationships have been appropriately addressed, consideration shall be given to the following:*
 - i. *The bulk, placement, and materials of construction of the proposed structures and other site improvements.*
 - ii. *The location and screening of vehicular circulation and parking areas in relation to surrounding properties and the other elements of the development.*
 - iii. *The location and screening of outdoor storage, loading areas, outdoor activity or work areas, and mechanical equipment.*
 - iv. *The hours of operation of the proposed uses.*
 - v. *The location, amount, type and intensity of landscaping, and other site amenities.*
16. *Parking shall be provided in order to properly serve the total range of uses within the Planned Unit Development. The sharing of parking among the various uses within a Planned Unit Development may be permitted. The applicant shall provide justification to the satisfaction of the City that the shared parking proposed is sufficient for the development and will not impair the functioning of the development, and will not have a negative effect on traffic flow within the development and/or on properties adjacent to the development.*
17. *Innovative methods of stormwater management that enhance water quality shall be considered in the design of the stormwater system.*
18. *The proposed Planned Unit Development shall be in compliance with all applicable Federal, State and local laws and ordinances, and shall coordinate with existing public facilities.*

The Planning Commission should review the application considering the standards.

PREVIOUS PLANNING COMMISSION REVIEW

The Planning Commission discussed the project at the September 13th meeting. There was lengthy discussion of the following:

- Quasi-public open space; liability, activity schedules.
- Orientation of homes, access drives, centrally located terminus drives.
- Screening on north and south sides; landscaping, berms, fencing.
- Stormwater management; regional pond.
- Parking; formula used to factor required number of spaces; consideration to landbank spaces if determined overparked.
- Building material; color scheme, cost, and maintenance of material.
- Board's objection to vinyl siding.
- Potential to create additional pedestrian connections.
- Establishment of homeowners' associations.
- PUD Standards

See September 13th Planning Commission meeting minutes for more details.

The Planning Commission postponed the Village of Troy PUD application to allow the developer an opportunity to take into consideration the direction given by the Board and public comment and to meet some of the PUD Standards cited in Section 11.03 B of the Zoning Ordinance that the Board feels have not been met.

CHANGES SINCE LAST PLANNING COMMISSION REVIEW

The applicant has proposed the following changes to the Site Plan since the last submittal:

- Moved EVA to directly connect to Long Lake
- Provided dedicated pedestrian connection between detached single-family homes to attached single-family homes.
- Redesigned hill at southwest corner of project to provide a year-round amenity.
- Added traffic calming measures into development
- Added additional pedestrian crossings
- Enhanced landscaping and screening along Long Lake
- Enhanced pocket park at terminus of private road off Long Lake.



March 2022 Plan

Village of Troy

Rendered Site Plan
City of Troy, Michigan

March 2022



November 2022 Plan

Village of Troy

Rendered Site Plan
City of Troy, Michigan

October 2022

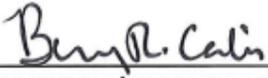


SUMMARY

See our September review memo for a more detailed review. As part of the deliberation, the Planning Commission should consider:

- Has the applicant sufficiently redesigned/improved plan to address comments from the Planning Commission and public?
- Has the applicant met the site plan standards?
- Has the applicant met the PUD standards
- Has the applicant presented a project where the benefits are commensurate with requested deviations?

Sincerely,



CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, LEED AP, AICP

Owner / Developer

ROBERTSON BROTHERS CO.
6905 Telegraph Road
Bloomfield Hills, MI 48301
CONTACT: Tim Loughrin
Tel. (248) 282-1428
Fax. (248) 282-1423

Architect - Townhomes

4545 ARCHITECTURE
3011 W. Grand Blvd., Suite 400
Detroit, MI 48202
CONTACT:
Tel. (313) 450-4545

Architect - Single Family Homes

TK DESIGN & ASSOCIATES
26030 Pontiac Trail
South Lyon, MI 48178
CONTACT:
Tel. (248) 446-1960

Civil Engineer

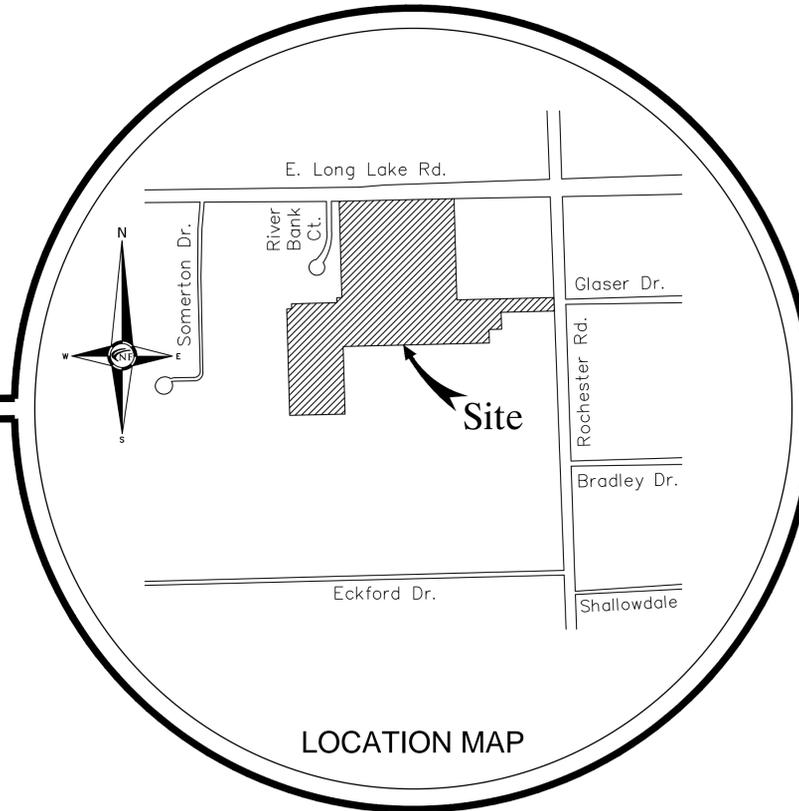
NOWAK & FRAUS ENGINEERS
46777 Woodward Ave.
Pontiac, MI 48342-5032
CONTACT: Brad W. Brickel, P.E.
Tel. (248) 332-7931
Fax. (248) 332-8257

Landscape Architect

LAND DESIGN STUDIO
750 Forest Avenue
Suite 101
Birmingham, MI 48009
CONTACT: Tad Krear
Tel. (248) 594-3220

City of Troy,
Oakland County, Michigan
PRELIMINARY SITE PLAN PACKAGE DOCUMENTS
Single & Multiple Family Residential Project
Prepared For Robertson Brothers Co.

PART OF THE NE 1/4 OF SECTION 15, T.2N., R.11E.,
CITY OF TROY,
OAKLAND COUNTY, MICHIGAN



LOCATION MAP

Project Name

The Village of Troy

SHEET INDEX

SP00	Cover Sheet
SP01	Overall Boundary Survey
SP02	ALTA/NSPS Land Title/ Topographic/ Tree/ Wetland Survey
SP03	ALTA/NSPS Land Title/ Topographic/ Tree/ Wetland Survey
SP04	ALTA/NSPS Land Title/ Topographic/ Tree/ Wetland Survey
SP05	Tree List
SP06	Tree List
SP07	Overall Site Plan
SP08	Preliminary Site Plan (1 of 4)
SP09	Preliminary Site Plan (2 of 4)
SP10	Preliminary Site Plan (3 of 4)
SP11	Preliminary Site Plan (4 of 4)
SP12	Preliminary Paving & Grading Plan (1 of 8)
SP13	Preliminary Paving & Grading Plan (2 of 8)
SP14	Preliminary Paving & Grading Plan (3 of 8)
SP15	Preliminary Paving & Grading Plan (4 of 8)
SP16	Preliminary Paving & Grading Plan (5 of 8)
SP17	Preliminary Paving & Grading Plan (6 of 8)
SP18	Preliminary Paving & Grading Plan (7 of 8)
SP19	Preliminary Paving & Grading Plan (8 of 8)
SP20	Preliminary Utility Plan (1 of 4)
SP21	Preliminary Utility Plan (2 of 4)
SP22	Preliminary Utility Plan (3 of 4)
SP23	Preliminary Utility Plan (4 of 4)
SP24	Fire Truck Turning Plan
L-1	Concept Landscape Plan - Overall
L-2	Landscape Area Calculations
L-3	Enlargement Plans - Single Family Lots
L-4	Enlargement Plans - Townhomes North
L-5	Enlargement Plans - Townhomes South
L-6	Enlargement Plans - Park & East Entry
L-7	Long Lake Frontage & Focal Park
L-8	Tree Preservation/ Removal Plan North
L-9	Tree Preservation/ Removal Plan South
L-10	Tree Survey 1 of 3
L-11	Tree Survey 2 of 3
L-12	Tree Survey 3 of 3 & Details
1 of 1	Site Photometric Plan

LEGAL DESCRIPTION - AS SURVEYED (COMBINED)

PART OF THE NORTHEAST 1/4 OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 15; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST ALONG THE EAST LINE OF SAID SECTION 15, 660.00 FEET; THENCE SOUTH 89 DEGREES 39 MINUTES 01 SECONDS WEST, 43.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST, 80.01 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST, 332.00 FEET; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST, 100.00 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST, 75.00 FEET; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST, 80.00 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST, 870.40 FEET; THENCE SOUTH 00 DEGREES 35 MINUTES 00 SECONDS EAST, 400.00 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST, 329.61 FEET; THENCE NORTH 00 DEGREES 36 MINUTES 00 SECONDS WEST, 630.34 FEET TO THE SOUTHWEST CORNER OF RIVER BEND OF TROY, OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN No. 1577, ACCORDING TO THE MASTER DEED RECORDED IN LIBER 33439, PAGE 586, OAKLAND COUNTY RECORDS; THENCE ALONG THE SOUTH AND EAST LINES OF SAID RIVER BEND OF TROY THE FOLLOWING FIVE (5) COURSES: 1) NORTH 88 DEGREES 33 MINUTES 08 SECONDS EAST, 30.18 FEET AND 2) NORTH 00 DEGREES 56 MINUTES 30 SECONDS WEST, 29.66 FEET AND 3) NORTH 89 DEGREES 37 MINUTES 05 SECONDS EAST, 269.80 FEET AND 4) NORTH 00 DEGREES 11 MINUTES 35 SECONDS EAST, 29.63 FEET AND 5) NORTH 88 DEGREES 56 MINUTES 07 SECONDS EAST, 29.60 FEET; THENCE NORTH 00 DEGREES 35 MINUTES 00 SECONDS WEST ALONG THE EAST LINE OF SAID RIVER BEND OF TROY, IN PART, 570.00 FEET TO THE NORTHEAST CORNER OF SAID RIVER BEND OF TROY; THENCE NORTH 89 DEGREES 39 MINUTES 01 SECONDS EAST ALONG THE SOUTH RIGHT OF WAY LINE OF E. LONG LAKE ROAD (60 FEET 1/2 WIDTH), 684.03; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST, 600.00 FEET; THENCE NORTH 89 DEGREES 39 MINUTES 01 SECONDS EAST, 593.00 FEET TO THE POINT OF BEGINNING.

CONTAINING 895,001.06 SQUARE FEET OR 20.55 ACRES OF LAND.

TAX ID NUMBER: 20-15-201-046 AND 20-15-201-033

ADDRESS: VACANT

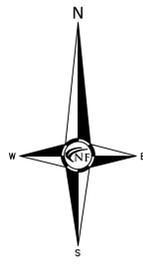
REVISIONS:
03-29-22 ISSUED FOR PRELIMINARY SITE PLAN REVIEW
10-21-22 REVISED PER SITE PLAN REVIEW
11-07-22 REVISED PER SITE PLAN REVIEW



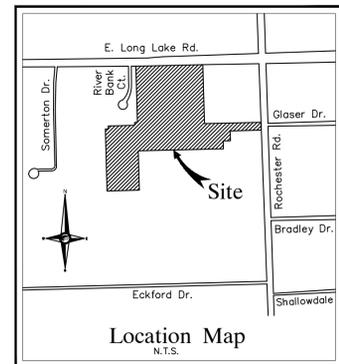
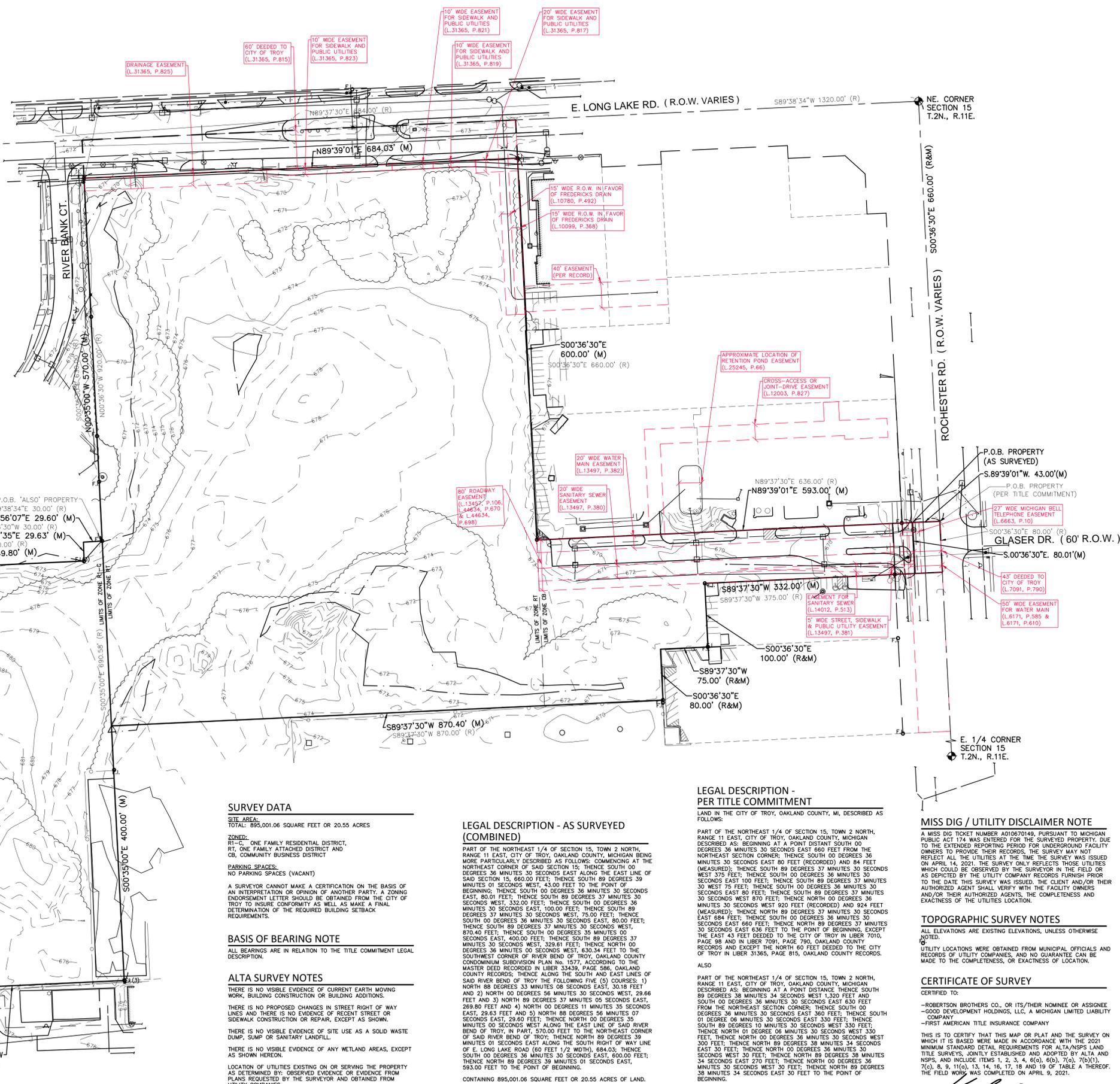
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257
WWW.NOWAKFRAUS.COM





N. 1/4 CORNER SECTION 15 T.2N., R.11E.



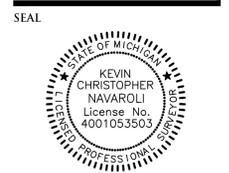
TITLE REPORT NOTES

- REFERENCE FIRST AMERICAN TITLE INSURANCE COMPANY, COMMITMENT NUMBER: 919508, DATED: FEBRUARY 2, 2021. SCHEDULE B, PART II - EXCEPTIONS:
EXCEPTIONS: 1, 4, 5, 6, 7, 25 AND 27 REFER TO THE OWNERSHIP OF THE PROPERTY AND/OR ARE NOT PLOTTABLE.
2. ANY FACTS, RIGHTS, INTERESTS, OR CLAIMS THAT ARE NOT SHOWN BY THE PUBLIC RECORDS BUT THAT COULD BE ASCERTAINED BY MAKING INQUIRY OF PERSONS IN POSSESSION OF THE LAND.
3. EASEMENTS, ENCUMBRANCES, OR CLAIMS THEREOF, NOT SHOWN BY THE PUBLIC RECORDS.
4. EASEMENT IN FAVOR OF THE COUNTY OF OAKLAND AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 6171, PAGE 585 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN]. LIBER 6171, PAGE 610 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN] AND LIBER 6187, PAGE 693 [EASEMENT IS NOT WITHIN AND DOES NOT TOUCH THE SURVEYED LAND AND ITS LOCATION IS NOT SHOWN].
5. RIGHT OF WAY IN FAVOR OF THE MICHIGAN BELL TELEPHONE DISTRICT AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 6663, PAGE 10 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
6. RIGHT OF WAY IN FAVOR OF FREDERICKS DRAIN DRAINAGE DISTRICT AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 10099, PAGE 368 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
7. TERMS AND CONDITIONS CONTAINED IN ORDER DETERMINING NECESSITY AND GRANTING RIGHT OF ENTRY AS DISCLOSED BY INSTRUMENT RECORDED IN LIBER 10780, PAGE 492 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
8. TERMS AND CONDITIONS CONTAINED IN CROSS-ACCESS OR JOINT-DRIVE EASEMENT AS DISCLOSED BY INSTRUMENT RECORDED IN LIBER 12003, PAGE 827 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
9. TERMS AND CONDITIONS CONTAINED IN DECLARATION OF NON-EXCLUSIVE EASEMENT AS DISCLOSED BY INSTRUMENT RECORDED IN LIBER 13497, PAGE 381 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
10. TERMS AND CONDITIONS CONTAINED IN DECLARATION OF NON-EXCLUSIVE EASEMENT RECORDED IN LIBER 44634, PAGE 670 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
11. PERMANENT EASEMENT IN FAVOR OF THE CITY OF TROY AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 13497, PAGE 381 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
12. PERMANENT EASEMENT IN FAVOR OF THE CITY OF TROY AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 14012, PAGE 513 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
13. PERMANENT EASEMENT IN FAVOR OF THE CITY OF TROY AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 13497, PAGE 382 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
14. PERMANENT EASEMENT IN FAVOR OF THE CITY OF TROY AND THE COVENANTS, CONDITIONS AND RESTRICTIONS CONTAINED IN INSTRUMENT RECORDED IN LIBER 14012, PAGE 513 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
15. TERMS AND CONDITIONS CONTAINED IN SIDE AGREEMENT REGARDING DECLARATION OF NON-EXCLUSIVE EASEMENT AS DISCLOSED BY INSTRUMENT RECORDED IN LIBER 44634, PAGE 698 [EASEMENT IS WITHIN THE SURVEYED LAND AND ITS LOCATION IS SHOWN].
16. MATTERS REFERENCED BY SURVEY RECORDED IN LIBER 10867, PAGE 747 AND IN LIBER 10867, PAGE 749 [DOCUMENTS DO NOT DESCRIBE ANY PLOTTABLE EASEMENTS OR PLOTTABLE RESTRICTIONS; THE SURVEYED LAND IS WITHIN THE PROPERTY DESCRIBED IN SAID DOCUMENTS].
17. ANY RIGHTS, TITLE INTEREST OR CLAIM THEREOF TO THAT PORTION OF THE LAND TAKEN, USED OR CLAIMED FOR STREETS, ROADS OR HIGHWAYS.
18. RIGHTS OF OTHER RIPARIAN OWNERS AND TO THE PUBLIC TRAIL IN AND TO THE WATERS OF THE DRAIN CROSSING SUBJECT PROPERTY.
19. RIGHTS OF TENANTS, IF ANY, UNDER ANY UNRECORDED LEASES.



CIVIL ENGINEERS LAND SURVEYORS LAND PLANNERS

NOWAK & FRAUS ENGINEERS 46777 WOODWARD AVE. PONTIAC, MI 48342-5032 TEL. (248) 332-7931 FAX. (248) 332-8257 WWW.NOWAKFRAUS.COM



PROJECT Village of Troy CLIENT Robertson Brothers Homes 6905 Telegraph Road Bloomfield Hills, MI 48301

Contact: Tim Loughrin Phone: 248.282.1428 Email: tloughrin@robertsonhomes.com

PROJECT LOCATION Part of the NE 1/4 of Section 15 T.2N., R.11E., City of Troy, Oakland County, Michigan

SHEET Overall Boundary Survey



Table with columns: DATE, ISSUED/REVISED, 04-14-21 SURVEY ISSUED, 03-29-22 ISSUED FOR PRELIMINARY SITE PLAN REVIEW, 10-21-22 REVISED PER SITE PLAN REVIEW, 11-07-22 REVISED PER SITE PLAN REVIEW

DRAWN BY: M. Carnaghi DESIGNED BY:

APPROVED BY: K. Navaroli DATE: April 14, 2021

SCALE: 1" = 80' SHEET NO. SP01

SURVEY DATA

SITE AREA: TOTAL: 895,001.06 SQUARE FEET OR 20.55 ACRES
ZONED: RT-1, ONE FAMILY RESIDENTIAL DISTRICT, RT, ONE FAMILY ATTACHED DISTRICT AND CB, COMMUNITY BUSINESS DISTRICT
PARKING SPACES: NO PARKING SPACES (VACANT)
A SURVEYOR CANNOT MAKE A CERTIFICATION ON THE BASIS OF AN INTERPRETATION OR OPINION OF ANOTHER PARTY. A ZONING ENDORSEMENT LETTER SHOULD BE OBTAINED FROM THE CITY OF TROY TO INSURE CONFORMITY AS WELL AS MAKE A FINAL DETERMINATION OF THE REQUIRED BUILDING SETBACK REQUIREMENTS.

BASIS OF BEARING NOTE

ALL BEARINGS ARE IN RELATION TO THE TITLE COMMITMENT LEGAL DESCRIPTION.

ALTA SURVEY NOTES

THERE IS NO VISIBLE EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.
THERE IS NO PROPOSED CHANGES IN STREET RIGHT OF WAY LINES AND THERE IS NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIR, EXCEPT AS SHOWN.
THERE IS NO VISIBLE EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, POND OR SANITARY LANDFILL.
THERE IS NO VISIBLE EVIDENCE OF ANY WETLAND AREAS, EXCEPT AS SHOWN HEREON.
LOCATION OF UTILITIES EXISTING ON OR SERVING THE PROPERTY AS DETERMINED BY OBSERVED EVIDENCE OR EVIDENCE FROM PLANS REQUESTED BY THE SURVEYOR AND OBTAINED FROM UTILITY COMPANIES.
THE SUBJECT PROPERTY HAS ACCESS TO LONG LAKE ROAD AND ROCHESTER ROAD, BOTH BEING A PUBLICLY DEDICATED ROAD.

LEGAL DESCRIPTION - AS SURVEYED (COMBINED)

PART OF THE NORTHEAST 1/4 OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SAID SECTION 15; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST ALONG THE EAST LINE OF SAID SECTION 15, 860.00 FEET; THENCE SOUTH 89 DEGREES 30 MINUTES 01 SECONDS WEST, 43.00 FEET TO THE POINT OF BEGINNING; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST, 80.01 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST, 332.00 FEET; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST, 100.00 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST, 75.00 FEET; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST, 80.00 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST, 329.61 FEET; THENCE NORTH 00 DEGREES 36 MINUTES 00 SECONDS WEST, 630.34 FEET TO THE SOUTHWEST CORNER OF RIVER BEND OF TROY, OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN No. 1577, ACCORDING TO THE MASTER DEED RECORDED IN LIBER 33439, PAGE 586, OAKLAND COUNTY RECORDS; THENCE ALONG THE SOUTH AND EAST LINES OF SAID RIVER BEND OF TROY THE FOLLOWING FIVE (5) COURSES: 1) NORTH 88 DEGREES 33 MINUTES 08 SECONDS EAST, 30.18 FEET AND 2) NORTH 00 DEGREES 36 MINUTES 30 SECONDS WEST, 29.66 FEET AND 3) NORTH 89 DEGREES 37 MINUTES 05 SECONDS EAST, 269.80 FEET AND 4) NORTH 00 DEGREES 11 MINUTES 35 SECONDS EAST, 29.63 FEET AND 5) NORTH 89 DEGREES 56 MINUTES 07 SECONDS EAST, 29.60 FEET; THENCE NORTH 00 DEGREES 35 MINUTES 00 SECONDS EAST, 400.00 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST, 329.61 FEET; THENCE NORTH 00 DEGREES 36 MINUTES 00 SECONDS WEST, 630.34 FEET TO THE SOUTHWEST CORNER OF RIVER BEND OF TROY; THENCE NORTH 00 DEGREES 36 MINUTES 00 SECONDS WEST, 630.34 FEET TO THE POINT OF BEGINNING.
CONTAINING 895,001.06 SQUARE FEET OR 20.55 ACRES OF LAND.
TAX ID NUMBER: 20-15-201-046 AND 20-15-201-033
ADDRESS: VACANT

LEGAL DESCRIPTION - PER TITLE COMMITMENT

LAND IN THE CITY OF TROY, OAKLAND COUNTY, MI, DESCRIBED AS FOLLOWS:
PART OF THE NORTHEAST 1/4 OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN DESCRIBED AS: BEGINNING AT A POINT DISTANT SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST 860 FEET FROM THE NORTHEAST SECTION CORNER; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST 80 FEET (RECORDED) AND 84 FEET (MEASURED); THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST 375 FEET; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST 100 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST 75 FEET; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST 80 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST 870 FEET; THENCE NORTH 00 DEGREES 36 MINUTES 30 SECONDS WEST 920 FEET (RECORDED) AND 924 FEET (MEASURED); THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST 684 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS EAST 660 FEET; THENCE NORTH 89 DEGREES 37 MINUTES 30 SECONDS EAST 636 FEET TO THE POINT OF BEGINNING, EXCEPT THE EAST 43 FEET DEED TO THE CITY OF TROY IN LIBER 7010, PAGE 98 AND IN LIBER 7091, PAGE 790, OAKLAND COUNTY RECORDS AND EXCEPT THE NORTH 60 FEET DEED TO THE CITY OF TROY IN LIBER 31365, PAGE 815, OAKLAND COUNTY RECORDS.
ALSO
PART OF THE NORTHEAST 1/4 OF SECTION 15, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN DESCRIBED AS: BEGINNING AT A POINT DISTANT THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST 360 FEET; THENCE SOUTH 00 DEGREES 36 MINUTES 30 SECONDS EAST 630 FEET; THENCE SOUTH 89 DEGREES 37 MINUTES 30 SECONDS WEST 330 FEET; THENCE NORTH 01 DEGREE 06 MINUTES 30 SECONDS WEST 330 FEET; THENCE NORTH 00 DEGREES 36 MINUTES 30 SECONDS WEST 300 FEET; THENCE NORTH 89 DEGREES 37 MINUTES 30 SECONDS EAST 30 FEET; THENCE NORTH 00 DEGREES 36 MINUTES 30 SECONDS WEST 30 FEET; THENCE NORTH 89 DEGREES 38 MINUTES 34 SECONDS EAST 270 FEET; THENCE NORTH 00 DEGREES 36 MINUTES 30 SECONDS WEST 30 FEET; THENCE NORTH 89 DEGREES 38 MINUTES 34 SECONDS EAST 30 FEET TO THE POINT OF BEGINNING.
TAX ID NUMBER: 20-15-201-046 AND 20-15-201-033
ADDRESS: VACANT

MISS DIG / UTILITY DISCLAIMER NOTE

A MISS DIG TICKET NUMBER A010670149, PURSUANT TO MICHIGAN PUBLIC ACT 174 WAS ENTERED FOR THE SURVEYED PROPERTY, DUE TO THE EXTENDED REPORTING PERIOD FOR UNDERGROUND FACILITY OWNERS TO PROVIDE THEIR RECORDS, THE SURVEY MAY NOT REFLECT ALL THE UTILITIES AT THE TIME THE SURVEY WAS ISSUED ON APRIL 14, 2021. THE SURVEY ONLY REFLECTS THOSE UTILITIES WHICH COULD BE OBSERVED BY THE SURVEYOR IN THE FIELD OR AS DEPICTED BY THE UTILITY COMPANY RECORDS FURNISH PRIOR TO THE DATE THIS SURVEY WAS ISSUED. THE CLIENT AND/OR THEIR AUTHORIZED AGENT SHALL VERIFY WITH THE FACILITY OWNERS AND/OR THEIR AUTHORIZED AGENTS, THE COMPLETENESS AND EXACTNESS OF THE UTILITIES LOCATION.

TOPOGRAPHIC SURVEY NOTES

ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.
UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.

CERTIFICATE OF SURVEY

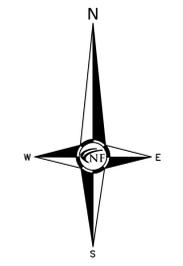
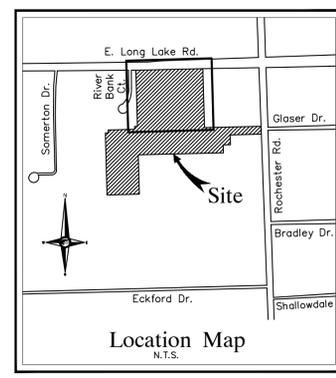
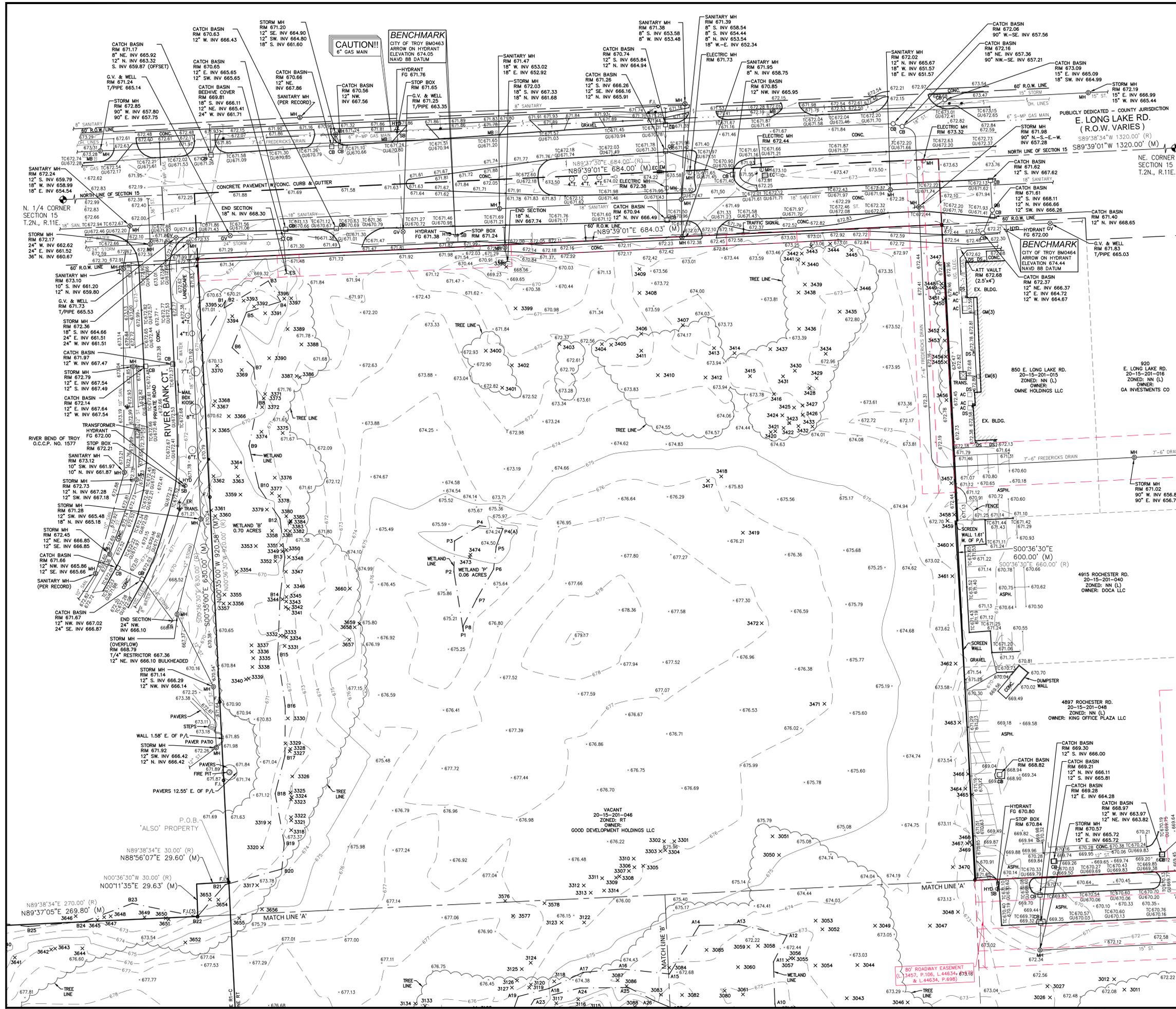
CERTIFIED TO:
-ROBERTSON BROTHERS CO., OR ITS/THEIR NOMINEE OR ASSIGNEE
-GOOD DEVELOPMENT HOLDINGS, LLC, A MICHIGAN LIMITED LIABILITY COMPANY
-FIRST AMERICAN TITLE INSURANCE COMPANY
THIS IS TO CERTIFY THAT THIS MAP OR PLAN AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE 2021 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NPS/LAND TITLE SURVEYS, JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDE ITEMS 1, 2, 3, 4, 6(G), 6(G), 7(C), 7(G), 7(G), 7(C), 8, 9, 11(C), 13, 14, 16, 17, 18 AND 19 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON APRIL 9, 2021.
Kevin Navaroli, P.S. No. 4001053503 DATE 4-14-2021

FLOOD HAZARD NOTE

THE PROPERTY DESCRIBED ON THIS SURVEY DOES NOT LIE WITHIN A SPECIAL FLOOD HAZARD AREA AS DEFINED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY; THE PROPERTY LIES WITHIN ZONE X OF THE FLOOD INSURANCE RATE MAP IDENTIFIED AS MAP NO. 28102004R BEARING AN EFFECTIVE DATE OF 09-29-2006.

DTE DISCLAIMER NOTE

PLEASE NOTE THAT DTE HAS NEW REGULATIONS THAT MAY IMPACT DEVELOPMENT OUTSIDE THEIR EASEMENT OR THE PUBLIC RIGHT OF WAY. CLIENT SHALL CONTACT DTE TO DETERMINE THE NEW STRUCTURE AND POWER LINE REQUIREMENTS AS THEY MAY APPLY TO ANY FUTURE BUILDING OR RENOVATION OF A STRUCTURE. DTE ENERGY CAN BE CONTACTED AT 800-477-4747



LEGEND

MANHOLE(MH)	EXISTING SANITARY SEWER
HYDRANT(HYD)	EXISTING SAN. CLEAN OUT
MANHOLE(MH) CATCH BASIN(CB)	EXISTING WATER MAIN
UTILITY POLE	EXISTING STORM SEWER
GUY POLE	EX. BEEHIVE CATCH BASIN
GUY WIRE	EX. UNDERGROUND (UG.) CABLE
LP	OVERHEAD (OH.) LINES
↑	LIGHT POLE
+	SIGN
—	EXISTING GAS MAIN
ASPH.	ASPHALT
CONC.	CONCRETE
F.I.	FOUND IRON
RET. WALL	RETAINING WALL
R.O.W.	RIGHT-OF-WAY
SPK	SET PK NAIL
(TYP)	TYPICAL
(R)	RECORD
(M)	MEASURED
C/L	CENTERLINE
P/L	PROPERTY LINE
GM	GAS METER
EM	ELECTRIC METER
EC	ELECTRIC CABINET
ER	ELECTRIC RISER
AC	AIR CONDITIONING UNIT
DS	DRAINPOUT
MB	MAIL BOX

NF ENGINEERS
 CIVIL ENGINEERS
 LAND SURVEYORS
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS
 46777 WOODWARD AVE.
 PONTIAC, MI 48342-5032
 TEL. (248) 332-7931
 FAX. (248) 332-8257
 WWW.NOWAKFRAUS.COM

PROJECT
 Village of Troy

CLIENT
 Robertson Brothers Homes
 6905 Telegraph Road
 Bloomfield Hills, MI 48301

Contact: Tim Loughrin
 Phone: 248.282.1428
 Email: toughrin@robertsonhomes.com

PROJECT LOCATION
 Part of the NE 1/4
 of Section 15
 T.2N., R.11E.,
 City of Troy,
 Oakland County, Michigan

SHEET
 ALTA/NSPS Land Title /
 Topographic / Tree Survey



Know what's below
 Call before you dig.

DATE	ISSUED/REVISED
04-14-21	SURVEY ISSUED
03-29-22	ISSUED FOR PRELIMINARY SITE PLAN REVIEW
10-21-22	REVISED PER SITE PLAN REVIEW
11-07-22	REVISED PER SITE PLAN REVIEW

DRAWN BY:
M. Carnaghi

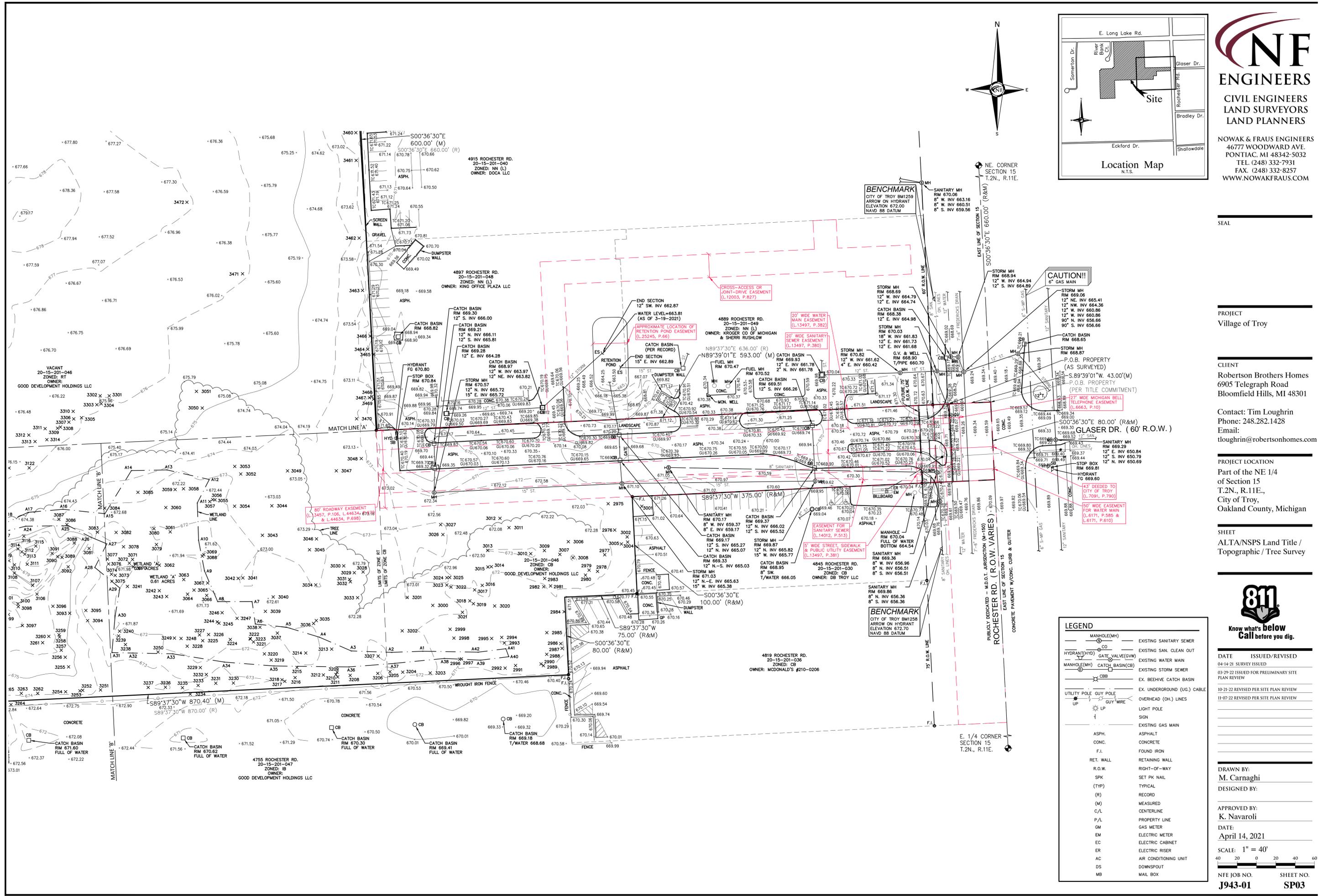
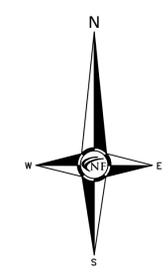
DESIGNED BY:

APPROVED BY:
K. Navaroli

DATE:
April 14, 2021

SCALE: 1" = 40'
 40 20 0 20 40 60

NFE JOB NO. **J943-01** SHEET NO. **SP02**



LEGEND	
	MANHOLE (MH)
	HYDRANT (HYD)
	MANHOLE (MH)
	UTILITY POLE
	GATE VALVE (GV)
	CATCH BASIN (CB)
	GUY POLE
	LIGHT POLE
	SIGN
	EXISTING GAS MAIN
	ASPHALT
	CONCRETE
	FOUND IRON
	RETAINING WALL
	RIGHT-OF-WAY
	SET PK NAIL
	TYPICAL
	RECORD
	MEASURED
	CENTERLINE
	PROPERTY LINE
	GAS METER
	ELECTRIC METER
	ELECTRIC CABINET
	ELECTRIC RISER
	AIR CONDITIONING UNIT
	DOWNSPOUT
	MAIL BOX
	EXISTING SANITARY SEWER
	EXISTING SAN. CLEAN OUT
	EXISTING WATER MAIN
	EXISTING STORM SEWER
	EX. BEEHIVE CATCH BASIN
	EX. UNDERGROUND (UG.) CABLE
	OVERHEAD (OH.) LINES
	EXISTING GAS MAIN

SEAL

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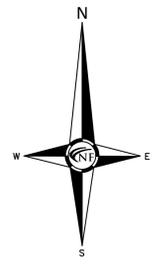
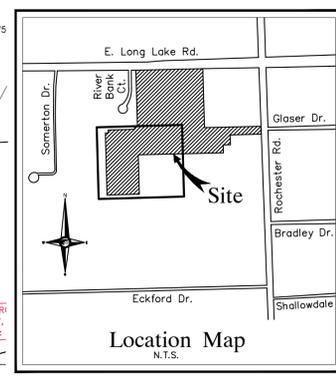
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M. Carnaghi
DESIGNED BY:

APPROVED BY:
K. Navaroli
DATE:
April 14, 2021

SCALE: 1" = 40'

NFE JOB NO. SHEET NO.
J943-01 SP03



LEGEND

MANHOLE(MH)	EXISTING SANITARY SEWER
HYDRANT(HYD)	EXISTING SAN. CLEAN OUT
MANHOLE(MH)	EXISTING WATER MAIN
UTILITY POLE	EXISTING STORM SEWER
GUY WIRE	EX. BEEHIVE CATCH BASIN
GUY WIRE	EX. UNDERGROUND (UG.) CABLE
LP	OVERHEAD (OH.) LINES
↑	LIGHT POLE
↑	SIGN
---	EXISTING GAS MAIN
ASPH.	ASPHALT
CONC.	CONCRETE
F.I.	FOUND IRON
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SPK	SET PK NAIL
(TYP)	TYPICAL
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DRAWN BY:
M. Carnaghi

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APPROVED BY:
K. Navaroli

DATE:
April 14, 2021

SCALE: 1" = 40'
 40 20 0 20 40 60

NFE JOB NO. **J943-01** SHEET NO. **SP04**

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)				Landmark (2)
			Trunk 1	Trunk 2	Trunk 3	Condition (1)	
2975	Acer negundo	Box elder	7.2	7.1	6.6	Fair	
2976	Acer negundo	Box elder	14.1	8.8		Fair	
2977	Acer negundo	Box elder	10.6			Fair	
2978	Acer negundo	Box elder	10.5			Fair	
2979	Populus deltoides	Cottonwood	27.4			Fair	X
2980	Populus deltoides	Cottonwood	15.8	13.4		Fair	
2981	Populus deltoides	Cottonwood	13.2			Fair	
2982	Populus deltoides	Cottonwood	17.5	12.9		Fair	
2983	Populus deltoides	Cottonwood	12.4	10.1		Fair	
2984	Acer platanoides	Norway Maple	6.8			Fair	
2985	Ulmus americana	American elm	7.2			Fair	
2986	Populus deltoides	Cottonwood	10.9			Fair	
2987	Ulmus americana	American elm	11.5			Fair	
2988	Acer negundo	Box elder	11.1			Fair	
2989	Acer negundo	Box elder	8.4			Fair	
2990	Pseudotsuga menziesii	Douglas fir	8.6	6.8		Fair	
2991	Ulmus americana	American elm	11.0			Fair	
2992	Ulmus americana	American elm	6.9			Fair	
2993	Populus deltoides	Cottonwood	29.2	14.0		Fair	X
2994	Populus deltoides	Cottonwood	16.7			Fair	
2995	Populus deltoides	Cottonwood	13.7	11.5		Fair	
2996	Populus deltoides	Cottonwood	10.1			Fair	
2997	Ulmus americana	American elm	7.3			Fair	
2998	Populus deltoides	Cottonwood	15.4			Fair	
2999	Populus deltoides	Cottonwood	12.1			Fair	
3000	Populus deltoides	Cottonwood	16.8			Fair	
3001	Gleditsia triacanthos	Honey locust	13.7	12.0		Fair	
3002	Acer negundo	Box elder	11.4			Fair	
3004	Acer negundo	Box elder	7.4			Fair	
3005	Acer negundo	Box elder	7.6			Fair	
3006	Salix amygdaloides	Peachleaf willow	7.6	6.2		Fair	
3007	Populus deltoides	Cottonwood	13.7			Fair	
3008	Populus deltoides	Cottonwood	15.1			Fair	
3009	Populus deltoides	Cottonwood	18.2	12.0		Fair	
3010	Populus deltoides	Cottonwood	18.1			Fair	
3011	Pyrus communis	Common pear	8.7			Fair	
3012	Populus deltoides	Cottonwood	8.8			Fair	
3013	Populus deltoides	Cottonwood	15.6			Fair	
3014	Populus deltoides	Cottonwood	13.4			Fair	
3015	Pyrus calleryana	Callery pear	6.2			Fair	
3016	Populus deltoides	Cottonwood	14.7			Fair	
3017	Populus deltoides	Cottonwood	11.4			Fair	
3018	Populus deltoides	Cottonwood	12.7			Poor	
3019	Populus deltoides	Cottonwood	11.1			Fair	
3020	Populus deltoides	Cottonwood	7.6			Fair	
3021	Populus deltoides	Cottonwood	11.0			Fair	
3022	Populus deltoides	Cottonwood	14.1			Fair	
3023	Populus deltoides	Cottonwood	15.9			Fair	
3024	Populus deltoides	Cottonwood	9.8			Poor	
3025	Populus deltoides	Cottonwood	13.1			Fair	
3026	Acer negundo	Box elder	8.1	6.4		Fair	
3027	Acer negundo	Box elder	8.5			Fair	
3028	Robinia pseudoacacia	Black locust	10.3			Fair	
3029	Ulmus americana	American elm	7.3			Fair	
3030	Populus deltoides	Cottonwood	13.1			Fair	
3031	Populus deltoides	Cottonwood	9.7			Fair	
3032	Ulmus americana	American elm	10.0			Fair	
3033	Ulmus americana	American elm	11.4			Fair	
3034	Populus deltoides	Cottonwood	17.3			Very Poor	
3035	Populus deltoides	Cottonwood	21.8			Fair	
3036	Ulmus americana	American elm	9.2	7.8		Fair	
3037	Ulmus americana	American elm	7.1			Fair	
3038	Ulmus americana	American elm	6.7			Fair	
3039	Populus grandidentata	Big-tooth aspen	8.7			Fair	
3040	Populus grandidentata	Big-tooth aspen	10.1			Fair	
3041	Populus grandidentata	Big-tooth aspen	16.0			Fair	
3042	Populus grandidentata	Big-tooth aspen	11.2			Fair	
3043	Populus deltoides	Cottonwood	20.8			Fair	
3044	Acer negundo	Box elder	7.7			Fair	
3045	Ulmus americana	American elm	9.0			Fair	
3046	Ulmus americana	American elm	9.0	8.1		Fair	
3047	Populus deltoides	Cottonwood	23.6			Fair	
3048	Populus deltoides	Cottonwood	22.2			Fair	
3049	Populus deltoides	Cottonwood	19.6			Fair	
3050	Pyrus calleryana	Callery pear	6.1			Fair	
3051	Pyrus calleryana	Callery pear	6.1			Fair	
3052	Populus deltoides	Cottonwood	21.2			Fair	
3053	Populus deltoides	Cottonwood	16.0			Fair	
3054	Populus deltoides	Cottonwood	14.2			Fair	
3055	Populus deltoides	Cottonwood	11.4			Fair	
3056	Populus deltoides	Cottonwood	7.3			Fair	
3057	Populus deltoides	Cottonwood	7.3			Fair	
3058	Ulmus americana	American elm	8.4			Fair	
3059	Acer negundo	Box elder	8.7			Fair	
3060	Populus deltoides	Cottonwood	13.5			Fair	
3061	Populus deltoides	Cottonwood	14.5			Fair	
3062	Populus deltoides	Cottonwood	10.7			Fair	
3063	Populus deltoides	Cottonwood	9.7			Fair	
3064	Populus deltoides	Cottonwood	8.2			Fair	
3065	Populus deltoides	Cottonwood	11.4			Fair	
3066	Populus deltoides	Cottonwood	6.3			Fair	
3067	Populus deltoides	Cottonwood	12.7			Fair	
3068	Ulmus americana	American elm	7.1			Fair	
3069	Ulmus americana	American elm	9.3			Fair	
3070	Populus deltoides	Cottonwood	15.2			Fair	
3071	Populus grandidentata	Big-tooth aspen	7.8			Fair	
3072	Ulmus americana	American elm	6.2			Fair	
3073	Populus deltoides	Cottonwood	14.4			Fair	
3074	Ulmus americana	American elm	7.2			Fair	
3075	Populus deltoides	Cottonwood	11.0			Fair	
3076	Ulmus americana	American elm	9.1			Fair	
3077	Populus deltoides	Cottonwood	7.2			Fair	
3078	Acer negundo	Box elder	7.8			Fair	
3079	Populus deltoides	Cottonwood	10.2			Fair	
3080	Populus grandidentata	Big-tooth aspen	12.3			Fair	
3081	Robinia pseudoacacia	Black locust	8.7			Fair	
3082	Ulmus americana	American elm	12.2	6.0		Fair	
3083	Populus deltoides	Cottonwood	9.7			Fair	
3084	Populus deltoides	Cottonwood	16.6			Fair	
3085	Populus deltoides	Cottonwood	26.1			Fair	X
3086	Populus deltoides	Cottonwood	12.2			Fair	

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)				Landmark (2)
			Trunk 1	Trunk 2	Trunk 3	Condition (1)	
3087	Populus deltoides	Cottonwood	14.1			Fair	
3088	Salix amygdaloides	Peachleaf willow	10.1	9.8		Fair	
3089	Robinia pseudoacacia	Black locust	7.1			Fair	
3090	Acer negundo	Box elder	7.8			Fair	
3091	Populus deltoides	Cottonwood	15.2			Fair	
3092	Robinia pseudoacacia	Black locust	8.8			Fair	
3093	Acer negundo	Box elder	6.3			Fair	
3094	Rhamnus cathartica	European buckthorn	8.1			Fair	
3095	Populus deltoides	Cottonwood	19.2			Fair	
3096	Acer negundo	Box elder	6.1			Fair	
3097	Robinia pseudoacacia	Black locust	7.7			Fair	
3098	Acer negundo	Box elder	8.8			Fair	
3099	Acer negundo	Box elder	8.6	7.3	6.2	Fair	
3100	Acer negundo	Box elder	6.2			Fair	
3101	Acer negundo	Box elder	10.4	8.1		Fair	
3102	Acer negundo	Box elder	8.1			Fair	
3103	Acer negundo	Box elder	8.6			Fair	
3104	Acer negundo	Box elder	8.3			Fair	
3105	Acer negundo	Box elder	8.6			Fair	
3106	Acer negundo	Box elder	17.3			Fair	
3107	Acer negundo	Box elder	12.4			Fair	
3108	Acer negundo	Box elder	9.0	5.8		Fair	
3109	Acer negundo	Box elder	9.0			Fair	
3110	Robinia pseudoacacia	Black locust	9.8			Fair	
3111	Robinia pseudoacacia	Black locust	6.1			Fair	
3112	Robinia pseudoacacia	Black locust	10.0			Fair	
3113	Robinia pseudoacacia	Black locust	11.4			Fair	
3114	Robinia pseudoacacia	Black locust	6.1			Fair	
3115	Robinia pseudoacacia	Black locust	9.1	8.7		Fair	
3116	Ulmus americana	American elm	7.1			Fair	
3117	Acer negundo	Box elder	14.8			Fair	
3118	Crataegus sp.	Hawthorn	6.0			Fair	
3119	Acer negundo	Box elder	7.1			Fair	
3120	Prunus avium	Sweet cherry	6.2			Fair	
3121	Acer negundo	Box elder	11.4			Fair	
3122	Acer negundo	Box elder	8.8			Fair	
3123	Acer negundo	Box elder	6.4			Fair	
3124	Acer negundo	Box elder	6.4			Fair	
3125	Ulmus americana	American elm	8.4			Fair	
3126	Acer negundo	Box elder	6.0	5.5		Fair	
3127	Acer negundo	Box elder	7.6	6.3		Fair	
3128	Pinus sylvestris	Scots pine	12.7			Fair	
3129	Pinus sylvestris	Scots pine	12.6			Fair	
3130	Pinus sylvestris	Scots pine	11.4			Fair	
3131	Pinus sylvestris	Scots pine	12.2	9.1		Fair	
3132	Ulmus americana	American elm	6.2			Fair	
3133	Populus tremuloides	Quaking aspen	7.1			Fair	
3134	Populus tremuloides	Quaking aspen	7.0			Fair	
3135	Populus tremuloides	Quaking aspen	9.3			Fair	
3136	Populus tremuloides	Quaking aspen	7.4			Fair	
3137	Acer negundo	Box elder	7.8			Very Poor	
3138	Pinus sylvestris	Scots pine	11.2			Fair	
3139	Prunus avium	Sweet cherry	6.0			Fair	
3140	Pinus resinosa	Red pine	26.0			Fair	X
3141	Populus tremuloides	Quaking aspen	15.3			Fair	
3142	Acer negundo	Box elder	13.6			Fair	
3143	Tilia americana	Basswood	9.2			Fair	
3144	Acer negundo	Box elder	10.6			Fair	
3145	Populus tremuloides	Quaking aspen	8.2			Fair	
3146	Populus tremuloides	Quaking aspen	7.1			Fair	
3147	Populus deltoides	Cottonwood	11.1			Fair	
3148	Ulmus americana	American elm	7.1			Fair	
3149	Tilia americana	Basswood	19.2	12.4	11.5	Fair	X
3150	Acer saccharinum	Silver maple	15.1			Fair	
3151	Acer saccharinum	Silver maple	8.2			Fair	
3152	Populus deltoides	Cottonwood	13.0			Fair	
3153	Populus deltoides	Cottonwood	15.1			Fair	
3154	Populus deltoides	Cottonwood	14.4			Fair	
3155	Acer negundo	Box elder	6.1			Fair	
3156	Populus deltoides	Cottonwood	13.6			Fair	
3157	Populus deltoides	Cottonwood	12.8			Fair	
3158	Populus deltoides	Cottonwood	10.5			Fair	
3159	Ulmus americana	American elm	6.0			Fair	
3160	Populus deltoides	Cottonwood	10.1			Fair	
3161	Populus deltoides	Cottonwood	18.7			Fair	
3162	Acer rubrum	Red maple	6.3			Fair	
3163	Populus deltoides	Cottonwood	7.5			Fair	
3164	Populus deltoides	Cottonwood	9.0			Fair	
3165	Acer saccharinum	Silver maple	7.1			Fair	
3166	Robinia pseudoacacia	Black locust	12.8			Fair	
3167	Populus deltoides	Cottonwood	13.6			Fair	
3168	Populus deltoides	Cottonwood	11.9			Fair	
3169	Acer saccharinum	Silver maple	6.2			Fair	
3170	Quercus alba	White oak	12.3	10.0		Fair	
3171	Quercus macrocarpa	Bur oak	18.5			Fair	X
3172	Populus deltoides	Cottonwood	7.8			Fair	
3173	Populus deltoides	Cottonwood	10.2			Fair	
3174	Acer saccharinum	Silver maple	7.5			Fair	
3175	Populus deltoides	Cottonwood	13.1			Fair	
3176	Populus deltoides	Cottonwood	6.7			Fair	
3177	Populus deltoides	Cottonwood	0.0	6.7		Fair	
3178	Populus deltoides	Cottonwood	9.0			Fair	
3179	Populus deltoides	Cottonwood	8.4			Fair	
3180	Populus deltoides	Cottonwood	14.7			Fair	
3181	Populus deltoides	Cottonwood	9.7			Fair	
3182	Populus deltoides	Cottonwood	9.2			Fair	
3182	Populus deltoides	Cottonwood	6.3			Fair	



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DESIGNED BY:

APPROVED BY:
K. Navaroli

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April 14, 2021

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NFE JOB NO. SHEET NO.
J943-01 SP06

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)				Landmark (2)
			Trunk 1	Trunk 2	Trunk 3	Condition (1)	
3309	Populus deltoides	Cottonwood	9.1			Fair	
3310	Populus deltoides	Cottonwood	8.3			Fair	
3311	Populus deltoides	Cottonwood	7.1			Fair	
3312	Populus deltoides	Cottonwood	7.4			Fair	
3313	Populus deltoides	Cottonwood	6.8			Fair	
3314	Populus deltoides	Cottonwood	9.2			Fair	
3315	Populus deltoides	Cottonwood	9.3			Fair	
3316	Populus deltoides	Cottonwood	12.3			Fair	
3317	Populus deltoides	Cottonwood	18.1			Fair	
3318	Populus deltoides	Cottonwood	22.0			Fair	
3319	Acer saccharinum	Silver maple	8.4			Fair	
3320	Acer saccharinum	Silver maple	14.8	6.2		Fair	
3321	Populus deltoides	Cottonwood	11.2			Fair	
3322	Populus deltoides	Cottonwood	18.9			Fair	
3323	Populus deltoides	Cottonwood	9.9			Fair	
3324	Populus deltoides	Cottonwood	21.3			Fair	
3325	Populus deltoides	Cottonwood	11.3			Fair	
3326	Populus deltoides	Cottonwood	15.4			Fair	
3327	Populus deltoides	Cottonwood	9.1			Fair	
3328	Populus deltoides	Cottonwood	8.2			Fair	
3329	Populus deltoides	Cottonwood	13.2	11.8		Fair	
3330	Ulmus americana	American elm	6.2			Fair	
3331	Populus deltoides	Cottonwood	11.8			Fair	
3332	Populus deltoides	Cottonwood	9.3			Fair	
3333	Populus deltoides	Cottonwood	17.0			Fair	
3334	Ulmus americana	American elm	6.2			Fair	
3335	Ulmus americana	American elm	7.1			Fair	
3336	Acer saccharinum	Silver maple	8.6			Fair	
3337	Acer saccharinum	Silver maple	12.9			Fair	
3338	Acer saccharinum	Silver maple	8.8	6.7		Fair	
3339	Ulmus americana	American elm	6.2			Fair	
3340	Acer saccharinum	Silver maple	9.7	6.2		Fair	
3341	Populus deltoides	Cottonwood	8.4			Fair	
3342	Populus deltoides	Cottonwood	8.1			Fair	
3343	Populus deltoides	Cottonwood	7.4			Fair	
3344	Populus deltoides	Cottonwood	7.6			Fair	
3345	Populus deltoides	Cottonwood	12.1			Fair	
3346	Populus deltoides	Cottonwood	6.7			Fair	
3347	Populus deltoides	Cottonwood	6.7			Fair	
3348	Populus deltoides	Cottonwood	8.0			Fair	
3349	Populus deltoides	Cottonwood	7.6			Fair	
3350	Populus deltoides	Cottonwood	11.1			Fair	
3351	Ulmus americana	American elm	6.7			Fair	
3352	Acer saccharinum	Silver maple	6.3			Fair	
3353	Acer saccharinum	Silver maple	10.1			Fair	
3354	Quercus macrocarpa	Bur oak	8.5			Fair	
3355	Juglans nigra	Black walnut	7.8			Fair	
3356	Juglans nigra	Black walnut	7.2			Fair	
3357	Malus pumila	Common apple	10.7			Very Poor	
3358	Ulmus americana	American elm	10.8			Fair	
3359	Acer saccharinum	Silver maple	14.4	11.0		Fair	
3360	Ulmus americana	American elm	14.0			Fair	
3361	Ulmus americana	American elm	10.3			Fair	
3362	Acer negundo	Box elder	8.4			Fair	
3363	Ulmus americana	American elm	9.4			Fair	
3364	Ulmus americana	American elm	9.3			Fair	
3365	Ulmus americana	American elm	10.4			Fair	
3366	Ulmus americana	American elm	7.4			Fair	
3367	Ulmus americana	American elm	7.6			Fair	
3368	Ulmus americana	American elm	8.3			Fair	
3369	Ulmus americana	American elm	8.0			Fair	
3370	Acer saccharinum	Silver maple	8.0			Fair	
3371	Ulmus americana	American elm	6.6			Fair	
3372	Ulmus americana	American elm	9.2	9.0	6.0	Fair	
3373	Ulmus americana	American elm	7.7			Fair	
3374	Populus deltoides	Cottonwood	15.4			Fair	
3375	Populus deltoides	Cottonwood	10.5			Fair	
3376	Acer negundo	Box elder	13.5			Fair	
3377	Acer saccharinum	Silver maple	11.1			Fair	
3378	Acer negundo	Box elder	7.8			Fair	
3379	Ulmus americana	American elm	7.4			Fair	
3380	Ulmus americana	American elm	11.3			Fair	
3381	Ulmus americana	American elm	6.2			Fair	
3382	Populus deltoides	Cottonwood	8.0			Fair	
3383	Populus deltoides	Cottonwood	9.0			Fair	
3384	Populus deltoides	Cottonwood	6.8			Fair	
3385	Populus deltoides	Cottonwood	15.1			Fair	
3386	Robinia pseudoacacia	Black locust	6.2	6.0		Poor	
3387	Acer negundo	Box elder	6.3			Poor	
3388	Robinia pseudoacacia	Black locust	11.4			Fair	
3389	Acer negundo	Box elder	6.3			Fair	
3390	Ulmus americana	American elm	10.5	9.7		Fair	
3391	Ulmus americana	American elm	12.6	11.5		Fair	
3392	Ulmus americana	American elm	9.9			Fair	
3393	Ulmus americana	American elm	6.8			Fair	
3394	Ulmus americana	American elm	10.9			Fair	
3395	Ulmus americana	American elm	6.2			Fair	
3396	Ulmus americana	American elm	6.6			Fair	
3397	Ulmus americana	American elm	8.4			Fair	
3398	Populus deltoides	Cottonwood	14.3			Fair	
3399	Salix alba	White willow	45.0			Very Poor	
3400	Populus deltoides	Cottonwood	9.7			Fair	
3401	Robinia pseudoacacia	Black locust	9.4			Fair	
3402	Robinia pseudoacacia	Black locust	8.1			Fair	
3403	Populus deltoides	Cottonwood	10.9			Fair	
3404	Populus deltoides	Cottonwood	7.2			Fair	
3405	Populus deltoides	Cottonwood	7.5			Fair	
3406	Acer saccharinum	Silver maple	12.1			Fair	
3407	Acer platanoides	Norway Maple	18.4			Fair	
3408	Acer saccharinum	Silver maple	36.0			Fair	X
3409	Acer saccharinum	Silver maple	27.6			Fair	X
3410	Acer saccharinum	Silver maple	33.7			Very Poor	
3411	Acer saccharinum	Silver maple	36.2			Fair	X
3412	Populus deltoides	Cottonwood	9.5			Fair	
3413	Populus deltoides	Cottonwood	7.9			Fair	
3414	Picea pungens	Blue spruce	17.0			Fair	
3415	Acer saccharinum	Silver maple	22.5			Very Poor	
3416	Pinus sylvestris	Scots pine	19.6			Fair	X
3417	Populus deltoides	Cottonwood	8.6			Fair	
3418	Populus deltoides	Cottonwood	10.9			Fair	
3419	Populus deltoides	Cottonwood	7.9	7.4		Fair	

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)				Landmark (2)
			Trunk 1	Trunk 2	Trunk 3	Condition (1)	
3420	Populus deltoides	Cottonwood	7.1			Fair	
3421	Populus deltoides	Cottonwood	8.5			Fair	
3422	Populus deltoides	Cottonwood	10.8			Fair	
3423	Populus deltoides	Cottonwood	7.7			Fair	
3424	Populus deltoides	Cottonwood	8.2			Fair	
3425	Populus deltoides	Cottonwood	6.1			Fair	
3426	Populus deltoides	Cottonwood	9.1			Fair	
3427	Populus deltoides	Cottonwood	6.1			Fair	
3428	Populus deltoides	Cottonwood	9.5			Fair	
3429	Populus deltoides	Cottonwood	13.6			Fair	
3430	Acer saccharinum	Silver maple	20.6			Fair	
3431	Acer saccharinum	Silver maple	17.3			Fair	
3432	Populus deltoides	Cottonwood	11.7			Fair	
3433	Populus deltoides	Cottonwood	9.2			Fair	
3434	Populus deltoides	Cottonwood	7.6			Fair	
3435	Populus deltoides	Cottonwood	12.4			Fair	
3436	Pinus sylvestris	Scots pine	17.9			Good	
3437	Pinus sylvestris	Scots pine	7.0			Fair	
3438	Pinus sylvestris	Scots pine	12.5			Fair	
3439	Acer negundo	Box elder	9.0			Poor	
3440	Acer platanoides	Norway Maple	6.9			Fair	
3441	Pinus sylvestris	Scots pine	25.0			Good	X
3442	Acer platanoides	Norway Maple	9.4			Fair	
3443	Ulmus americana	American elm	8.7			Fair	
3444	Acer saccharinum	Silver maple	9.9			Fair	
3445	Acer negundo	Box elder	6.5	6.0		Fair	
3446	Acer platanoides	Norway Maple	7.5			Fair	
3447	Ulmus americana	American elm	11.5			Fair	
3448	Ulmus americana	American elm	8.9			Fair	
3449	Ulmus americana	American elm	8.3			Fair	
3450	Ulmus americana	American elm	10.1			Fair	
3451	Pyrus communis	Common pear	8.8			Fair	
3452	Ulmus americana	American elm	8.3			Fair	
3453	Ulmus americana	American elm	12.5			Fair	
3454	Ulmus americana	American elm	8.1			Fair	
3455	Populus deltoides	Cottonwood	18.4			Fair	
3456	Acer negundo	Box elder	11.0			Fair	
3457	Ulmus americana	American elm	6.3			Fair	
3458	Populus deltoides	Cottonwood	21.0			Fair	
3459	Acer saccharinum	Silver maple	7.3			Fair	
3460	Populus deltoides	Cottonwood	13.0			Fair	
3461	Salix amygdaloides	Peachleaf willow	13.8			Fair	
3462	Quercus macrocarpa	Bur oak	19.1			Fair	X
3463	Populus deltoides	Cottonwood	17.3	15.1		Fair	
3464	Populus deltoides	Cottonwood	13.2			Fair	
3465	Populus deltoides	Cottonwood	20.1			Fair	
3466	Ulmus americana	American elm	6.7			Fair	
3467	Ulmus americana	American elm	7.1			Fair	
3468	Ulmus americana	American elm	6.4			Fair	
3469	Ulmus americana	American elm	7.9			Fair	
3470	Robinia pseudoacacia	Black locust	11.4			Fair	
3471	Populus deltoides	Cottonwood	6.1			Fair	
3472	Populus deltoides	Cottonwood	7.1			Fair	
3473	Populus deltoides	Cottonwood	7.1			Fair	
3474	Populus deltoides	Cottonwood	7.2			Fair	
3501	Populus deltoides	Cottonwood	15.3			Fair	
3502	Populus deltoides	Cottonwood	7.3			Fair	
3503	Populus deltoides	Cottonwood	10.4	9.4		Fair	
3504	Fraxinus americana	White ash	7.2			Very Poor	
3505	Acer platanoides	Norway Maple	6.0			Fair	
3506	Acer platanoides	Norway Maple	7.4			Fair	
3507	Tilia americana	Basswood	7.9			Fair	
3508	Acer saccharum	Sugar maple	18.3			Fair	X
3509	Ulmus americana	American elm	6.8			Fair	
3510	Ulmus americana	American elm	17.2			Fair	
3511	Ulmus americana	American elm	14.5			Fair	
3512	Ulmus americana	American elm	10.0			Fair	
3513	Populus deltoides	Cottonwood	10.0	9.6		Fair	
3514	Ulmus americana	American elm	9.0			Fair	
3515	Acer negundo	Box elder	7.2			Fair	
3516	Acer negundo	Box elder	9.2	6.3		Fair	
3517	Prunus serotina	Black cherry	8.1			Fair	
3518	Malus pumila	Common apple	7.1			Fair	
3519	Populus deltoides	Cottonwood	15.2			Fair	
3520	Ulmus americana	American elm	6.3			Fair	
3521	Populus deltoides	Cottonwood	11.0			Fair	
3522	Populus deltoides	Cottonwood	8.4			Fair	
3523	Robinia pseudoacacia	Black locust	7.5			Fair	
3524	Ulmus americana	American elm	18.0			Fair	
3525	Robinia pseudoacacia	Black locust	9.0			Fair	
3526	Robinia pseudoacacia	Black locust	7.4			Fair	
3527	Populus tremuloides	Quaking aspen	6.0			Fair	

E. LONG LAKE RD.
(R.O.W. VARIES)

FIRE DEPARTMENT NOTE

THE FOUR (4) INCH STEAMER CPAS ON ALL HYDRANTS WILL BE PAINTED ACCORDING TO THE FOLLOWING:
WHITE ON 4.00 INCH MAINS
RED ON 6.00 INCH MAINS
ORANGE ON 8.00 INCH MAINS
GREEN ON 12.00 INCH MAINS
BLUE ON 16.00 INCH OR LARGER MAINS

NO PARKING SHALL BE PERMITTED AND/OR NO OBSTRUCTIONS SHALL BE PLACED OR CONSTRUCTED WITHIN FIFTEEN (15) FEET OF ANY FIRE HYDRANT OR FIRE DEPARTMENT CONNECTION, PUBLIC OR PRIVATE.

THE FIRE DEPARTMENT CONNECTION MUST BE LOCATED WITHIN ONE HUNDRED (100) FEET OF A FIRE HYDRANT AND WITHIN FIFTY (50) FEET OF A MINIMUM EIGHTEEN (18) FOOT WIDE PAVED DRIVEWAY OR STREET.

GAS METER, PROPANE TANKS, OVERHEAD ELECTRICAL SERVICE, AND TRANSFORMERS MUST NOT BE LOCATED ON THE SAME SIDE OF THE BUILDING OR STRUCTURE AS THE FIRE DEPARTMENT CONNECTION UNLESS A CLEAR DISTANCE OF ONE HUNDRED FIFTY (150) FEET CAN BE MAINTAINED BETWEEN UTILITIES AND THE FIRE DEPARTMENT CONNECTION.

ALL DRIVE AREAS MUST BE POSTED AS FIRE LANES WITH UNIFORM SIGNS IN KEEPING WITH THE STANDARD ESTABLISHED IN THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SIGNS MUST BE ERECTED ON BOTH SIDES OF THE FIRE LANES WITH SPACING BETWEEN SIGNS NOT TO EXCEED ONE HUNDRED (100) FEET.

DESIGNATED EXIT DOORS ONTO DRIVES OR PARKING AREAS MUST BE PROTECTED WITH GUARD POSTS OR PARKING BLOCKS.

A WHITE HIGH VISIBILITY STRIPE SHALL BE PAINTED ON THE UPPER FLANGE OF ALL FIRE HYDRANTS.

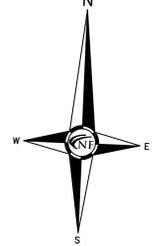
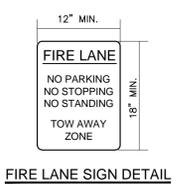
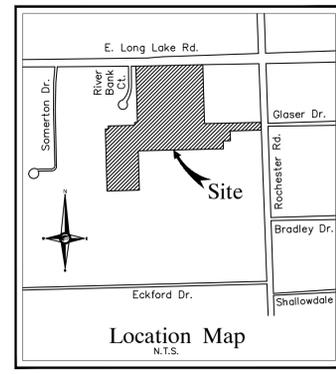
FIRE LANE SIGNAGE NOTE

WHERE REQUIRED, FIRE LANES SHALL BE ESTABLISHED AS INDICATED AND POSTED WITH THE APPROPRIATE SIGNS. FIRE LANES SHALL BE A MINIMUM OF 18 FEET IN WIDTH AND HAVE A MINIMUM OVERHEAD CLEARANCE OF 14 FEET IN HEIGHT. FIRE LANES MUST SUPPORT THE FIRE TRUCK WEIGHT OF 56,000 POUNDS. ALL TURNS IN FIRE LANES MUST ACCOMMODATE THE FIRE TRUCK MINIMUM INSIDE TURNING RADIUS OF 37 FEET WITH A MINIMUM OUTSIDE TURNING RADIUS OF 52 FEET OR AS OTHERWISE DETERMINED ACCEPTABLE BY THE FIRE OFFICIAL (TROY CITY CODE CHAPTER 93)

APPROVED "NO PARKING FIRE LANE" SIGNS MUST BE INSTALLED AND MAINTAINED IN COMPLIANCE WITH THE CRITERIA SET FORTH IN THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SOME OF THE CRITERIA IS AS FOLLOWS (TROY CITY CODE CHAPTER 106):

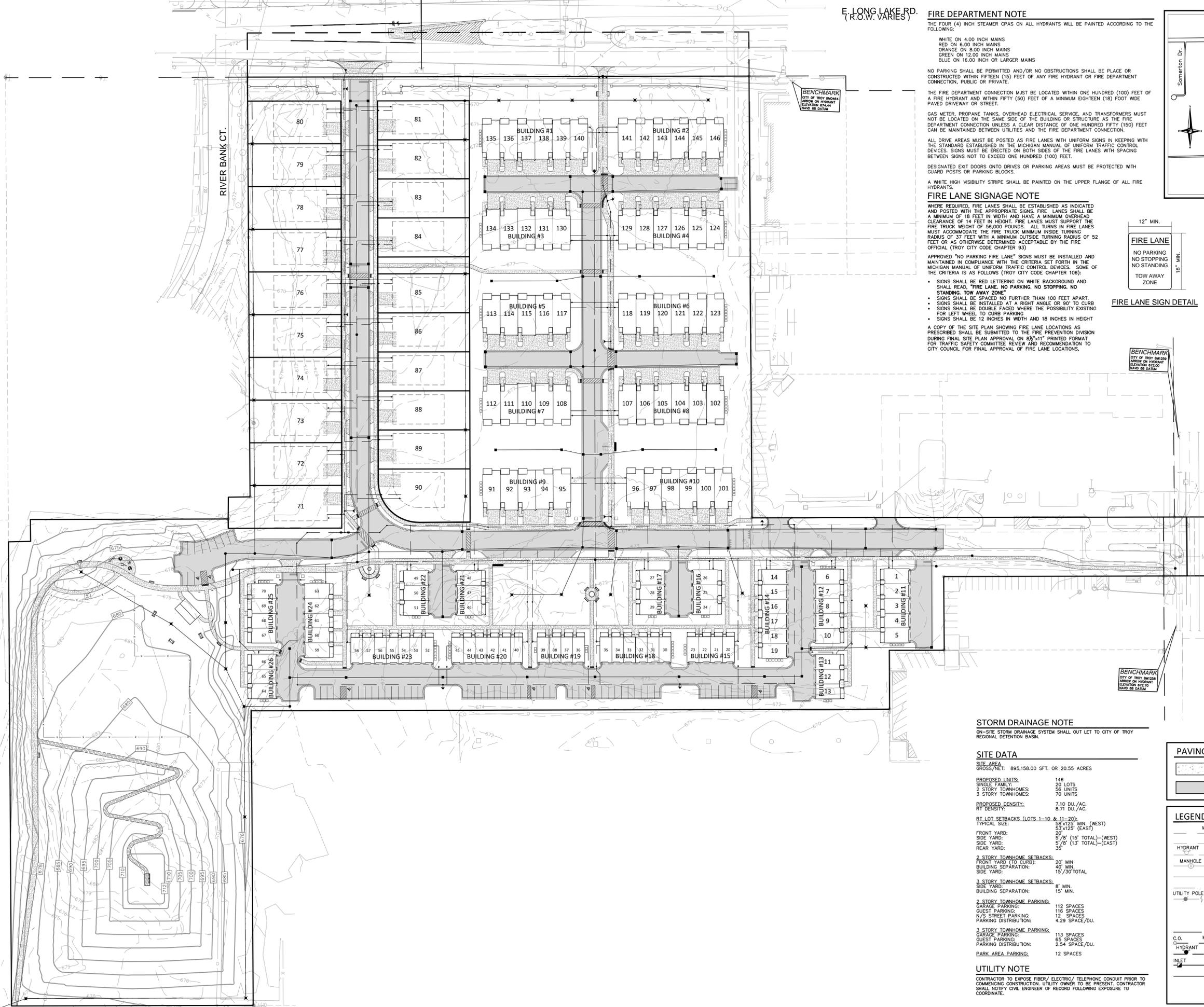
- SIGNS SHALL BE RED LETTERING ON WHITE BACKGROUND AND SHALL READ, "FIRE LANE, NO PARKING, NO STOPPING, NO STANDING, TOW AWAY ZONE"
- SIGNS SHALL BE SPACED NO FURTHER THAN 100 FEET APART.
- SIGNS SHALL BE INSTALLED AT A RIGHT ANGLE OR 90° TO CURB
- SIGNS SHALL BE DOUBLE FACED WHERE THE POSSIBILITY EXISTING FOR LEFT WHEEL TO CURB PARKING
- SIGNS SHALL BE 12 INCHES IN WIDTH AND 18 INCHES IN HEIGHT

A COPY OF THE SITE PLAN SHOWING FIRE LANE LOCATIONS AS PRESCRIBED SHALL BE SUBMITTED TO THE FIRE PREVENTION DIVISION DURING FINAL SITE PLAN APPROVAL ON 8 1/2" X 11" PRINTED FORMAT FOR TRAFFIC SAFETY COMMITTEE REVIEW AND RECOMMENDATION TO CITY COUNCIL FOR FINAL APPROVAL OF FIRE LANE LOCATIONS.



RIVER BANK CT.

ROCHESTER RD. (R.O.W. VARIES)



STORM DRAINAGE NOTE

ON-SITE STORM DRAINAGE SYSTEM SHALL OUT LET TO CITY OF TROY REGIONAL DETENTION BASIN.

SITE DATA

SITE AREA: 895,158.00 SFT. OR 20.55 ACRES

PROPOSED UNITS:
SINGLE FAMILY: 20 LOTS
2 STORY TOWNHOMES: 56 UNITS
3 STORY TOWNHOMES: 70 UNITS

PROPOSED DENSITY: 7.10 DU./AC.
RT DENSITY: 8.71 DU./AC.

BT LOT SETBACKS (LOTS 1-10 & 11-20):
TYPICAL SIZE: 58' X 125' MIN. (WEST)
53' X 125' (EAST)

FRONT YARD: 5' (5' TOTAL)-(WEST)
SIDE YARD: 5' (5' TOTAL)-(WEST)
SIDE YARD: 5' (5' TOTAL)-(EAST)
REAR YARD: 35'

2 STORY TOWNHOME SETBACKS:
FRONT YARD (TO CURB): 20' MIN
BUILDING SEPARATION: 40' MIN
SIDE YARD: 15'/30'TOTAL

3 STORY TOWNHOME SETBACKS:
FRONT YARD: 8' MIN
BUILDING SEPARATION: 15' MIN.

2 STORY TOWNHOME PARKING:
GARAGE PARKING: 112 SPACES
GUEST PARKING: 116 SPACES
N/S STREET PARKING: 12 SPACES
PARKING DISTRIBUTION: 4.29 SPACE/DU.

3 STORY TOWNHOME PARKING:
GARAGE PARKING: 113 SPACES
GUEST PARKING: 65 SPACES
PARKING DISTRIBUTION: 2.54 SPACE/DU.

PARK AREA PARKING: 12 SPACES

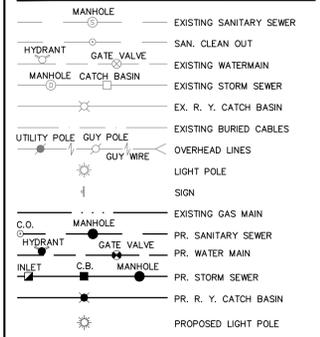
UTILITY NOTE

CONTRACTOR TO EXPOSE FIBER/ ELECTRIC/ TELEPHONE CONDUIT PRIOR TO COMMENCING CONSTRUCTION. UTILITY OWNERS TO BE PRESENT. CONTRACTOR SHALL NOTIFY CIVIL ENGINEER OF RECORD FOLLOWING EXPOSURE TO COORDINATE.

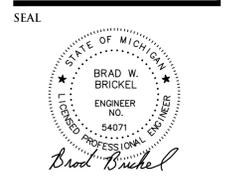
PAVING LEGEND



LEGEND



NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257
WWW.NOWAKFRAUS.COM



PROJECT
The Village of Troy

CLIENT
Robertson Brothers Homes
6905 Telegraph Road
Bloomfield Hills, MI 48301

Contact: Tim Loughrin
Phone: 248.282.1428
Email:
toughrin@robertsonhomes.com

PROJECT LOCATION
Part of the NE 1/4
of Section 15
T.2N., R.11E.,
City of Troy,
Oakland County, Michigan

SHEET
Overall Site Plan



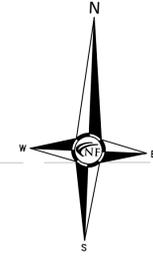
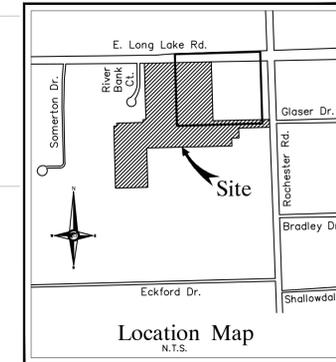
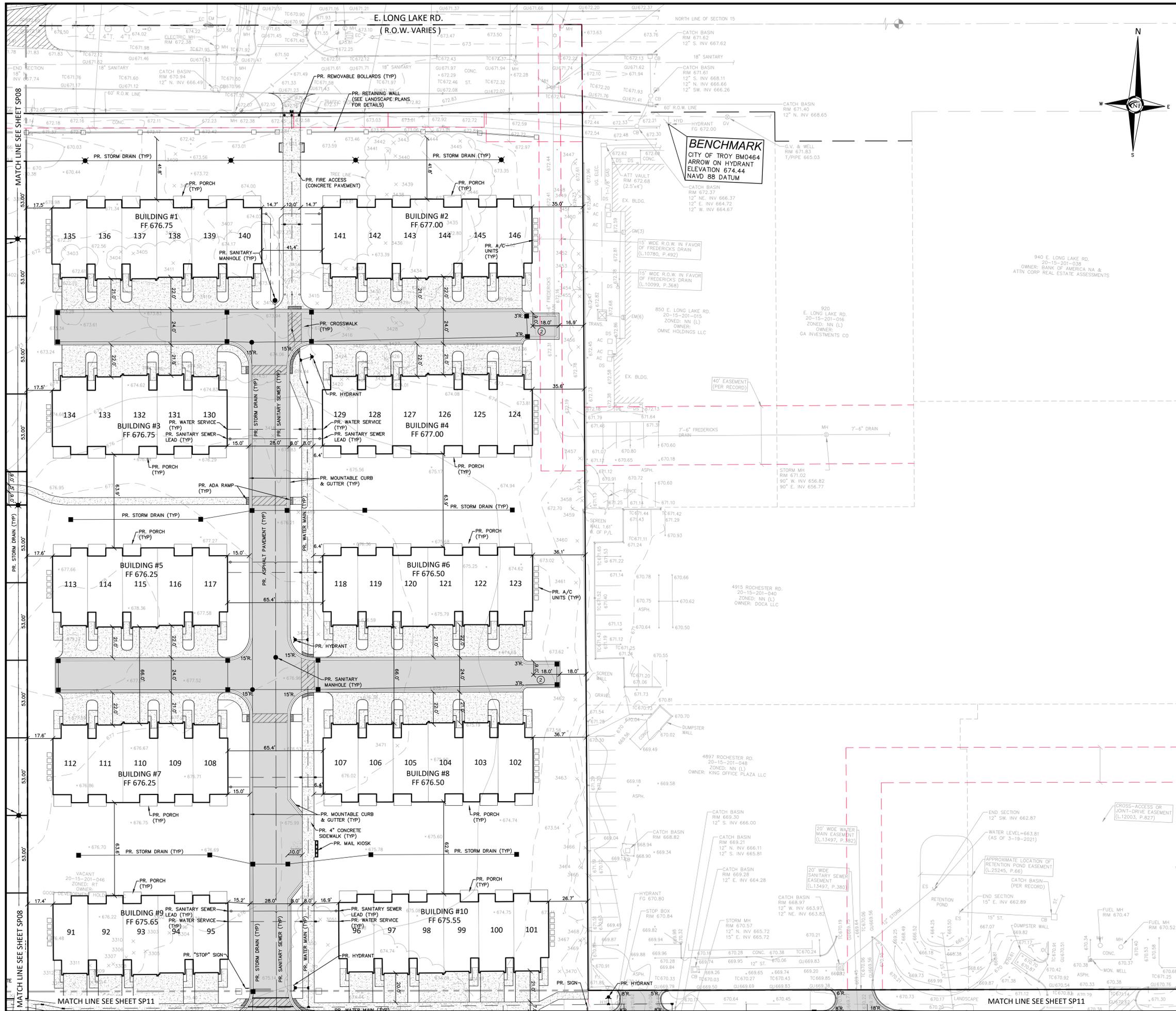
DATE	ISSUED/REVISED
04-14-21	SURVEY ISSUED
03-29-22	ISSUED FOR PRELIMINARY SITE PLAN REVIEW
10-21-22	REVISED PER SITE PLAN REVIEW
11-07-22	REVISED PER SITE PLAN REVIEW

DRAWN BY:
J. Lawrey
DESIGNED BY:
B. Brickel
APPROVED BY:
B. Brickel

DATE:
April 14, 2021

SCALE: 1" = 60'

NFE JOB NO. SHEET NO.
J943-01 SP07



BENCHMARK
CITY OF TROY BM0464
ARROW ON HYDRANT
ELEVATION 674.44
NAVD 88 DATUM

PAVING LEGEND

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

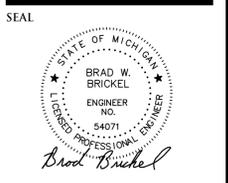
LEGEND

	MANHOLE		EXISTING SANITARY SEWER
	HYDRANT		SAN. CLEAN OUT
	MANHOLE		EXISTING WATERMAIN
	MANHOLE		EXISTING STORM SEWER
	UTILITY POLE		EXISTING R. Y. CATCH BASIN
	GUY POLE		EXISTING BURIED CABLES
	GUY WIRE		OVERHEAD LINES
	LIGHT POLE		SIGN
	C.O.		EXISTING GAS MAIN
	MANHOLE		PR. SANITARY SEWER
	HYDRANT		PR. WATER MAIN
	INLET		PR. STORM SEWER
	MANHOLE		PR. R. Y. CATCH BASIN
	LIGHT POLE		PROPOSED LIGHT POLE



**CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS**

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Email: toughrin@robertsonhomes.com

PROJECT LOCATION
Part of the NE 1/4
of Section 15
T.2N., R.11E.,
City of Troy,
Oakland County, Michigan

SHEET
Preliminary Site Plan
(2 of 4)



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

DATE ISSUED/REVISED

04-14-21	SURVEY ISSUED
03-29-22	ISSUED FOR PRELIMINARY SITE PLAN REVIEW
10-21-22	REVISED PER SITE PLAN REVIEW
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DRAWN BY:
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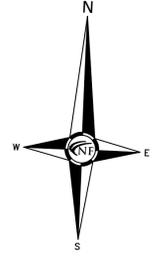
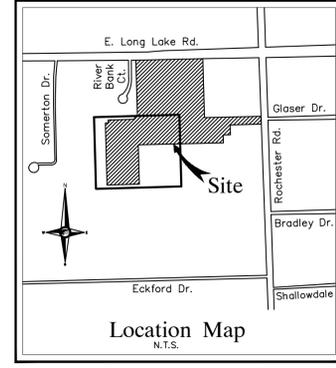
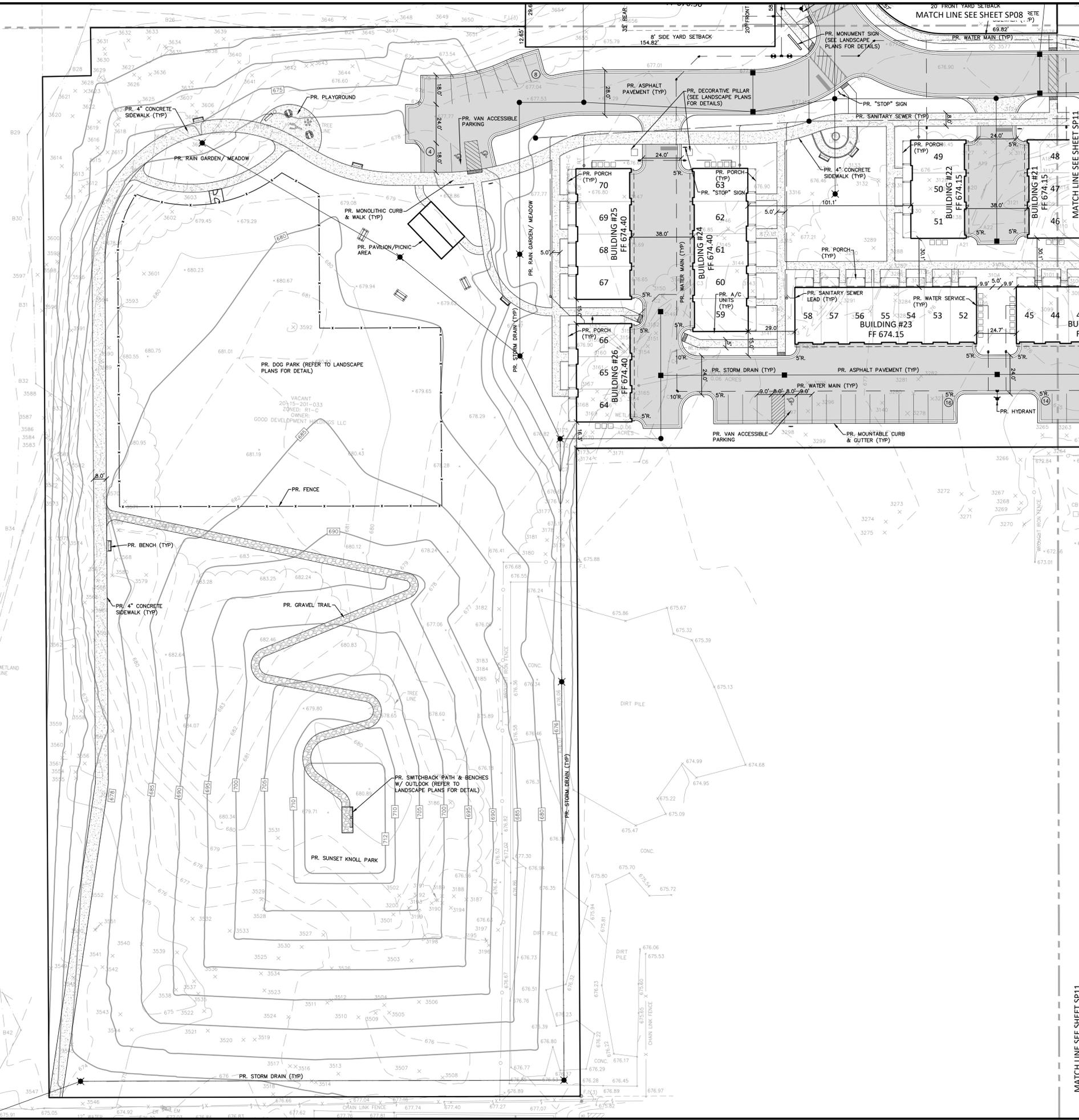
APPROVED BY:
B. Brickel

DATE:
April 14, 2021

SCALE: 1" = 30'

NFE JOB NO. J943-01 **SHEET NO.** SP09

MATCH LINE SEE SHEET SP08



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LAND PLANNERS**

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SEAL



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Oakland County, Michigan

SHEET
Preliminary Site Plan
(3 of 4)



Know what's below
Call before you dig.

DATE	ISSUED/REVISED
04-14-21	SURVEY ISSUED
03-29-22	ISSUED FOR PRELIMINARY SITE PLAN REVIEW
10-21-22	REVISED PER SITE PLAN REVIEW
11-07-22	REVISED PER SITE PLAN REVIEW

PAVING LEGEND	
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

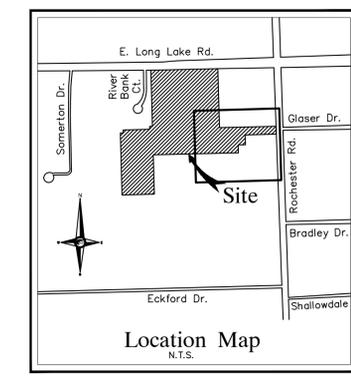
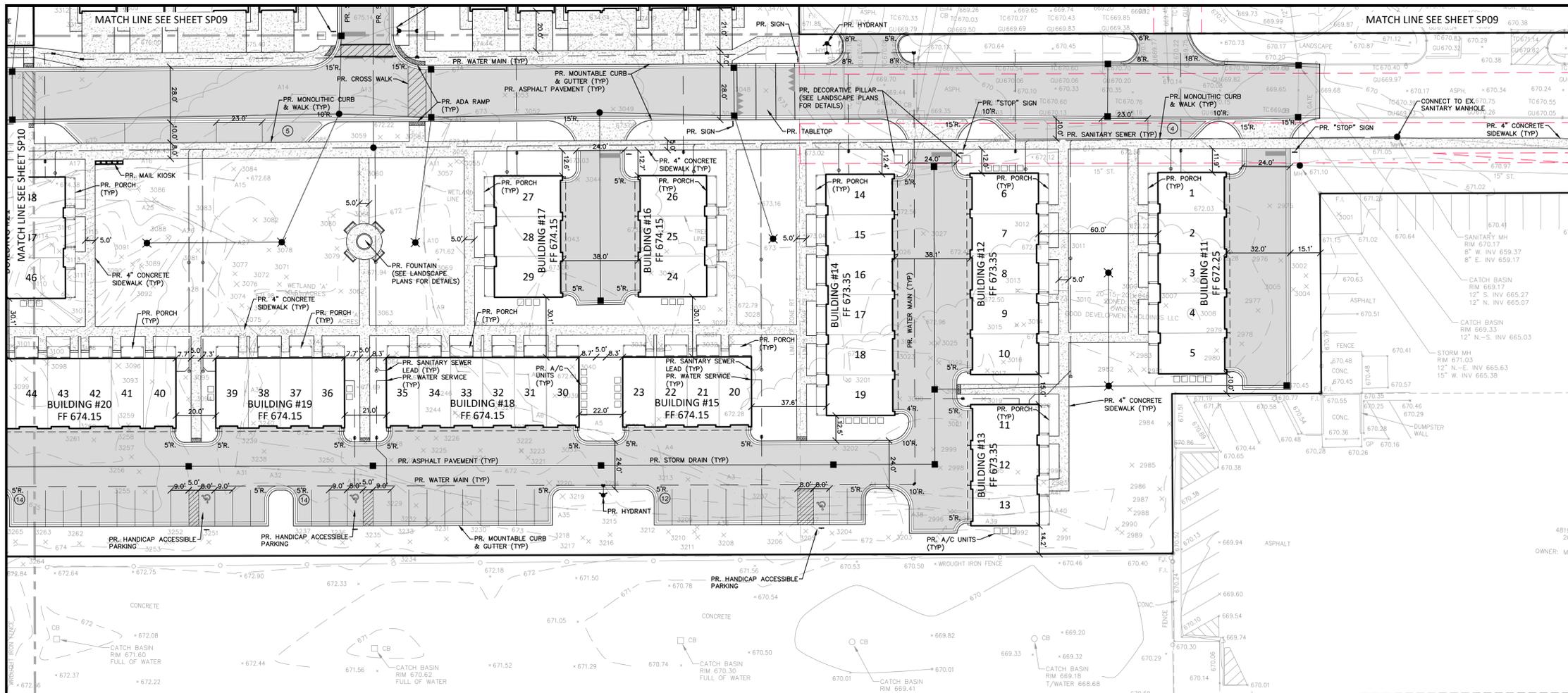
LEGEND			
	MANHOLE		EXISTING SANITARY SEWER
	HYDRANT		GATE VALVE
	MANHOLE CATCH BASIN		EXISTING WATERMAIN
	UTILITY POLE		EXISTING STORM SEWER
	GUY POLE		EX. R. Y. CATCH BASIN
	GUY WIRE		EXISTING BURIED CABLES
	LIGHT POLE		OVERHEAD LINES
	SIGN		EXISTING GAS MAIN
	C.O. MANHOLE		PR. SANITARY SEWER
	HYDRANT		GATE VALVE
	INLET		PR. WATER MAIN
	C.B. MANHOLE		PR. STORM SEWER
	R. Y. CATCH BASIN		PR. R. Y. CATCH BASIN
	PROPOSED LIGHT POLE		

DRAWN BY:
J. Lawrey
DESIGNED BY:
B. Brickel
APPROVED BY:
B. Brickel

DATE:
April 14, 2021

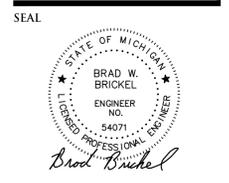
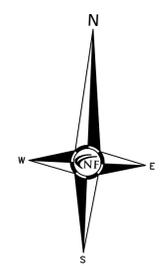
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. J943-01 **SHEET NO.** SP10



NF ENGINEERS
 CIVIL ENGINEERS
 LAND SURVEYORS
 LAND PLANNERS

NOWAK & FRAUS ENGINEERS
 4677 WOODWARD AVE.
 PONTIAC, MI 48342-5032
 TEL. (248) 332-7931
 FAX. (248) 332-8257
 WWW.NOWAKFRAUS.COM



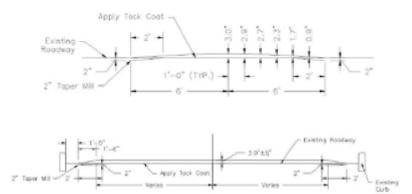
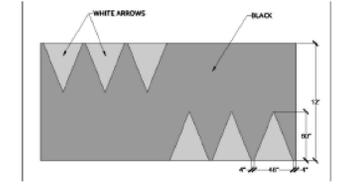
PROJECT
 The Village of Troy

CLIENT
 Robertson Brothers Homes
 6905 Telegraph Road
 Bloomfield Hills, MI 48301

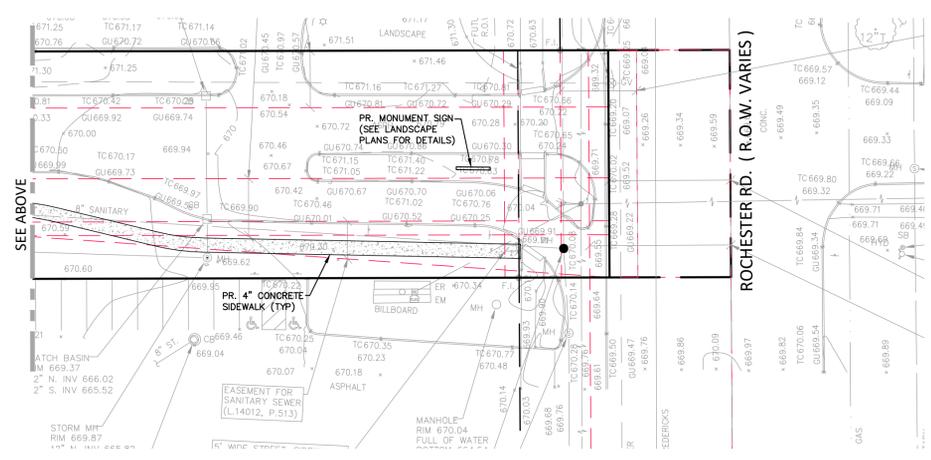
Contact: Tim Loughrin
 Phone: 248.282.1428
 Email: toughrin@robertsonhomes.com

PROJECT LOCATION
 Part of the NE 1/4
 of Section 15
 T.2N., R.11E.,
 City of Troy,
 Oakland County, Michigan

SHEET
 Preliminary Site Plan
 (4 of 4)



PG-15
 20'-0" wide
 Pavement graphics- large speed bump.
 Use to control speed at outlying drive aisles.
 White thermal applied white arrows.
 Removable heavy-duty rubber speed humps not allowed.



PAVING LEGEND

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND

	MANHOLE		EXISTING SANITARY SEWER
	HYDRANT		SAN. CLEAN OUT
	MANHOLE CATCH BASIN		EXISTING WATERMAIN
	UTILITY POLE		EXISTING STORM SEWER
	GUY POLE		EX. R. Y. CATCH BASIN
	GUY WIRE		EXISTING BURIED CABLES
	LIGHT POLE		OVERHEAD LINES
	SIGN		EXISTING GAS MAIN
	C.O. MANHOLE		PR. SANITARY SEWER
	HYDRANT GATE VALVE		PR. WATER MAIN
	INLET MANHOLE		PR. STORM SEWER
	R. Y. CATCH BASIN		PR. R. Y. CATCH BASIN
	PROPOSED LIGHT POLE		



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DRAWN BY:
 J. Lawrey
 DESIGNED BY:
 B. Brickel
 APPROVED BY:
 B. Brickel

DATE:
 April 14, 2021

SCALE: 1" = 30'

NFE JOB NO. **J943-01** SHEET NO. **SP11**

MATCH LINE SEE SHEET SP10

SEE BELOW

SEE ABOVE

ROCHESTER RD. (R.O.W. VARIES)

GENERAL PAVING NOTES

PAVEMENT SHALL BE OF THE TYPE, THICKNESS AND CROSS SECTION AS INDICATED ON THE PLANS AND AS FOLLOWS:

CONCRETE: PORTLAND CEMENT TYPE 1A (AIR-ENTAINED) WITH A MINIMUM CEMENT CONTENT OF SIX SACKS PER CUBIC YARD, MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI AND A SLUMP OF 1 1/2 TO 3 INCHES.

ASPHALT: BASE COURSE - MDT BITUMINOUS MIXTURE NO. 1100L, 20AA; SURFACE COURSE - MDT BITUMINOUS MIXTURE NO. 1100T, 20AA; ASPHALT CEMENT PENETRATION GRADE 85-100, BOND COAT - MDT SS-1H EMULSION AT 0.10 GALLON PER SQUARE YARD; MAXIMUM 2 INCH LIFT.

PAVEMENT BASE SHALL BE COMPACTED TO 95% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT. EXISTING SUB-BASE SHALL BE PROOF-ROLLED IN THE PRESENCE OF THE ENGINEER TO DETERMINE STABILITY.

ALL CONCRETE PAVEMENT, DRIVEWAYS, CURB & GUTTER, ETC., SHALL BE SPRAY CURED WITH WHITE MEMBRANE CURING COMPOUND IMMEDIATELY FOLLOWING FINISHING OPERATION.

ALL CONCRETE PAVEMENT JOINTS SHALL BE FILLED WITH HOT POURED RUBBERIZED ASPHALT JOINT SEALING COMPOUND IMMEDIATELY AFTER SAWCUT OPERATION. FEDERAL SPECIFICATION SS-S164.

ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARDS AND SPECIFICATIONS OF THE MUNICIPALITY AND THE MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, CURRENT EDITION.

ALL TOP OF CURB ELEVATIONS, AS SHOWN ON THE PLANS, ARE CALCULATED FOR A 6" CONCRETE CURB UNLESS OTHERWISE NOTED.

ALL SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS INDICATED ON THE PLANS.

CONSTRUCTION OF A NEW OR RECONSTRUCTED DRIVE APPROACH CONNECTING TO AN EXISTING STATE OR COUNTY ROADWAY SHALL BE ALLOWED ONLY AFTER AN APPROVED PERMIT HAS BEEN SECURED FROM THE AGENCY HAVING JURISDICTION OVER SAID ROADWAY.

FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY, THE CONTRACTOR SHALL PAY FOR AND SECURE ALL NECESSARY PERMITS AND LICENSES ARRANGE FOR ALL INSPECTION.

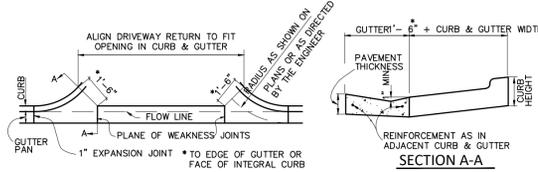
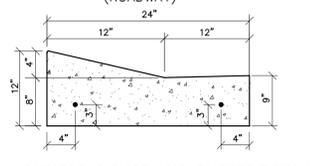
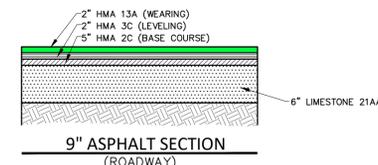
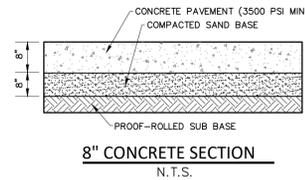
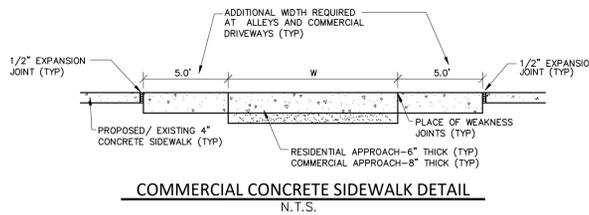
EXISTING TOPSOIL, VEGETATION AND ORGANIC MATERIALS SHALL BE STRIPPED AND REMOVED FROM PROPOSED PAVEMENT AREA PRIOR TO PLACEMENT OF BASE MATERIALS.

EXPANSION JOINTS SHOULD BE INSTALLED AT THE END OF ALL INTERSECTION RADII.

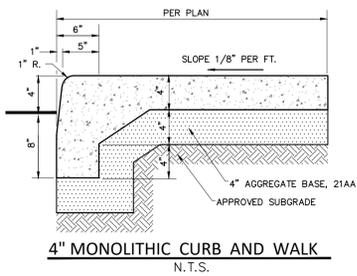
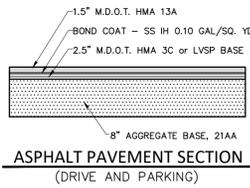
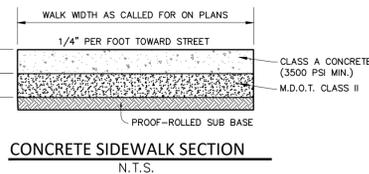
SIDEWALK RAMPS, CONFORMING TO PUBLIC ACT NO. 8, 1993, SHALL BE INSTALLED AS SHOWN AT ALL STREET INTERSECTIONS AND AT ALL BARRIER FREE PARKING AREAS AS INDICATED ON THE PLANS.

ALL PAVEMENT AREAS SHALL BE PROOF-ROLLED UNDER THE SUPERVISION OF A GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF BASE MATERIALS AND PAVING MATERIALS.

FILL AREAS SHALL BE MACHINE COMPACTED IN UNIFORM LIFTS NOT EXCEEDING 9 INCHES THICK TO 98% OF THE MAXIMUM DENSITY (MODIFIED PROCTOR) PRIOR TO PLACEMENT OF PROPOSED PAVEMENT.

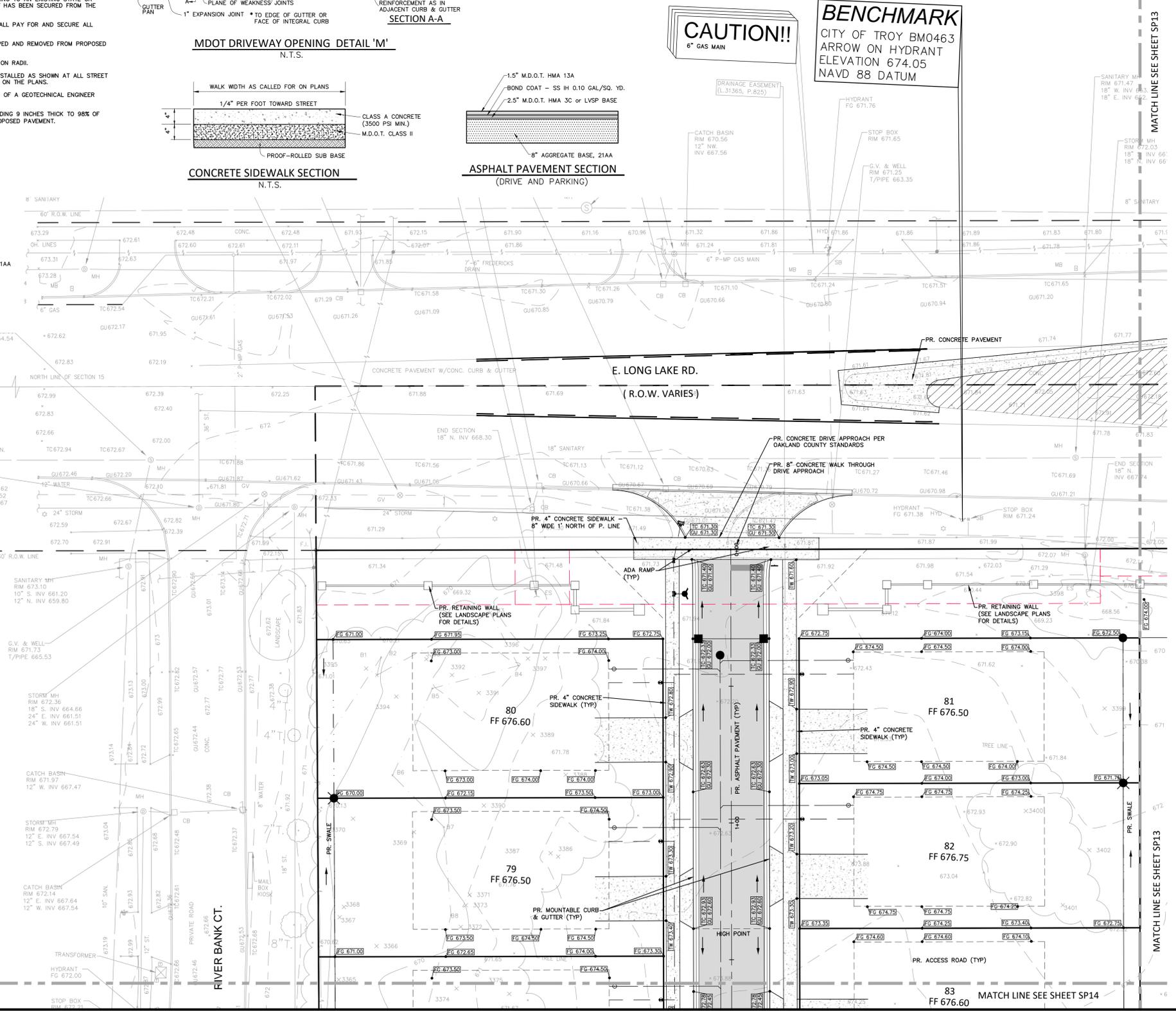
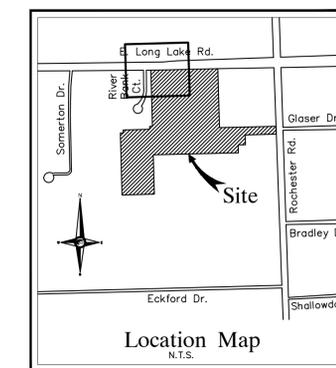


MDOT DRIVEWAY OPENING DETAIL 'M'
N.T.S.



CAUTION!!
6" GAS MAIN

BENCHMARK
CITY OF TROY BM0463
ARROW ON HYDRANT
ELEVATION 674.05
NAVD 88 DATUM



PAVING LEGEND

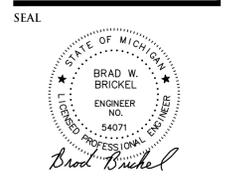
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND

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	HYDRANT		EXISTING WATERMAIN
	MANHOLE CATCH BASIN		EXISTING STORM SEWER
	UTILITY POLE		EXISTING BURIED CABLES
	LIGHT POLE		OVERHEAD LINES
	SIGN		EXISTING GAS MAIN
	C.O. MANHOLE		PR. SANITARY SEWER
	HYDRANT GATE VALVE		PR. WATER MAIN
	INLET		PR. STORM SEWER
	MANHOLE		PR. R. Y. CATCH BASIN
	PROPOSED LIGHT POLE		PR. TOP OF CURB ELEVATION
	TC 600.00		PR. GUTTER ELEVATION
	GU 600.00		PR. TOP OF WALK ELEVATION
	TW 600.00		PR. TOP OF PMT. ELEVATION
	PR 600.00		FINISH GRADE ELEVATION

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CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

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46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
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WWW.NOWAKFRAUS.COM



PROJECT
The Village of Troy

CLIENT
Robertson Brothers Homes
6905 Telegraph Road
Bloomfield Hills, MI 48301

Contact: Tim Loughrin
Phone: 248.282.1428
Email: loughrin@robertsonhomes.com

PROJECT LOCATION
Part of the NE 1/4
of Section 15
T.2N., R.11E.,
City of Troy,
Oakland County, Michigan

SHEET
Preliminary Paving &
Grading Plan (1 of 8)

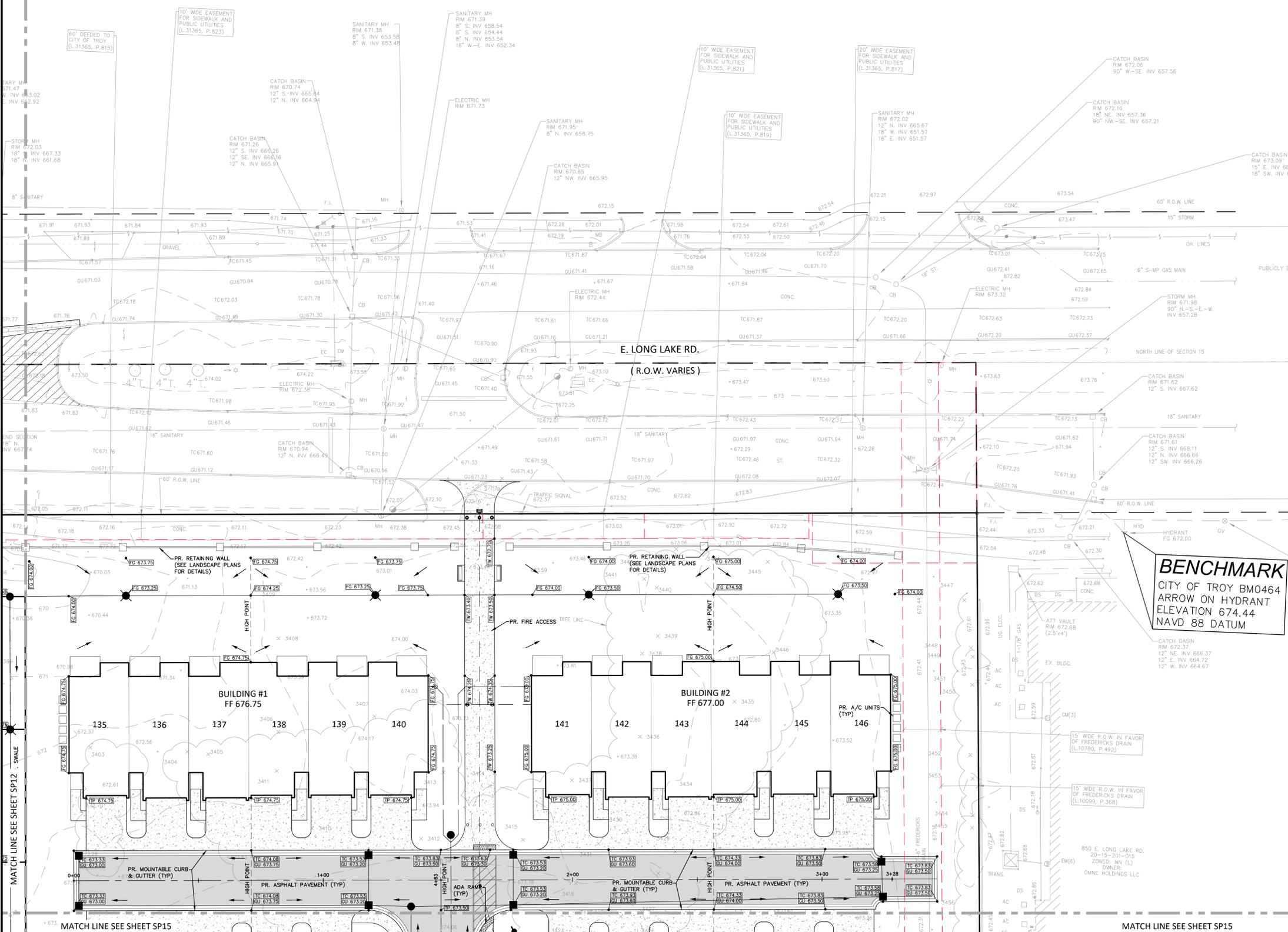


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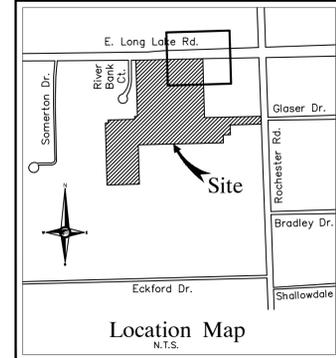
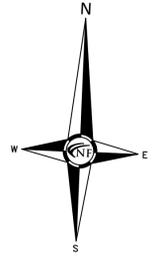
DRAWN BY:
J. Lawrey
DESIGNED BY:
B. Brickel
APPROVED BY:
B. Brickel

DATE:
April 14, 2021
SCALE: 1" = 20'
20 10 0 10 20 30
NFE JOB NO. SHEET NO.
J943-01 SP12

MATCH LINE SEE SHEET SP12

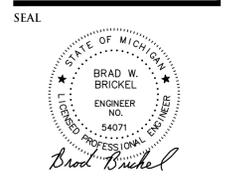


BENCHMARK
 CITY OF TROY BM0464
 ARROW ON HYDRANT
 ELEVATION 674.44
 NAVD 88 DATUM



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 LAND SURVEYORS
 LAND PLANNERS

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PROJECT
 The Village of Troy

CLIENT
 Robertson Brothers Homes
 6905 Telegraph Road
 Bloomfield Hills, MI 48301

Contact: Tim Loughrin
 Phone: 248.282.1428
 Email: tloughrin@robertsonhomes.com

PROJECT LOCATION
 Part of the NE 1/4
 of Section 15
 T.2N., R.11E.,
 City of Troy,
 Oakland County, Michigan

SHEET
 Preliminary Paving &
 Grading Plan (2 of 8)



Know what's below
 Call before you dig.

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 10-21-22 REVISED PER SITE PLAN REVIEW
 11-07-22 REVISED PER SITE PLAN REVIEW

DRAWN BY:
 J. Lawrey
 DESIGNED BY:
 B. Brickel
 APPROVED BY:
 B. Brickel

DATE:
 April 14, 2021

SCALE: 1" = 20'

NFE JOB NO. SHEET NO.
J943-01 SP13

PAVING LEGEND

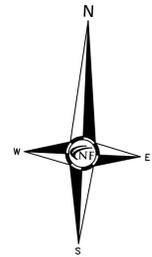
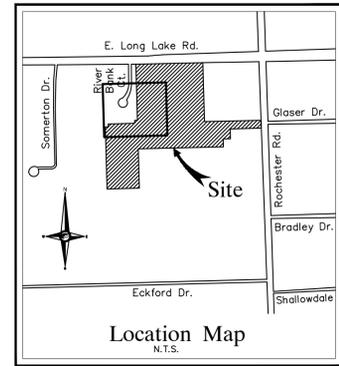
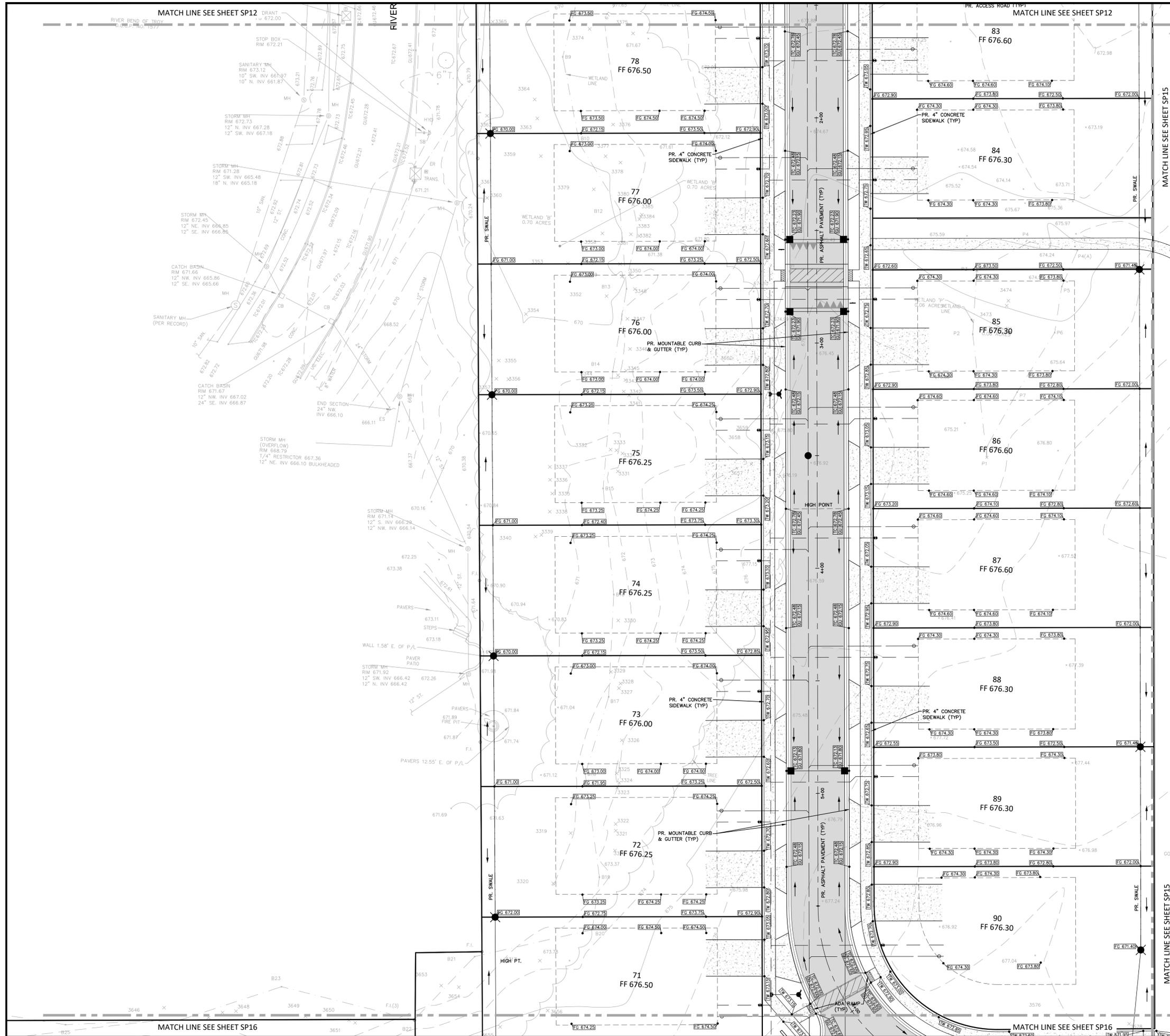
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND

	MANHOLE		EXISTING SANITARY SEWER
	HYDRANT		SAN. CLEAN OUT
	MANHOLE		EXISTING WATERMAIN
	MANHOLE		EXISTING STORM SEWER
	UTILITY POLE		EX. R. Y. CATCH BASIN
	GUY WIRE		EXISTING BURIED CABLES
	LIGHT POLE		OVERHEAD LINES
	SIGN		EXISTING GAS MAIN
	C.O.		PR. SANITARY SEWER
	HYDRANT		PR. WATER MAIN
	INLET		PR. STORM SEWER
	MANHOLE		PR. R. Y. CATCH BASIN
	PROPOSED LIGHT POLE		PR. TOP OF CURB ELEVATION
	GU 600.00		PR. GUTTER ELEVATION
	TW 600.00		PR. TOP OF WALK ELEVATION
	TP 600.00		PR. TOP OF PMT. ELEVATION
	FG 600.00		FINISH GRADE ELEVATION

MATCH LINE SEE SHEET SP15

MATCH LINE SEE SHEET SP15



**CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS**

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PONTIAC, MI 48342-5032
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SEAL



PROJECT
The Village of Troy

CLIENT
Robertson Brothers Homes
6905 Telegraph Road
Bloomfield Hills, MI 48301

Contact: Tim Loughrin
Phone: 248.282.1428
Email:
toughrin@robertsonhomes.com

PROJECT LOCATION
Part of the NE 1/4
of Section 15
T.2N., R.11E.,
City of Troy,
Oakland County, Michigan

SHEET
Preliminary Paving &
Grading Plan (3 of 8)



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DRAWN BY:
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APPROVED BY:
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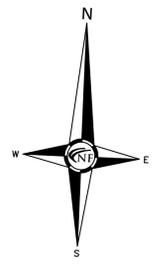
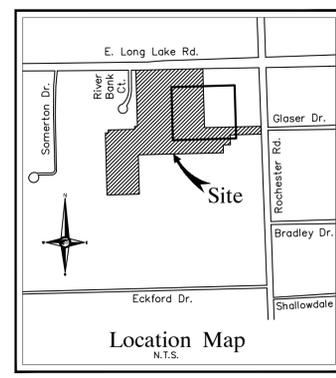
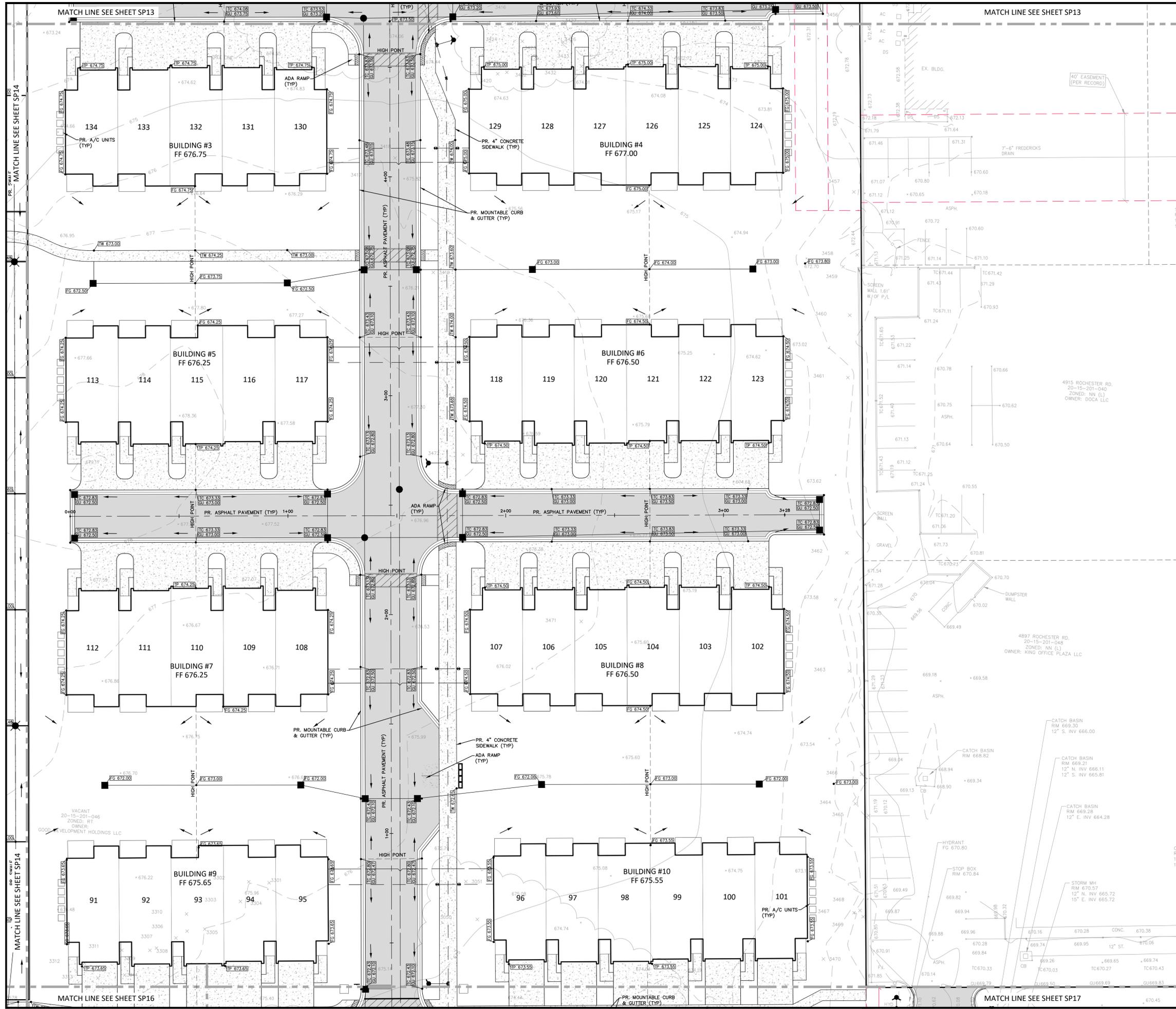
DATE:
April 14, 2021

SCALE: 1" = 20'

NFE JOB NO. SHEET NO.
J943-01 SP14

PAVING LEGEND	
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND	
	MANHOLE
	HYDRANT
	MANHOLE CATCH BASIN
	UTILITY POLE
	SIGN
	C.O. MANHOLE
	HYDRANT
	INLET
	PROPOSED LIGHT POLE
	TC 600.00
	SU 600.00
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	TP 600.00
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	SAN. CLEAN OUT
	EXISTING WATERMAIN
	EX. R. Y. CATCH BASIN
	EXISTING BURIED CABLES
	OVERHEAD LINES
	LIGHT POLE
	EXISTING GAS MAIN
	PR. SANITARY SEWER
	PR. WATER MAIN
	PR. STORM SEWER
	PR. R. Y. CATCH BASIN
	PR. TOP OF CURB ELEVATION
	PR. GUTTER ELEVATION
	PR. TOP OF WALK ELEVATION
	PR. TOP OF PMVT. ELEVATION
	FINISH GRADE ELEVATION



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SEAL

BRAD W. BRICKEL
 ENGINEER
 NO. 54071
 LICENSED PROFESSIONAL ENGINEER

Brad Brickel

PROJECT
 The Village of Troy

CLIENT
 Robertson Brothers Homes
 6905 Telegraph Road
 Bloomfield Hills, MI 48301

Contact: Tim Loughrin
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PROJECT LOCATION
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 T.2N., R.11E.,
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SHEET
 Preliminary Paving &
 Grading Plan (4 of 8)



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SCALE: 1" = 20'

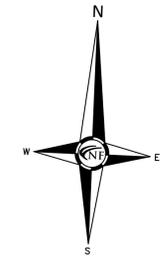
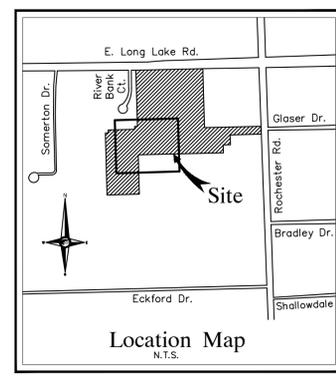
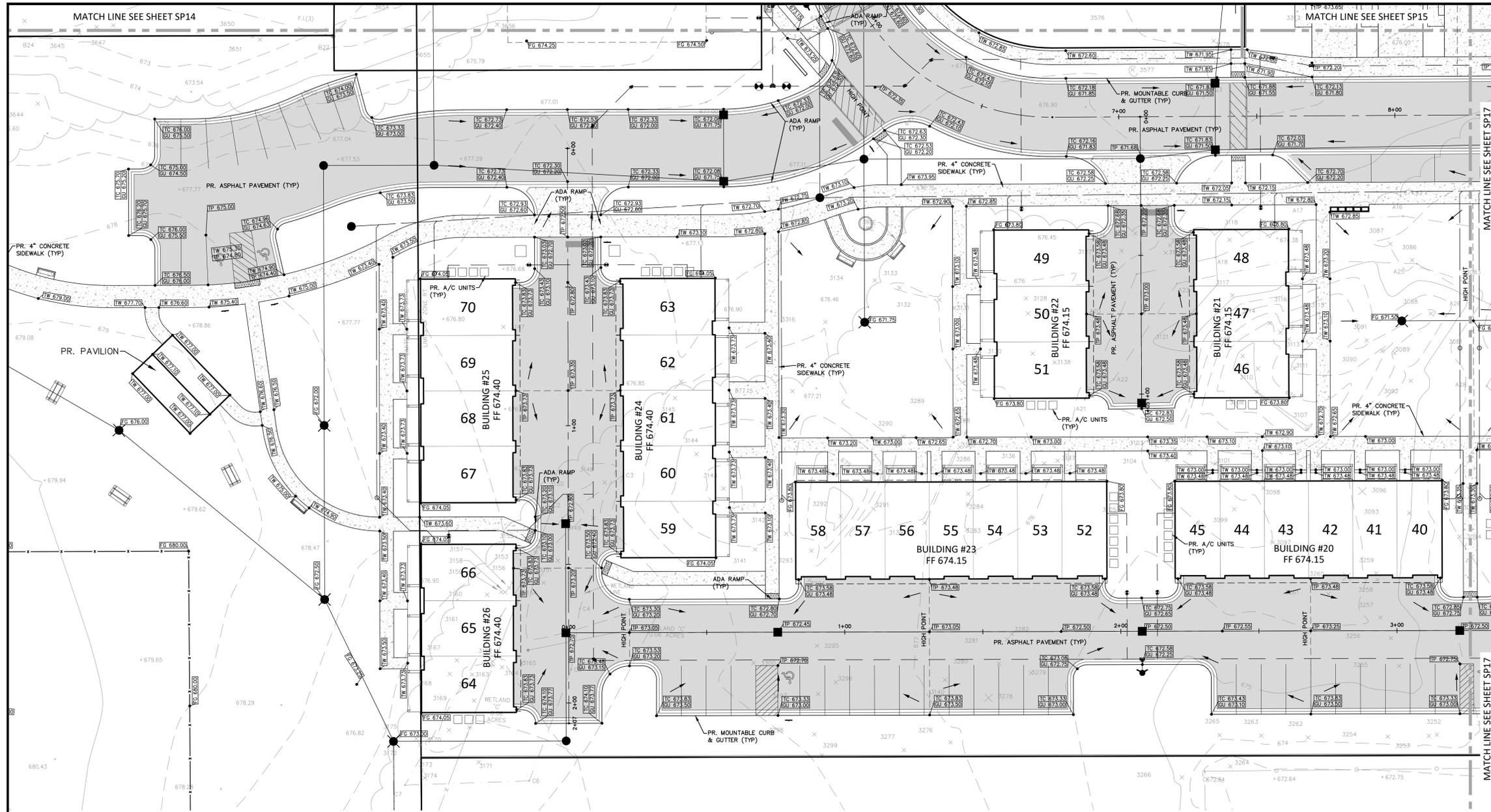
NFE JOB NO. SHEET NO.
J943-01 SP15

PAVING LEGEND

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

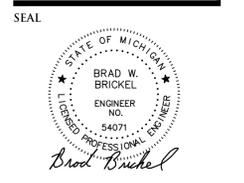
LEGEND

	MANHOLE		EXISTING SANITARY SEWER
	HYDRANT		SAN. CLEAN OUT
	MANHOLE CATCH BASIN		EXISTING WATERMAIN
	UTILITY POLE		EX. R. Y. CATCH BASIN
	GUY POLE		EXISTING BURIED CABLES
	GUY WIRE		OVERHEAD LINES
	LIGHT POLE		SIGN
	C.O.		EXISTING GAS MAIN
	MANHOLE GATE VALVE		PR. SANITARY SEWER
	HYDRANT GATE VALVE		PR. WATER MAIN
	INLET		PR. STORM SEWER
	C.B.		PR. R. Y. CATCH BASIN
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 Oakland County, Michigan

SHEET
 Preliminary Paving &
 Grading Plan (5 of 8)

PAVING LEGEND

	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND

	MANHOLE		EXISTING SANITARY SEWER
	HYDRANT		SAN. CLEAN OUT
	MANHOLE CATCH BASIN		EXISTING WATERMAIN
	UTILITY POLE		EXISTING STORM SEWER
	GUY POLE		EX. R. Y. CATCH BASIN
	GUY WIRE		EXISTING BURIED CABLES
	INLET		OVERHEAD LINES
	C.O.		LIGHT POLE
	MANHOLE		SIGN
	HYDRANT		EXISTING GAS MAIN
	INLET		PR. SANITARY SEWER
	C.B.		PR. WATER MAIN
	MANHOLE		PR. STORM SEWER
	PROPOSED LIGHT POLE		PR. R. Y. CATCH BASIN
	PR. TOP OF CURB ELEVATION		PR. TOP OF WALK ELEVATION
	PR. GUTTER ELEVATION		PR. TOP OF PVMT. ELEVATION
	PR. FINISH GRADE ELEVATION		



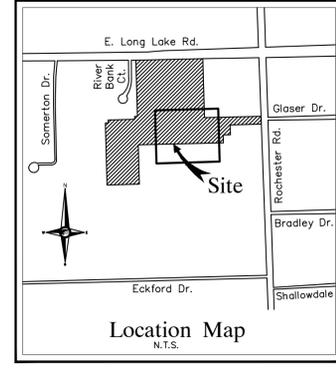
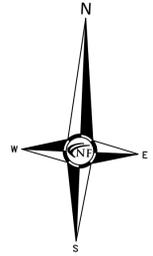
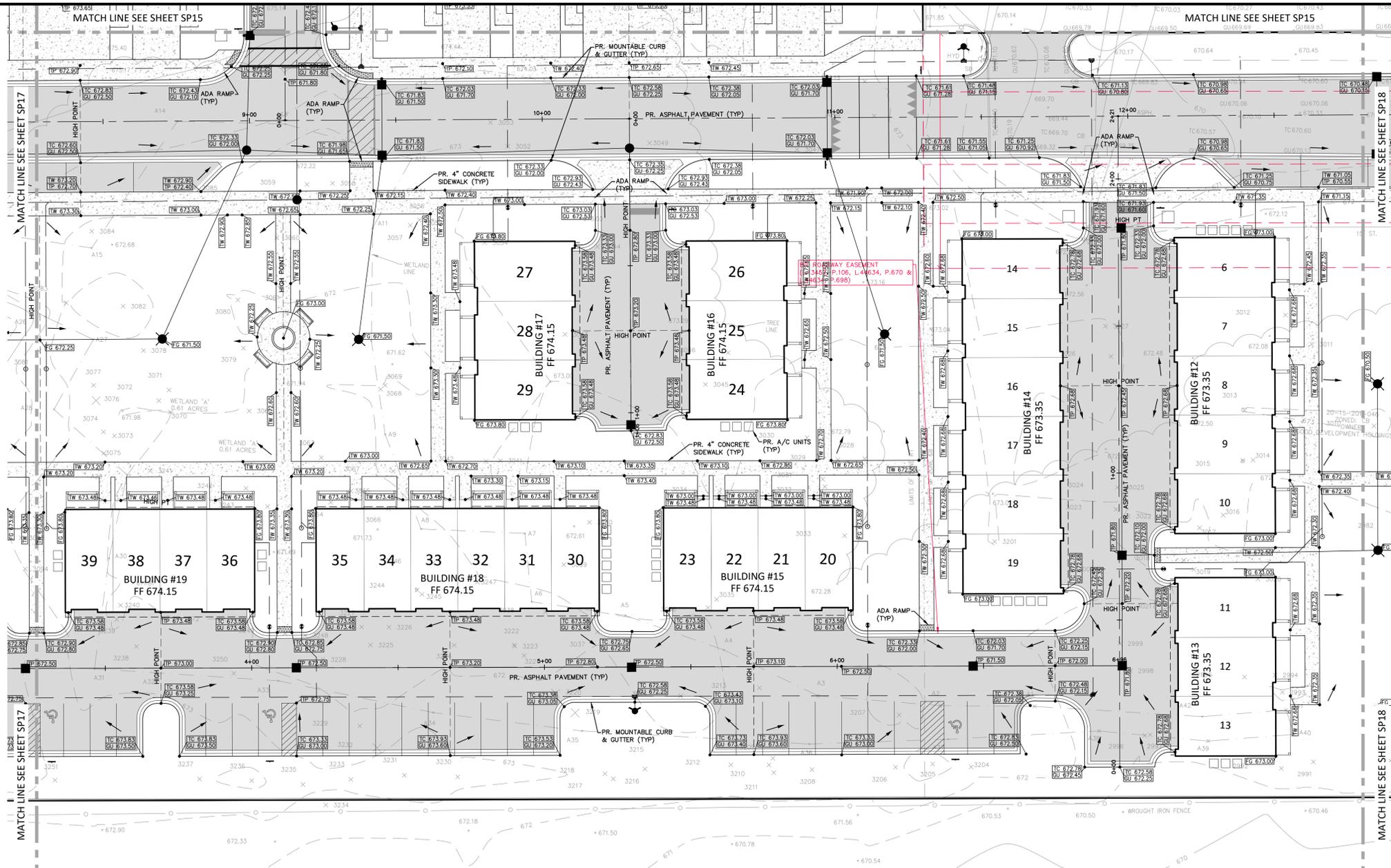
DATE ISSUED/REVISED
 04-14-21 SURVEY ISSUED
 03-29-22 ISSUED FOR PRELIMINARY SITE PLAN REVIEW
 10-21-22 REVISED PER SITE PLAN REVIEW
 11-07-22 REVISED PER SITE PLAN REVIEW

DRAWN BY:
 J. Lawrey
 DESIGNED BY:
 B. Brickel
 APPROVED BY:
 B. Brickel

DATE:
 April 14, 2021

SCALE: 1" = 20'

NFE JOB NO. SHEET NO.
J943-01 SP16



NOWAK & FRAUS ENGINEERS
 4677 WOODWARD AVE.
 PONTIAC, MI 48342-5032
 TEL. (248) 332-7931
 FAX. (248) 332-8257
 WWW.NOWAKFRAUS.COM



PROJECT
 The Village of Troy

CLIENT
 Robertson Brothers Homes
 6905 Telegraph Road
 Bloomfield Hills, MI 48301

Contact: Tim Loughrin
 Phone: 248.282.1428
 Email: toughrin@robertsonhomes.com

PROJECT LOCATION
 Part of the NE 1/4
 of Section 15
 T.2N., R.11E.,
 City of Troy,
 Oakland County, Michigan

SHEET
 Preliminary Paving &
 Grading Plan (6 of 8)

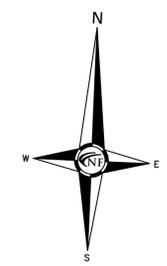
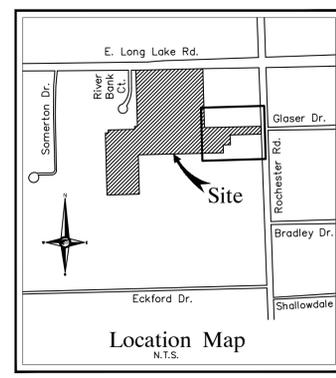
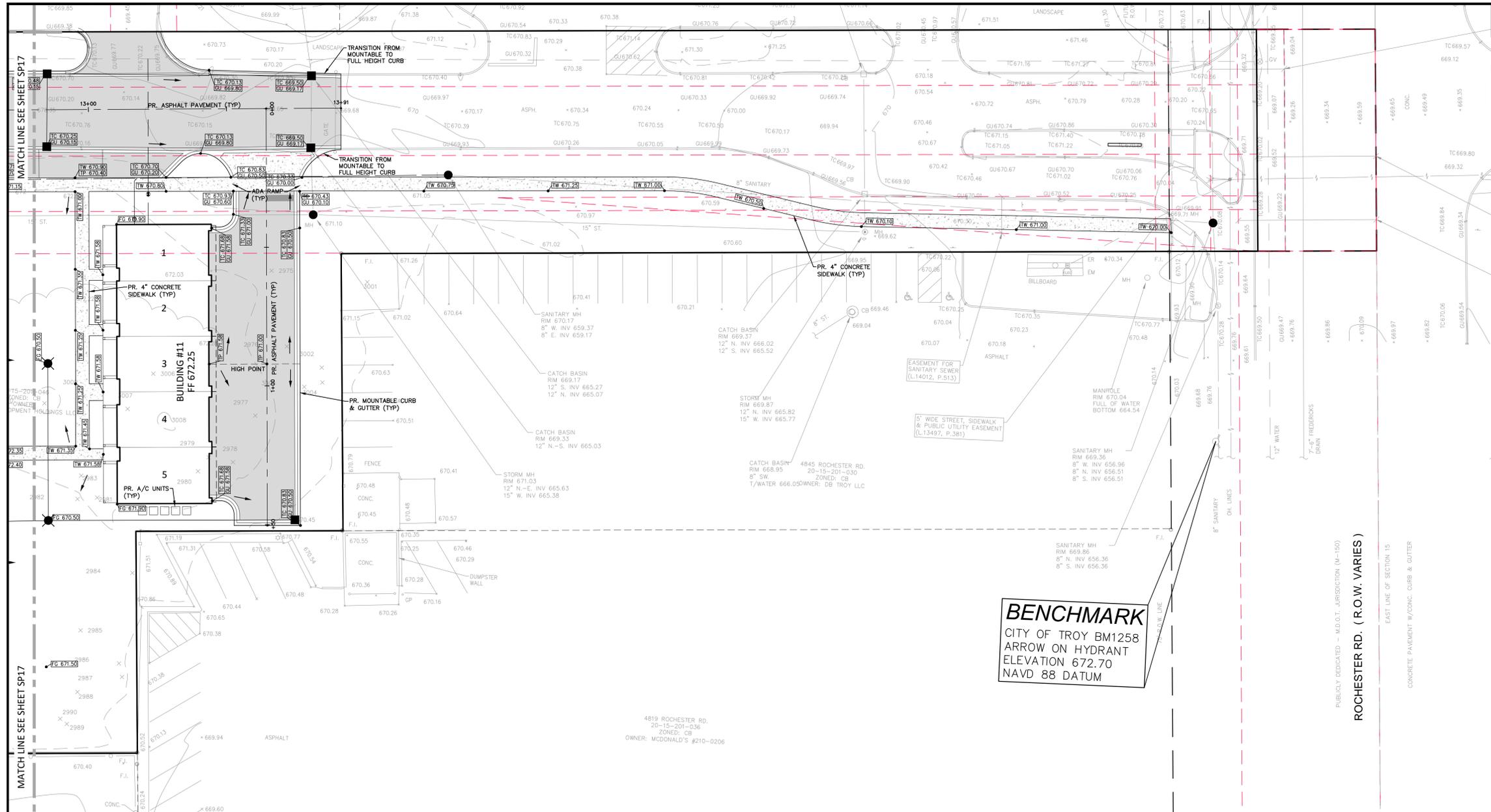
PAVING LEGEND	
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND			
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	HYDRANT		SAN. CLEAN OUT
	MANHOLE CATCH BASIN		EXISTING WATERMAIN
	UTILITY POLE		EXISTING STORM SEWER
	GUY POLE		EX. R. Y. CATCH BASIN
	GUY WIRE		EXISTING BURIED CABLES
	OVERHEAD LINES		LIGHT POLE
	SIGN		EXISTING GAS MAIN
	PR. SANITARY SEWER		PR. WATER MAIN
	PR. STORM SEWER		PR. R. Y. CATCH BASIN
	PROPOSED LIGHT POLE		PR. TOP OF CURB ELEVATION
	PR. TOP OF CURB ELEVATION		PR. GUTTER ELEVATION
	PR. GUTTER ELEVATION		PR. TOP OF WALK ELEVATION
	PR. TOP OF WALK ELEVATION		PR. TOP OF PVMT. ELEVATION
	PR. TOP OF PVMT. ELEVATION		FINISH GRADE ELEVATION
	FINISH GRADE ELEVATION		



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 11-07-22 REVISED PER SITE PLAN REVIEW

DRAWN BY:
 J. Lawrey
 DESIGNED BY:
 B. Brickel
 APPROVED BY:
 B. Brickel
 DATE:
 April 14, 2021
 SCALE: 1" = 20'
 NFE JOB NO. SHEET NO.
 J943-01 SP17



BENCHMARK
 CITY OF TROY BM1258
 ARROW ON HYDRANT
 ELEVATION 672.70
 NAVD 88 DATUM

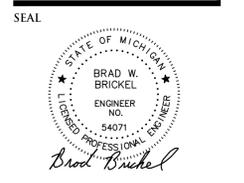
ROCHESTER RD. (R.O.W. VARIES)

PAVING LEGEND	
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND	
	MANHOLE
	HYDRANT
	MANHOLE CATCH BASIN
	UTILITY POLE
	GUY POLE
	GUY WIRE
	LIGHT POLE
	SIGN
	EXISTING GAS MAIN
	PR. SANITARY SEWER
	PR. WATER MAIN
	PR. STORM SEWER
	PR. R. Y. CATCH BASIN
	PROPOSED LIGHT POLE
	PR. TOP OF CURB ELEVATION
	PR. GUTTER ELEVATION
	PR. TOP OF WALK ELEVATION
	PR. TOP OF PVMT. ELEVATION
	FINISH GRADE ELEVATION

NF ENGINEERS
 CIVIL ENGINEERS
 LAND SURVEYORS
 LAND PLANNERS

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 4677 WOODWARD AVE.
 PONTIAC, MI 48342-5032
 TEL. (248) 332-7931
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PROJECT
 The Village of Troy

CLIENT
 Robertson Brothers Homes
 6905 Telegraph Road
 Bloomfield Hills, MI 48301

Contact: Tim Loughrin
 Phone: 248.282.1428
 Email: toughrin@robertsonhomes.com

PROJECT LOCATION
 Part of the NE 1/4
 of Section 15
 T.2N., R.11E.,
 City of Troy,
 Oakland County, Michigan

SHEET
 Preliminary Paving &
 Grading Plan (7 of 8)



DATE	ISSUED/REVISED
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11-07-22	REVISED PER SITE PLAN REVIEW

DRAWN BY:
J. Lawrey

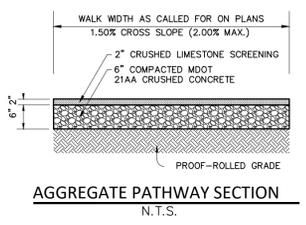
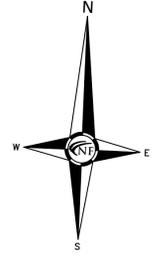
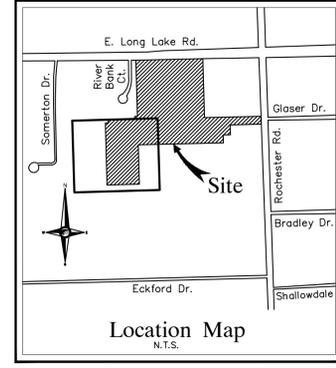
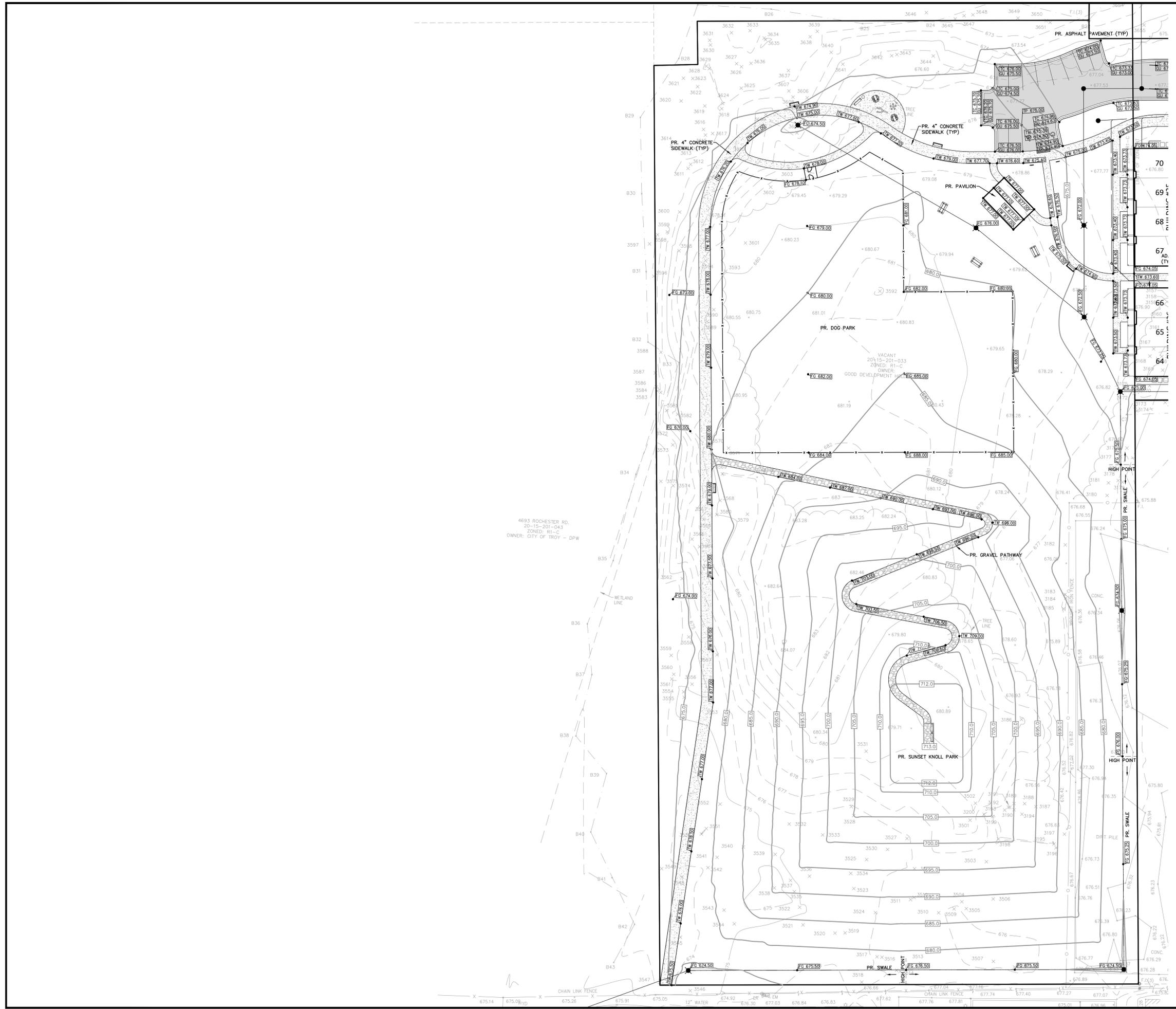
DESIGNED BY:
B. Brickel

APPROVED BY:
B. Brickel

DATE:
April 14, 2021

SCALE: 1" = 20'

NFE JOB NO. **J943-01** SHEET NO. **SP18**

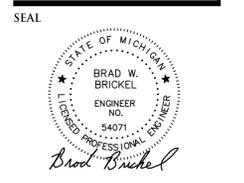


PAVING LEGEND	
	PROPOSED CONCRETE PAVEMENT
	PROPOSED ASPHALT PAVEMENT

LEGEND	
	MANHOLE
	HYDRANT
	MANHOLE CATCH BASIN
	UTILITY POLE
	C.O. MANHOLE
	HYDRANT
	INLET
	PROPOSED LIGHT POLE
	TC 600.00
	SU 600.00
	TW 600.00
	TP 600.00
	FG 600.00
	EXISTING SANITARY SEWER
	SAN. CLEAN OUT
	EXISTING WATERMAIN
	EXISTING STORM SEWER
	EX. R. Y. CATCH BASIN
	EXISTING BURIED CABLES
	OVERHEAD LINES
	LIGHT POLE
	SIGN
	EXISTING GAS MAIN
	PR. SANITARY SEWER
	PR. WATER MAIN
	PR. STORM SEWER
	PR. R. Y. CATCH BASIN
	PROPOSED LIGHT POLE
	PR. TOP OF CURB ELEVATION
	PR. GUTTER ELEVATION
	PR. TOP OF WALK ELEVATION
	PR. TOP OF PMT. ELEVATION
	FINISH GRADE ELEVATION

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PROJECT
 The Village of Troy

CLIENT
 Robertson Brothers Homes
 6905 Telegraph Road
 Bloomfield Hills, MI 48301

Contact: Tim Loughrin
 Phone: 248.282.1428
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PROJECT LOCATION
 Part of the NE 1/4
 of Section 15
 T.2N., R.11E.,
 City of Troy,
 Oakland County, Michigan

SHEET
 Preliminary Paving &
 Grading Plan (8 of 8)



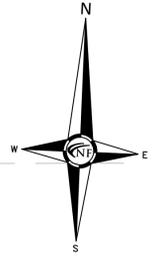
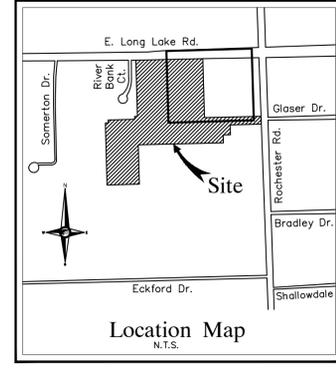
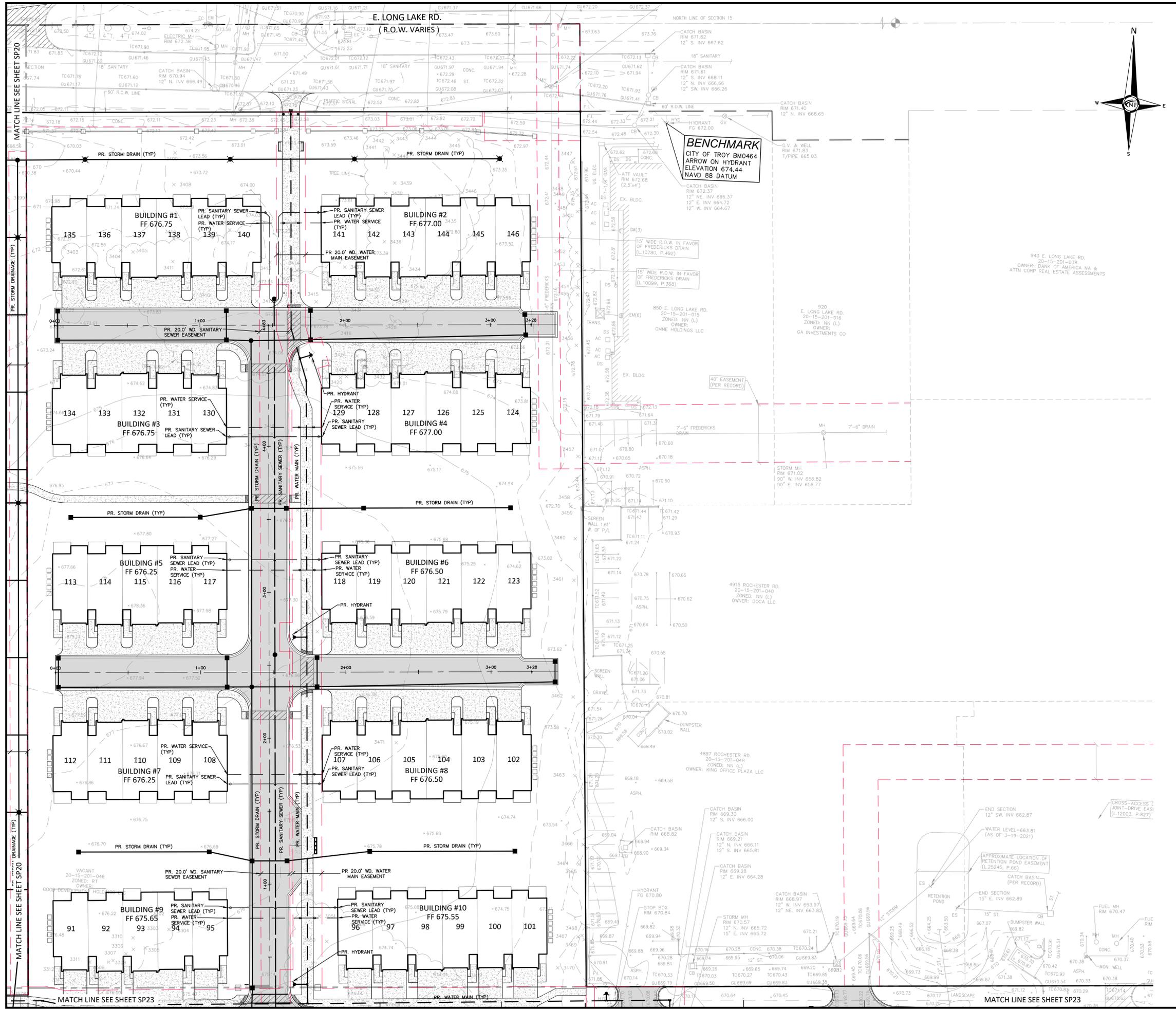
DATE	ISSUED/REVISED
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11-07-22	REVISED PER SITE PLAN REVIEW

DRAWN BY:
 J. Lawrey
 DESIGNED BY:
 B. Brickel
 APPROVED BY:
 B. Brickel

DATE:
 April 14, 2021

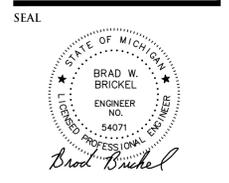
SCALE: 1" = 30'

NFE JOB NO. **J943-01** SHEET NO. **SP19**



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LAND PLANNERS**

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WWW.NOWAKFRAUS.COM**



**PROJECT
The Village of Troy**

**CLIENT
Robertson Brothers Homes
6905 Telegraph Road
Bloomfield Hills, MI 48301**

**Contact: Tim Loughrin
Phone: 248.282.1428
Email:
toughrin@robertsonhomes.com**

**PROJECT LOCATION
Part of the NE 1/4
of Section 15
T.2N., R.11E.,
City of Troy,
Oakland County, Michigan**

**SHEET
Preliminary Utility
Plan (2 of 4)**



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

**DATE ISSUED/REVISED
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03-29-22 ISSUED FOR PRELIMINARY SITE
PLAN REVIEW
10-21-22 REVISED PER SITE PLAN REVIEW
11-07-22 REVISED PER SITE PLAN REVIEW**

**DRAWN BY:
J. Lawrey
DESIGNED BY:
B. Brickel
APPROVED BY:
B. Brickel**

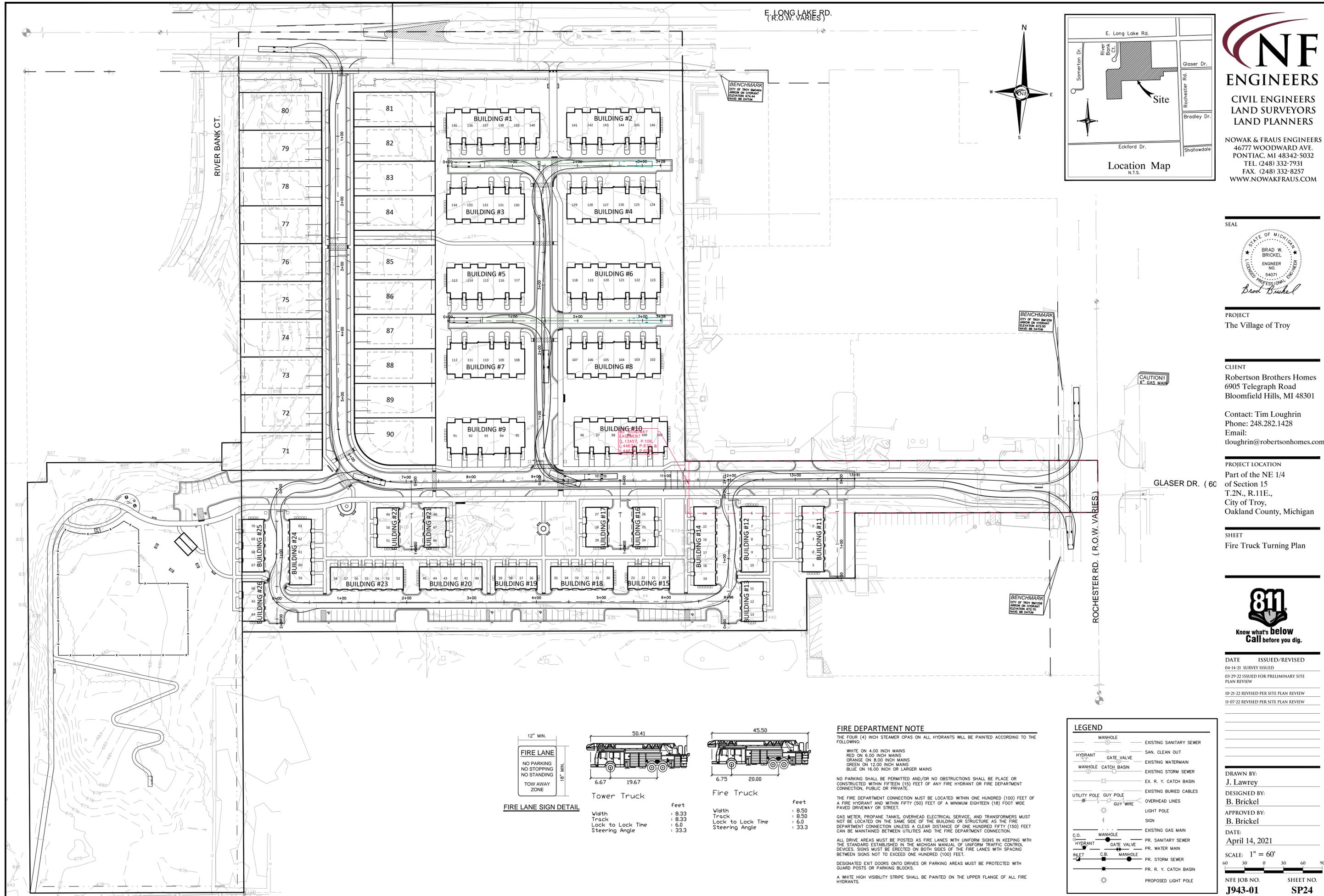
**DATE:
April 14, 2021**

SCALE: 1" = 30'

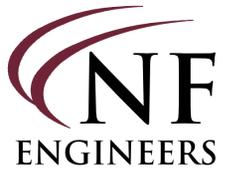
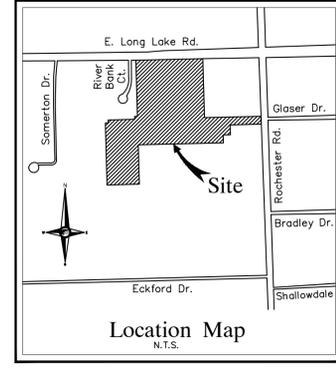
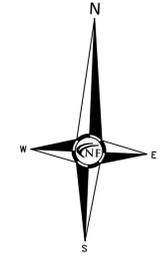
**NFE JOB NO. SHEET NO.
J943-01 SP21**

LEGEND

	MANHOLE		EXISTING SANITARY SEWER
	HYDRANT		SAN. CLEAN OUT
	MANHOLE		EXISTING WATER MAIN
	MANHOLE		EX. R. Y. CATCH BASIN
	UTILITY POLE		EXISTING BURIED CABLES
	GUY POLE		OVERHEAD LINES
	GUY WIRE		LIGHT POLE
	C.O.		SIGN
	HYDRANT		EXISTING GAS MAIN
	INLET		PR. SANITARY SEWER
	MANHOLE		PR. WATER MAIN
	GATE VALVE		PR. STORM SEWER
	C.B.		PR. R. Y. CATCH BASIN
	MANHOLE		SAND BACKFILL (95% DENSITY)
	PROPOSED LIGHT POLE		



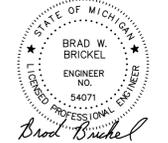
E. LONG LAKE RD.
(R.O.W. VARIES)



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LAND PLANNERS**

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46777 WOODWARD AVE.
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SEAL



PROJECT

The Village of Troy

CLIENT

Robertson Brothers Homes
6905 Telegraph Road
Bloomfield Hills, MI 48301

Contact: Tim Loughrin
Phone: 248.282.1428
Email:
toughrin@robertsonhomes.com

PROJECT LOCATION

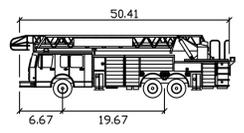
Part of the NE 1/4
of Section 15
T.2N., R.11E.,
City of Troy,
Oakland County, Michigan

SHEET

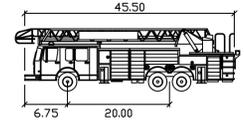
Fire Truck Turning Plan

GLASER DR. (60

ROCHESTER RD. (R.O.W. VARIES)



Width	8.33
Track	19.67
Lock to Lock Time	6.0
Steering Angle	33.3



Width	8.50
Track	20.00
Lock to Lock Time	6.0
Steering Angle	33.3

FIRE DEPARTMENT NOTE
THE FOUR (4) INCH STEAMER CPAS ON ALL HYDRANTS WILL BE PAINTED ACCORDING TO THE FOLLOWING:

- WHITE ON 4.00 INCH MAINS
- RED ON 6.00 INCH MAINS
- ORANGE ON 8.00 INCH MAINS
- GREEN ON 12.00 INCH MAINS
- BLUE ON 16.00 INCH OR LARGER MAINS

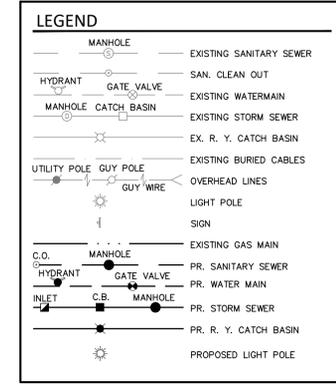
NO PARKING SHALL BE PERMITTED AND/OR NO OBSTRUCTIONS SHALL BE PLACED OR CONSTRUCTED WITHIN FIFTEEN (15) FEET OF ANY FIRE HYDRANT OR FIRE DEPARTMENT CONNECTION, PUBLIC OR PRIVATE.

THE FIRE DEPARTMENT CONNECTION MUST BE LOCATED WITHIN ONE HUNDRED (100) FEET OF A FIRE HYDRANT AND WITHIN FIFTY (50) FEET OF A MINIMUM EIGHTEEN (18) FOOT WIDE PAVED DRIVEWAY OR STREET.

GAS METER, PROPANE TANKS, OVERHEAD ELECTRICAL SERVICE, AND TRANSFORMERS MUST NOT BE LOCATED ON THE SAME SIDE OF THE BUILDING OR STRUCTURE AS THE FIRE DEPARTMENT CONNECTION UNLESS A CLEAR DISTANCE OF ONE HUNDRED FIFTY (150) FEET CAN BE MAINTAINED BETWEEN UTILITIES AND THE FIRE DEPARTMENT CONNECTION.

ALL DRIVE AREAS MUST BE POSTED AS FIRE LANES WITH UNIFORM SIGNS IN KEEPING WITH THE STANDARD ESTABLISHED IN THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SIGNS MUST BE ERRECTED ON BOTH SIDES OF THE FIRE LANES WITH SPACING BETWEEN SIGNS NOT TO EXCEED ONE HUNDRED (100) FEET.

DESIGNATED EXIT DOORS ONTO DRIVES OR PARKING AREAS MUST BE PROTECTED WITH GUARD POSTS OR PARKING BLOCKS.
A WHITE HIGH VISIBILITY STRIPE SHALL BE PAINTED ON THE UPPER FLANGE OF ALL FIRE HYDRANTS.



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DRAWN BY:
J. Lawrey
DESIGNED BY:
B. Brickel
APPROVED BY:
B. Brickel

DATE:
April 14, 2021

SCALE: 1" = 60'

NFE JOB NO. SHEET NO.
J943-01 SP24

Landscape Summary

Use of Native Plant Material

Required: 50% of the total trees and shrubs planted are native
Proposed: Final percentage to be determined during final site plan approval

Screening of Adjoining Uses

Required: Per Table 13.02-B in Article 13 of the Troy Zoning Ordinance, no screening is required between Use Group 1: Residential Uses, Use Group 2: Residential/Lodging Uses, and the surrounding land uses in these specific situations. See Plan for Zoning relationships

Parking Lot Landscape

Required: 1 Tree / 8 Parking Spaces
Proposed: 77 spaces
Required: 10 Trees
Provided: 10 Trees

Greenbelts along Public Streets

Required: 10' Greenbelt along public street right-of-ways
1 Tree / 30 LF

E. Long Lake Road

Length of Frontage: 684.03 LF
Required: 10' Greenbelt & 23 Trees
Provided: 10' Greenbelt & 13 Trees

Rochester Road

Length of Frontage: 80.00 LF
Required: 10' Greenbelt & 3 Trees
Provided: 10' Greenbelt & 3 Trees

Internal Street Trees

Required: 1 Tree / 50 LF of internal public & private streets
Road Length: 4,311.37 LF
Required: 87 Trees
Proposed: 87 Trees

R.O.W. Screening

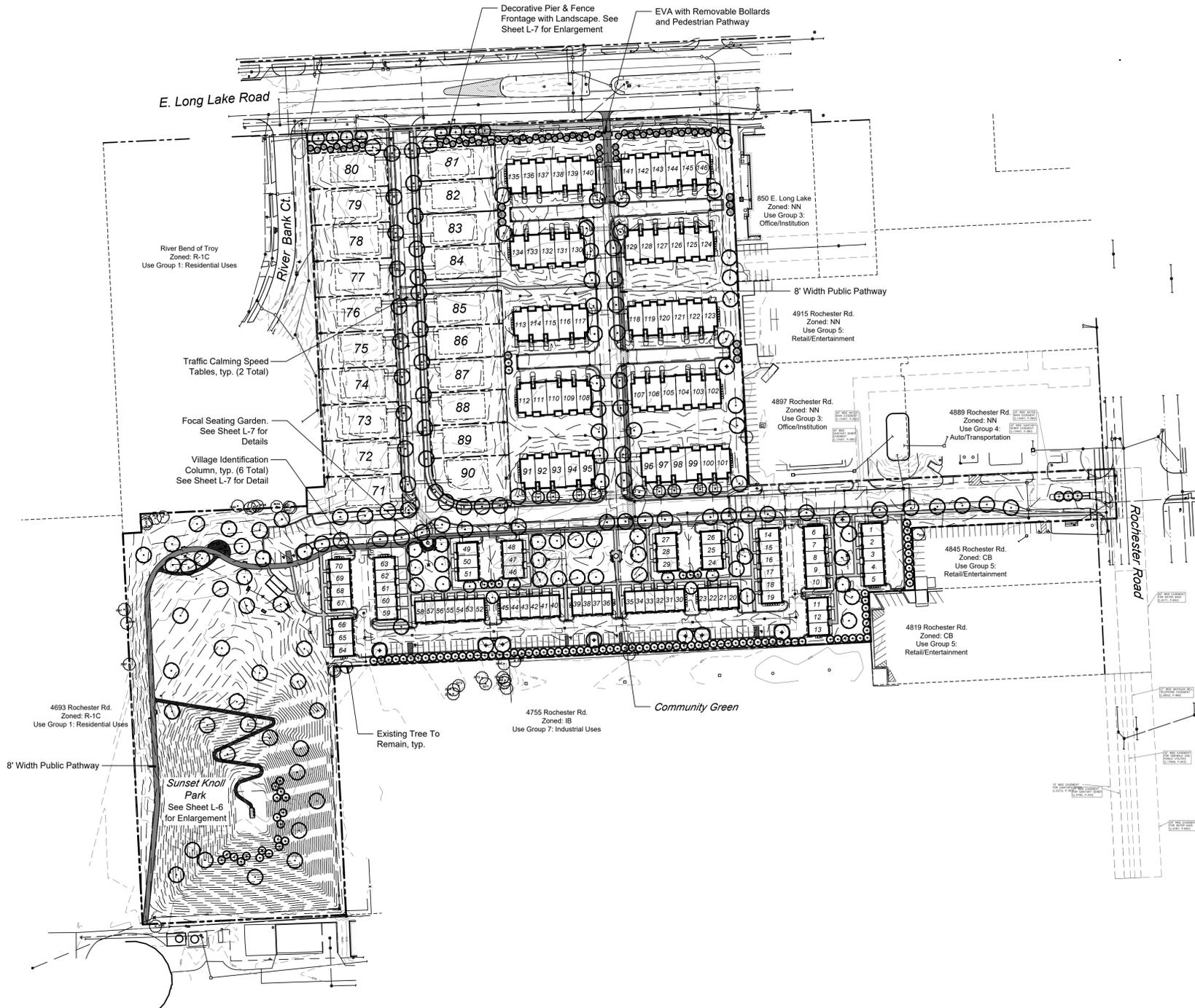
Required: Screening Alternative 2 when site abuts a R.O.W. of 120' or 150'
Required: 1 Large Evergreen / 10 LF of frontage
Length of Frontage: 684.03 LF
Required: 68 Trees
Provided: 68 Trees

Tree Replacement Summary

Total Trees Surveyed: 658
- Total Trees Offsite: 26
Total Onsite Trees: 632
- Total Landmark Trees: 10
Total Trees Saved: 6
- Total Landmark Trees: 0
Total Trees Removed: 626
- Exempt Trees: 562 (These trees include prohibited species & Poor Quality)
- Total Woodland DBH Removed: 640.60'
- Total Landmark DBH Removed: 232.30'

Replacement Requirements:

Required: 100% Landmark DBH + 50% Woodland DBH
Required Replacement DBH Total: 552.60" (185 - 3" trees or equivalent)
Proposed Replacement DBH Total: 555.00" (185 - 3" trees or equivalent)



Concept Landscape Plan - Overall

Village of Troy

City of Troy, Michigan

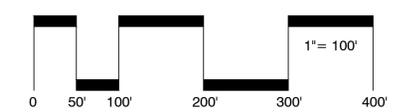
prepared for:
Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

Phone: 248.657.4968

job number: 19017
date: 03.29.2022

drawn by: EMJ
checked by: WTK

revisions:
10.21.2022 Per Plan Revisions
11.07.2022 Per Plan Revisions



Landscape Area Summary

	Site Landscaping	Min. 20% of site area shall be landscape material
	Required:	20.49 Ac.
	Site Area:	4.01 Ac.
	Required:	9.24 Ac. (45.09%)
	Provided:	



sheet title:
Landscape Area Calculations

project title:
Village of Troy

City of Troy, Michigan

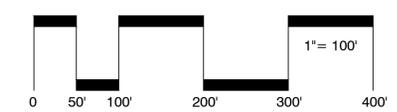
prepared for:
 Robertson Brothers Homes
 6905 Telegraph Rd. - Suite 200
 Bloomfield Hills, MI 48301

Phone: 248.657.4968

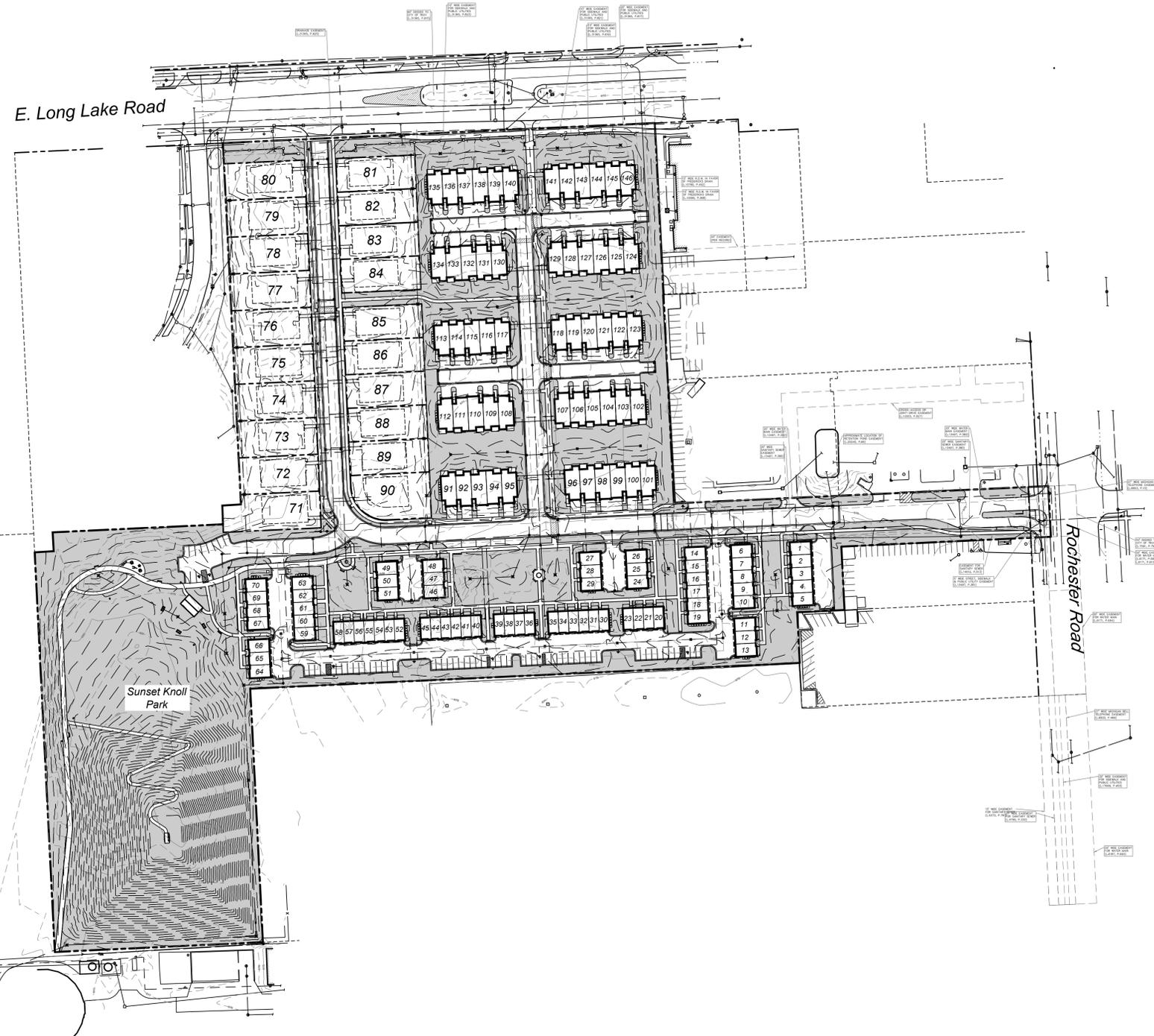
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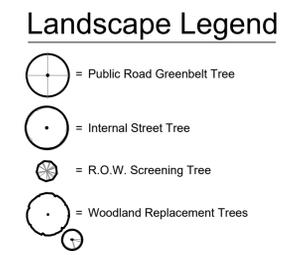
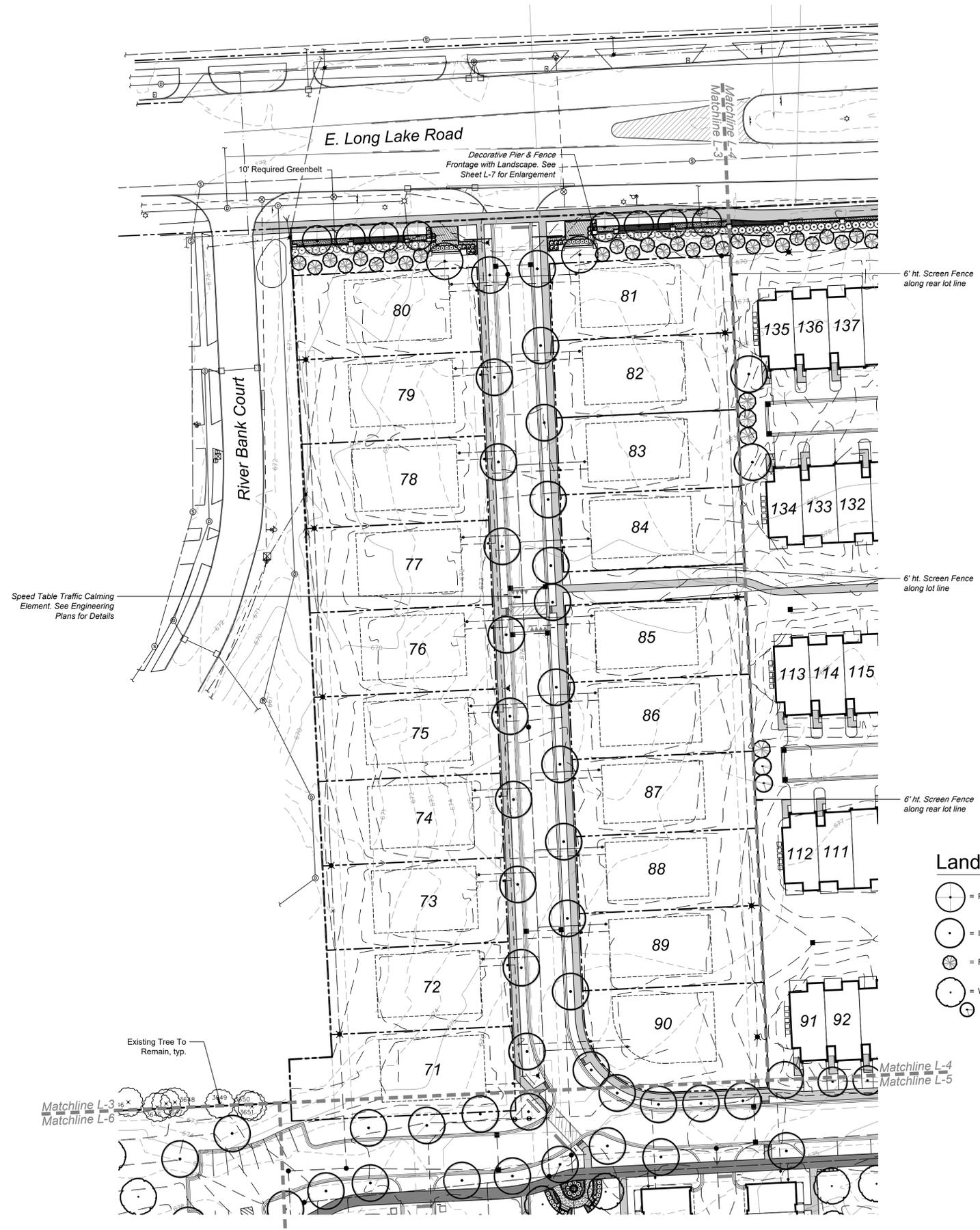
drawn by: EMJ checked by: WTK

revisions:
 10.21.2022 Per Plan Revisions
 11.07.2022 Per Plan Revisions



sheet no.
L-2





sheet title:
**Enlargement Plans -
 Single Family Lots**

project title:
Village of Troy

City of Troy, Michigan

prepared for:
 Robertson Brothers Homes
 6905 Telegraph Rd. - Suite 200
 Bloomfield Hills, MI 48301

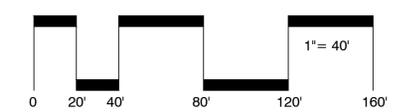
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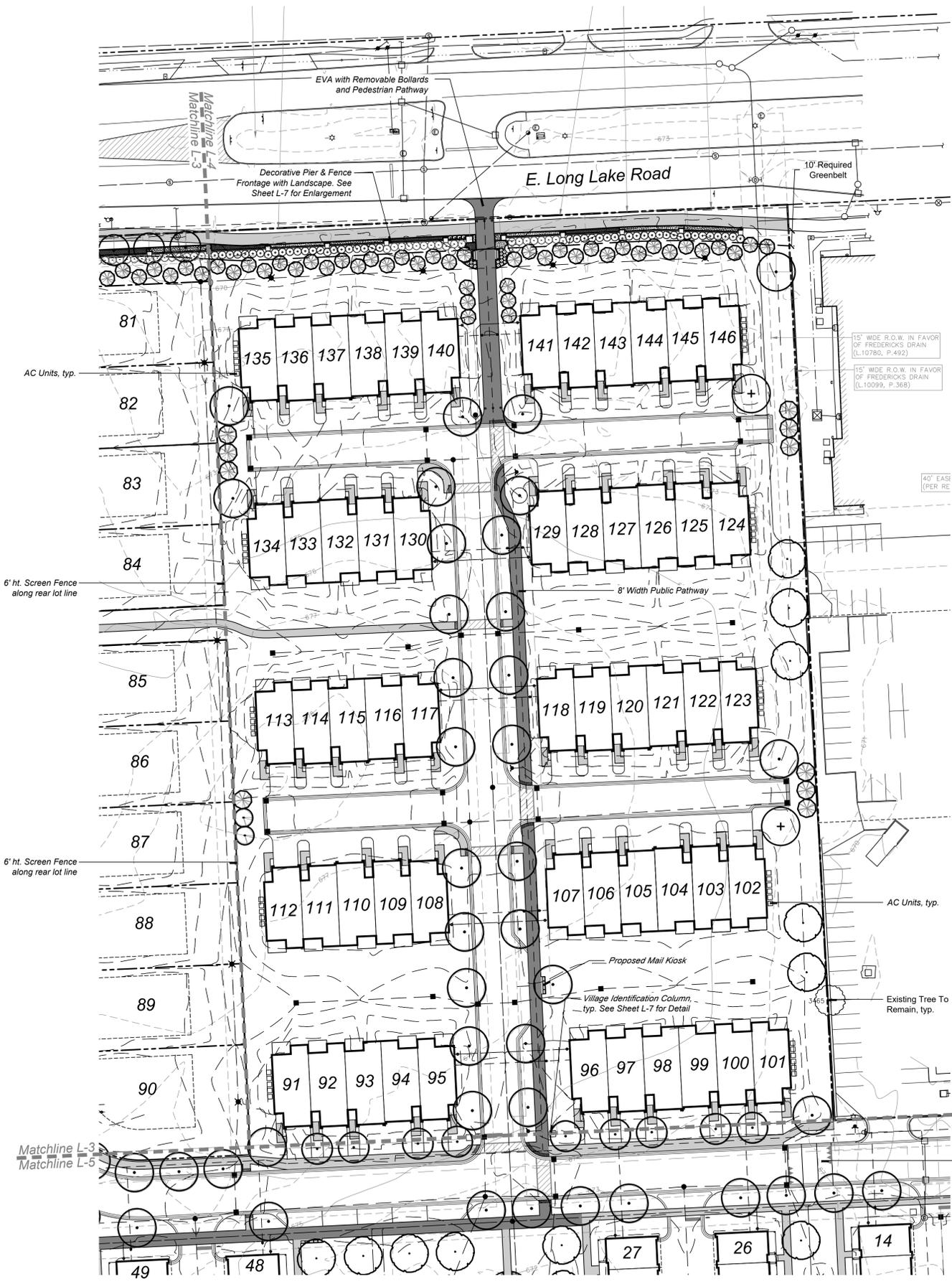
revisions:

10.21.2022	Per Plan Revisions
11.07.2022	Per Plan Revisions



Landscape Legend

- = Parking Lot Landscape Tree
- = Internal Street Tree
- = R.O.W. Screening Tree
- = Woodland Replacement Trees



sheet title:
**Enlargement Plans -
Townhomes North**

project title:
Village of Troy

City of Troy, Michigan

prepared for:
Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

Phone: 248.657.4968

job number: 19017
date: 03.29.2022

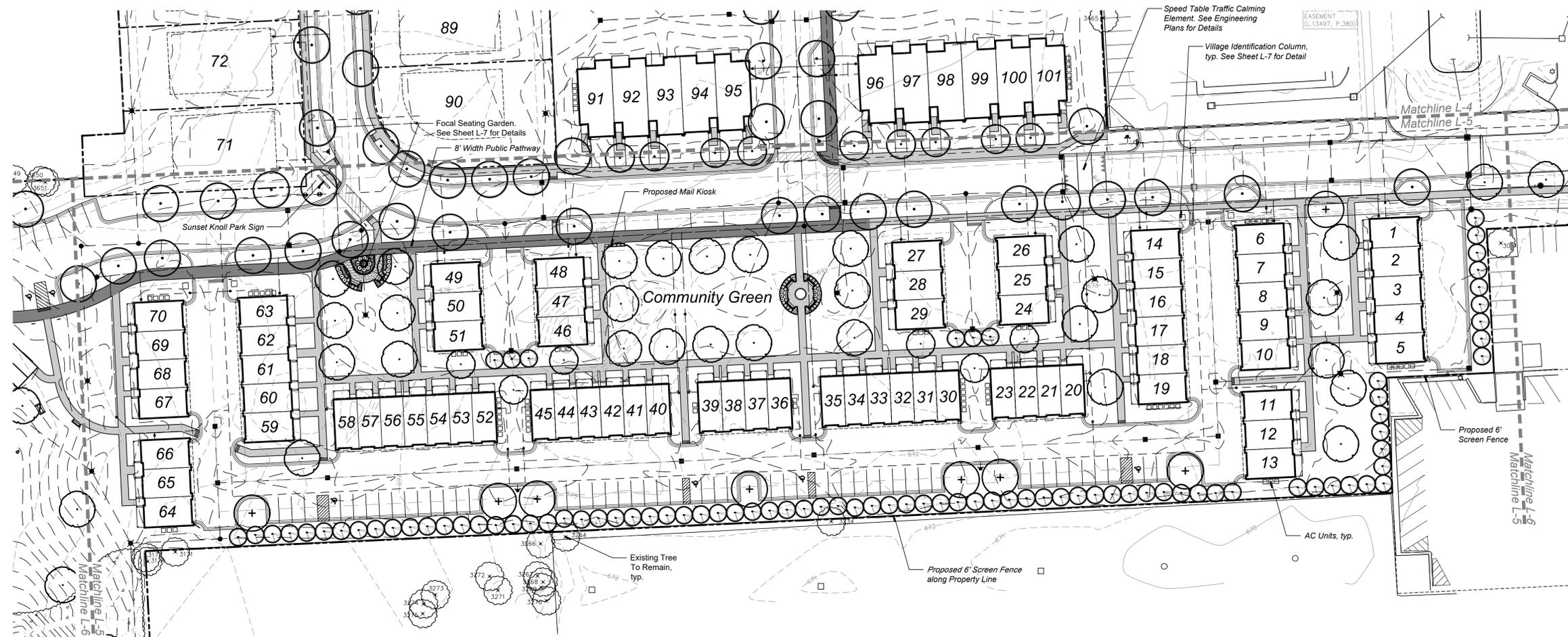
drawn by: EMJ
checked by: WTK

revisions:

10.21.2022	Per Plan Revisions
11.07.2022	Per Plan Revisions



sheet no.
L-4



Landscape Legend

- = Parking Lot Landscape Tree
- = Internal Street Tree
- = Woodland Replacement Trees

■ sheet title:
**Enlargement Plans -
Townhomes South**

■ project title:
Village of Troy

City of Troy, Michigan

■ prepared for:
Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

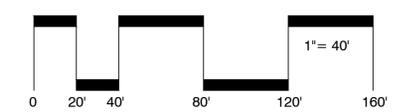
Phone: 248.657.4968

■ job number: 19017 ■ date: 03.29.2022

■ drawn by: EMJ ■ checked by: WTK

■ revisions:

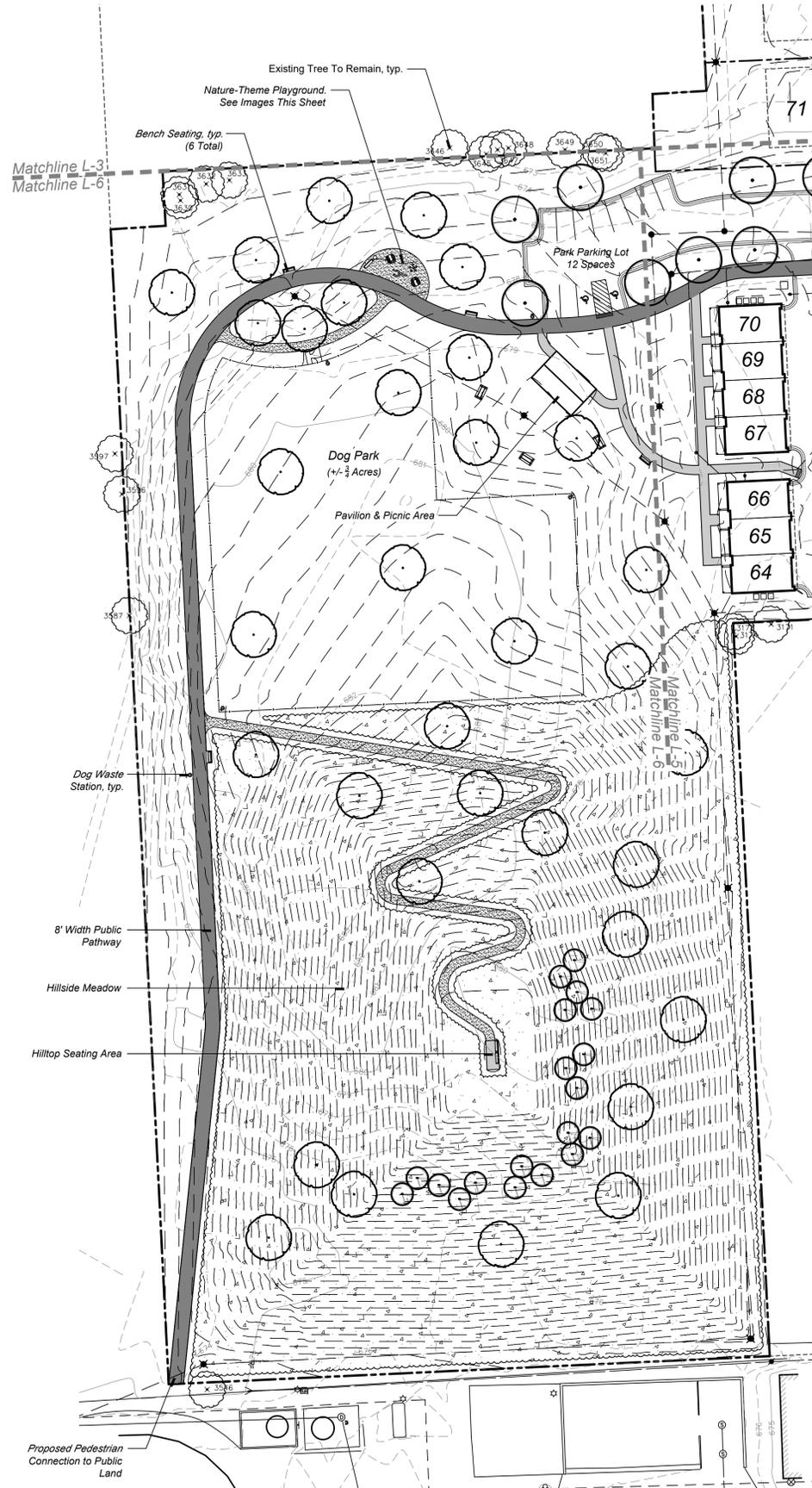
10.21.2022	Per Plan Revisions
11.07.2022	Per Plan Revisions



Nature Playground Imagery



Dog Waste Station

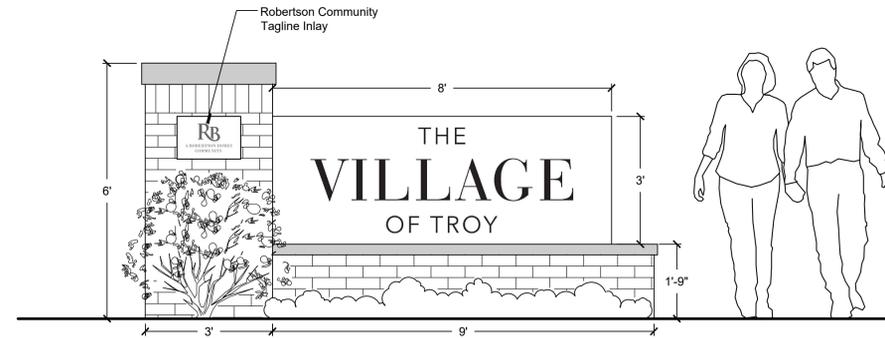


Sunset Knoll Park Enlargement Plan

Scale: 1" = 40'

Landscape Legend

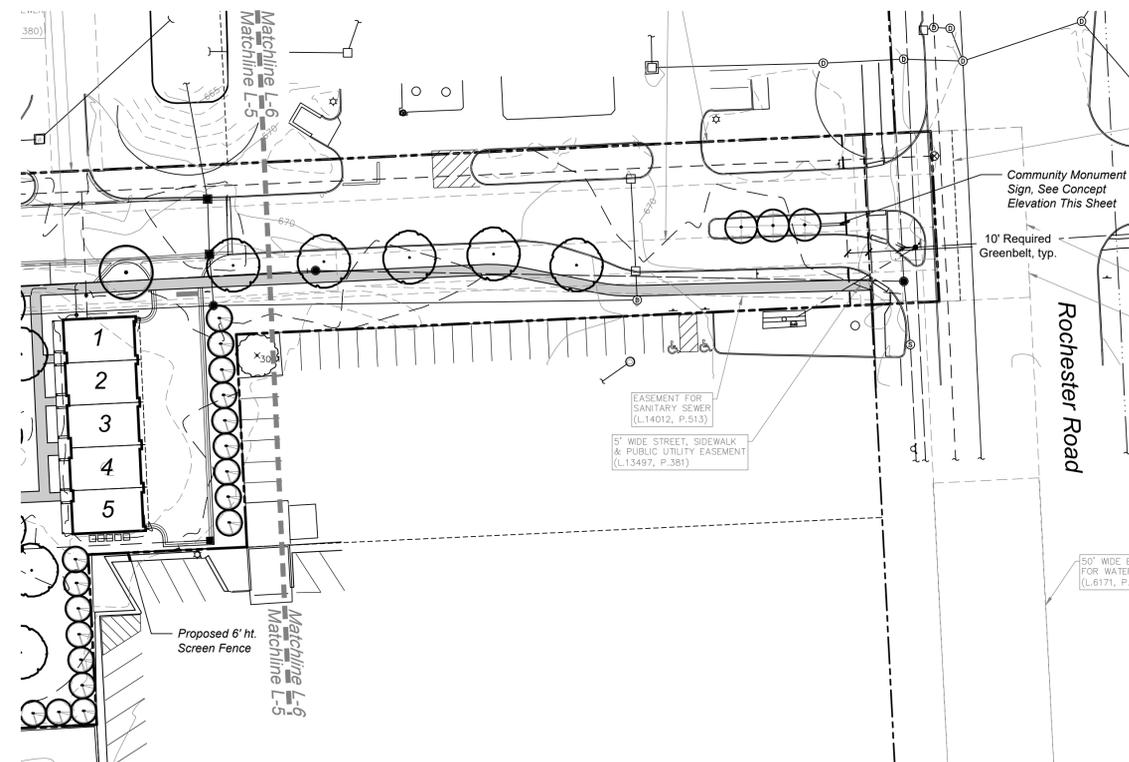
- = Parking Lot Landscape Tree
- = Public Road Greenbelt Tree
- = Internal Street Tree
- = Woodland Replacement Trees
- = Concrete/Asphalt Sidewalk
- = Stone Aggregate Pathway



Rochester Road Community Monument Sign Concept

Note: This Sign Detail is to be considered conceptual. Final sign details shall be developed for Sign Permit application.

Scale: 1/2" = 1'



East Community Entrance Enlargement Plan

Scale: 1" = 40'



sheet title:
Enlargement Plans - Park & East Entry

project title:
Village of Troy

City of Troy, Michigan
prepared for:
Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301
Phone: 248.657.4968

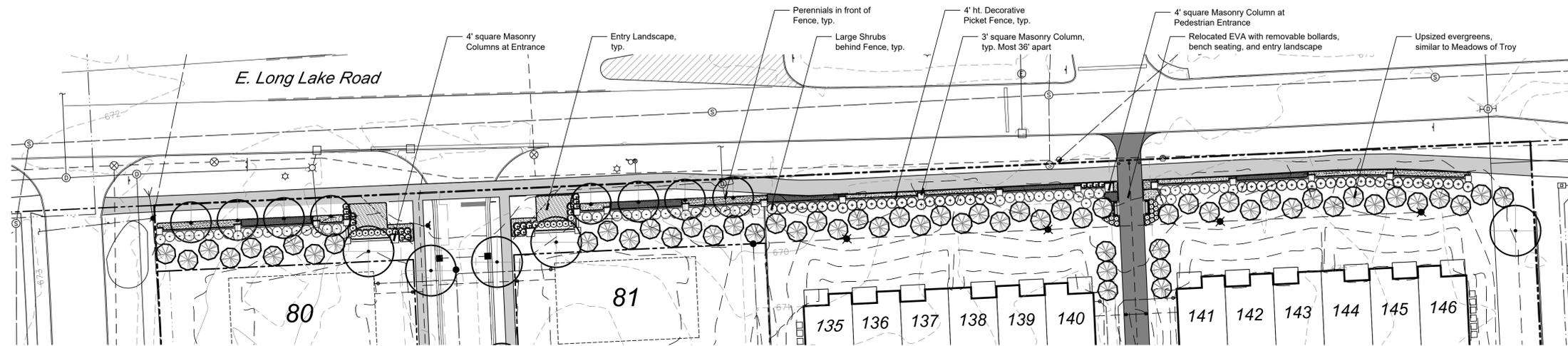
job number: 19017
date: 03.29.2022

drawn by: EMJ
checked by: WTK

revisions:
10.21.2022 Per Plan Revisions
11.07.2022 Per Plan Revisions

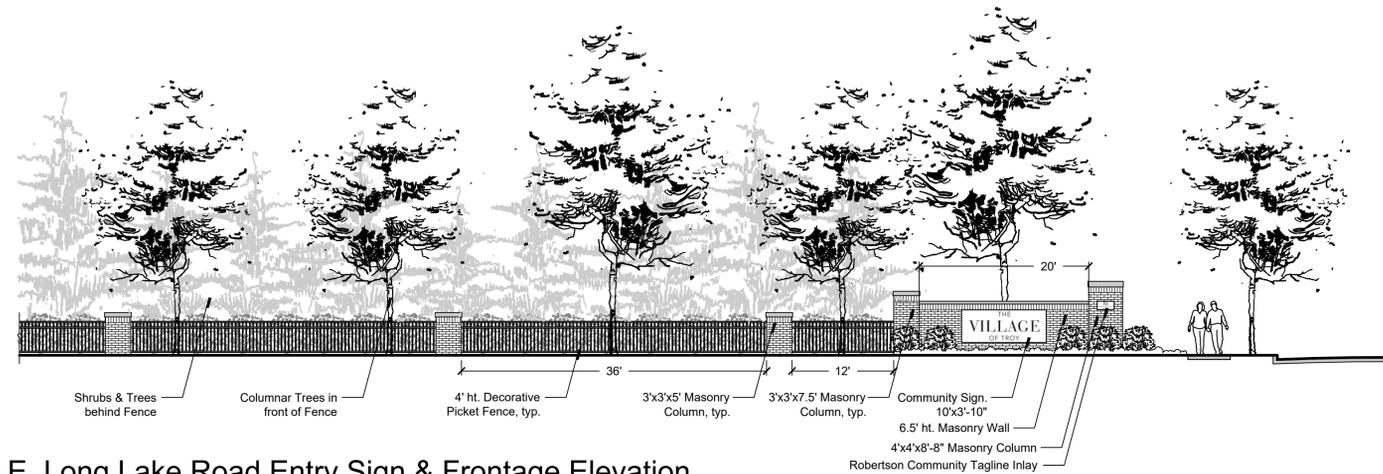


sheet no.
L-6



East Long Lake Road Frontage Enlargement Plan

Scale: 1" = 30'



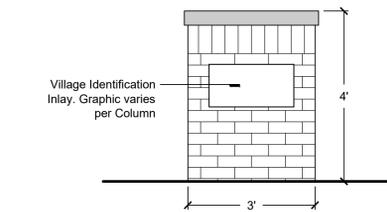
E. Long Lake Road Entry Sign & Frontage Elevation

Scale: 1" = 10'

Sign Ordinance

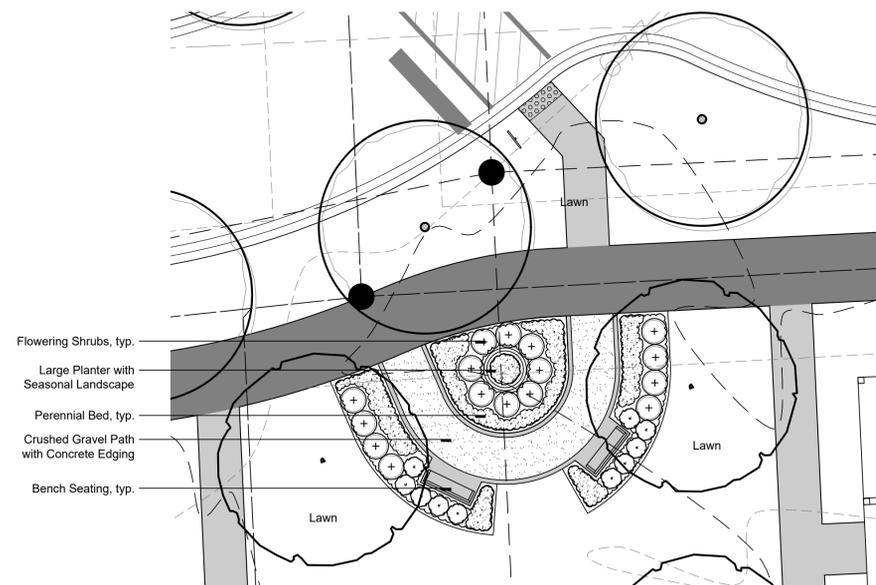
	Allowed	Proposed
- Sign Area:	100 sf	24 sf & 38.33 sf
- Sign Height:	12' ht. max	5'-4" ht.
- Sign Setback:	10' min.	21'-6"

*Note: Allowable Sign Area takes into consideration 2 entry signs where the combined sign areas cannot exceed 100 sf



Village Identification Column Detail

Scale: 1/2" = 1'



Focal Garden Enlargement Concept

Scale: 1" = 10'



Dune Planter from Landscape Forms
60" dia. with 40" ht.



sheet title:
Long Lake Frontage & Focal Park

project title:
Village of Troy

City of Troy, Michigan

prepared for:
Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

Phone: 248.657.4968

job number: 19017
date: 10.20.2022

drawn by: EMJ
checked by: WTK

revisions:
11.07.2022 Per Plan Revisions

LEGEND

- - - = Approx. Location of Tree Protection Fence
- = Existing Tree To Remain
- ⊗ = Existing Tree To Be Removed



■ sheet title:
Tree Preservation / Removal Plan North

■ project title:
Village of Troy

City of Troy, Michigan

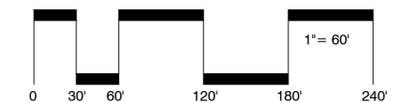
■ prepared for:
Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

Phone: 248.657.4968

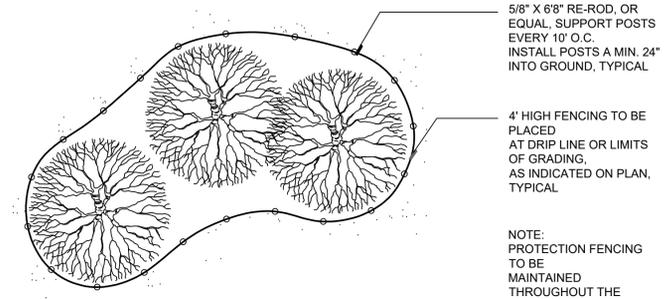
■ job number: 19017 ■ date: 03.29.2022

■ drawn by: EMJ ■ checked by: WTK

■ revisions:
10.21.2022 Per Plan Revisions
11.07.2022 Per Plan Revisions

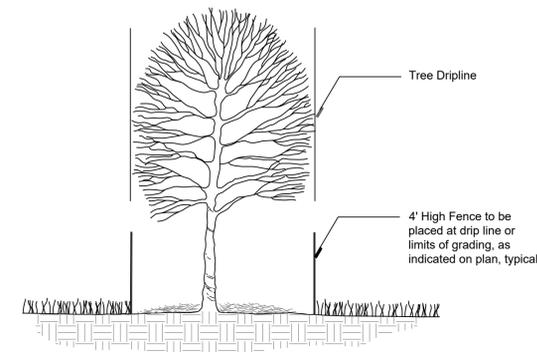


sheet no.
L-8



Tree Protection Detail - Plan

Scale: NTS



Tree Protection Detail - Section

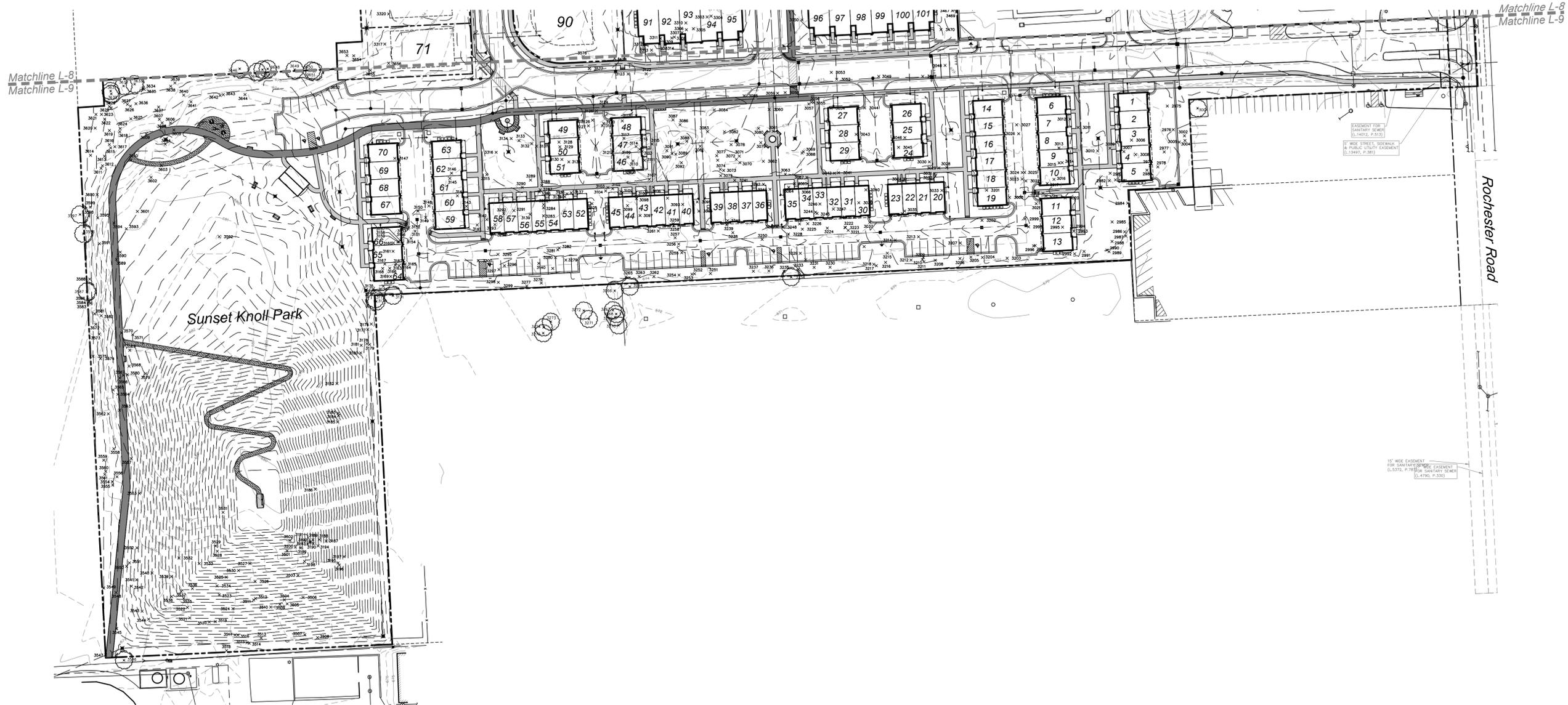
Scale: NTS

Tree Protection Notes

1. Approved tree protection shall be erected prior to the start of construction activities, and shall remain in place until construction is complete.
2. No person may conduct any activity within the drip line, or protected area, of any designated tree to remain, including, but not limited to, placing solvents, building materials, construction equipment, etc.
3. Grade changes may not occur within the drip line of protected trees.
4. During construction, no person shall attach any device or wire to any remaining tree.
5. All utility service requests must include notification to the installer that protected trees must be avoided. All trenching shall occur outside of the protective fencing.
6. Swales shall be routed to avoid the area within the drip lines of protected trees.
7. Trees located on adjacent properties that may be affected by construction activities must be protected.
8. Trees to be removed shall be flagged by the Owner Representative prior to site grading.
9. Root zones of protected trees should be well marked with bright colors and surrounded with rigidly staked fencing.
10. The parking of idle and running equipment shall be prohibited under the drip line of protected trees.
11. The stripping of topsoil from around protected trees shall be prohibited.
12. Trees to be removed shall be fell away from trees to be saved.
13. Grabbing of understorey vegetation in construction areas should be cleared by cutting vegetation at ground level with a chain saw or minimally with a hydro-axe.
14. The Landscape Architect shall be notified immediately if any protected tree is damaged or removed.

LEGEND

- = Approx. Location of Tree Protection Fence
- = Existing Tree To Remain
- ✕ = Existing Tree To Be Removed



sheet title:
**Tree Preservation /
Removal Plan South**

project title:
Village of Troy

City of Troy, Michigan

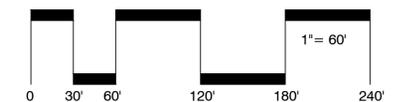
prepared for:
Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

Phone: 248.657.4968

job number: 19017
date: 03.29.2022

drawn by: EMJ
checked by: WTK

revisions:
10.21.2022 Per Plan Revisions
11.07.2022 Per Plan Revisions



sheet no.
L-9

Notes

Tree Survey prepared by Barr Engineering Company on March 26, 2021

- (1) Condition as per ISA Health Ratings, 9th Edition.
- (2) Landmark as per City of Troy Zoning Ordinance, Section 13.07 Woodland Protection (C)(1)



■ sheet title:

Tree Survey
1 of 3

■ project title:

Village of Troy

City of Troy, Michigan

■ prepared for:

Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

Phone: 248.657.4968

■ job number:

19017

■ date:

03.29.2022

■ drawn by:

EMJ

■ checked by:

WTK



Know what's below.
Call before you dig.

■ revisions:

- 10.21.2022 Per Plan Revisions
- 11.07.2022 Per Plan Revisions

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)			Condition (1)	Landmark (2)	Exempt	Save/Remove
			Trunk 1	Trunk 2	Trunk 3				
2975	Acer negundo	Box elder	7.2	7.1	6.6	Fair		X	Remove
2976	Acer negundo	Box elder	14.1	8.8		Fair		X	Remove
2977	Acer negundo	Box elder	10.6			Fair		X	Remove
2978	Acer negundo	Box elder	10.5			Fair		X	Remove
2979	Populus deltoides	Cottonwood	27.4			Fair		X	Remove
2980	Populus deltoides	Cottonwood	15.8	13.4		Fair		X	Remove
2981	Populus deltoides	Cottonwood	13.2			Fair		X	Remove
2982	Populus deltoides	Cottonwood	17.5	12.9		Fair		X	Remove
2983	Populus deltoides	Cottonwood	12.4	10.1		Fair		X	Remove
2984	Acer platanoides	Norway Maple	6.8			Fair		X	Remove
2985	Ulmus americana	American elm	7.2			Fair		X	Remove
2986	Populus deltoides	Cottonwood	10.9			Fair		X	Remove
2987	Ulmus americana	American elm	11.5			Fair		X	Remove
2988	Acer negundo	Box elder	11.1			Fair		X	Remove
2989	Acer negundo	Box elder	8.4			Fair		X	Remove
2990	Pseudotsuga menziesii	Douglas fir	8.6	6.8		Fair			Remove
2991	Ulmus americana	American elm	11.0			Fair		X	Remove
2992	Ulmus americana	American elm	6.9			Fair		X	Remove
2993	Populus deltoides	Cottonwood	29.2	14.0		Fair		X	Remove
2994	Populus deltoides	Cottonwood	16.7			Fair		X	Remove
2995	Populus deltoides	Cottonwood	13.7	11.5		Fair		X	Remove
2996	Populus deltoides	Cottonwood	10.1			Fair		X	Remove
2997	Ulmus americana	American elm	7.3			Fair		X	Remove
2998	Populus deltoides	Cottonwood	15.4			Fair		X	Remove
2999	Populus deltoides	Cottonwood	12.1			Fair		X	Remove
3000	Populus deltoides	Cottonwood	16.8			Fair		X	Remove
3001	Gleditsia triacanthos	Honey locust	13.7	12.0		Fair			Offsite
3002	Acer negundo	Box elder	11.4			Fair		X	Remove
3004	Acer negundo	Box elder	7.4			Fair		X	Remove
3005	Acer negundo	Box elder	7.6			Fair		X	Remove
3006	Salix amygdaloides	Peachleaf willow	7.6	6.2		Fair		X	Remove
3007	Populus deltoides	Cottonwood	13.7			Fair		X	Remove
3008	Populus deltoides	Cottonwood	15.1			Fair		X	Remove
3009	Populus deltoides	Cottonwood	18.2	12.0		Fair		X	Remove
3010	Populus deltoides	Cottonwood	18.1			Fair		X	Remove
3011	Pyrus communis	Common pear	8.7			Fair			Remove
3012	Populus deltoides	Cottonwood	8.8			Fair		X	Remove
3013	Populus deltoides	Cottonwood	15.6			Fair		X	Remove
3014	Populus deltoides	Cottonwood	13.4			Fair		X	Remove
3015	Pyrus calleryana	Callery pear	6.2			Fair			Remove
3016	Populus deltoides	Cottonwood	14.7			Fair		X	Remove
3017	Populus deltoides	Cottonwood	11.4			Fair		X	Remove
3018	Populus deltoides	Cottonwood	12.7			Poor		X	Remove
3019	Populus deltoides	Cottonwood	11.1			Fair		X	Remove
3020	Populus deltoides	Cottonwood	7.6			Fair		X	Remove
3021	Populus deltoides	Cottonwood	11.0			Fair		X	Remove
3022	Populus deltoides	Cottonwood	14.1			Fair		X	Remove
3023	Populus deltoides	Cottonwood	15.9			Fair		X	Remove
3024	Populus deltoides	Cottonwood	9.8			Poor		X	Remove
3025	Populus deltoides	Cottonwood	13.1			Fair		X	Remove
3026	Acer negundo	Box elder	8.1	6.4		Fair		X	Remove
3027	Acer negundo	Box elder	8.5			Fair		X	Remove
3028	Robinia pseudoacacia	Black locust	10.3			Fair		X	Remove
3029	Ulmus americana	American elm	7.3			Fair		X	Remove
3030	Populus deltoides	Cottonwood	13.1			Fair		X	Remove
3031	Populus deltoides	Cottonwood	9.7			Fair		X	Remove
3032	Ulmus americana	American elm	10.0			Fair		X	Remove
3033	Ulmus americana	American elm	11.4			Fair		X	Remove
3034	Populus deltoides	Cottonwood	17.3			Very Poor		X	Remove
3035	Populus deltoides	Cottonwood	21.8			Fair		X	Remove
3036	Ulmus americana	American elm	9.2	7.8		Fair		X	Remove
3037	Ulmus americana	American elm	7.1			Fair		X	Remove
3038	Ulmus americana	American elm	6.7			Fair		X	Remove
3039	Populus grandidentata	Big-tooth aspen	8.7			Fair		X	Remove
3040	Populus grandidentata	Big-tooth aspen	10.1			Fair		X	Remove
3041	Populus grandidentata	Big-tooth aspen	16.0			Fair		X	Remove
3042	Populus grandidentata	Big-tooth aspen	11.2			Fair		X	Remove
3043	Populus deltoides	Cottonwood	20.8			Fair		X	Remove
3044	Acer negundo	Box elder	7.7			Fair		X	Remove
3045	Ulmus americana	American elm	9.0			Fair		X	Remove
3046	Ulmus americana	American elm	9.0	8.1		Fair		X	Remove
3047	Populus deltoides	Cottonwood	23.6			Fair		X	Remove
3048	Populus deltoides	Cottonwood	22.2			Fair		X	Remove
3049	Populus deltoides	Cottonwood	19.6			Fair		X	Remove
3050	Pyrus calleryana	Callery pear	6.1			Fair			Remove
3051	Pyrus calleryana	Callery pear	6.1			Fair			Remove
3052	Populus deltoides	Cottonwood	21.2			Fair		X	Remove
3053	Populus deltoides	Cottonwood	16.0			Fair		X	Remove
3054	Populus deltoides	Cottonwood	14.2			Fair		X	Remove
3055	Populus deltoides	Cottonwood	11.4			Fair		X	Remove
3056	Populus deltoides	Cottonwood	7.3			Fair		X	Remove
3057	Populus deltoides	Cottonwood	7.3			Fair		X	Remove
3058	Ulmus americana	American elm	8.4			Fair		X	Remove
3059	Acer negundo	Box elder	8.7			Fair		X	Remove
3060	Populus deltoides	Cottonwood	13.5			Fair		X	Remove
3061	Populus deltoides	Cottonwood	14.5			Fair		X	Remove
3062	Populus deltoides	Cottonwood	10.7			Fair		X	Remove
3063	Populus deltoides	Cottonwood	9.7			Fair		X	Remove
3064	Populus deltoides	Cottonwood	8.2			Fair		X	Remove
3065	Populus deltoides	Cottonwood	11.4			Fair		X	Remove
3066	Populus deltoides	Cottonwood	6.3			Fair		X	Remove
3067	Populus deltoides	Cottonwood	12.7			Fair		X	Remove
3068	Ulmus americana	American elm	7.1			Fair		X	Remove
3069	Ulmus americana	American elm	9.3			Fair		X	Remove
3070	Populus deltoides	Cottonwood	15.2			Fair		X	Remove
3071	Populus grandidentata	Big-tooth aspen	7.8			Fair		X	Remove
3072	Ulmus americana	American elm	6.2			Fair		X	Remove
3073	Populus deltoides	Cottonwood	14.4			Fair		X	Remove
3074	Ulmus americana	American elm	7.2			Fair		X	Remove
3075	Populus deltoides	Cottonwood	11.0			Fair		X	Remove
3076	Ulmus americana	American elm	9.1			Fair		X	Remove
3077	Populus deltoides	Cottonwood	7.2			Fair		X	Remove

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)			Condition (1)	Landmark (2)	Exempt	Save/Remove
			Trunk 1	Trunk 2	Trunk 3				
3078	Acer negundo	Box elder	7.8			Fair		X	Remove
3079	Populus deltoides	Cottonwood	10.2			Fair		X	Remove
3080	Populus grandidentata	Big-tooth aspen	12.3			Fair		X	Remove
3081	Robinia pseudoacacia	Black locust	8.7			Fair		X	Remove
3082	Ulmus americana	American elm	12.2	6.0		Fair		X	Remove
3083	Populus deltoides	Cottonwood	9.7			Fair		X	Remove
3084	Populus deltoides	Cottonwood	16.6			Fair		X	Remove
3085	Populus deltoides	Cottonwood	26.1			Fair		X	Remove
3086	Populus deltoides	Cottonwood	12.2			Fair		X	Remove
3087	Populus deltoides	Cottonwood	14.1			Fair		X	Remove
3088	Salix amygdaloides	Peachleaf willow	10.1	9.8		Fair		X	Remove
3089	Robinia pseudoacacia	Black locust	7.1			Fair		X	Remove
3090	Acer negundo	Box elder	7.8			Fair		X	Remove
3091	Populus deltoides	Cottonwood	15.2			Fair		X	Remove
3092	Robinia pseudoacacia	Black locust	8.8			Fair		X	Remove
3093	Acer negundo	Box elder	6.3			Fair		X	Remove
3094	Rhamnus cathartica	European buckthorn	8.1			Fair		X	Remove
3095	Populus deltoides	Cottonwood	19.2			Fair		X	Remove
3096	Acer negundo	Box elder	6.1			Fair		X	Remove
3097	Robinia pseudoacacia	Black locust	7.7			Fair		X	Remove
3098	Acer negundo	Box elder	8.8			Fair		X	Remove
3099	Acer negundo	Box elder	8.6	7.3	6.2	Fair		X	Remove
3100	Acer negundo	Box elder	6.2			Fair		X	Remove
3101	Acer negundo	Box elder	10.4	8.1		Fair		X	Remove
3102	Acer negundo	Box elder	8.1			Fair		X	Remove
3103	Acer negundo	Box elder	8.6			Fair		X	Remove
3104	Acer negundo	Box elder	8.3			Fair		X	Remove
3105	Acer negundo	Box elder	8.6			Fair		X	Remove
3106	Acer negundo	Box elder	17.3			Fair		X	Remove
3107	Acer negundo	Box elder	12.4			Fair		X	Remove
3108	Acer negundo	Box elder	9.0	5.8		Fair		X	Remove
3109	Acer negundo	Box elder	9.0			Fair		X	Remove
3110	Robinia pseudoacacia	Black locust	9.8			Fair		X	Remove
3111	Robinia pseudoacacia	Black locust	6.1			Fair		X	Remove
3112	Robinia pseudoacacia	Black locust	10.0			Fair		X	Remove
3113	Robinia pseudoacacia	Black locust	11.4			Fair		X	Remove
3114	Robinia pseudoacacia	Black locust	6.1			Fair		X	Remove
3115	Robinia pseudoacacia	Black locust	9.1	8.7		Fair		X	Remove
3116	Ulmus americana	American elm	7.1			Fair		X	Remove
3117	Acer negundo	Box elder	14.8			Fair		X	Remove
3118	Crataegus sp.	Hawthorn	6.0			Fair			Remove
3119	Acer negundo	Box elder	7.1			Fair		X	Remove
3120	Prunus avium	Sweet cherry	6.2			Fair			Remove
3121	Acer negundo	Box elder	11.4			Fair		X	Remove
3122	Acer negundo	Box elder	8.8			Fair		X	Remove
3123	Acer negundo	Box elder	6.4			Fair		X	Remove
3124	Acer negundo	Box elder	6.4			Fair		X	Remove
3125	Ulmus americana	American elm	8.4			Fair		X	Remove
3126	Acer negundo	Box elder	6.0	5.5		Fair		X	Remove
3127	Acer negundo	Box elder	7.6	6.3		Fair		X	Remove
3128	Pinus sylvestris	Scots pine	12.7			Fair			Remove
3129	Pinus sylvestris	Sc							

Notes

Tree Survey prepared by
Barr Engineering Company
on March 26, 2021

(1) Condition as per ISA
Health Ratings, 9th Edition.
(2) Landmark as per City of
Troy Zoning Ordinance,
Section 13.07 Woodland
Protection (C)(1)



sheet title:

Tree Survey
2 of 3

project title:

Village of Troy

City of Troy, Michigan

prepared for:

Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

Phone: 248.657.4968

job number:

date:

19017

03.29.2022

drawn by:

checked by:

EMJ

WTK



Know what's below.
Call before you dig.

revisions:

10.21.2022 Per Plan Revisions
11.07.2022 Per Plan Revisions

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)				Condition (1)	Landmark (2)	Exempt	Save/Remove
			Trunk 1	Trunk 2	Trunk 3					
3282	Ulmus americana	American elm	6.0			Fair		X	Remove	
3283	Populus tremuloides	Quaking aspen	6.8			Fair		X	Remove	
3284	Populus tremuloides	Quaking aspen	8.3			Fair		X	Remove	
3285	Acer saccharinum	Silver maple	6.8			Fair		X	Remove	
3286	Populus tremuloides	Quaking aspen	7.2			Fair		X	Remove	
3287	Populus tremuloides	Quaking aspen	7.4			Fair		X	Remove	
3288	Populus tremuloides	Quaking aspen	7.8			Fair		X	Remove	
3289	Malus pumila	Common apple	7.7			Fair			Remove	
3290	Populus tremuloides	Quaking aspen	8.7			Fair		X	Remove	
3291	Ulmus americana	American elm	8.3			Fair		X	Remove	
3292	Acer negundo	Box elder	12.7			Fair		X	Remove	
3293	Pinus nigra	Black pine	21.1			Fair	X		Remove	
3294	Pinus nigra	Black pine	14.4			Fair			Remove	
3295	Pinus nigra	Black pine	17.5	16.9	6.5	Fair			Remove	
3296	Ulmus americana	American elm	7.1			Fair		X	Remove	
3297	Pinus nigra	Black pine	16.3			Fair			Remove	
3298	Pinus nigra	Black pine	20.7			Fair	X		Remove	
3299	Pinus sylvestris	Scots pine	21.4			Fair	X		Remove	
3300	Tilia americana	Basswood	12.9			Fair			Remove	
3301	Populus deltoides	Cottonwood	11.4			Fair		X	Remove	
3302	Populus deltoides	Cottonwood	7.4			Fair		X	Remove	
3303	Populus deltoides	Cottonwood	6.8			Fair		X	Remove	
3304	Populus deltoides	Cottonwood	8.9			Fair		X	Remove	
3305	Populus deltoides	Cottonwood	10.1			Fair		X	Remove	
3306	Populus deltoides	Cottonwood	7.3	6.5		Fair		X	Remove	
3307	Populus deltoides	Cottonwood	6.1			Fair		X	Remove	
3308	Populus deltoides	Cottonwood	6.4			Fair		X	Remove	
3309	Populus deltoides	Cottonwood	9.1			Fair		X	Remove	
3310	Populus deltoides	Cottonwood	8.3			Fair		X	Remove	
3311	Populus deltoides	Cottonwood	7.1			Fair		X	Remove	
3312	Populus deltoides	Cottonwood	7.4			Fair		X	Remove	
3313	Populus deltoides	Cottonwood	6.8			Fair		X	Remove	
3314	Populus deltoides	Cottonwood	9.2			Fair		X	Remove	
3315	Populus deltoides	Cottonwood	9.3			Fair		X	Remove	
3316	Populus deltoides	Cottonwood	12.3			Fair		X	Remove	
3317	Populus deltoides	Cottonwood	18.1			Fair		X	Remove	
3318	Populus deltoides	Cottonwood	22.0			Fair		X	Remove	
3319	Acer saccharinum	Silver maple	8.4			Fair		X	Remove	
3320	Acer saccharinum	Silver maple	14.8	6.2		Fair		X	Remove	
3321	Populus deltoides	Cottonwood	11.2			Fair		X	Remove	
3322	Populus deltoides	Cottonwood	18.9			Fair		X	Remove	
3323	Populus deltoides	Cottonwood	9.9			Fair		X	Remove	
3324	Populus deltoides	Cottonwood	21.3			Fair		X	Remove	
3325	Populus deltoides	Cottonwood	11.3			Fair		X	Remove	
3326	Populus deltoides	Cottonwood	15.4			Fair		X	Remove	
3327	Populus deltoides	Cottonwood	9.1			Fair		X	Remove	
3328	Populus deltoides	Cottonwood	8.2			Fair		X	Remove	
3329	Populus deltoides	Cottonwood	13.2	11.8		Fair		X	Remove	
3330	Ulmus americana	American elm	6.2			Fair		X	Remove	
3331	Populus deltoides	Cottonwood	11.8			Fair		X	Remove	
3332	Populus deltoides	Cottonwood	9.3			Fair		X	Remove	
3333	Populus deltoides	Cottonwood	17.0			Fair		X	Remove	
3334	Ulmus americana	American elm	6.2			Fair		X	Remove	
3335	Ulmus americana	American elm	7.1			Fair		X	Remove	
3336	Acer saccharinum	Silver maple	8.6			Fair		X	Remove	
3337	Acer saccharinum	Silver maple	12.9			Fair		X	Remove	
3338	Acer saccharinum	Silver maple	8.8	6.7		Fair		X	Remove	
3339	Ulmus americana	American elm	6.2			Fair		X	Remove	
3340	Acer saccharinum	Silver maple	9.7	6.2		Fair		X	Remove	
3341	Populus deltoides	Cottonwood	8.4			Fair		X	Remove	
3342	Populus deltoides	Cottonwood	8.1			Fair		X	Remove	
3343	Populus deltoides	Cottonwood	7.4			Fair		X	Remove	
3344	Populus deltoides	Cottonwood	7.6			Fair		X	Remove	
3345	Populus deltoides	Cottonwood	12.1			Fair		X	Remove	
3346	Populus deltoides	Cottonwood	6.7			Fair		X	Remove	
3347	Populus deltoides	Cottonwood	6.7			Fair		X	Remove	
3348	Populus deltoides	Cottonwood	8.0			Fair		X	Remove	
3349	Populus deltoides	Cottonwood	7.6			Fair		X	Remove	
3350	Populus deltoides	Cottonwood	11.1			Fair		X	Remove	
3351	Ulmus americana	American elm	6.7			Fair		X	Remove	
3352	Acer saccharinum	Silver maple	6.3			Fair		X	Remove	
3353	Acer saccharinum	Silver maple	10.1			Fair		X	Remove	
3354	Quercus macrocarpa	Bur oak	8.5			Fair			Remove	
3355	Juglans nigra	Black walnut	7.8			Fair			Remove	
3356	Juglans nigra	Black walnut	7.2			Fair			Remove	
3357	Malus pumila	Common apple	10.7			Very Poor		X	Remove	
3358	Ulmus americana	American elm	10.8			Fair		X	Remove	
3359	Acer saccharinum	Silver maple	14.4	11.0		Fair		X	Remove	
3360	Ulmus americana	American elm	14.0			Fair		X	Remove	
3361	Ulmus americana	American elm	10.3			Fair		X	Remove	
3362	Acer negundo	Box elder	8.4			Fair		X	Remove	
3363	Ulmus americana	American elm	9.4			Fair		X	Remove	
3364	Ulmus americana	American elm	9.3			Fair		X	Remove	
3365	Ulmus americana	American elm	10.4			Fair		X	Remove	
3366	Ulmus americana	American elm	7.4			Fair		X	Remove	
3367	Ulmus americana	American elm	7.6			Fair		X	Remove	
3368	Ulmus americana	American elm	8.3			Fair		X	Remove	
3369	Ulmus americana	American elm	8.0			Fair		X	Remove	
3370	Acer saccharinum	Silver maple	8.0			Fair		X	Remove	
3371	Ulmus americana	American elm	6.6			Fair		X	Remove	
3372	Ulmus americana	American elm	9.2	9.0	6.0	Fair		X	Remove	
3373	Ulmus americana	American elm	7.7			Fair		X	Remove	
3374	Populus deltoides	Cottonwood	15.4			Fair		X	Remove	
3375	Populus deltoides	Cottonwood	10.5			Fair		X	Remove	
3376	Acer negundo	Box elder	13.5			Fair		X	Remove	
3377	Acer saccharinum	Silver maple	11.1			Fair		X	Remove	
3378	Acer negundo	Box elder	7.8			Fair		X	Remove	
3379	Ulmus americana	American elm	7.4			Fair		X	Remove	
3380	Ulmus americana	American elm	11.3			Fair		X	Remove	
3381	Ulmus americana	American elm	6.2			Fair		X	Remove	
3382	Populus deltoides	Cottonwood	8.0			Fair		X	Remove	
3383	Populus deltoides	Cottonwood	9.0			Fair		X	Remove	

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)				Condition (1)	Landmark (2)	Exempt	Save/Remove
			Trunk 1	Trunk 2	Trunk 3					
3384	Populus deltoides	Cottonwood	6.8			Fair		X	Remove	
3385	Populus deltoides	Cottonwood	15.1			Fair		X	Remove	
3386	Robinia pseudoacacia	Black locust	6.2	6.0		Poor		X	Remove	
3387	Acer negundo	Box elder	6.3			Poor		X	Remove	
3388	Robinia pseudoacacia	Black locust	11.4			Fair		X	Remove	
3389	Acer negundo	Box elder	6.3			Fair		X	Remove	
3390	Ulmus americana	American elm	10.5	9.7		Fair		X	Remove	
3391	Ulmus americana	American elm	12.6	11.5		Fair		X	Remove	
3392	Ulmus americana	American elm	9.9			Fair		X	Remove	
3393	Ulmus americana	American elm	6.8			Fair		X	Remove	
3394	Ulmus americana	American elm	10.9			Fair		X	Remove	
3395	Ulmus americana	American elm	6.2			Fair		X	Remove	
3396	Ulmus americana	American elm	6.6			Fair		X	Remove	
3397	Ulmus americana	American elm	8.4			Fair		X	Remove	
3398	Populus deltoides	Cottonwood	14.3			Fair		X	Remove	
3399	Salix alba	White willow	45.0			Very Poor		X	Remove	
3400	Populus deltoides	Cottonwood	9.7			Fair		X	Remove	
3401	Robinia pseudoacacia	Black locust	9.4			Fair		X	Remove	
3402	Robinia pseudoacacia	Black locust	8.1			Fair		X	Remove	
3403	Populus deltoides	Cottonwood	10.9			Fair		X	Remove	
3404	Populus deltoides	Cottonwood	7.2			Fair		X	Remove	
3405	Populus deltoides	Cottonwood	7.5			Fair		X	Remove	
3406	Acer saccharinum	Silver maple	12.1			Fair		X	Remove	
3407	Acer platanoides	Norway Maple	18.4			Fair		X	Remove	
3408	Acer saccharinum	Silver maple	36.0			Fair		X	Remove	
3409	Acer saccharinum	Silver maple	27.6			Fair		X	Remove	
3410	Acer saccharinum	Silver maple	33.7			Very Poor		X	Remove	
3411	Acer saccharinum	Silver maple	36.2			Fair		X	Remove	
3412	Populus deltoides	Cottonwood	9.5			Fair		X	Remove	
3413	Populus deltoides	Cottonwood	7.9			Fair		X	Remove	
3414	Picea pungens	Blue spruce	17.0			Fair			Remove	
3415	Acer saccharinum	Silver maple	22.5			Very Poor		X	Remove	
3416	Pinus sylvestris	Scots pine	19.6			Fair	X		Remove	
3417	Populus deltoides	Cottonwood	8.6			Fair		X	Remove	
3418	Populus deltoides	Cottonwood	10.9			Fair		X	Remove	
3419	Populus deltoides	Cottonwood	7.9	7.4		Fair		X	Remove	
3420	Populus deltoides	Cottonwood	7.1			Fair		X	Remove	
3421	Populus deltoides	Cottonwood	8.5			Fair		X	Remove	
3422	Populus deltoides	Cottonwood	10.8			Fair		X	Remove	
3423	Populus deltoides	Cottonwood	7.7			Fair		X	Remove	
3424	Populus deltoides	Cottonwood	8.2			Fair		X	Remove	
3425	Populus deltoides	Cottonwood	6.1			Fair		X	Remove	
3426	Populus deltoides	Cottonwood	9.1			Fair		X	Remove	
3427	Populus deltoides	Cottonwood	6.1			Fair		X	Remove	
3428	Populus deltoides	Cottonwood	9.5			Fair		X	Remove	
3429	Populus deltoides	Cottonwood	13.6			Fair		X	Remove	
3430	Acer saccharinum	Silver maple	20.6			Fair		X	Remove	
3431	Acer saccharinum	Silver maple	17.3			Fair		X	Remove	
3432	Populus deltoides	Cottonwood	11.7			Fair		X	Remove	
3433	Populus deltoides	Cottonwood	9.2			Fair		X	Remove	
3434	Populus deltoides	Cottonwood	7.6			Fair		X	Remove	
3435	Populus deltoides	Cottonwood	12.4			Fair		X	Remove	
3436	Pinus sylvestris	Scots pine	17							

Tag	Scientific Name	Common Name	Diameter at Breast Height (DBH)			Condition (1)	Landmark (2)	Exempt	Save/Remove
			Trunk 1	Trunk 2	Trunk 3				
3615	Populus deltoides	Cottonwood	10.4			Fair		X	Remove
3616	Populus deltoides	Cottonwood	9.4			Fair		X	Remove
3617	Populus deltoides	Cottonwood	6.4			Fair		X	Remove
3618	Populus deltoides	Cottonwood	6.2			Fair		X	Remove
3619	Ulmus americana	American elm	7.0			Fair		X	Remove
3620	Salix matsudana	Corkscrew willow	13.0			Fair		X	Remove
3621	Populus deltoides	Cottonwood	11.3			Fair		X	Remove
3622	Robinia pseudoacacia	Black locust	7.2			Fair		X	Remove
3623	Robinia pseudoacacia	Black locust	7.7			Fair		X	Remove
3624	Populus deltoides	Cottonwood	7.7			Fair		X	Remove
3625	Populus deltoides	Cottonwood	10.4			Fair		X	Remove
3626	Populus deltoides	Cottonwood	6.6			Fair		X	Remove
3627	Populus deltoides	Cottonwood	7.4			Fair		X	Remove
3628	Populus deltoides	Cottonwood	9.4			Fair		X	Remove
3629	Populus deltoides	Cottonwood	11.3			Fair		X	Remove
3630	Populus deltoides	Cottonwood	6.7			Fair		X	Save
3631	Robinia pseudoacacia	Black locust	8.7	6.2	5.7	Fair		X	Save
3632	Acer rubrum	Red maple	6.7			Fair			Save
3633	Populus deltoides	Cottonwood	7.8			Fair		X	Save
3634	Populus deltoides	Cottonwood	6.5			Fair		X	Remove
3635	Populus deltoides	Cottonwood	7.3			Fair		X	Remove
3636	Populus deltoides	Cottonwood	7.3			Fair		X	Remove
3637	Populus deltoides	Cottonwood	10.0			Fair		X	Remove
3638	Populus deltoides	Cottonwood	12.4			Fair		X	Remove
3639	Populus deltoides	Cottonwood	17.3			Fair		X	Remove
3640	Populus deltoides	Cottonwood	8.6			Fair		X	Remove
3641	Acer negundo	Box elder	0.0			Fair		X	Remove
3642	Acer negundo	Box elder	7.3	7.0		Fair		X	Remove
3643	Acer negundo	Box elder	6.5			Fair		X	Remove
3644	Robinia pseudoacacia	Black locust	6.1			Fair		X	Remove
3645	Robinia pseudoacacia	Black locust	9.4			Fair		X	Offsite
3646	Acer rubrum	Red maple	20.0	7.4		Fair	X		Offsite
3647	Robinia pseudoacacia	Black locust	6.0			Fair		X	Offsite
3648	Robinia pseudoacacia	Black locust	11.4			Fair		X	Offsite
3649	Acer rubrum	Red maple	13.3	11.2		Fair			Offsite
3650	Populus deltoides	Cottonwood	13.6			Fair		X	Save
3651	Populus deltoides	Cottonwood	6.7			Fair		X	Save
3652	Robinia pseudoacacia	Black locust	8.0			Fair		X	Remove
3653	Populus deltoides	Cottonwood	14.6			Fair		X	Remove
3654	Robinia pseudoacacia	Black locust	9.1	7.0		Fair		X	Remove
3655	Robinia pseudoacacia	Black locust	8.0			Fair		X	Remove
3656	Robinia pseudoacacia	Black locust	6.7	6.0	5.8	Fair		X	Remove
3657	Robinia pseudoacacia	Black locust	7.0			Fair		X	Remove
3658	Robinia pseudoacacia	Black locust	6.3			Fair		X	Remove
3659	Robinia pseudoacacia	Black locust	6.0			Fair		X	Remove
3660	Ulmus parvifolia	Chinese elm	6.1			Fair		X	Remove

Landscape Notes

- All plant material shall be true to name and free from physical damage and wind burn.
- Plants shall be full, well-branched, and in a healthy, vigorous growing condition.
- Plants shall be watered before and after planting is complete.
- All trees must be staked, fertilized, and mulched and shall be guaranteed to exhibit a normal growth cycle for at least one (1) full year following planting.
- All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
- Provide clean backfill soil, using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, or stone.
- "Agrifirm" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
- Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand, and 1/3 peat.
- All plantings shall be mulched with shredded hardwood bark, spread to a minimum depth of 3". Mulch is to be free from debris and foreign material and shall contain no pieces of inconsistent size.
- The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
- No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect or Owner's representative.
- The Landscape Architect shall be notified of any discrepancies between the plans and field conditions prior to installation.
- The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
- The Landscape Architect shall have the right at any stage of the installation to reject any work or material that does not meet the requirements of the plans and specifications, if requested by the owner.
- The Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
- The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction, throughout the contract limits.
- A pre-emergent weed control agent, "Preen" or equal, shall be applied uniformly to all planting beds prior to mulching.
- All lawn areas to be irrigated.
- The Developer and Landscape Architect reserve the right to change location of plant material and alter plant species/variety at the time of installation based upon availability and quantity of material as well as site conditions. Materials will be of similar size, appearance and growth habit.
- All Lawn areas shall be Seeded or Sodded
- All Landscape Areas shall be irrigated by an automatic irrigation system with separate zones for Lawn and Plants.

Landscape Maintenance Notes

All Landscape Maintenance shall be performed by Owner or Owner's desired Landscape Contractor or Landscape Maintenance Company.

Overall

- All diseased, damaged, or dead materials shall be replaced in accordance with the standards of the City of Troy Zoning Ordinance.
- ### Lawn & Turf
- Lawn shall not be irrigated the prior to scheduled mowing
 - Maintain a lawn height or 2-1/2" to 3-1/2"
 - Lawn shall be mowed with a mulching mower or mower affixed with a mulching blade. Grass clippings shall be left on the lawn to decompose and release nutrients back into the soil
 - Inspect Irrigation system after mowing to ensure no damage has been done to the components
 - Maintenance Contractor shall maintain clean equipment to prevent potential spread of unwanted seeds, pests, and pathogens

Shrubs

- Prune shrubs on an as-needed basis and only to maintain the plant's natural appearance
- Allow shrubs to mature and fill planting areas as designed
- Allow designed hedges to grow together prior to pruning into a uniform shape

Groundcovers

- Keep free of weeds, grass, and refuse
- Prune lightly to maintain natural appearance
- Allow groundcovers to fill the intended planting area

Perennials

- Prune dead flower stalks that emerge during the summer to encourage foliage growth
- Perform seasonal pruning, weeding, and dead-heading as necessary to maintain a neat appearance and encourage flowering

Trees

- Remove weeds and suckers from around the base of trees
- Prune trees for safety, health, or structural clearance. Remove crossing and damaged branches
- Do not top trees for any reason
- Check on tree staking on a regular basis to ensure that ties and stakes are not damaging the trees. Maintain tree stakes until the tree can stand on its own. Upon reaching this point, remove and properly dispose of all tree stakes, ties, and wiring

Mulch

- Maintain hardwood mulch at a 3" depth and replenish as needed
- Keep mulch at least 3" away from plant stems and tree trunks
- Maintain clean-cut mulch edges and tree rings that match the designed edges

Weed Management

- Remove and properly dispose of any weeds and tree suckers that appear in planting beds. Use the least destructive methods possible

Fertilization

When fertilizing, use organic or non-chemical alternatives whenever possible to reduce the runoff into the Paint Creek

Pest Control

- When using pesticides, use organic or non-chemical alternatives whenever possible to reduce the runoff into the Paint Creek

Bed Edging

- Maintain Spade Cut Edges as designed, as necessary

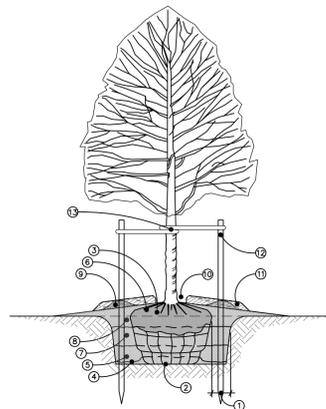
Notes

Tree Survey prepared by Barr Engineering Company on March 26, 2021

- Condition as per ISA Health Ratings, 9th Edition.
- Landmark as per City of Troy Zoning Ordinance, Section 13.07 Woodland Protection (C)(1)

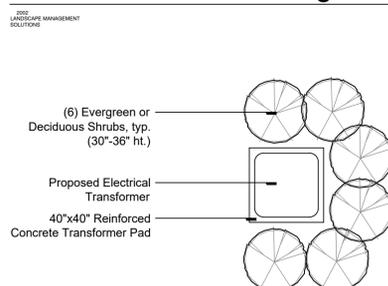
INSTALLATION NOTES:

- DIG PLANT POCKET 12" WIDER THAN EDGE OF ROOTBALL.
- THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
- REMOVE ALL TWINE FROM TOP OF ROOTBALL. EXAMINE TRUNK COLLAR & REMOVE EXCESS SOIL FROM TOP OF ROOTBALL DOWN TO THE UPPER LEVEL OF THE ROOT SYSTEM. SET ROOTBALL WITH TOP 1/8 OF BALL ABOVE FINISH GRADE.
- PLACE BACKFILL UNDER & ALONGSIDE BASE OF BALL TO STRAIGHTEN TREE. THOROUGHLY COMPACT TO FILL ALL VOIDS.
- BACKFILL PLANT POCKET 1/3 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL & COMPACT THOROUGHLY. ASSURING TREE IS STILL STRAIGHT.
- BEFORE CONTINUING WITH BACKFILL, REMOVE TOP WIRE LOOPS, OR BEND DOWN UNTIL THEY TOUCH SIDE OF BALL. REMOVE EXCESS BURLAP.
- BACKFILL PLANT POCKET SECOND 1/3 WITH PLANTING MIX & COMPACT THOROUGHLY. ASSURING TREE IS STILL STRAIGHT. SLOPE GRADE AWAY FROM TREE.
- BACKFILL PLANT POCKET LAST 1/3 WITH PLANTING MIX & COMPACT THOROUGHLY. ASSURING TREE IS STILL STRAIGHT. SLOPE GRADE AWAY FROM TREE.
- IF PLANTED IN NON-IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
- SHREDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 3"-5" RING EXPOSED AT BASE OF TRUNK.
- MULCH RINGS TO BE CONSISTENT WITH PLANT TYPE/SIZE THROUGHOUT PROJECT & SHOULD NOT EXTEND BEYOND PLANT POCKET.
- MINIMUM 2"x2"x60" HARDWOOD STAKES TO EXTEND INTO UNDISTURBED SOIL UNDER PLANT POCKET. STAKE LOCATIONS PER TREE TO BE CONSISTENT THROUGHOUT PROJECT.
- 1" WIDE BELT LIKE NYLON, PLASTIC, OR OTHER ACCEPTABLE MATERIAL, NO WIRE OR HOSE TO BE USE TO GUY TREES. TWO (2) GUYS PER TREE.



Deciduous Tree Planting Detail - 4" Cal. and Under

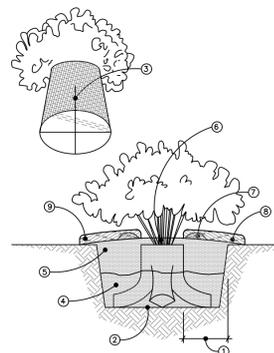
Scale: NTS



- *Notes:
- Transformer Pad shall be screened on a minimum of three sides
 - Actual Pad and Plant Locations shall be determined in the field, based on actual construction, orientation, and desired screening

Optional Transformer Screening Detail

Scale: 1/4" = 1'



Shrub Planting Detail - Container

Scale: NTS

INSTALLATION NOTES:

- DIG PLANT POCKET 6" WIDER THAN EDGE OF ROOTBALL.
- THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
- REMOVE PLANT FROM CONTAINER AND EXAMINE ROOTMASS. IF ROOTMASS IS LOOSE, INTEGRATE PLANT ROOTS & POTTING MEDIA WITH PLANTING MIX. IF A ROOTBOUND CONDITION EXISTS, DISRUPT THE ROOTMASS BY CUTTING THROUGH BOTTOM HALF OF ROOTMASS. ROTATE ROOTMASS 90° AND CUT AGAIN, FORMING FOUR LOBBES. SPREAD THE FOUR LOBBES, DISTURBING ROOTMASS AND INTEGRATE PLANT ROOTS & POTTING MEDIA WITH PLANTING MIX. PLACE PLANT IN POCKET SLIGHTLY ABOVE GRADE.
- BACKFILL PLANT POCKET 1/2 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL, ASSURING SHRUB IS STRAIGHT.
- BACK FILL REMAINING 1/2 OF PLANT POCKET WITH PLANTING MIX & COMPACT THOROUGHLY. ASSURING SHRUB IS STILL STRAIGHT.
- SPREAD 1" OF PLANTING MIX OVER TOP OF CONTAINER ROOTBALL. SLOPE GRADE AWAY FROM SHRUB.
- IF PLANTED IN NON-IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
- SHREDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 12" RING EXPOSED AT BASE OF PLANT.
- IF NOT PLANTED WITHIN A LANDSCAPE BED, MULCH RINGS TO BE CONSISTENT IN SIZE WITH PLANT TYPE/SIZE THROUGHOUT PROJECT.

LANDSCAPE MANAGEMENT SOLUTIONS

750 Forest Ave, Suite 101
Birmingham, MI 48009
T.: 248.594.3220

LEGEND



Decorative Mailbox - 16 Gang CBU

Manufacturer: Salsbury Industries
1010 E. 62nd St.
Los Angeles, CA 90001
www.mailboxes.com
Regency Decorative CBU
#3316R
Black
Quantity: 1

Scale: NTS



Decorative Mailbox - 12 Gang CBU

Manufacturer: Salsbury Industries
1010 E. 62nd St.
Los Angeles, CA 90001
www.mailboxes.com
Regency Decorative CBU
#3312R
Black
Quantity: 1

Scale: NTS

sheet title:

Tree Survey 3 of 3 & Details

project title:

Village of Troy

City of Troy, Michigan

prepared for:

Robertson Brothers Homes
6905 Telegraph Rd. - Suite 200
Bloomfield Hills, MI 48301

Phone: 248.657.4968

job number:

19017

date:

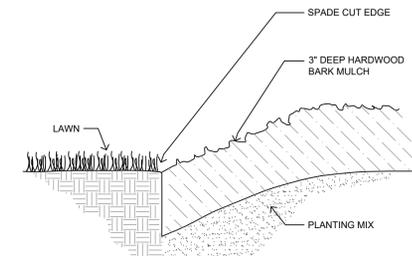
03.29.2022

drawn by:

EMJ

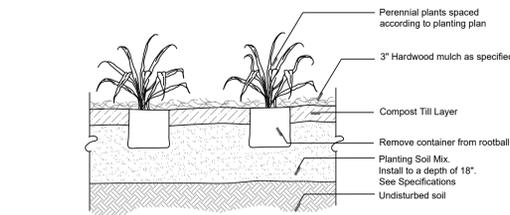
checked by:

WTK



Spade Cut Edging Detail

Scale: NTS



Perennial Planting Detail

Scale: NTS

revisions:

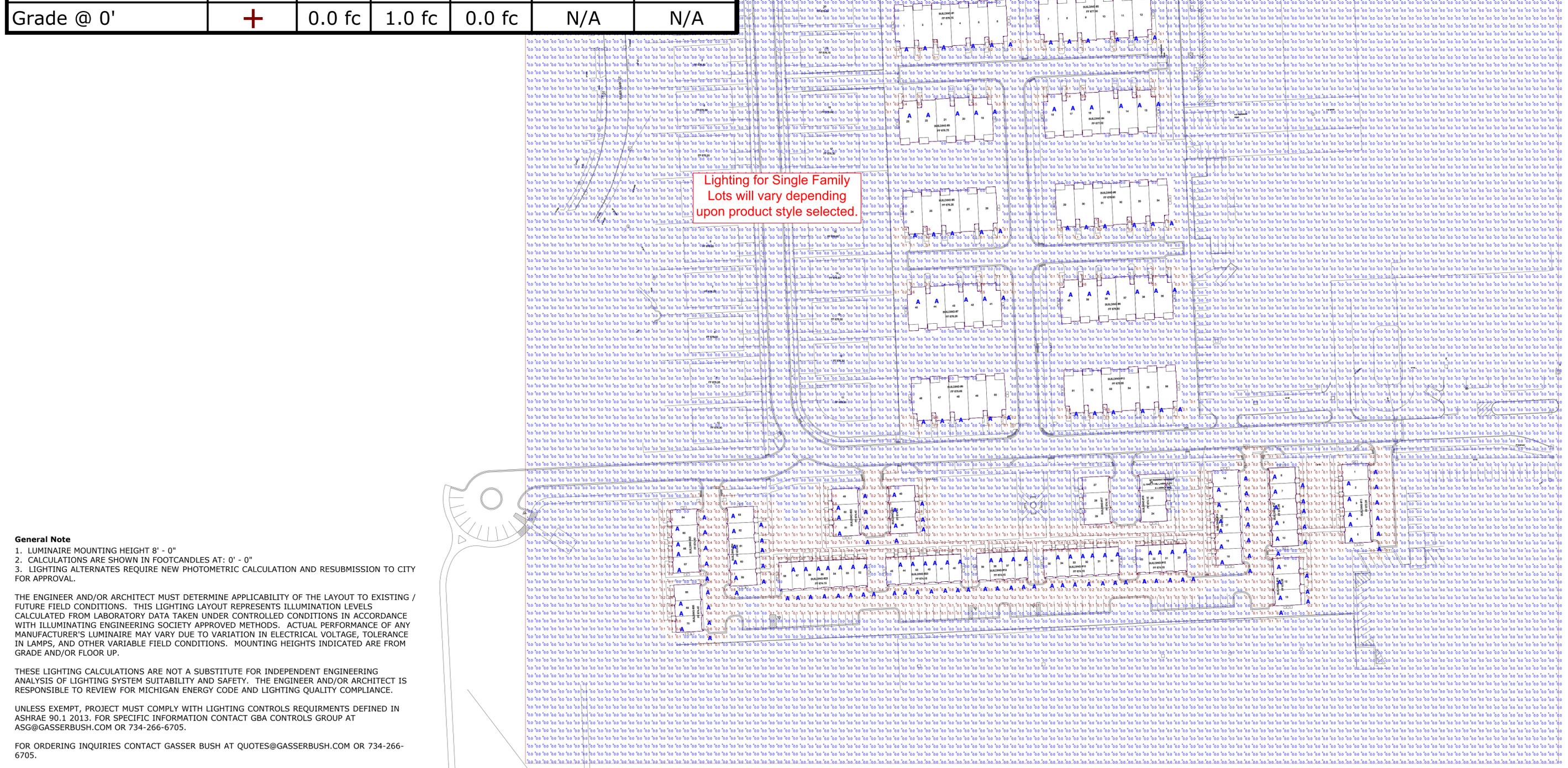
10.21.2022 Per Plan Revisions
11.07.2022 Per Plan Revisions

sheet no.

Schedule									
Symbol	Label	Quantity	Manufacturer	Catalog Number	Description	Lamp	Lumens Per Lamp	Light Loss Factor	Wattage
	A	198	Generation Lighting	8338701-12	Small one light downlight outdoor wall lantern	LED	901	0.9	7.93

Statistics							
Description	Symbol	Avg	Max	Min	Avg/Min	Max/Min	
Grade @ 0'	+	0.0 fc	1.0 fc	0.0 fc	N/A	N/A	

Lighting for Single Family Lots will vary depending upon product style selected.



- General Note**
- LUMINAIRE MOUNTING HEIGHT 8' - 0"
 - CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"
 - LIGHTING ALTERNATES REQUIRE NEW PHOTOMETRIC CALCULATION AND RESUBMISSION TO CITY FOR APPROVAL.

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIREMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT ASG@GASSERBUSH.COM OR 734-266-6705.

FOR ORDERING INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

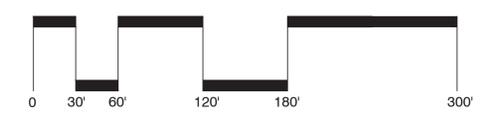
Plan View
Scale: 1" = 60ft



Village of Troy

Rendered Site Plan
City of Troy, Michigan

October 2022

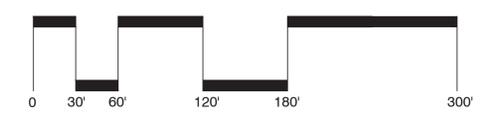




Village of Troy

Rendered Site Plan
City of Troy, Michigan

October 2022











"D"

"E"

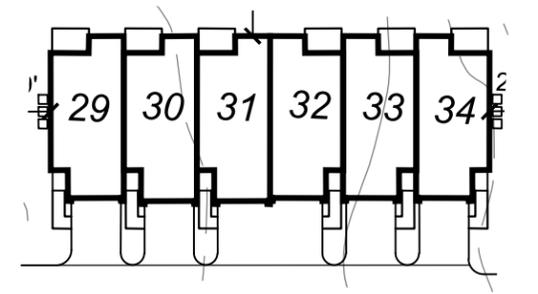
"B"

"C"

"F"



5 UNIT BUILDING ELEVATION



"D"

"C"

"B"

"C"

"E"

"F"



6 UNIT BUILDING ELEVATION

FOUNDATION NOTES

NOTE:
ALL FOOTINGS ARE DESIGNED FOR 3000 P.S.F. SOIL BRG. CAPACITY & 30 P.S.F. SOIL SHALE LOAD. FOR VARYING CONDITIONS REFER TO TABLE R403.11, R403.12, & R403.13 OF THE 2015 RC.

- ALL COLUMNS SHOWN SHALL BE 3" DIA. SCHEDULE 40 STANDARD STEEL PIPE COLUMN ON 30" X 30" X 8" DEEP CONC. FIG. 10P OF CONCRETE FIG. TO BE 4" BELOW FINISH BASEMENT SLAB. (TYPICAL UNLESS NOTED OTHERWISE).
- WHERE STEEL BEAMS REST ON FOUNDATION WALLS, SIZE BEAM POCKET APPROPRIATELY AND BHM AS REQUIRED.
- VERIFY ALL UTILITY LOCATIONS BY BUILDER.
- PROVIDE LADDERS UNDER ANY WALL RUNNING PARALLEL TO JOIST THAT DOES NOT LAND DIRECTLY ON A JOIST.
- PROVIDE SQUASH BLOCKS UNDER ALL BEARING CONDITIONS.
- GROUT SOLID * BEARING CONDITIONS WHERE BLOCK IS USED.
- PROVIDE 2" X 24" MIN. R-10 RIGID PERIMETER INSULATION AT ALL BASEMENT SLABS THAT ARE LESS THAN 4" BELOW EXTERIOR FINISHED GRADE.
- GAS LINES SHALL RUN UNDER SLAB.

NOTE:
PROVIDE MIN. (1) 2" X 4" HEADER AT ALL INTERIOR & EXTERIOR DOOR & WINDOW OPENINGS (UNLESS NOTED OTHERWISE).

NOTE:
PROVIDE MIN. (1) JACK STUD & (1) KING STUD AT EACH END OF ALL HEADERS (UNLESS NOTED OTHERWISE).

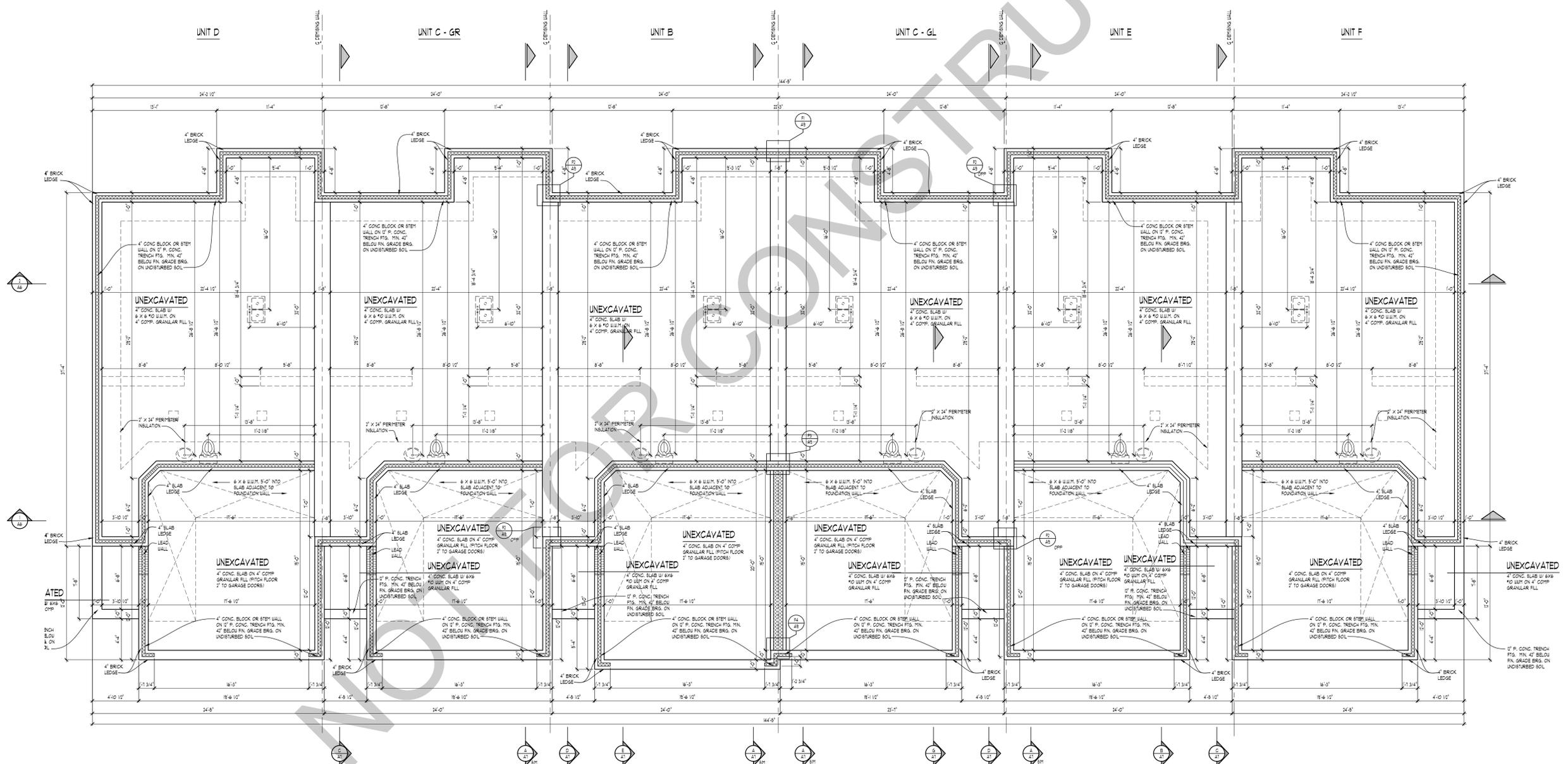
NOTE:
PROVIDE MIN. (1) JOIST OR LADDER RUNNING UNDER ALL INTERIOR FLOOR PARALLEL PARTITIONS.

NOTE:
GROUT ALL CONCRETE BLOCK CORES SOLID THAT SUPPORT POINT LOADS FROM ABOVE (TYPICAL).

NOTE:
WOOD BEAM
STEEL BEAM

XXXXXX BRG. WALL
XXXXXX BRG. WALL ABOVE
XXXXXX BRG. WALL & BRG. WALL ABOVE

■ POINT LOAD
○ POINT LOAD FROM ABOVE



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

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FAX: (804) 271-1112

CLIENT / PROJECT
ROBERTSON TOWNHOMES TRIMBLE MULTIFAMILY 6 UNIT

JOB No. WG 1370-23
DRAWN: AG
CHECKED: -
REVIEW: 3-18-22
FINAL:

SCALE:
PER PLAN

SHEET #
A-1

PLAN NOTES

INTERIOR WALLS:
1/2" GYPFRM WALL BOARD ON EACH SIDE OF 2x4 WOOD STUDS # 8" O.C. 3/16" THICK TYPICAL (UNLESS NOTED OTHERWISE). ALL DIMENSION TAKEN FROM FINISHED SURFACES.

EXTERIOR WALLS:
BEING WITH AIRSPACE MOISTURE BARRIER PAPER (HOUSE WRAP) ON 2x4 O.S.B. SHEATHING ON 2x4 WOOD STUDS # 8" O.C. ON AS NOTED. MIN. R-13 WALL CONSTRUCTION. 1/2" GYPFRM WALL BOARD (GUESS) WALL TO BE 4" THICK WITH BEING TYPICAL (UNLESS NOTED OTHERWISE). ALL DIMENSION TAKEN FROM FINISH FLOOR PLANS OR FOUNDATION CORNERS FOUNDATION PLANS.

1. OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL BE EQUIPPED WITH 30-MINUTE FIRE RATED DOORS OR EQUIVALENT PER 203 TMC SECTION R302.3.1.
2. VENT ALL EXHAUST FANS TO EXTERIOR.
3. WHEN POSSIBLE DIRECT ALL RUES AND VENTS THAT PENETRATE ROOF BEHIND MAIN RIDGE.
4. INSTALL WATER SUPPLY AND DRAIN BOX (GREY BOX) AT WASHING MACHINE LOCATION.
5. USE MOISTURE RESISTANT DRYWALL AT ALL AREAS SUSCEPTIBLE TO MOISTURE.
6. ALL FIRST FLOOR INTERIOR DOORS TO BE FRAMED 6'-0" TALL. ALL SECOND FLOOR INTERIOR DOORS TO BE FRAMED 6'-6" UNLESS NOTED OTHERWISE. VENTIFY W/ BUILDER.
7. PROVIDE GUARDRAIL AT STAIRS DURING CONSTRUCTION.
8. PROVIDE WASH BLOCKS UNDER ALL BEARING CONDITIONS.
9. GARAGE WALLS TO BE 2x6 STUDS IF OVER 10'-0" TALL.
10. PIPING INSTALLED DOWNSIDE OF THE POINT OF DELIVERY SHALL NOT EXTEND THROUGH ANY TOWNHOUSE UNIT OTHER THAN UNIT SERVED PER SECTION 544.9.3.

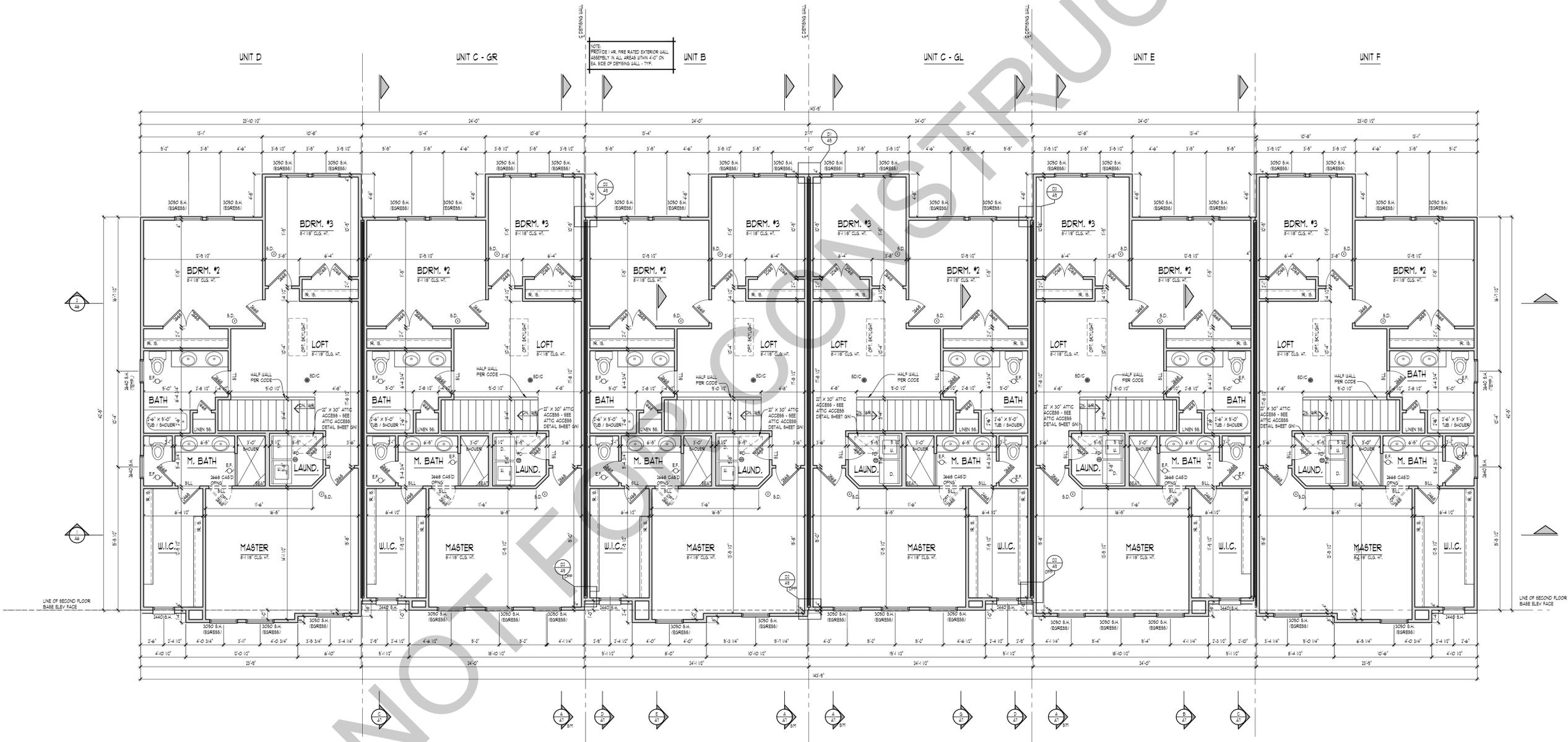
NOTE:
PROVIDE MIN. (2) 1 x 4 HEADERS AT ALL INTERIOR & EXTERIOR DOOR & WINDOW OPENINGS (UNLESS NOTED OTHERWISE).

NOTE:
PROVIDE MIN. (1) JACK STUD & (1) KING STUD AT EACH END OF ALL HEADERS (UNLESS NOTED OTHERWISE).

NOTE:
PROVIDE MIN. (1) JOIST OR LADDER FRAMING UNDER ALL UPPER FLOOR PARALLEL PARTITIONS.

NOTE:
S.D. ○
S.D.C. ●
ALL SPOKE & CARBON MONOXIDE DETECTORS INTERCONNECTED BY BATTERY BACK-UP PER CODE.

NOTE:
DOOR & WINDOW LOCATIONS:
ALL DOORS & WINDOWS ARE ASSUMED TO BE EITHER IN THE CENTER OF THE WALL MASS OR MIN. 4 INCHES FROM PERPENDICULAR WALL FOR CARESS UNLESS NOTED OTHERWISE.



SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

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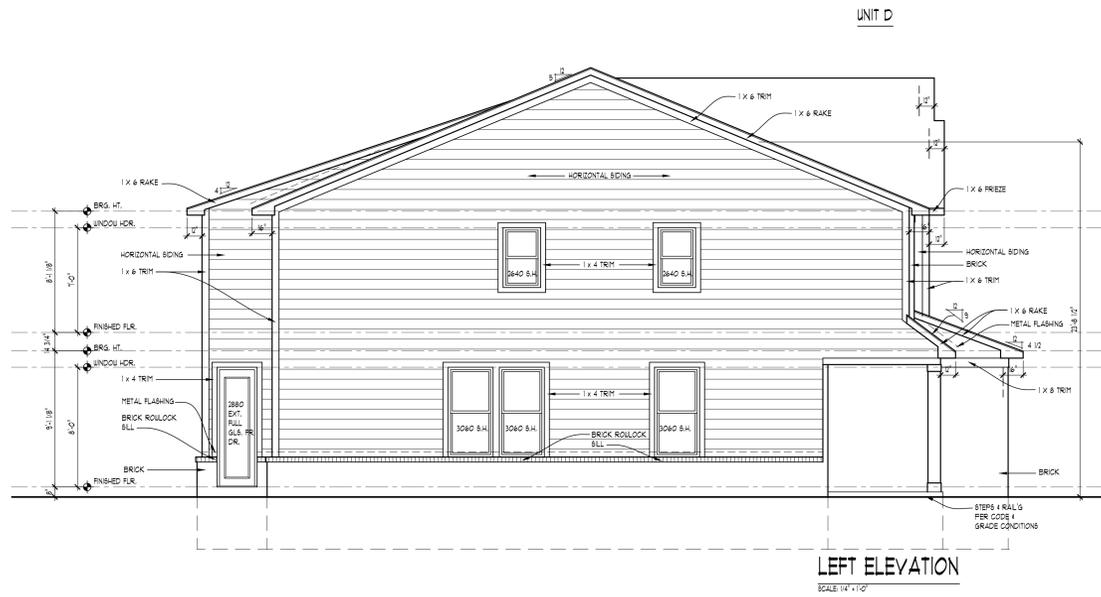
2000 W. WINTERS BLVD. SUITE 100
NORTH LITTLE ROCK, AR 72117
PHONE: (501) 486-8888
FAX: (501) 486-1961

CLIENT / PROJECT
**ROBERTSON TOWNHOMES
TRIVOLI TOWNHOMES
MULTI-FAMILY
6 UNIT**

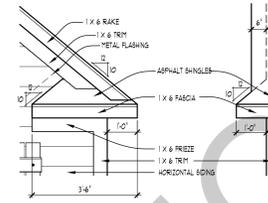
JOB No. **WG 1370-23**
DRAWN: **AG**
CHECKED: **-**
REVIEW: **3-18-22**
FINAL: **-**

SCALE:
PER PLAN

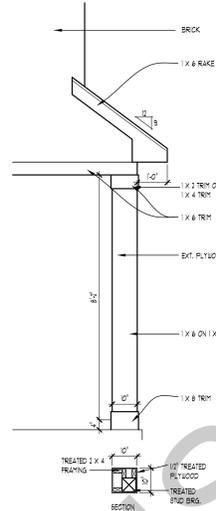
SHEET #
A-3



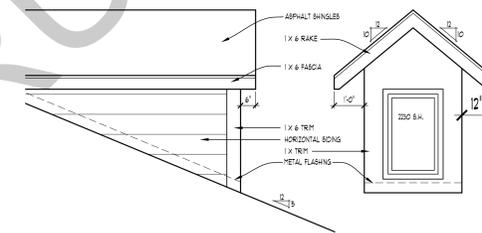
LEFT ELEVATION
SCALE 1/4" = 1'-0"



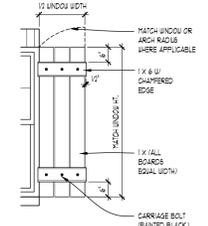
QUEEN ANNE DETAIL
SCALE 1/2" = 1'-0"



PORCH COLUMN DETAIL
SCALE 1/2" = 1'-0"

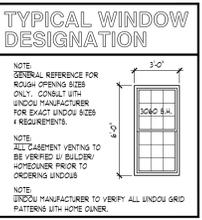


DORMER DETAIL
SCALE 1/2" = 1'-0"



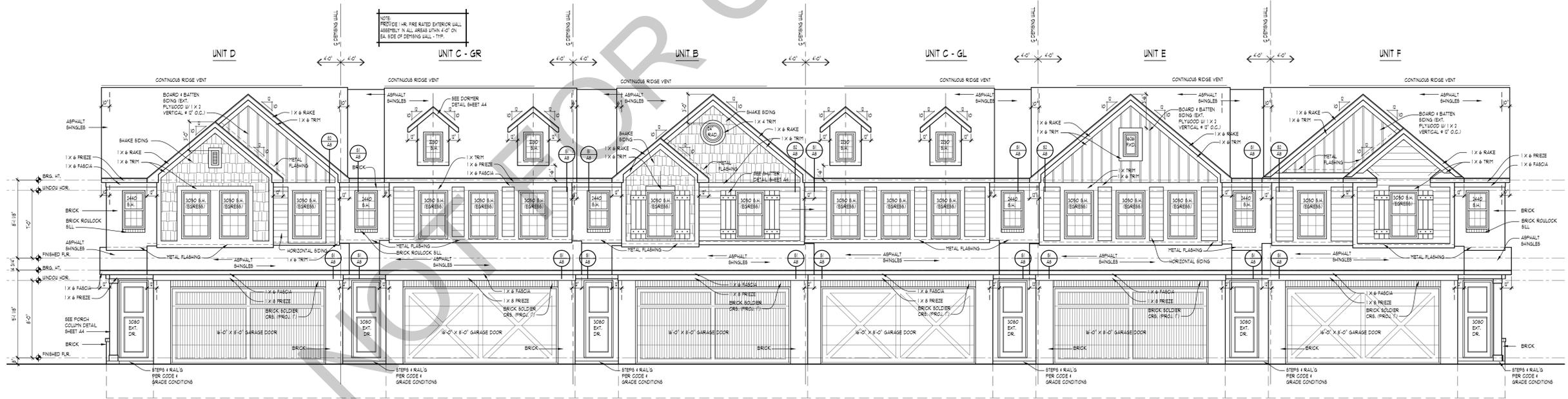
SHUTTER DETAIL
SCALE 1/2" = 1'-0"

- ELEVATION NOTES**
- ALL ROOF SADDLES TO BE O.S.B. SHEATHED WITH ICE & WATER SHIELD AND SHINGLES.
 - PROVIDE ICE & WATER SHIELD MIN. 6" COVERAGE AT ALL VALLEYS.
 - REPLACE FLUE TO BE DETERMINED PER MANUFACTURER'S SPECIFICATION.
 - METAL FLASHING AS REQUIRED BY CODE.
 - ROOF & SOFFIT VENTS AS REQUIRED BY CODE.
 - PROVIDE GUTTERS & DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE LOCATED SO THAT THE DISCHARGE WILL NOT SPILL ON OR FLOW ACROSS ANY PORCHES, WALKS OR DRIVES.
 - CARPENTER TO VERIFY THICKNESS OF MASONRY PRIOR TO BUILDING BRICK BACK.



NOTE:
OVERHANG DIMENSIONS (D.A.) ARE FROM SHEATHING U.N.D.

NOTE:
ALL UNDOUS SILLS OVER 4'-0" ABOVE EXTERIOR GRADE OR SURFACE BELOW TO BE MINIMUM 1/4" ABOVE FINISHED FLOOR OR HAVE SASH LINTERS PER CODE REQUIREMENTS.



FRONT ELEVATION
SCALE 1/4" = 1'-0"

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CLIENT / PROJECT
ROBERTSON TOWN
BROOKLYN
MULTIFAMILY
6 UNIT

JOB No. WG 1370-23
DRAWN: AG
CHECKED: -
REVIEW: 3-18-22
FINAL: -

SCALE:
PER PLAN

SHEET #
A-4

TROY GOODMAN



5 UNIT TOWNHOME

PLAN DRAWING INDEX

REV. DATE	CIVIL
	SITE PLAN
	ARCHITECTURAL BUILDING COMPOSITION
GN1	GENERAL NOTES & DETAILS
GN2	GENERAL NOTES & DETAILS
A1	FOUNDATION PLAN
A2	FIRST FLOOR PLAN
A3	SECOND FLOOR PLAN
A4	FRONT & LEFT ELEVATION
A5	RIGHT & REAR ELEVATION / ROOF PLAN
A6	BUILDING SECTIONS
A7	BUILDING SECTIONS
A8	WALL SECTIONS
A9	DETAILS
OPT 1	OPT. BASEMENT FOUNDATION PLAN
OPT 1.1	OPT BASEMENT FIRST FLOOR PLAN
OPT 2	OPT OUTDOOR LIVING PATIO ON SLAB FND.
OPT 3	OPT. RAISED SLAB ON BASEMENT FND.
S1	FOUNDATION STRUCTURE PLAN
S2	FIRST FLOOR STRUCTURE PLAN
S3	SECOND FLOOR STRUCTURE PLAN

CODES	
MICHIGAN RESIDENTIAL CODE (MRC) - 2015	
MICHIGAN MECHANICAL CODE (MMC) - 2015	
MICHIGAN PLUMBING CODE (MPC) - 2015	
NFPA TO NATIONAL ELECTRICAL CODE - 2011	
IRC BUILDING CODE DATA	
ZONING:	
TYPE OF CONSTRUCTION:	WOOD FRAME ON POURED FND.
NUMBER OF STORIES:	2
BUILDING HEIGHT:	23'-11 5/8" (GRADE TO MEDIAN)
FIRE RATING:	WALLS & PARTITIONS:
SEPARATION WALL (FER R302.2):	2 HR
EXTERIOR WALL @ SEPARATION WALL	1 HR
SPRINKLER SYSTEM:	NOT SPRINKLED
NOTES:	1. REFER TO GENERAL SHEETS FOR FIRE RATED WALL DETAILS

UNIT IDENTITY	STANDARD FIXTURES			
	BATHROOMS	KITCHEN SINK	DISHWASHER	MOP SINK
UNIT D	2,5	1	1	0
UNIT E	2,5	1	1	0
UNIT B	2,5	1	1	0
UNIT C	2,5	1	1	0
UNIT F	2,5	1	1	0
BLDG TOTAL *	12,5	5	5	0

UNIT IDENTITY	SQUARE FOOTAGE				
	FIRST FLOOR	SECOND FLOOR	TOTAL HEATED S.F.	GARAGE	OUTDOOR LIVING
UNIT D	802	1063	1865	388	31
UNIT E	795	1041	1836	388	36
UNIT B	793	1042	1835	406	36
UNIT C	793	1030	1823	388	36
UNIT F	802	1063	1865	388	31
BLDG TOTAL S.F. F.T *			9,224	1,888	182



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SOUTH LYON, MI 48178
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REFERRED TO THE DESIGNER WHEN THE WORK IS
CALLED OUT AT ANY TIME PRIOR TO ANY CONSTRUCTION
CONSTRUCTION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR

CLIENT / PROJECT
ROBERTSON
BROTHERS HOMES
TROY GOODMAN
MULTI-FAMILY
5 UNIT

JOB No. WO 2331-21

DRAWN: AG

CHECKED: BF

REVIEW 11-1-21

FINAL: 12-6-21

△ R VALUE REV. 12-22

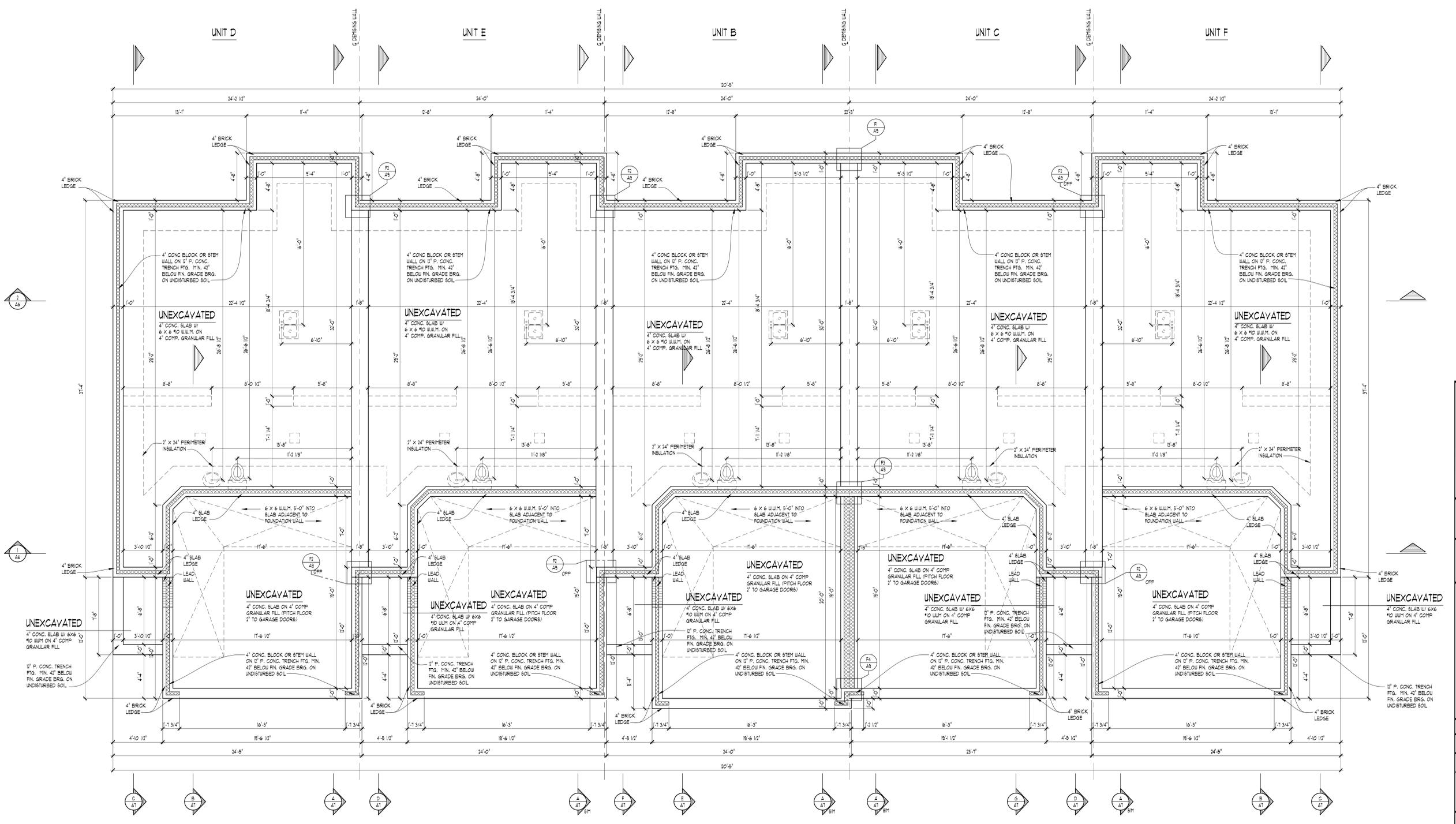
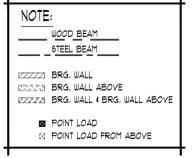
SCALE:
PER PLAN

SHEET #
COVER

FOUNDATION NOTES

- NOTE:**
ALL FOOTINGS ARE DESIGNED FOR 3000 P.S.F. SOIL BRG. CAPACITY & 30 P.S.F. ROOF SNOW LOAD. FOR VARYING CONDITIONS REFER TO TABLE R402.11), R402.12), & R402.13) OF THE 2018 IBC.
- ALL COLUMNS SHOWN SHALL BE 3" DIA. SCHEDULE 40 STANDARD STEEL PIPE COLUMN ON 30" X 30" X 18" DEEP CONC. FTG. TOP OF CONCRETE FTG. TO BE 4" BELOW FINISH BASEMENT SLAB. (TYPICAL UNLESS NOTED OTHERWISE)
 - WHERE STEEL BEAMS REST ON FOUNDATION WALLS, 6/8" BEAM POCKET APPROPRIATELY AND SHIM AS REQUIRED.
 - VERIFY ALL UTILITY LOCATIONS W/ BUILDER.
 - PROVIDE LADDERS UNDER ANY WALL RUNNING PARALLEL W/ JOIST THAT DOES NOT LAND DIRECTLY ON A JOIST
 - PROVIDE SQUASH BLOCKS UNDER ALL BEARING CONDITIONS.
 - GROUT SOLID & BEARING CONDITIONS WHERE BLOCK IS USED.
 - PROVIDE 2" X 24" (MIN. R-10) RIGID PERIMETER INSULATION AT ALL BASEMENT SLABS THAT ARE LESS THAN 42" BELOW EXTERIOR FINISHED GRADE
 - GAS LINES SHALL RUN UNDER SLAB

- NOTE:**
PROVIDE MIN. (2) 2" X 4" HEADER AT ALL INTERIOR & EXTERIOR DOOR & WINDOW OPENINGS (UNLESS NOTED OTHERWISE)
- NOTE:**
PROVIDE MIN. (1) JACK STUD & (1) KING STUD AT EACH END OF ALL HEADERS (UNLESS NOTED OTHERWISE)
- NOTE:**
PROVIDE MIN. (1) JOIST OR LADDER FRAMING UNDER ALL UPPER FLOOR PARALLEL PARTITIONS
- NOTE:**
GROUT ALL CONCRETE BLOCK CORES SOLID THAT SUPPORT POINT LOADS FROM ABOVE (TYPICAL)



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



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CLIENT / PROJECT
ROBERTSON HOMES
TROTT GOODMAN
MULTI-FAMILY
5 UNIT

JOB No. WO 2331-21
DRAWN: AG
CHECKED: BF
REVIEW: 11-1-21
FINAL: 12-6-21
R VALUE REV. 1-2-22

SCALE:
PER PLAN

SHEET #
A-1

PLAN NOTES

- INTERIOR WALLS:**
1/2" GYPSUM WALL BOARD ON EACH SIDE OF 2x4 WOOD STUDS @ 16" O.C. 3 1/2" THICK TYPICAL (UNLESS NOTED OTHERWISE). ALL DIMENSIONS TAKEN FROM STUD EDGES.
- EXTERIOR WALLS:**
SIDING WITH AIRSPACE, MOISTURE BARRIER PAPER (HOUSE WRAP) ON 1/8" O.S.B. SHEATHING ON 2x4 WOOD STUDS @ 16" O.C. OR AS NOTED. MIN. R-9 WALL CONSTRUCTION. 1/2" GYPSUM WALL BOARD (SEE 4.06.01) WALL TO BE 4" THICK WITH SIDING (TYPICAL UNLESS NOTED OTHERWISE). ALL DIMENSIONS TAKEN FROM FRAMING (FLOOR PLANS) OR FOUNDATION CORNERS (FOUNDATION PLAN).
- OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL BE EQUIPPED WITH 20-MINUTE FIRE RATED DOORS (OR EQUIVALENT PER 2019 IRC SECTION R302.1.1).
 - VENT ALL EXHAUST FANS TO EXTERIOR.
 - WHEN POSSIBLE DIRECT ALL FLUES AND VENTS THAT PENETRATE ROOF BEHIND MAIN RIDGE.
 - INSTALL WATER SUPPLY AND DRAIN BOX (GREY BOX) AT WASHING MACHINE LOCATION.
 - USE MOISTURE RESISTANT DRYWALL AT ALL AREAS SUSCEPTIBLE TO MOISTURE.
 - ALL FIRST FLOOR INTERIOR DOORS TO BE FRAMED 8'-0" TALL. ALL SECOND FLOOR INTERIOR DOORS TO BE FRAMED 6'-8" UNLESS NOTED OTHERWISE. VERIFY W/ BUILDER.
 - PROVIDE GUARDRAIL AT STAIRS DURING CONSTRUCTION.
 - PROVIDE SQUASH BLOCKS UNDER ALL BEARING CONDITIONS.
 - GARAGE WALLS TO BE 2x6 STUDS IF OVER 10'-0" TALL.
 - PIPING INSTALLED DOWNSTREAM OF THE POINT OF DELIVERY SHALL NOT EXTEND THROUGH ANY TOWNHOUSE UNIT OTHER THAN UNIT SERVED PER SECTION 4.06.3.

NOTE:
PROVIDE MIN. (2) 2" X 4" HEADER AT ALL INTERIOR & EXTERIOR DOOR & WINDOW OPENINGS (UNLESS NOTED OTHERWISE).

NOTE:
S.D. ○
S.D./C. ●

NOTE:
ALL SPOKE & CARBON MONOXIDE DETECTORS INTERCONNECTED W/ BATTERY BACKUP PER CODE.

FIRE SEPARATION NOTE
FIRE SEPARATION (R302.6)
GARAGE SPACE BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8" HIGH TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2" THICK GYPSUM BOARD OR EQUIVALENT. ALL OTHER GARAGE SPACE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2" THICK GYPSUM BOARD APPLIED TO THE GARAGE SIDE. DROP CLG. UNDER FLR. ABV. (ENCLOSE MECHANICAL AND STRUCTURAL ELEMENTS) VERIFY W/ BLDG.

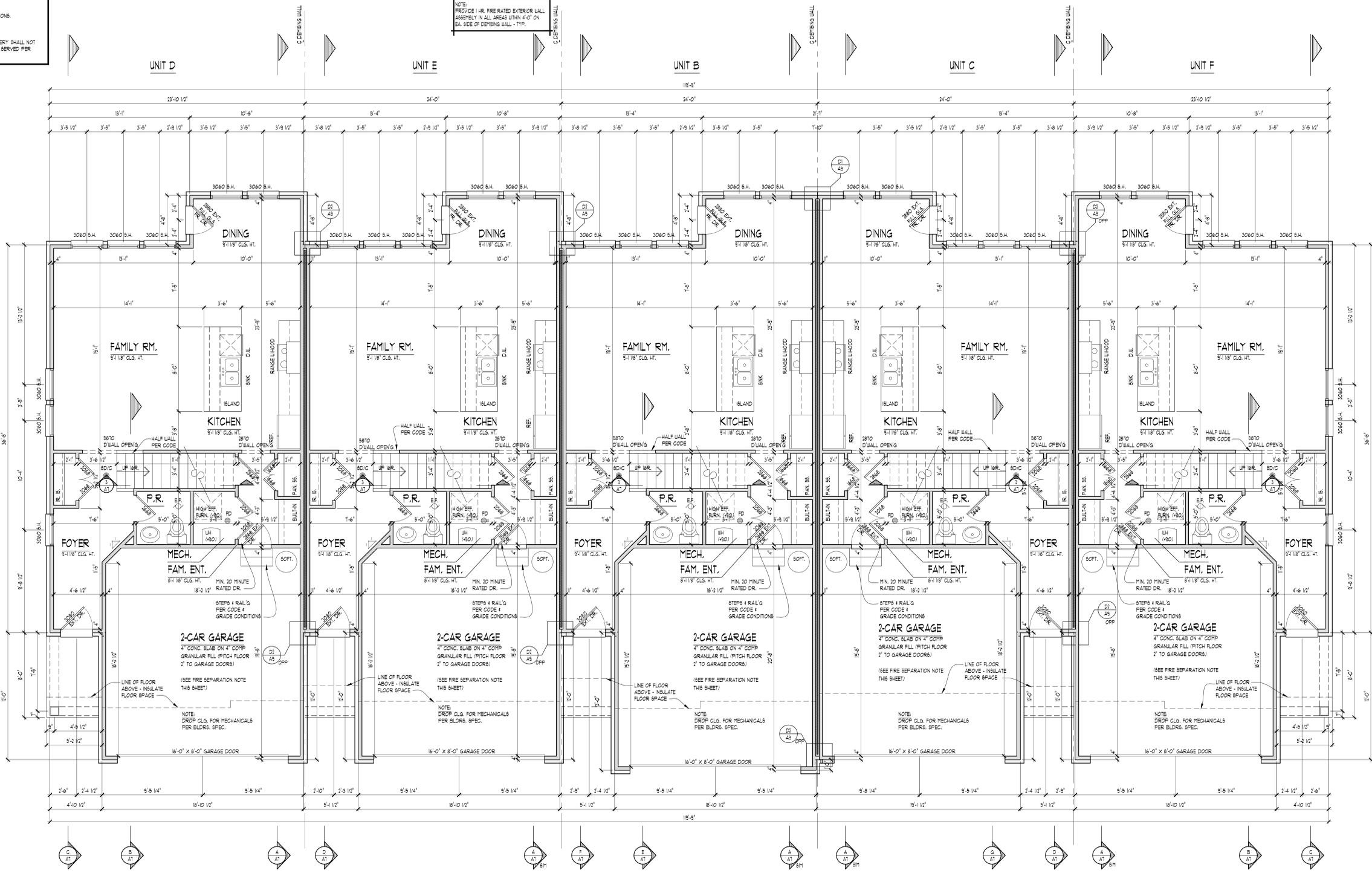
NOTE:
PROVIDE MIN. (1) JACK STUD & (1) KING STUD AT EACH END OF ALL HEADERS (UNLESS NOTED OTHERWISE).

NOTE:
DOOR & WINDOW LOCATIONS:
ALL DOORS & WINDOWS ARE ASSUMED TO BE EITHER IN THE CENTER OF THE WALL, HABS OR MIN. 4" INCHES FROM PERPENDICULAR WALL FOR CASING UNLESS NOTED OTHERWISE.

NOTE:
PROVIDE MIN. (1) JOIST OR LADDER FRAMING UNDER ALL UPPER FLOOR PARALLEL PARTITIONS.

NOTE:
PROVIDE 1 HR. FIRE RATED EXTERIOR WALL ASSEMBLY IN ALL AREAS WITH 4'-0" OR ON EA. SIDE OF DEMISING WALL - TYP.

NOTE:
DROP CLG. FINISH PER BUILDER'S SPEC.



FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

NOTE:
DROP CLG. TO 8'-0" IN FAMILY ENTRY & MECH. RM. (STAIRS ABOVE)



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CLIENT / PROJECT
ROBERTSON HOMES
TROY GOODMAN
MULTI-FAMILY
5 UNIT

JOB No.: WO 2331-21
DRAWN: AG
CHECKED: BF
REVIEW: 11-1-21
FINAL: 12-6-21
R VALUE REV. 1-2-22

SCALE:
PER PLAN

SHEET #
A-2

PLAN NOTES

INTERIOR WALLS:
1/2" GYPSUM WALL BOARD ON EACH SIDE OF 2x4 WOOD STUDS @ 16" O.C. 3 1/2" THICK TYPICAL (UNLESS NOTED OTHERWISE). ALL DIMENSION TAKEN FROM STUD EDGES.

EXTERIOR WALLS:
SIDING WITH AIRSPACE, MOISTURE BARRIER PAPER (HOUSE WRAP) ON 1/8" O.S.B. SHEATHING ON 2x4 WOOD STUDS @ 16" O.C. OR AS NOTED. MIN. R-9 WALL CONSTRUCTION. 1/2" GYPSUM WALL BOARD (SEE 4. EGRESS) WALL TO BE 4" THICK WITH SIDING (TYPICAL UNLESS NOTED OTHERWISE). ALL DIMENSION TAKEN FROM FRAMING (FLOOR PLANS) OR FOUNDATION CORNERS (FOUNDATION PLAN).

1. OPENINGS BETWEEN THE GARAGE AND RESIDENCE SHALL BE EQUIPPED WITH 20-MINUTE FIRE RATED DOORS (OR EQUIVALENT PER 2019 IRC SECTION R302.5.1).
2. VENT ALL EXHAUST FANS TO EXTERIOR.
3. WHEN POSSIBLE DIRECT ALL FLUES AND VENTS THAT PENETRATE ROOF BEHIND MAIN RIDGE.
4. INSTALL WATER SUPPLY AND DRAIN BOX (GREY BOX) AT WASHING MACHINE LOCATION.
5. USE MOISTURE RESISTANT DRYWALL AT ALL AREAS SUSCEPTIBLE TO MOISTURE.
6. ALL FIRST FLOOR INTERIOR DOORS TO BE FRAMED 8'-0" TALL. ALL SECOND FLOOR INTERIOR DOORS TO BE FRAMED 6'-8" UNLESS NOTED OTHERWISE. VERIFY W/ BUILDER.
7. PROVIDE GUARDRAIL AT STAIRS DURING CONSTRUCTION.
8. PROVIDE SQUASH BLOCKS UNDER ALL BEARING CONDITIONS.
9. GARAGE WALLS TO BE 2x6 STUDS IF OVER 10'-0" TALL.
10. PIPING INSTALLED DOWNSTREAM OF THE POINT OF DELIVERY SHALL NOT EXTEND THROUGH ANY TOWNHOUSE UNIT OTHER THAN UNIT SERVED PER SECTION 5.4.3.

NOTE:
PROVIDE MIN. (2) 2" X 4" HEADER AT ALL INTERIOR & EXTERIOR DOOR & WINDOW OPENINGS (UNLESS NOTED OTHERWISE).

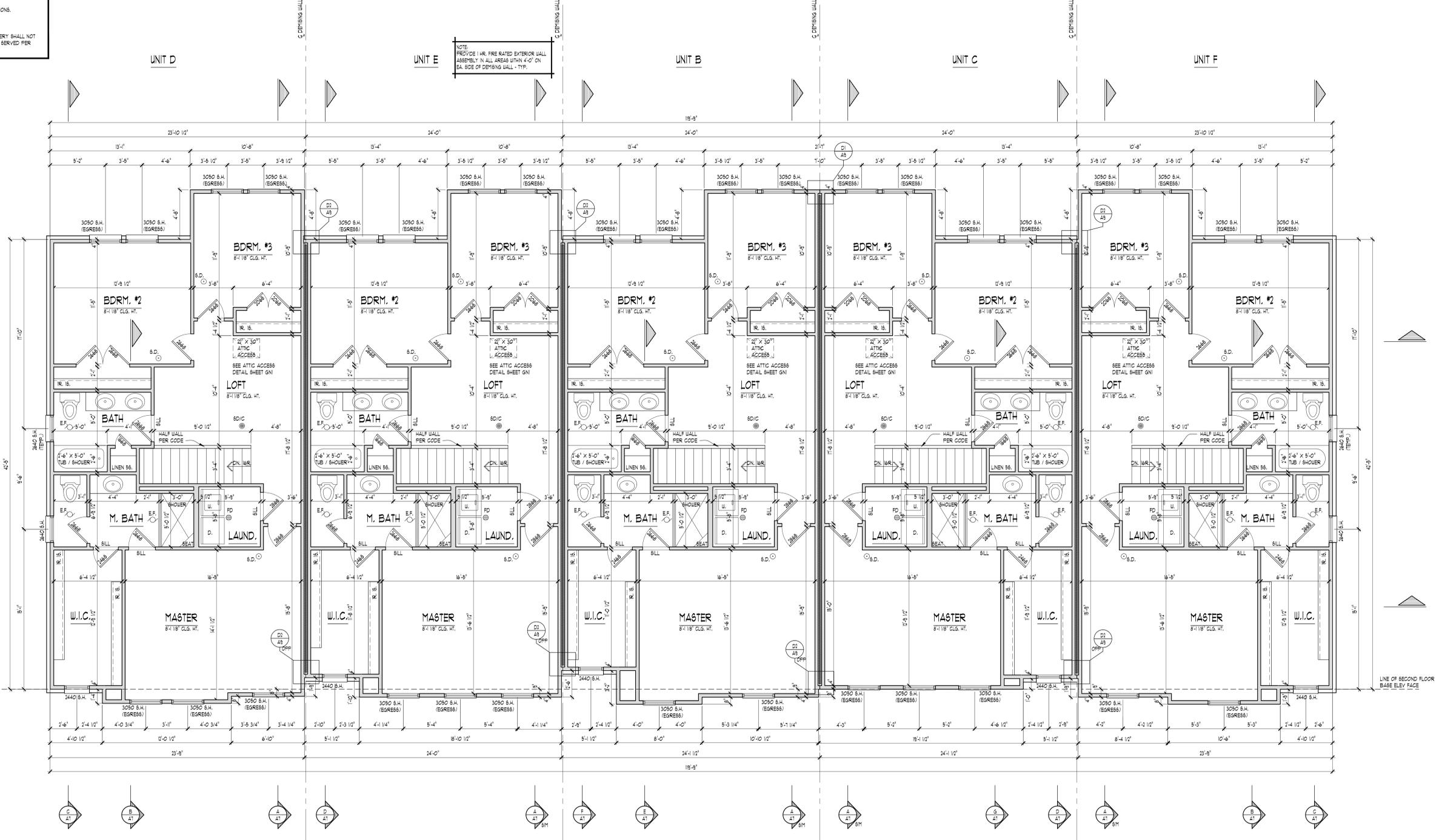
NOTE:
PROVIDE MIN. (1) JACK STUD & (1) KING STUD AT EACH END OF ALL HEADERS (UNLESS NOTED OTHERWISE).

NOTE:
PROVIDE MIN. (1) JOIST OR LADDER FRAMING UNDER ALL UPPER FLOOR PARALLEL PARTITIONS.

NOTE:
S.D. ○
S.D./C. ●

NOTE:
ALL SPOKE & CARBON MONOXIDE DETECTORS INTERCONNECTED W/ BATTERY BACK-UP PER CODE.

FIRE SEPARATION NOTE
FIRE SEPARATION (R302.6)
GARAGE SPACE BENEATH HABITABLE ROOMS SHALL BE SEPARATED FROM ALL HABITABLE ROOMS ABOVE BY NOT LESS THAN 5/8-INCH TYPE X GYPSUM BOARD OR EQUIVALENT. WHERE THE SEPARATION IS A FLOOR-CEILING ASSEMBLY, THE STRUCTURE SUPPORTING THE SEPARATION SHALL ALSO BE PROTECTED BY NOT LESS THAN 1/2-INCH GYPSUM BOARD OR EQUIVALENT. ALL OTHER GARAGE SPACE SHALL BE SEPARATED FROM THE RESIDENCE AND ITS ATTIC AREA BY NOT LESS THAN 1/2-INCH GYPSUM BOARD APPLIED TO THE GARAGE SIDE. (PROF. C.G.S. UNDER P.L.R. ABV. (ENCLOSE MECHANICAL AND STRUCTURAL ELEMENTS) VERIFY W/ BLDG.



SECOND FLOOR PLAN
SCALE: 1/4" = 1'-0"

TK DESIGN
CREATIVE COLLABORATIVE

WWW.TKHOMEDESIGN.COM
26030 PONTIAC TRAIL
SOUTH LYON, MI 48178
PHONE: (248)-446-1900
FAX: (248)-446-1901

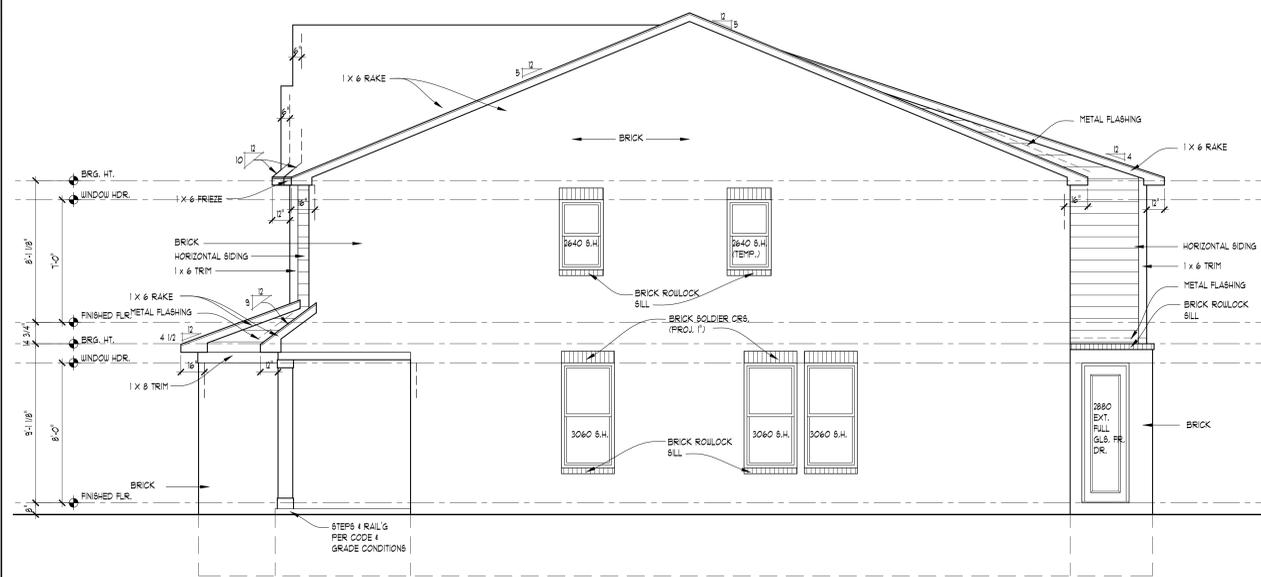
COPYRIGHT 2019 DESIGN AND ASSOCIATES
DO NOT SCALE DRAWINGS. USE CALCULATED DIMENSIONS ONLY.
CONTRACTOR TO VERIFY ALL DIMENSIONS. BEFORE CONSTRUCTION, USE DIMENSIONS AND DESIGN CHANGES THAT ARE REPORTED TO THE DESIGNER WITHIN 48 HOURS OF THE CALL AND DO NOT MAKE ANY CHANGES TO ANY DIMENSIONS OR CONSTRUCTION TO THE EXISTING OR NEW CONSTRUCTION.

CLIENT / PROJECT
ROBERTSON HOMES
TROTT GOODMAN
MULTI-FAMILY
5 UNIT

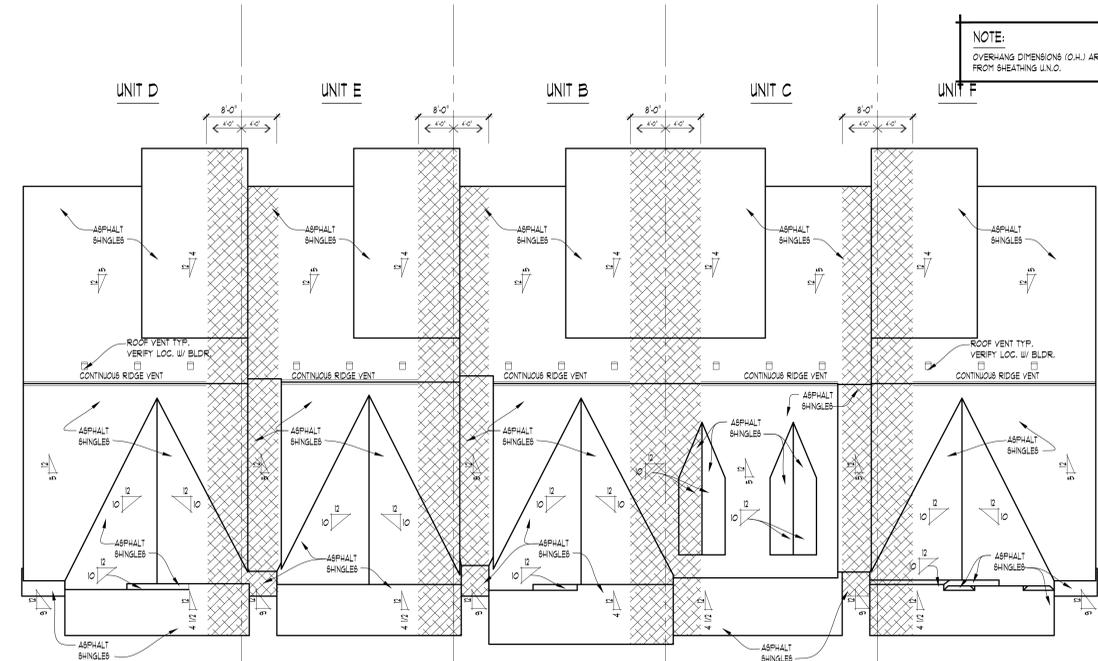
JOB No. WO 2331-21
DRAWN: AG
CHECKED: BF
REVIEW: 11-1-21
FINAL: 12-6-21
R VALUE REV. 1-2-22

SCALE:
PER PLAN

SHEET #
A-3

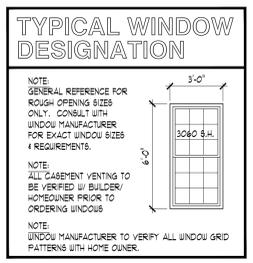


RIGHT ELEVATION
SCALE: 1/4" = 1'-0"



ROOF PLAN
SCALE: 1/8" = 1'-0"

- ELEVATION NOTES**
- ALL ROOF SADDLES TO BE O.S.B. SHEATHED WITH ICE & WATER SHIELD AND SHINGLES.
 - PROVIDE ICE & WATER SHIELD MIN. 6'-0" COVERAGE AT ALL VALLEYS.
 - FIREPLACE FLUE TO BE DETERMINED PER MANUFACTURER'S SPECIFICATION.
 - METAL FLASHING AS REQUIRED BY CODE.
 - ROOF & SOFFIT VENTS AS REQUIRED BY CODE.
 - PROVIDE GUTTERS & DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE LOCATED SO THAT THE DISCHARGE WILL NOT SPILL ON OR FLOW ACROSS ANY PORCHES, WALKS OR DRIVES.
 - CARPENTER TO VERIFY THICKNESS OF MASONRY PRIOR TO BUILDING BRICK RACK.



NOTE:
OVERHANG DIMENSIONS (O.A.) ARE FROM SHEATHING U.N.O.

NOTE:
ALL WINDOW SILLS OVER 6'-0" ABOVE EXTERIOR GRADE OR SURFACE SHALL TO BE MINIMUM 1/4" ABOVE FINISHED FLOOR OR HAVE 8MM LITERS PER CODE REQUIREMENTS.

ATTIC VENTILATION CALCULATIONS:

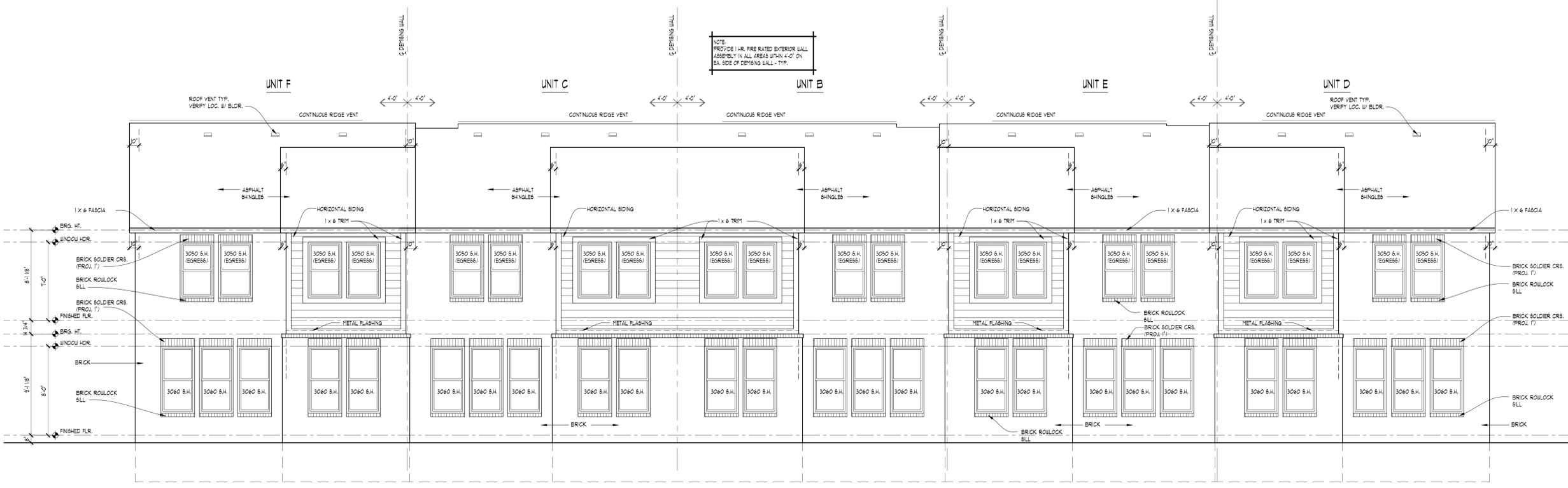
AREA OF ATTIC OVER HEATED SPACE = 5047 SQ. FT.
 5047/80 = 63.09 (SQ. FT. REQ'D)
 34.5 X 144 = 5028 (SQ. INCH CONVERSION)
 RIDGE VENTING:
 8026" X 0.45" = 3612" (SQ. INCHES REQ'D)
 2867" / 8" = 358" (LINEAR FT. OF RIDGE VENT REQ'D)
 EAVE OR CORNICE VENTING:
 8026" X 0.35" = 2809" (SQ. INCHES REQ'D)

UNVENTILATED RIDGE:
 16" - 8" (AVAIL. RIDGE) = 8" (UNVENTILATED RIDGE)
 38" X 18" = 684" (REMAINING SQ. INCHES)
 102" / 80" = 1.275 (ROOF VENTS REQ'D)

NOTE:
PROVIDE 1 HR. FIRE RATED EXTERIOR WALL ASSEMBLY IN ALL AREAS WITHIN 4'-0" ON EA. SIDE OF DEPRESSING WALL - TYP.

NOTE:
DO NOT INSTALL ANY ROOF VENTILATION WITHIN 8'-0" OF DIMENSION WALL-FIRE RATED SHEATHING.

NOTE:
DO NOT INSTALL ANY SOFFIT VENTILATION WITHIN 4'-0" OF EA. SIDE OF DIMENSION WALL.



REAR ELEVATION
SCALE: 1/2" = 1'-0"



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 FAX: (248)-446-1961

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 CONTRACTOR TO VERIFY ALL DRAWING DIMENSIONS AND
 CONSTRUCTION. USE DIMENSIONS AND DESIGN CHANGES THAT ARE
 REFERRED TO IN THE DRAWINGS AND WHEN AVAILABLE, CALL AND
 CALL AND SEE ALL DIMENSIONS 10' 3" DATE PRIOR TO ANY CONSTRUCTION.
 CONTRACTOR TO BE SOLE RESPONSIBLE FOR THE INFORMATION.

CLIENT / PROJECT
 ROBERTSON HOMES
 BROTHERS HOMES
 TROY GOODMAN
 MULTI-FAMILY
 5 UNIT

JOB No. WO 2331-21
 DRAWN: BF
 CHECKED: BF
 REVIEW: 11-1-21
 FINAL: 12-6-21
 R VALUE REV. 1-2-22

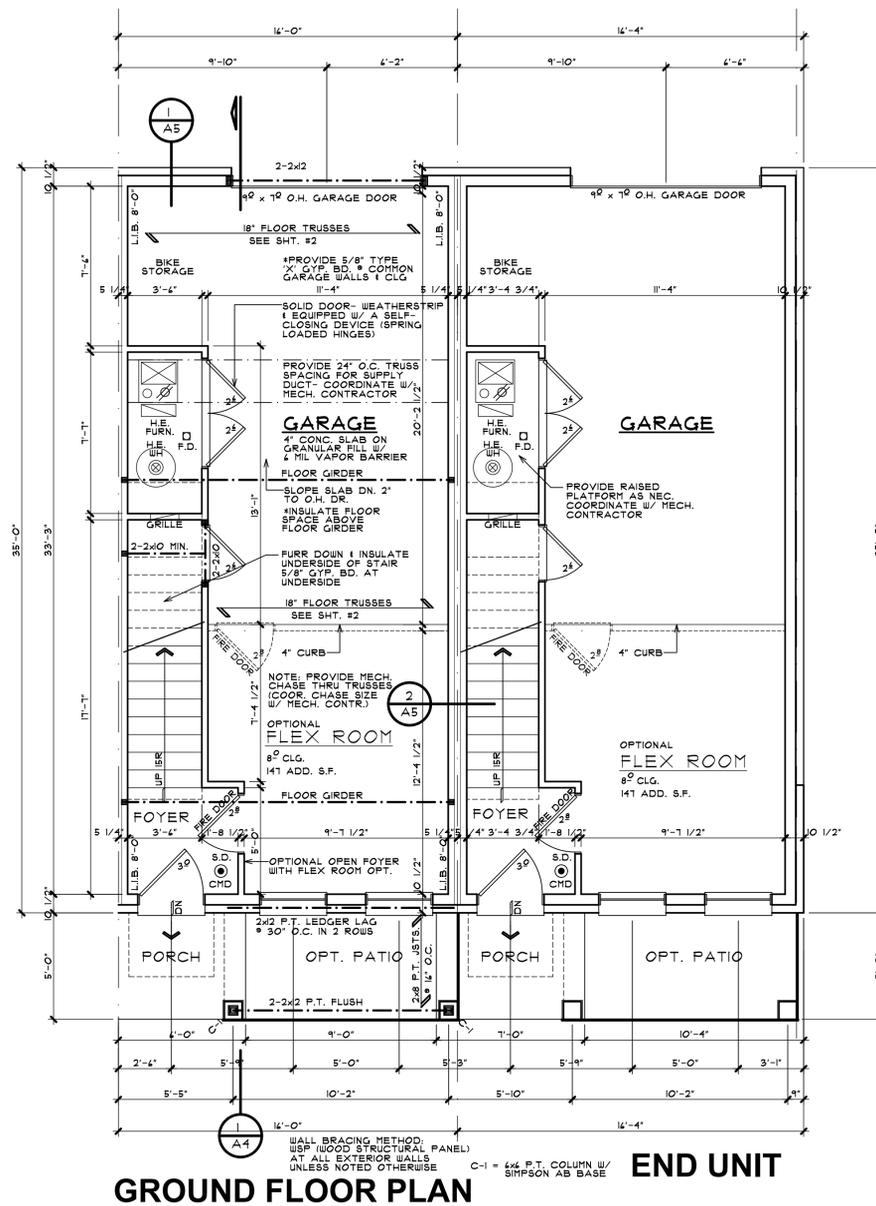
SCALE:
 PER PLAN

SHEET #
 A-5



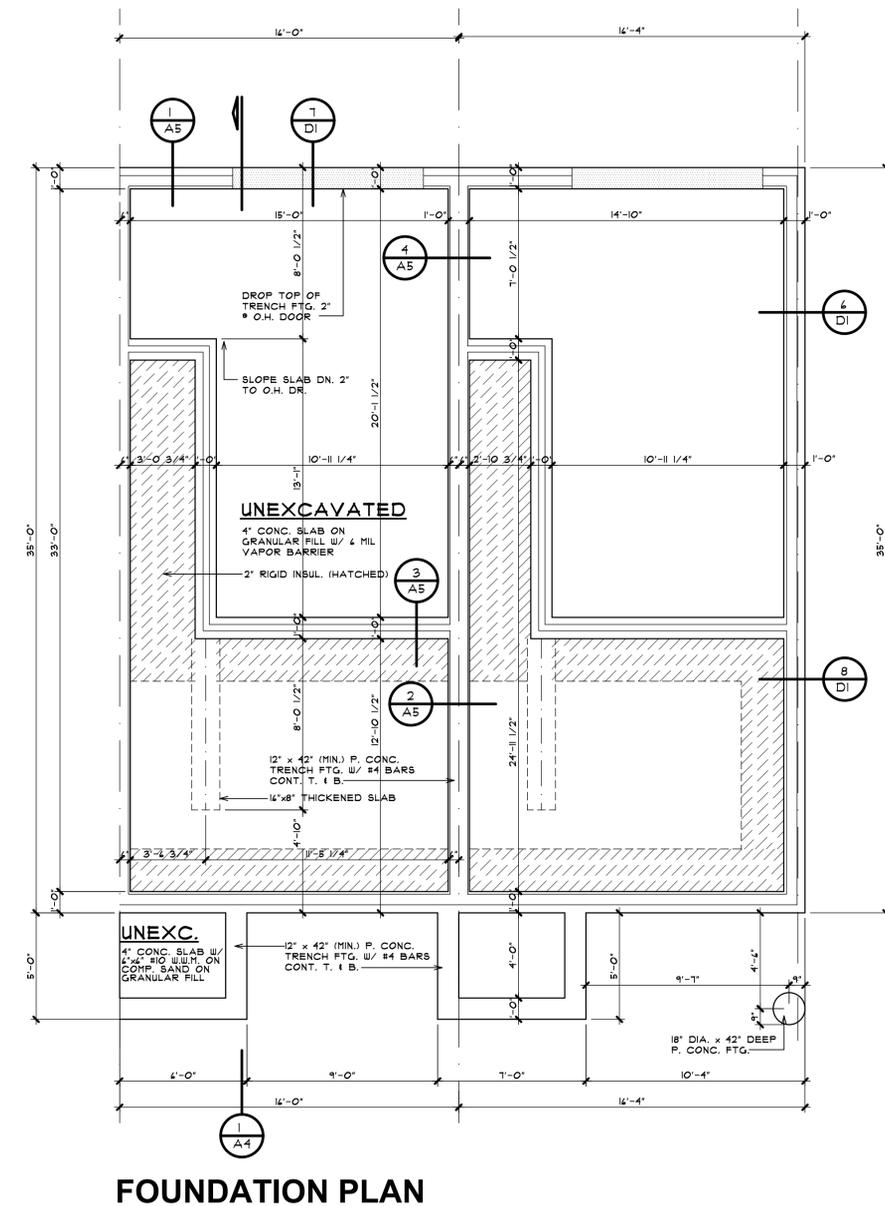
STRUCTURAL NOTES:

- (2) 2x8 HEADERS TO BEAR ON (1) ONE JACK STUD UNLESS NOTED OTHERWISE.
- (2) 2x10 LARGER HEADERS TO BEAR ON (2) TWO JACK STUDS UNLESS NOTED OTHERWISE.
- ALL PRE-ENGINEERED HEADERS FRAMED PERPENDICULAR TO WALL LINE SHALL BEAR ON REQUIRED NUMBER OF STUDS TO MATCH WIDTH OF HEADER MATERIAL.
- ALL PRE-ENGINEERED HEADERS FRAMED PARALLEL TO WALL LINE SHALL BEAR ON A MINIMUM (2) TWO JACK STUDS UNLESS NOTED OTHERWISE.
- ALL PRE-ENGINEERED LUMBER HEADERS SHALL BE BUILT-UP FROM THE NUMBER OF HEADERS INDICATED ON DRAWINGS. ALL MEMBERS SHALL BE SECURED WITH NAILS OR BOLTS AS SPECIFIED BY THE MANUFACTURER FOR SIZES INDICATED.
- ALL GIRDER TRUSSES TO BEAR ON (2) TWO STUDS MINIMUM OR AS REQUIRED TO MATCH NUMBER OF TRUSS PLYS, WHICH EVER IS GREATER.
- TRUSS FABRICATOR/CONTRACTOR TO PROVIDE ALL HANGERS W/ MODEL No. CLEARLY STAMPED I LAYOUT DRAWINGS CLEARLY INDICATING LOCATION OF VARIOUS HANGERS REQUIRED.
- CARPENTER CONTRACTOR TO INSTALL NAIL SIZES I NUMBER REQ'D. AS SPECIFIED FOR EACH TYPE OF HANGER.
- LVL DESIGN VALUES FOR MODULUS OF ELASTICITY (E) SHALL BE 2,000,000 PSI (2.0 E)



GROUND FLOOR PLAN END UNIT

STANDARD INTERIOR LAYOUT SCALE: 1/4" = 1'-0"



FOUNDATION PLAN

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

PRELIMINARY	6-18-20
BIDS	
PERMITS	
FINAL	
REVISIONS	

STRUCTURAL NOTES:

(2) 2x8 HEADERS TO BEAR ON (1) ONE JACK STUD UNLESS NOTED OTHERWISE.

(2) 2x10 (LARGER HEADERS TO BEAR ON (2) TWO JACK STUDS UNLESS NOTED OTHERWISE.

ALL PRE-ENGINEERED HEADERS FRAMED PERPENDICULAR TO WALL LINE SHALL BEAR ON REQUIRED NUMBER OF STUDS TO MATCH WIDTH OF HEADER MATERIAL.

ALL PRE-ENGINEERED HEADERS FRAMED PARALLEL TO WALL LINE SHALL BEAR ON A MINIMUM (2) TWO JACK STUDS UNLESS NOTED OTHERWISE.

ALL PRE-ENGINEERED LUMBER HEADERS SHALL BE BUILT-UP FROM THE NUMBER OF HEADERS INDICATED ON DRAWINGS. ALL MEMBERS SHALL BE SECURED WITH NAILS OR BOLTS AS SPECIFIED BY THE MANUFACTURER FOR SIZES INDICATED.

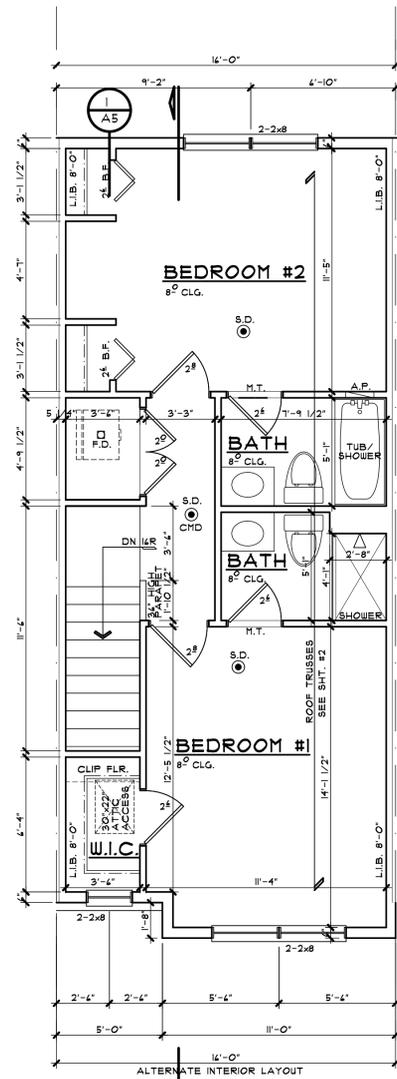
ALL GIRDER TRUSSES TO BEAR ON (2) TWO STUDS MINIMUM OR AS REQUIRED TO MATCH NUMBER OF TRUSS PLYS, WHICH EVER IS GREATER.

TRUSS FABRICATOR/CONTRACTOR TO PROVIDE ALL HANGERS W/ MODEL No. CLEARLY STAMPED I LAYOUT DRAWINGS CLEARLY INDICATING LOCATION OF VARIOUS HANGERS REQUIRED.

CARPENTER CONTRACTOR TO INSTALL NAIL SIZES I NUMBER REQ'D. AS SPECIFIED FOR EACH TYPE OF HANGER.

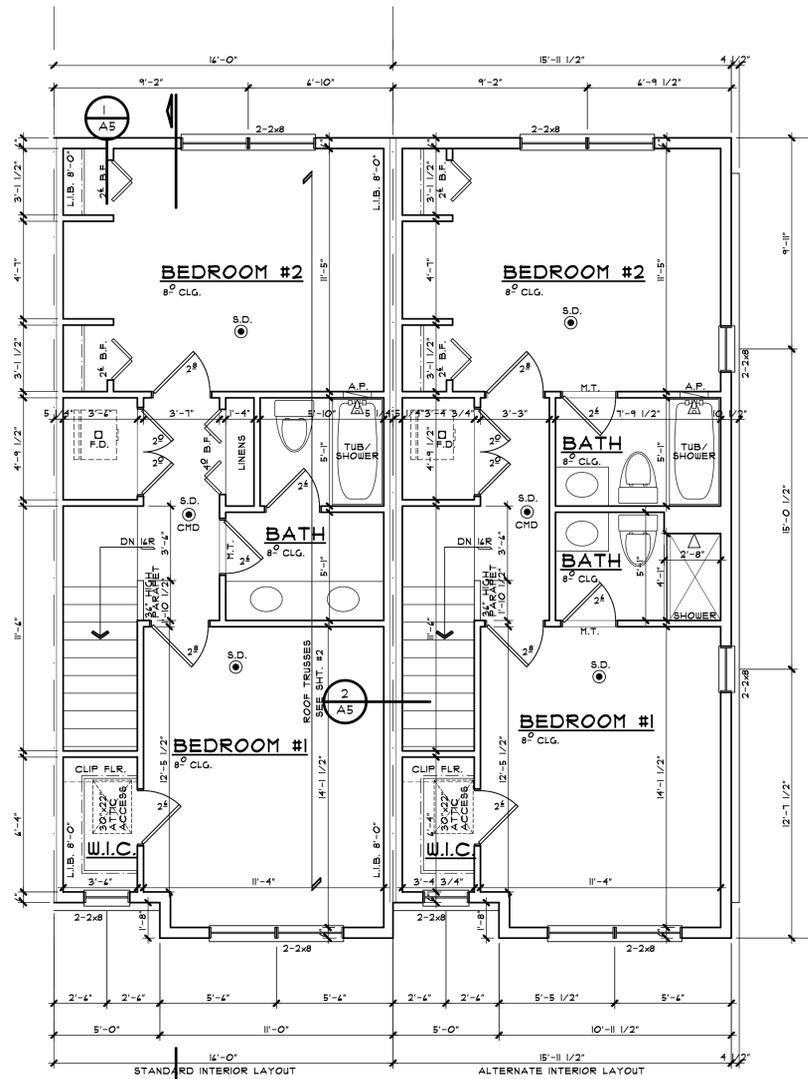
LVL DESIGN VALUES FOR MODULUS OF ELASTICITY (E) SHALL BE 2,000,000 PSI (2.0 E)

SQUARE FOOTAGE	
LOWER LEVEL	35 SQ FT
1ST FLOOR	548 SQ FT
2ND FLOOR	601 SQ FT
TOTAL	1,184 SQ FT
OPT. FLEX RM	141 SQ FT
TOTAL W/ OPT.	1,331 SQ FT



SECOND FLOOR PLAN

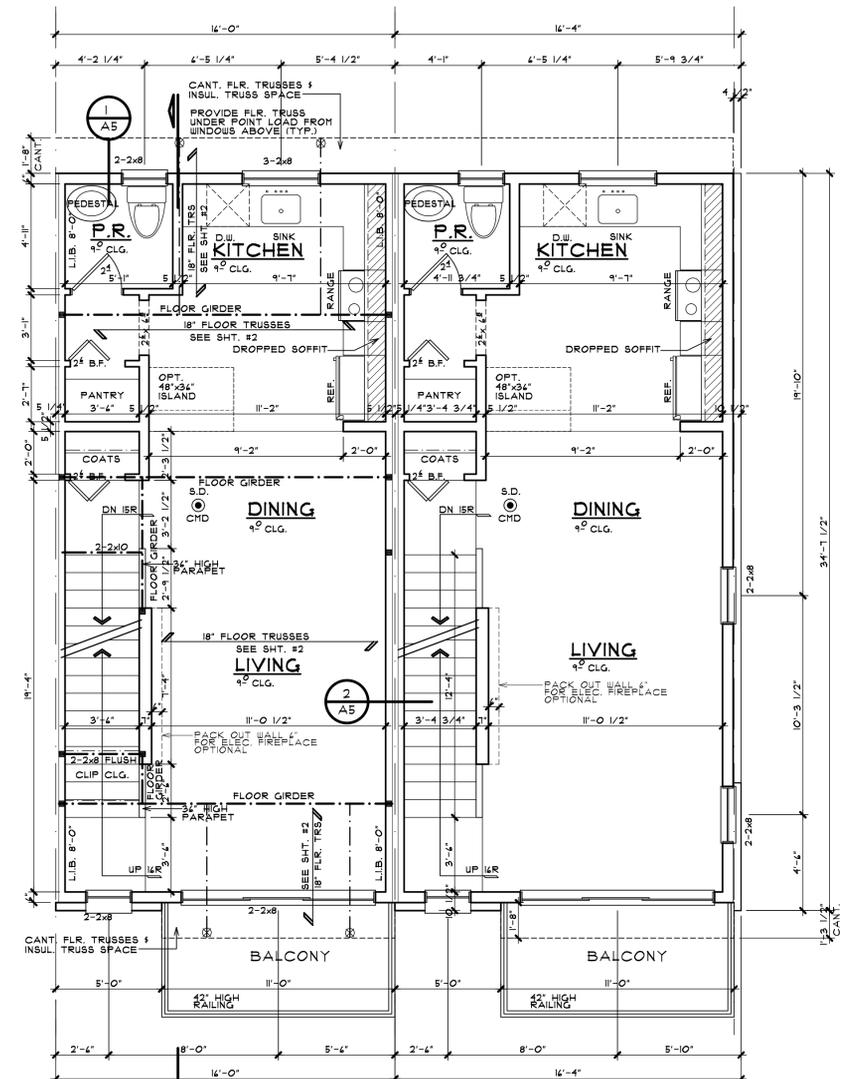
SCALE: 1/4" = 1'-0"



SECOND FLOOR PLAN

END UNIT

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



FIRST FLOOR PLAN

END UNIT

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



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SHEET TITLE
UNIT PLANS
 PRELIMINARY

CLIENT / PROJECT
ROBERTSON HOMES
 HUDSON TOWNS
 16' TOWNHOME UNITS
 SOUTH LYON, MICHIGAN

PRELIMINARY
 BIDS 6-18-20
 PERMITS
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SHEET NUMBER
A-2

WINDOW SILLS

IN DUELLING UNITS, WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 12" ABOVE FINISHED GRADE OR SURFACE BELOW THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24 INCHES ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED. GLAZING BETWEEN THE FLOOR AND 24" SHALL BE FIXED OR HAVE OPENINGS THROUGH WHICH A 4 INCH DIAMETER SPHERE CANNOT PASS. EXCEPTIONS:
 1. WINDOWS WHOSE OPENINGS WILL NOT ALLOW A 4" DIA. SPHERE TO PASS THROUGH THE OPENING WHERE THE OPENING IS IN ITS LARGEST OPENED POSITION.
 2. OPENINGS THAT ARE PROVIDED WITH WINDOW GUARDS THAT COMPLY WITH ASTM F 2004 OR F 2010.

OVERHANGS & DRAINAGE

PROVIDE GUTTERS & DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE LOCATED SO THAT THE DISCHARGE IS CONNECTED TO AN UNDERGROUND STORM DRAINAGE SYSTEM PER SITE ENGINEER.
 UNLESS NOTED OTHERWISE OVERHANG DIMENSIONS ARE 12" FROM FRAME. RAKE DIMENSIONS ARE 4" AT BRICK AND 1" AT SIDING.

STEEL LINTEL SCHEDULE

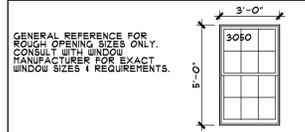
LOOSE STEEL LINTELS FOR MASONRY - EXTERIOR ANGLES FOR BRICK OR STONE (NO FLOOR LOAD)

MAX CLEAR SPAN	LINTEL SIZE
5'-0" OR LESS	3 1/2" x 3 1/2" x 5/16"
7'-0" OR LESS	4" x 3 1/2" x 5/16"
8'-0" OR LESS	5" x 3 1/2" x 5/16"
9'-0" OR LESS	5" x 3 1/2" x 3/8"
10'-0" OR LESS	4" x 3 1/2" x 3/8"

NOTE: THIS SCHEDULE APPLIES UNLESS NOTED OTHERWISE ON THE PLANS AND/OR ELEVATIONS.

NOTE: STEEL ANGLE LINTELS REQUIRE A SHOP COAT OF RUST-INHIBITIVE PAINT EXCEPT FOR LINTELS MADE OF CORROSION-RESISTANT STEEL.

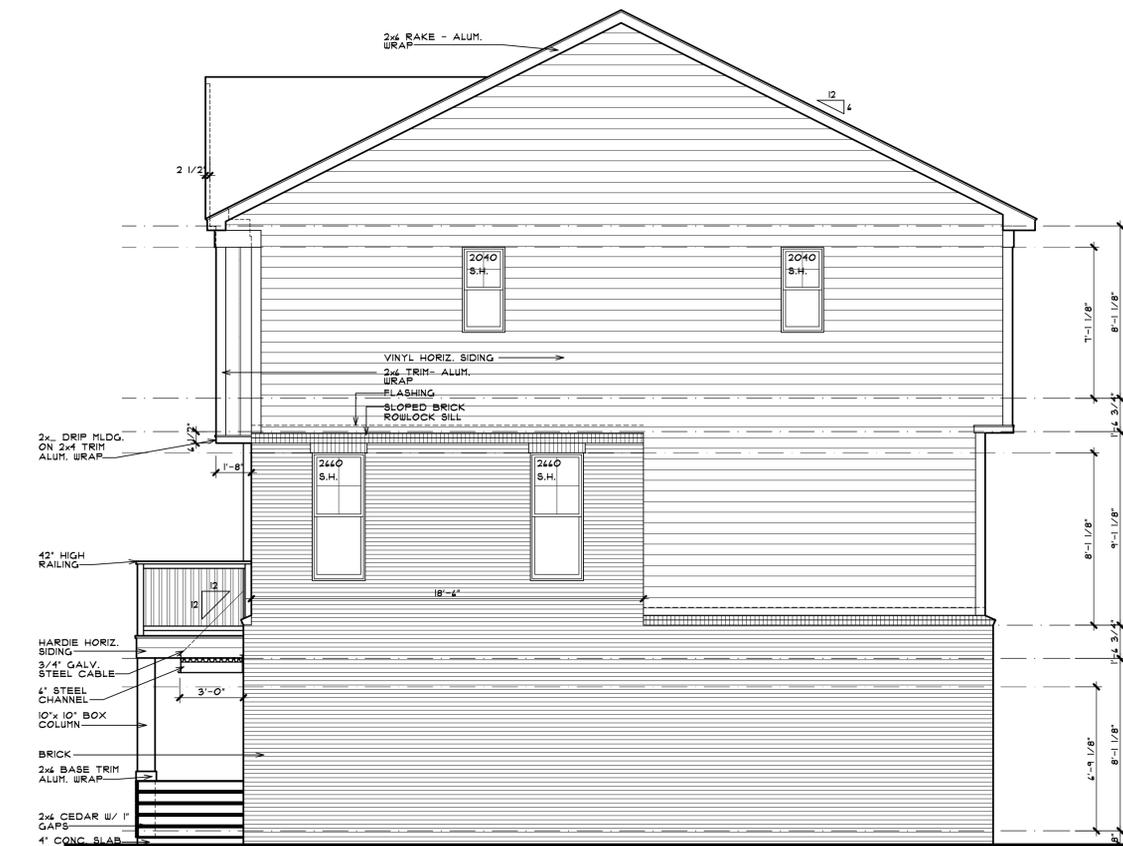
TYP. WINDOW DESIGNATION



GENERAL REFERENCE FOR ROUGH OPENING SIZES ONLY. CONSULT WITH WINDOW MANUFACTURER FOR EXACT WINDOW SIZES & REQUIREMENTS.

EGRESS WINDOW

EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE WINDOW OR EXTERIOR DOOR APPROVED FOR EMERGENCY EGRESS OR RESCUE. THE UNIT(S) MUST BE OPERABLE FROM THE INSIDE TO A FULL CLEAR OPENING WITHOUT THE USE OF SEPARATE TOOLS. WHERE WINDOWS ARE PROVIDED AS A MEANS OF EGRESS, OR RESCUE, THEY SHALL HAVE SILL HEIGHT OF NOT MORE THAN 44 INCHES ABOVE THE FLOOR. ALL EGRESS OR RESCUE WINDOWS FROM SLEEPING ROOMS MUST HAVE A MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24 INCHES AND WIDTH OF 20 INCHES.



NOTE: ALL WOOD TRIM IS TO BE WRAPPED IN ALUMINUM.

RIGHT SIDE ELEVATION

LEFT SIDE ELEVATION - OPPOSITE - SIMILAR

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



NOTE: ALL WOOD TRIM IS TO BE WRAPPED IN ALUMINUM.

ELEVATION 'C'

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



NOTE: ALL WOOD TRIM IS TO BE WRAPPED IN ALUMINUM.

ELEVATION 'B'

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

NOTE: HATCHED AREA INDICATES EITHER NON-COMB. ROOF SHEATHING WITHIN 4'-0" OF THE TENANT SEPARATION WALL OR ONE LAYER OF TYPE 'X' GYP. BD. ATTACHED TO THE UNDERSIDE OF TYP. ROOF SHEATHING WITHIN 4'-0" OF SEPARATION WALL. NO SOFFIT OR ROOF PENETRATIONS ARE ALLOWED IN THIS AREA.

NOTE: ALL WOOD TRIM IS TO BE WRAPPED IN ALUMINUM.

ELEVATION 'A'

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

WINDOW SILLS

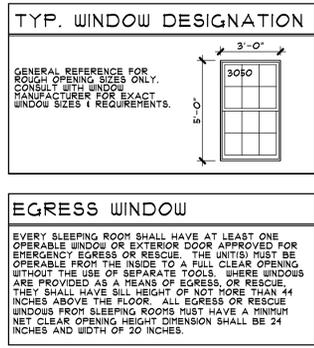
IN DUELLING UNITS, WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 12" ABOVE FINISHED GRADE OR SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24 INCHES ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED. GLAZING BETWEEN THE FLOOR AND 24" SHALL BE FIXED OR HAVE OPENINGS THROUGH WHICH A 4 INCH DIAMETER SPHERE CANNOT PASS. EXCEPTIONS:

1. WINDOWS WHOSE OPENINGS WILL NOT ALLOW A 4" DIA. SPHERE TO PASS THROUGH THE OPENING WHERE THE OPENING IS IN ITS LARGEST OPENED POSITION.
2. OPENINGS THAT ARE PROVIDED WITH WINDOW GUARDS THAT COMPLY WITH ASTM F 2004 OR F 2010.

OVERHANGS & DRAINAGE

PROVIDE GUTTERS & DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE LOCATED SO THAT THE DISCHARGE IS CONNECTED TO AN UNDERGROUND STORM DRAINAGE SYSTEM PER SITE ENGINEER.

UNLESS NOTED OTHERWISE OVERHANG DIMENSIONS ARE 12" FROM FRAME. RAKE DIMENSIONS ARE 4" AT BRICK AND 4" AT SIDING.



STEEL LINTEL SCHEDULE

LOOSE STEEL LINTELS FOR MASONRY - EXTERIOR ANGLES FOR BRICK OR STONE (NO FLOOR LOAD)

MAX CLEAR SPAN	LINTEL SIZE
5'-0" OR LESS	3 1/2" x 3 1/2" x 5/16"
7'-0" OR LESS	4" x 3 1/2" x 5/16"
8'-0" OR LESS	5" x 3 1/2" x 5/16"
9'-0" OR LESS	5" x 3 1/2" x 3/8"
10'-0" OR LESS	4" x 3 1/2" x 3/8"

NOTE: THIS SCHEDULE APPLIES UNLESS NOTED OTHERWISE ON THE PLANS AND/OR ELEVATIONS.

NOTE: STEEL ANGLE LINTELS REQUIRE A SHOP COAT OF RUST-INHIBITIVE PAINT EXCEPT FOR LINTELS MADE OF CORROSION-RESISTANT STEEL.

PROPOSED VENT AREA PER UNIT

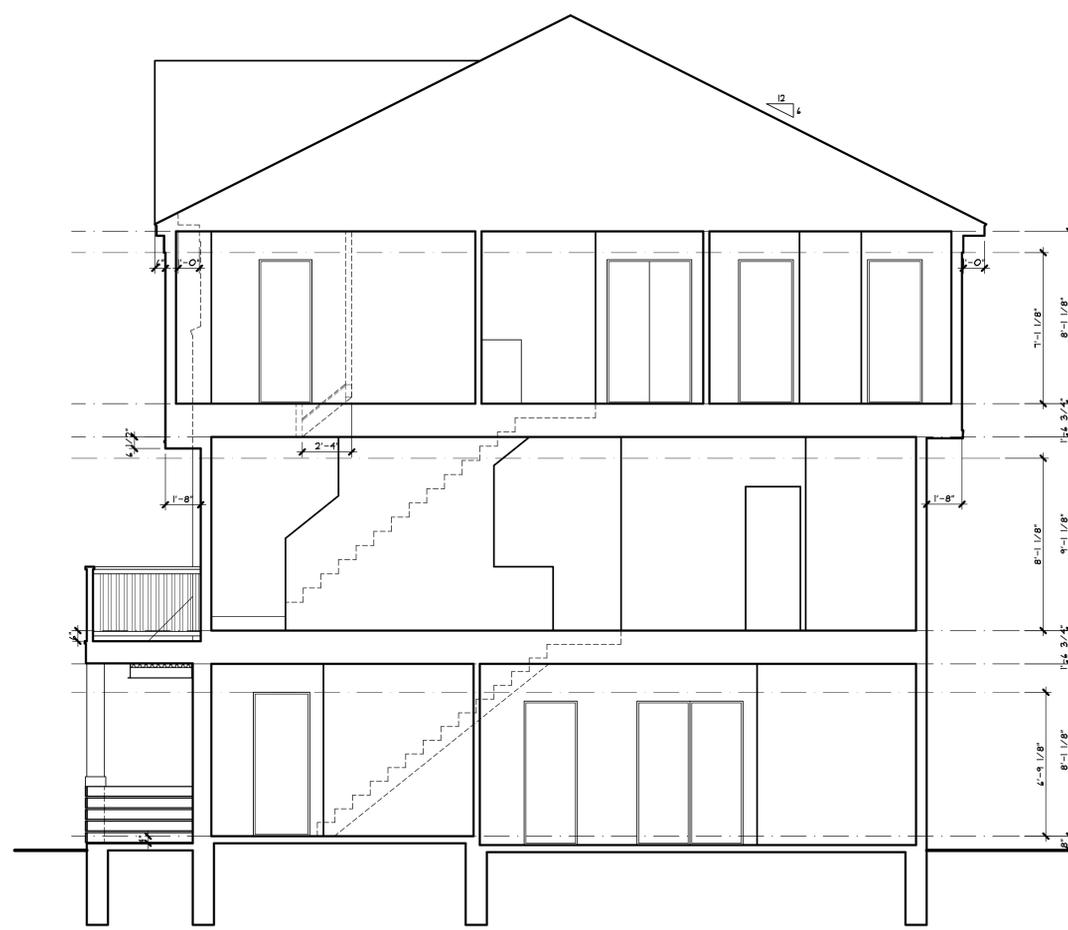
VENT AREA RATIO 1:150
 ATTIC AREA = 401 SQ.FT. (1/150)
 VENT AREA = 4 SQ.FT. x 144 = 576 SQ.IN.
 50% SOFFIT AND 50% RIDGE = 288 SQ.IN. EACH

VENT AREA PROVIDED • RIDGE

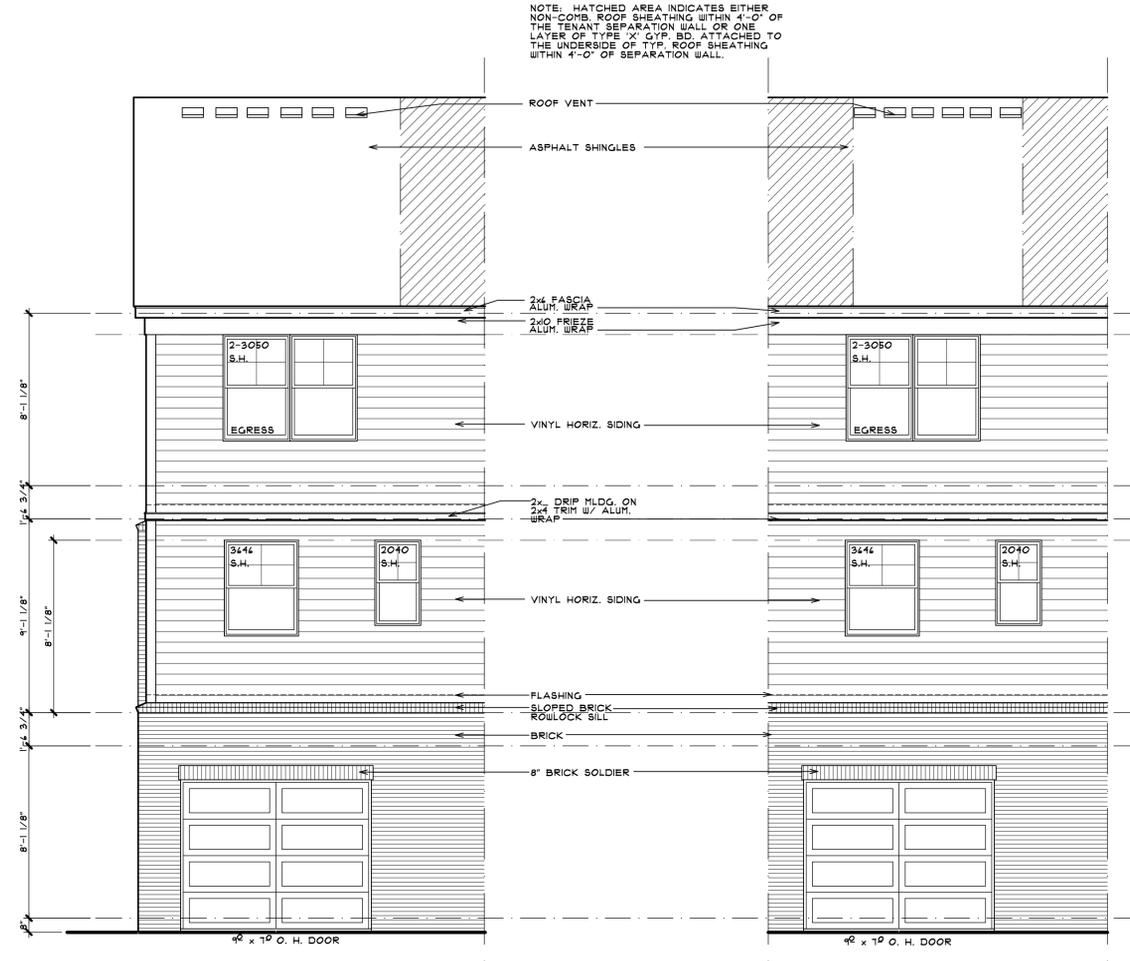
LOUVER AT RIDGE TYPE # 54 SQ.IN. EA. = 4 UNITS
 TOTAL VENTING AT RIDGE = 324 SQ.IN.

VENT AREA PROVIDED • SOFFIT

CONTINUOUS SOFFIT TYPE # 18 SQ.IN. PER FT. = 16 FEET
 TOTAL VENTING AT SOFFIT = 288 SQ.IN.

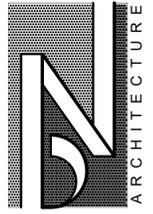


1 BUILDING SECTION
 A4 SCALE: 1/4" = 1'-0"



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

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



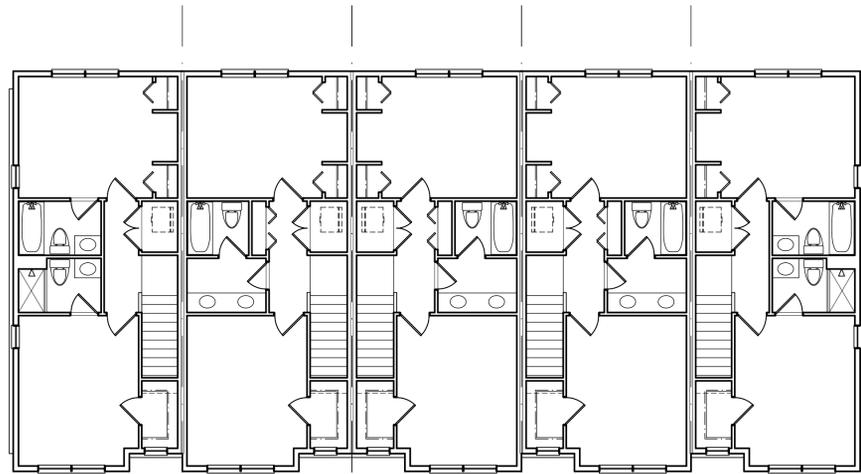
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 BRIANNEPPER.COM
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REAR ELEVATIONS
BUILDING SECTIONS
 PRELIMINARY

ROBERTSON HOMES
 HUDSON TOWNS
 1/6' TOWNHOME UNITS
 SOUTH LYON, MICHIGAN

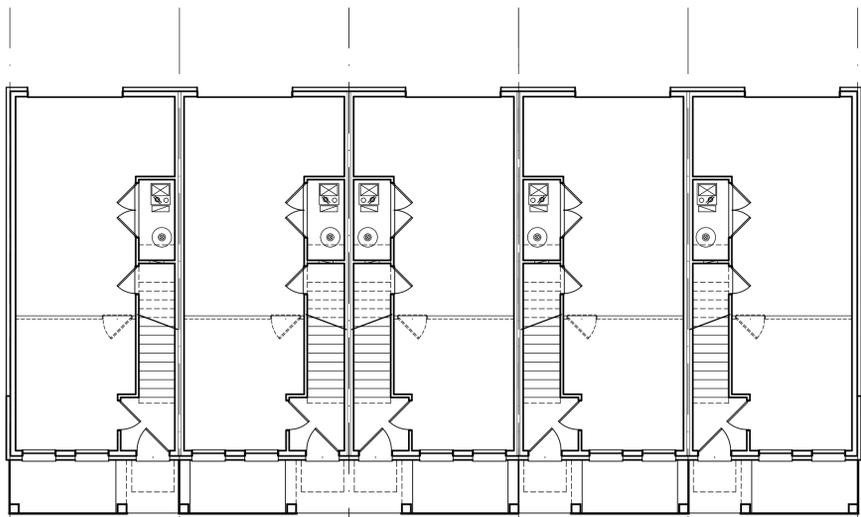
PRELIMINARY	6-18-20
BIDS	
PERMITS	
FINAL	
REVISIONS	
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JOB NUMBER	21038
DRAWN BY	BN / RR
CHECKED BY	
SHEET NUMBER	

A-4



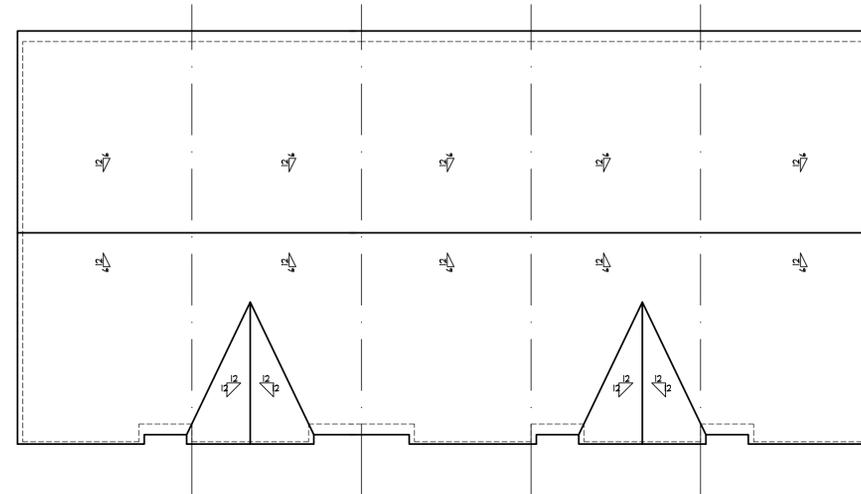
** COORDINATE SECOND FLOOR UNIT LAYOUT OPTIONS WITH DEVELOPER
SECOND FLOOR PLAN
 5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



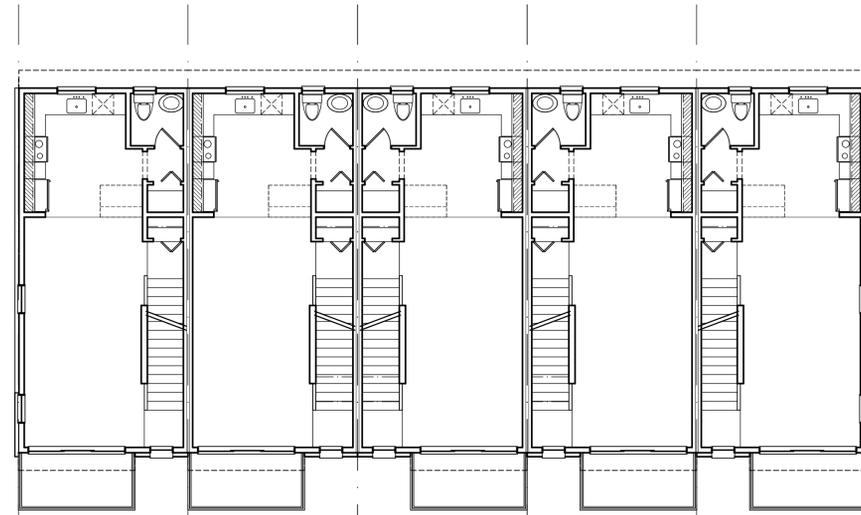
LOWER LEVEL PLAN
 5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



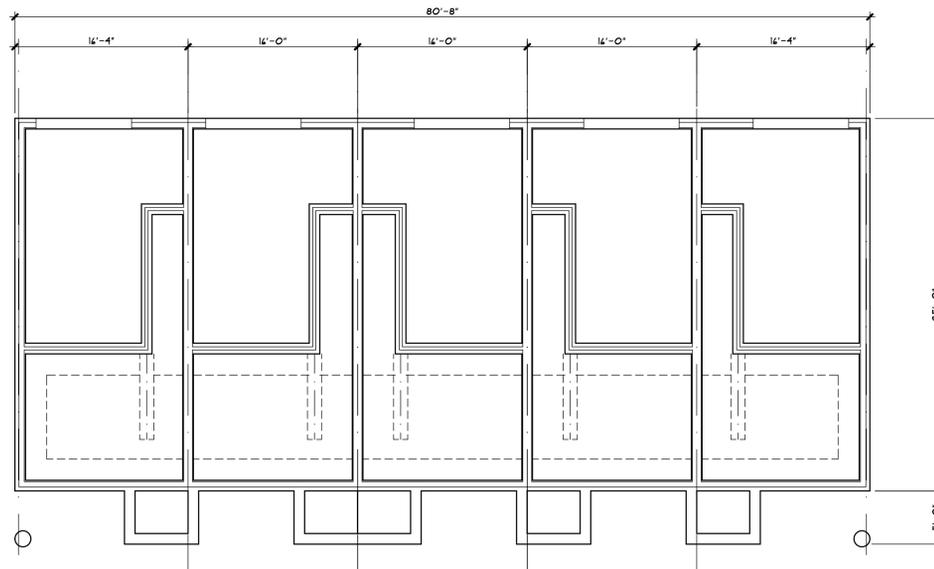
ROOF PLAN
 5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



FIRST FLOOR PLAN
 5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



FOUNDATION PLAN
 5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



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SHEET TITLE
5 UNIT BUILDING
BUILDING PLANS
 PRELIMINARY

CLIENT / PROJECT
ROBERTSON HOMES
 HUDSON TOWNS
 1/6' TOWNHOME UNITS
 SOUTH LYON, MICHIGAN

PRELIMINARY	6-18-20
BIDS	
PERMITS	
FINAL	
REVISIONS	

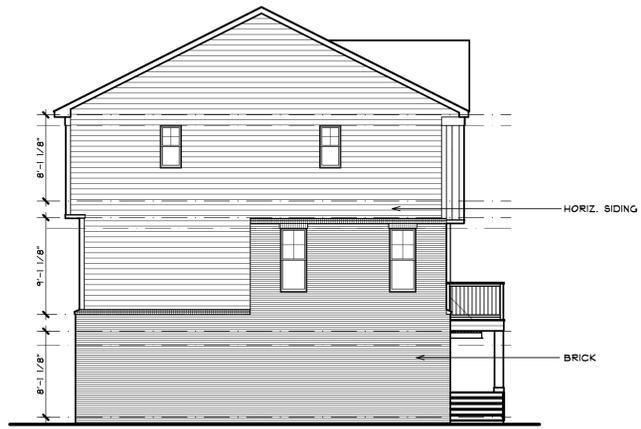
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 BN / RR
 CHECKED BY

SHEET NUMBER
A-6



REAR ELEVATION
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



LEFT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



RIGHT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



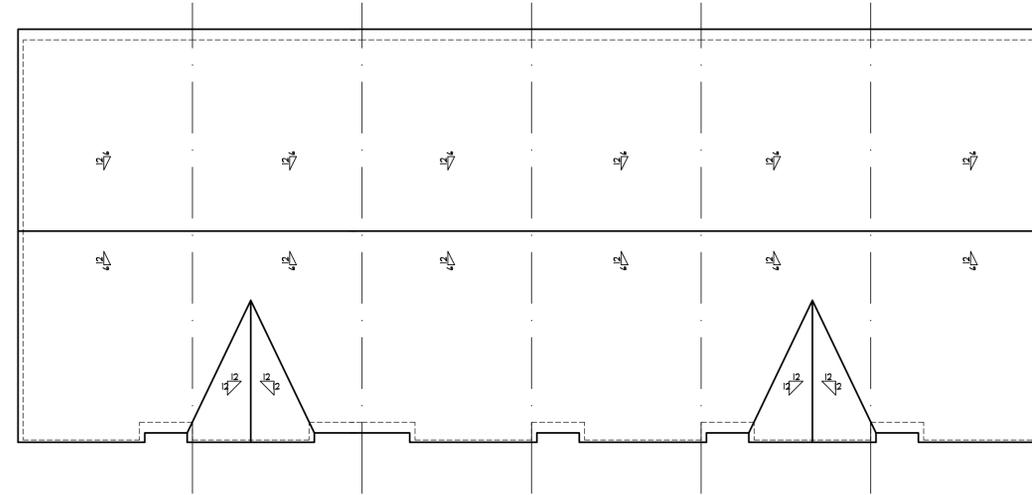
FRONT ELEVATION
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"

SHEET TITLE
5 UNIT BUILDING
BUILDING ELEVATIONS
 PRELIMINARY

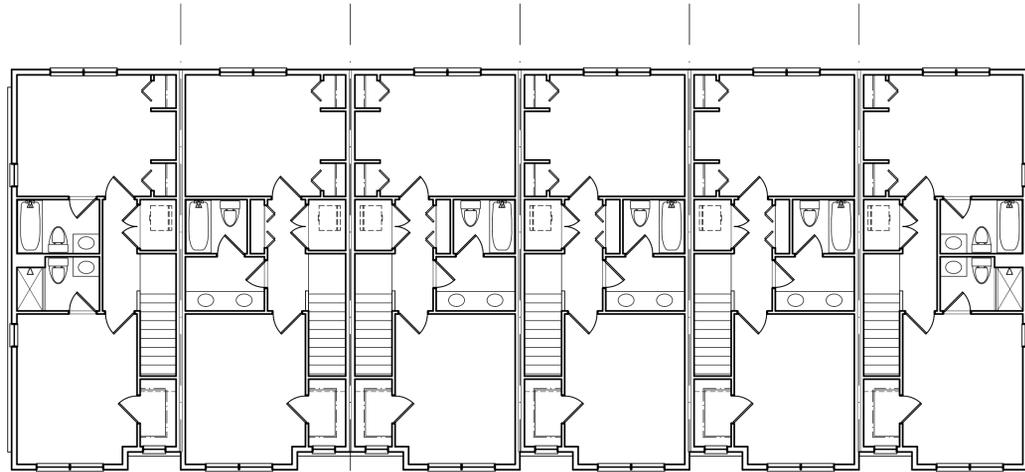
CLIENT / PROJECT
ROBERTSON HOMES
 HUDSON TOWNS
 1/2' TOWNHOME UNITS
 SOUTH LYON, MICHIGAN

PRELIMINARY	6-18-20
BIDS	
PERMITS	
FINAL	
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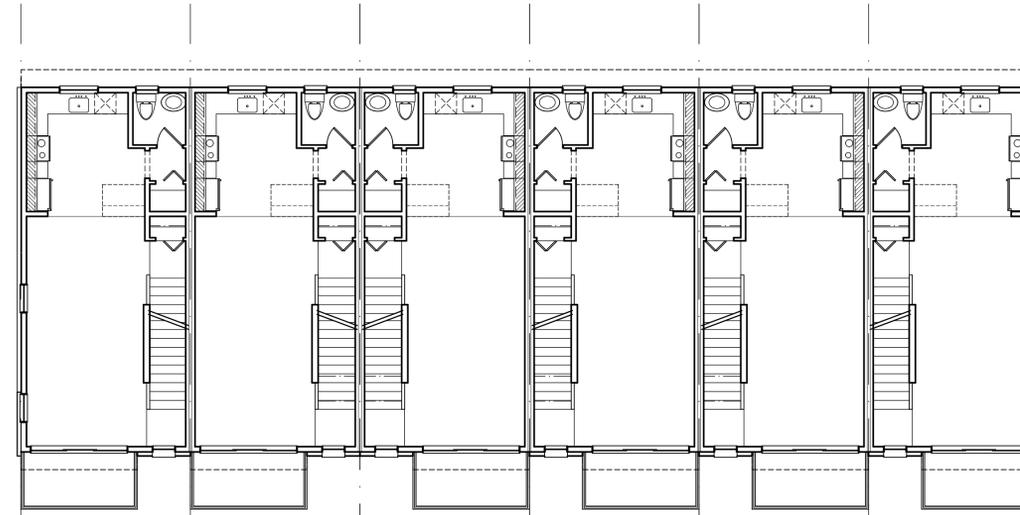
ROOF PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



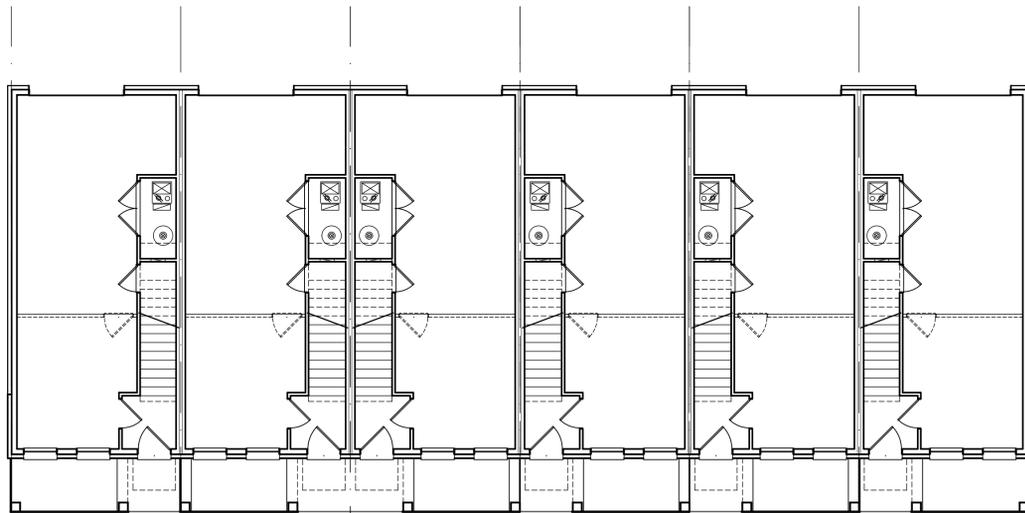
** COORDINATE SECOND FLOOR UNIT LAYOUT OPTIONS WITH DEVELOPER
SECOND FLOOR PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



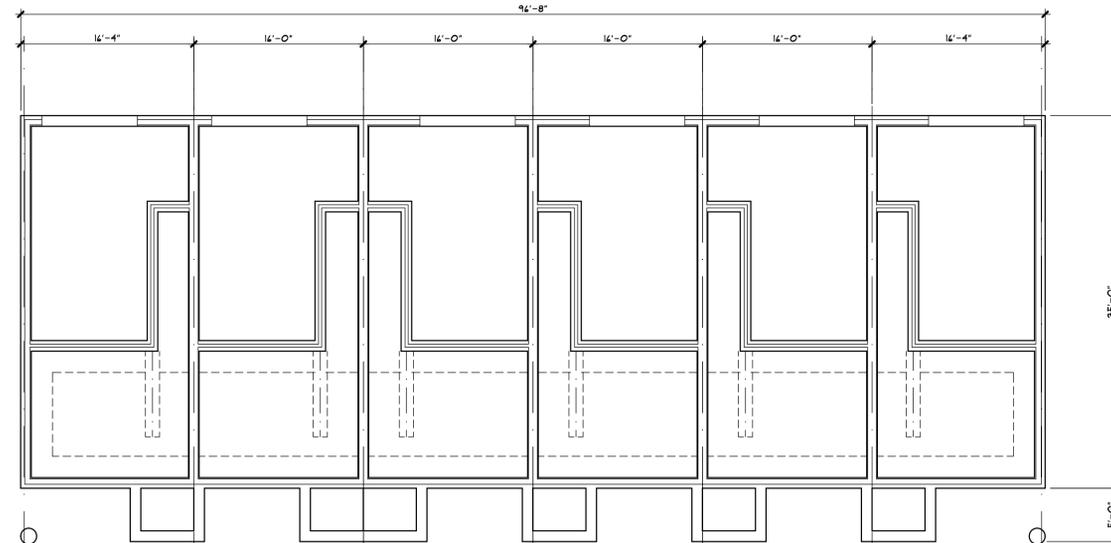
FIRST FLOOR PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



LOWER LEVEL PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



FOUNDATION PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



REAR ELEVATION
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



LEFT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



RIGHT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



FRONT ELEVATION
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



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SHEET TITLE
6 UNIT BUILDING
BUILDING ELEVATIONS
PRELIMINARY

CLIENT / PROJECT
ROBERTSON HOMES
HUDSON TOWNS
1/6' TOWNHOME UNITS
SOUTH LYON, MICHIGAN

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SHEET NUMBER	A-1

FOUNDATION NOTES:

FOOTING SIZES ARE TO MEET THE MINIMUM SIZES AS PRESCRIBED IN THE 2018 MICHIGAN RESIDENTIAL CODE SECTION R403.

PER TABLES R403.1(1) AND R403.1(2) 3 STORY LIGHT FRAME BUILDING WITH OR WITHOUT MASONRY VENEER WITH A SLAB ON GRADE WILL ALLOW FOR A MINIMUM 12" WIDE FOOTING.

ALL NATURAL AND ENGINEERED SOILS ARE TO BE A MINIMUM OF 3000 PSF

STRUCTURAL NOTES:

(2) 2x8 HEADERS TO BEAR ON (1) ONE JACK STUD UNLESS NOTED OTHERWISE.

(2) 2x10 & LARGER HEADERS TO BEAR ON (2) TWO JACK STUDS UNLESS NOTED OTHERWISE.

ALL PRE-ENGINEERED HEADERS FRAMED PERPENDICULAR TO WALL LINE SHALL BEAR ON REQUIRED NUMBER OF STUDS TO MATCH WIDTH OF HEADER MATERIAL.

ALL PRE-ENGINEERED HEADERS FRAMED PARALLEL TO WALL LINE SHALL BEAR ON A MINIMUM (2) TWO JACK STUDS UNLESS NOTED OTHERWISE.

ALL PRE-ENGINEERED LUMBER HEADERS SHALL BE BUILT-UP FROM THE NUMBER OF HEADERS INDICATED ON DRAWINGS. ALL MEMBERS SHALL BE SECURED WITH NAILS OR BOLTS AS SPECIFIED BY THE MANUFACTURER FOR SIZES INDICATED.

ALL GIRDER TRUSSES TO BEAR ON (2) TWO STUDS MINIMUM OR AS REQUIRED TO MATCH NUMBER OF TRUSS PLYS, WHICH EVER IS GREATER.

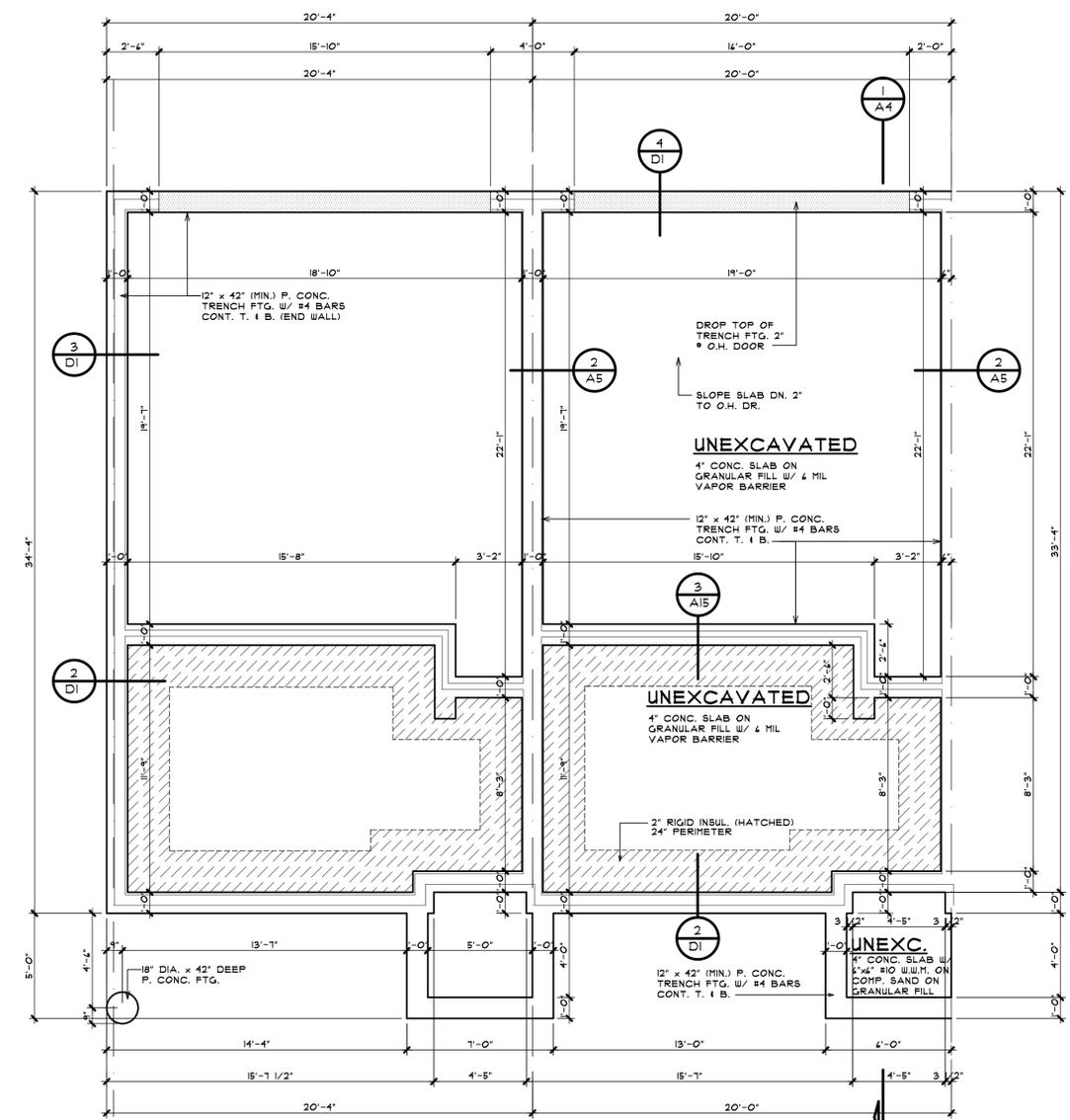
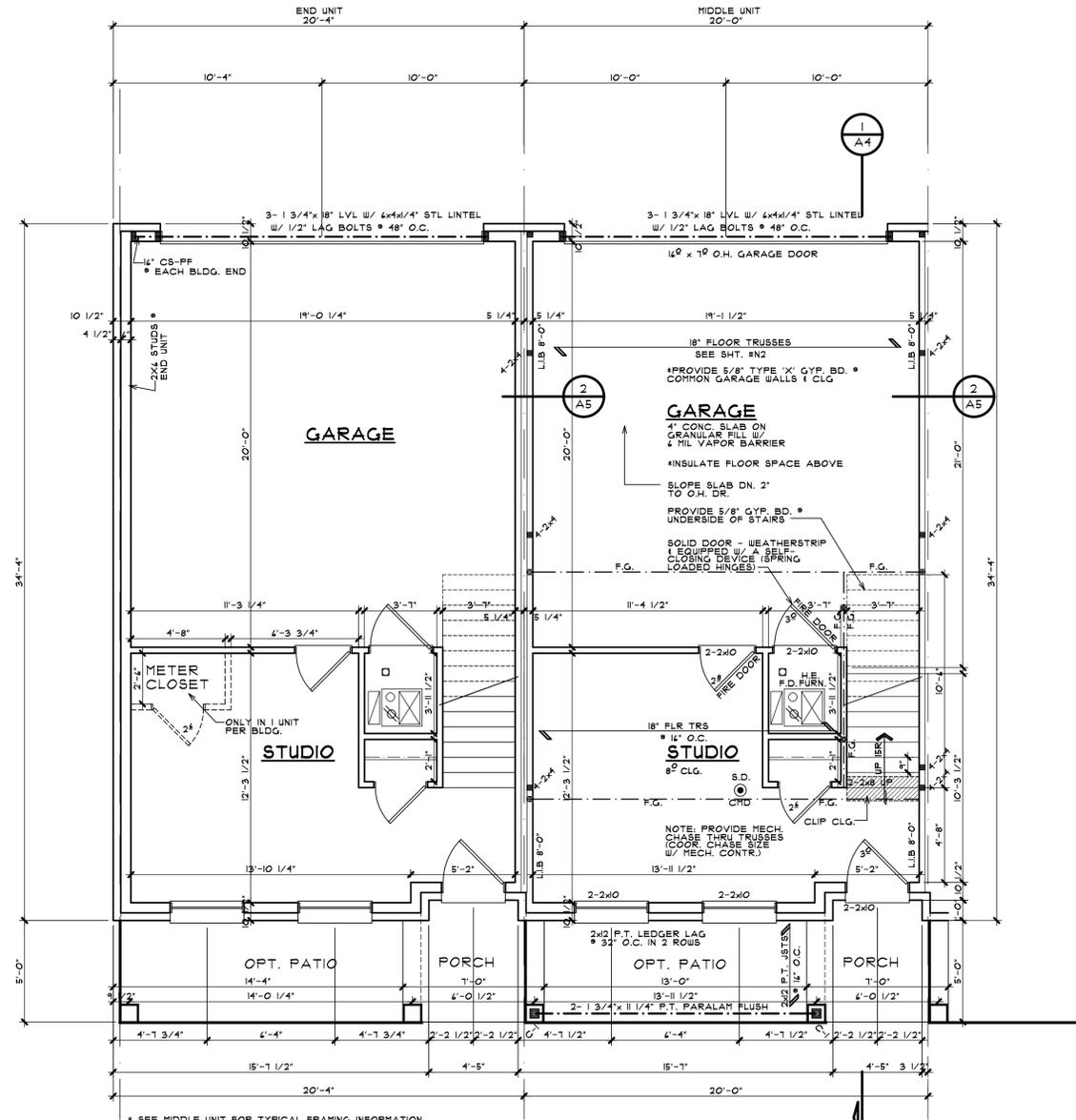
TRUSS FABRICATOR/CONTRACTOR TO PROVIDE ALL HANGERS W/ MODEL No. CLEARLY STAMPED I LAYOUT DRAWINGS CLEARLY INDICATING LOCATION OF VARIOUS HANGERS REQUIRED.

CARPENTER CONTRACTOR TO INSTALL NAIL SIZES & NUMBER REQ'D. AS SPECIFIED FOR EACH TYPE OF HANGER.

LVL DESIGN VALUES FOR MODULUS OF ELASTICITY (E) SHALL BE 2,000,000 PSI (2.0 E)

WALL DIMENSION NOTE:

ALL WALL DIMENSIONS ARE TO THE ROUGH. INTERIOR PARTITIONS ARE 3 1/2" (2x4) UNLESS NOTED OR DIMENSIONED OTHERWISE. EXTERIOR FRAME WALLS INCLUDE 1/2" NOMINAL DIMENSION FOR EXTERIOR SHEATHING. EXTERIOR FRAME WALLS ARE 4" (2x4) OR 4" (2x4) UNLESS NOTED OR DIMENSIONED OTHERWISE. "BRICK LEDGE" BRICK OR STONE EXTERIOR WITH AIR SPACE IS 4 1/2" UNLESS NOTED OR DIMENSIONED OTHERWISE.



STRUCTURAL NOTES:

- (2) 2x8 HEADERS TO BEAR ON (1) ONE JACK STUD UNLESS NOTED OTHERWISE.
- (2) 2x10 LARGER HEADERS TO BEAR ON (2) TWO JACK STUDS UNLESS NOTED OTHERWISE.
- ALL PRE-ENGINEERED HEADERS FRAMED PERPENDICULAR TO WALL LINE SHALL BEAR ON REQUIRED NUMBER OF STUDS TO MATCH WIDTH OF HEADER MATERIAL.
- ALL PRE-ENGINEERED HEADERS FRAMED PARALLEL TO WALL LINE SHALL BEAR ON A MINIMUM (2) TWO JACK STUDS UNLESS NOTED OTHERWISE.
- ALL PRE-ENGINEERED LUMBER HEADERS SHALL BE BUILT-UP FROM THE NUMBER OF HEADERS INDICATED ON DRAWINGS. ALL MEMBERS SHALL BE SECURED WITH NAILS OR BOLTS AS SPECIFIED BY THE MANUFACTURER FOR SIZES INDICATED.
- ALL GIRDER TRUSSES TO BEAR ON (2) TWO STUDS MINIMUM OR AS REQUIRED TO MATCH NUMBER OF TRUSS PLYS, WHICH EVER IS GREATER.
- TRUSS FABRICATOR/CONTRACTOR TO PROVIDE ALL HANGERS W/ MODEL No. CLEARLY STAMPED I LAYOUT DRAWINGS CLEARLY INDICATING LOCATION OF VARIOUS HANGERS REQUIRED.
- CARPENTER CONTRACTOR TO INSTALL NAIL SIZES I NUMBER REQ'D. AS SPECIFIED FOR EACH TYPE OF HANGER.
- LVL DESIGN VALUES FOR MODULUS OF ELASTICITY (E) SHALL BE 2,000,000 PSI (2.0 E)

WALL DIMENSION NOTE:

ALL WALL DIMENSIONS ARE TO THE ROUGH. INTERIOR PARTITIONS ARE 3/2" (2x4) UNLESS NOTED OR DIMENSIONED OTHERWISE. EXTERIOR FRAME WALLS INCLUDE 1/2" NORMAL DIMENSION FOR EXTERIOR SHEATHING. EXTERIOR FRAME WALLS ARE 4" (2x4) OR 4" (2x4) UNLESS NOTED OR DIMENSIONED OTHERWISE. BRICK LEDGE/ BRICK OR STONE EXTERIOR WITH AIR SPACE IS 4 1/2" UNLESS NOTED OR DIMENSIONED OTHERWISE.

SQUARE FOOTAGE

LOWER LEVEL	231 SQ FT
1ST FLOOR	668 SQ FT
2ND FLOOR	101 SQ FT
TOTAL	1,612 SQ FT



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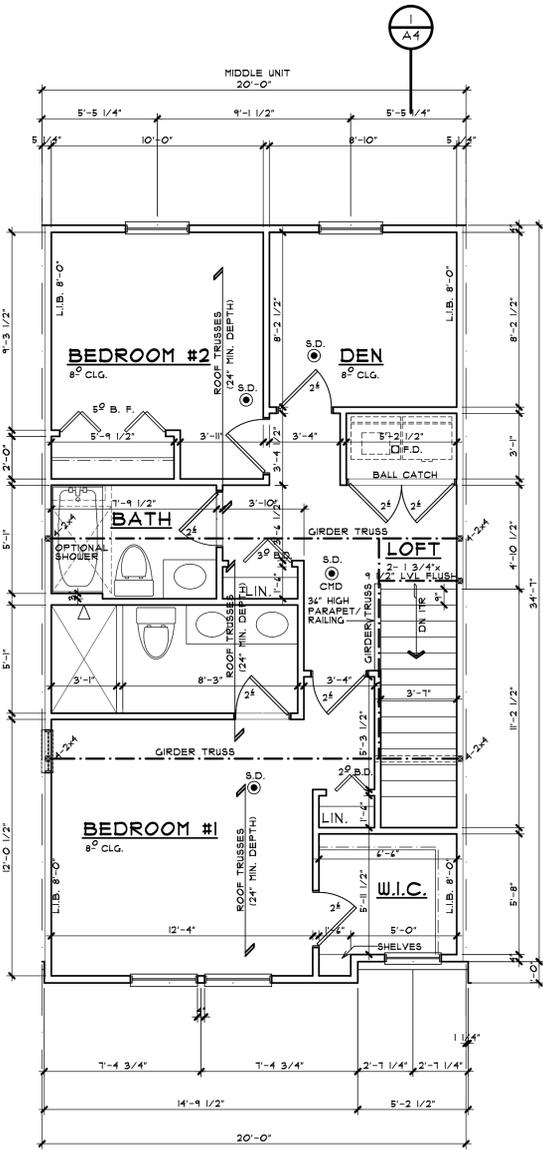
FIRST FLOOR PLAN
SECOND FLOOR PLAN
 PRELIMINARY

ROBERTSON HOMES
 HUDSON TOWNS
 20' TOWNHOUSE UNIT
 SOUTH LYON, MICHIGAN

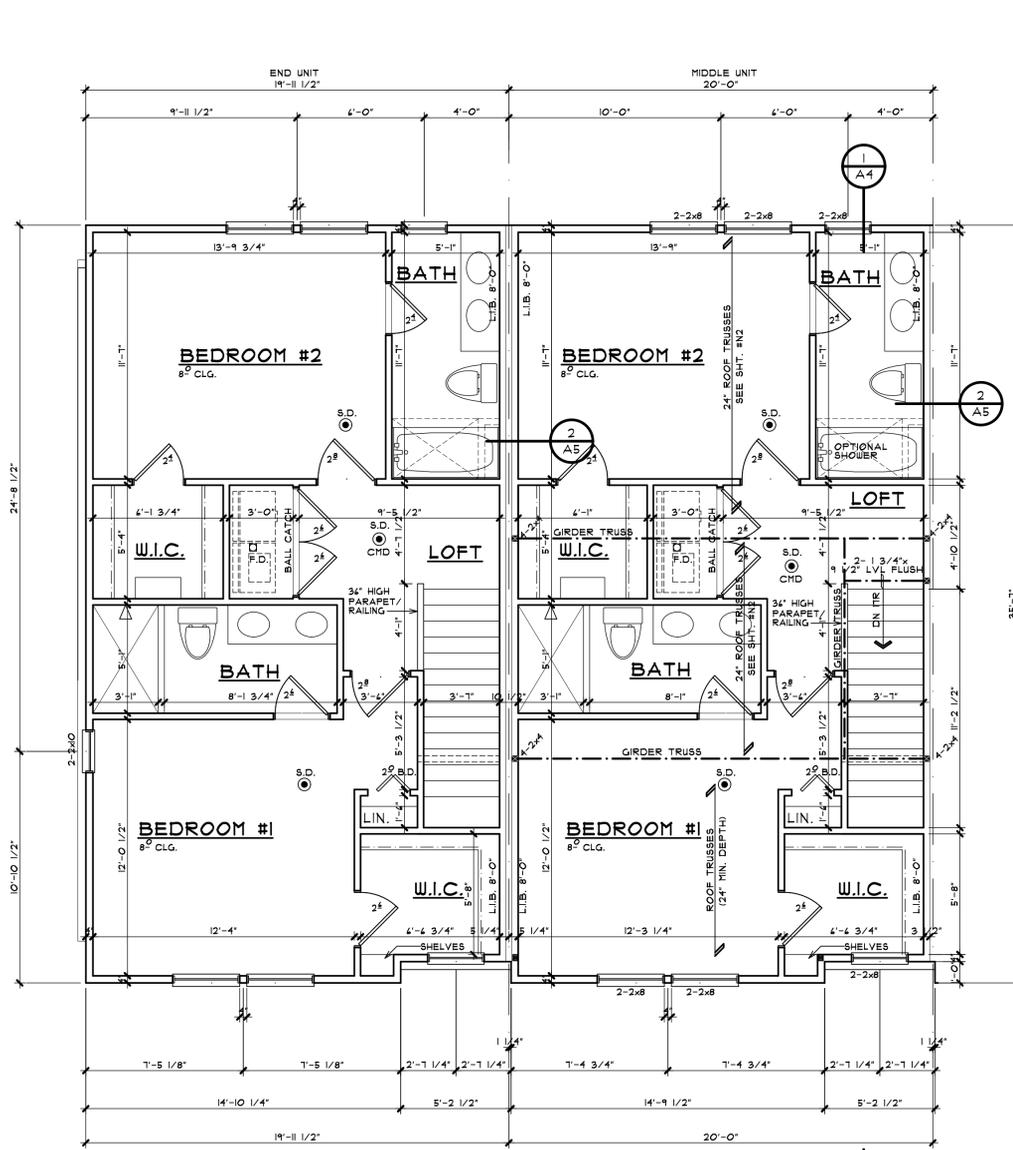
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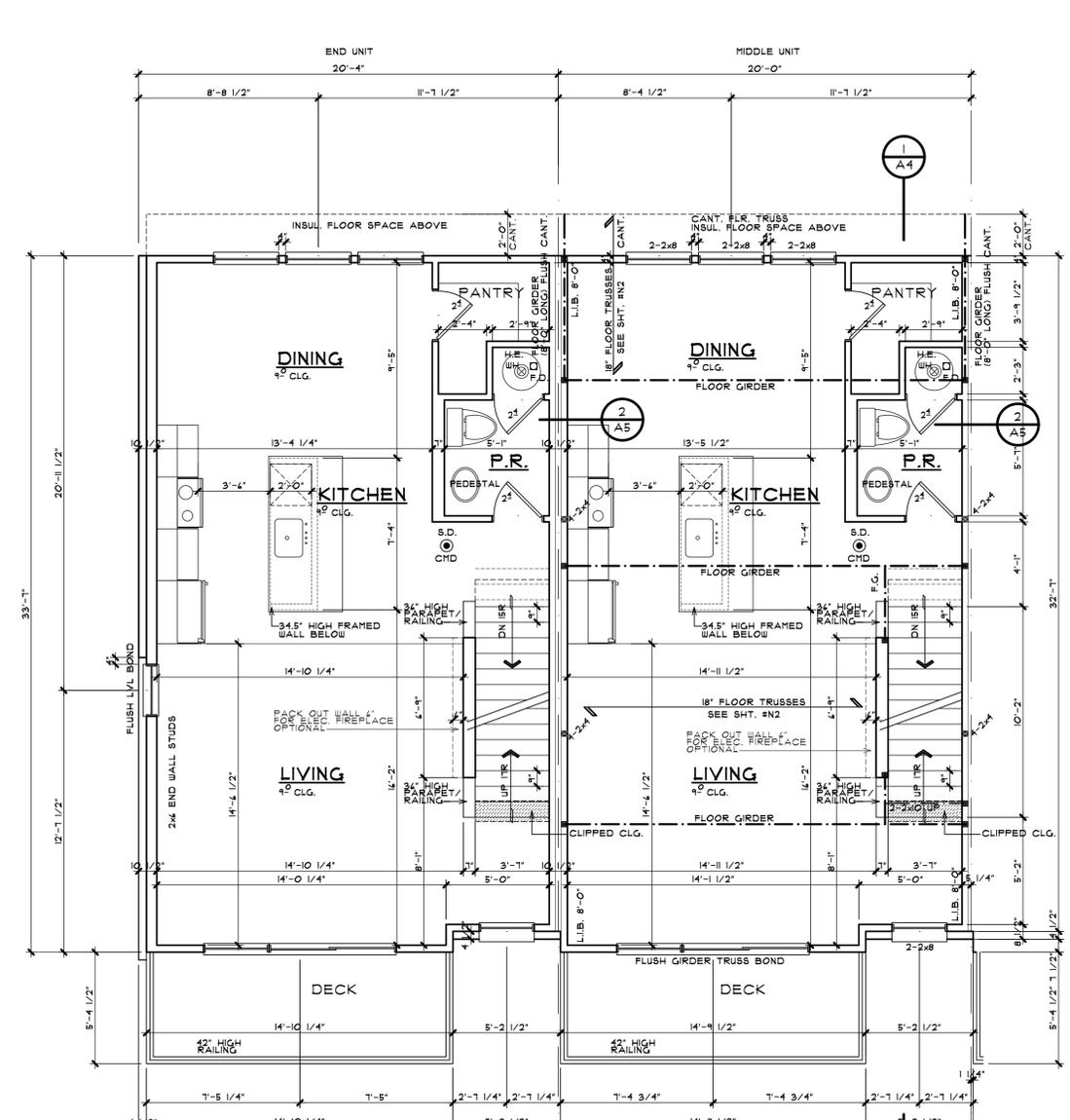
SHEET NUMBER
A-2



SECOND FLOOR PLAN
 2 BEDROOM/DEN
 SCALE: 1/4" = 1'-0"



* SEE MIDDLE UNIT FOR TYPICAL FRAMING INFORMATION
SECOND FLOOR PLAN
 2 BEDROOM
 SCALE: 1/4" = 1'-0"



* SEE MIDDLE UNIT FOR TYPICAL FRAMING INFORMATION
FIRST FLOOR PLAN
 SCALE: 1/4" = 1'-0"

WALL BRACING METHOD:
 UBF (WOOD STRUCTURAL PANEL)
 AT ALL EXTERIOR WALLS
 UNLESS NOTED OTHERWISE

WINDOW SILLS

IN DWELLING UNITS, WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 12" ABOVE FINISHED GRADE OR SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24 INCHES ABOVE THE FINISHED FLOOR OR THE ROOM IN WHICH THE WINDOW IS LOCATED. GLAZING BETWEEN THE FLOOR AND 24" SHALL BE FIXED OR HAVE OPENINGS THROUGH WHICH A 4 INCH DIAMETER SPHERE CANNOT PASS. EXCEPTIONS:

- WINDOWS WHOSE OPENINGS WILL NOT ALLOW A 4" DIA. SPHERE TO PASS THROUGH THE OPENING WHERE THE OPENING IS IN ITS LARGEST OPENED POSITION.
- OPENINGS THAT ARE PROVIDED WITH WINDOW GUARDS THAT COMPLY WITH ASTM F 2004 OR F 2090.

OVERHANGS & DRAINAGE

PROVIDE GUTTERS & DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE LOCATED SO THAT THE DISCHARGE WILL NOT SPILL ON OR FLOW ACROSS ANY PORCHES, WALKS OR DRIVES.

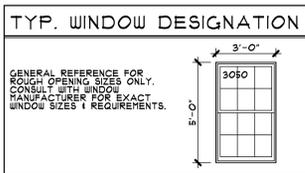
UNLESS NOTED OTHERWISE OVERHANG DIMENSIONS ARE 12" FROM FRAME, RAKE DIMENSIONS ARE 4" AT BRICK AND 2" AT SIDING.

STEEL LINTEL SCHEDULE

LOOSE STEEL LINTELS FOR MASONRY - EXTERIOR ANGLES FOR BRICK OR STONE (NO FLOOR LOAD)

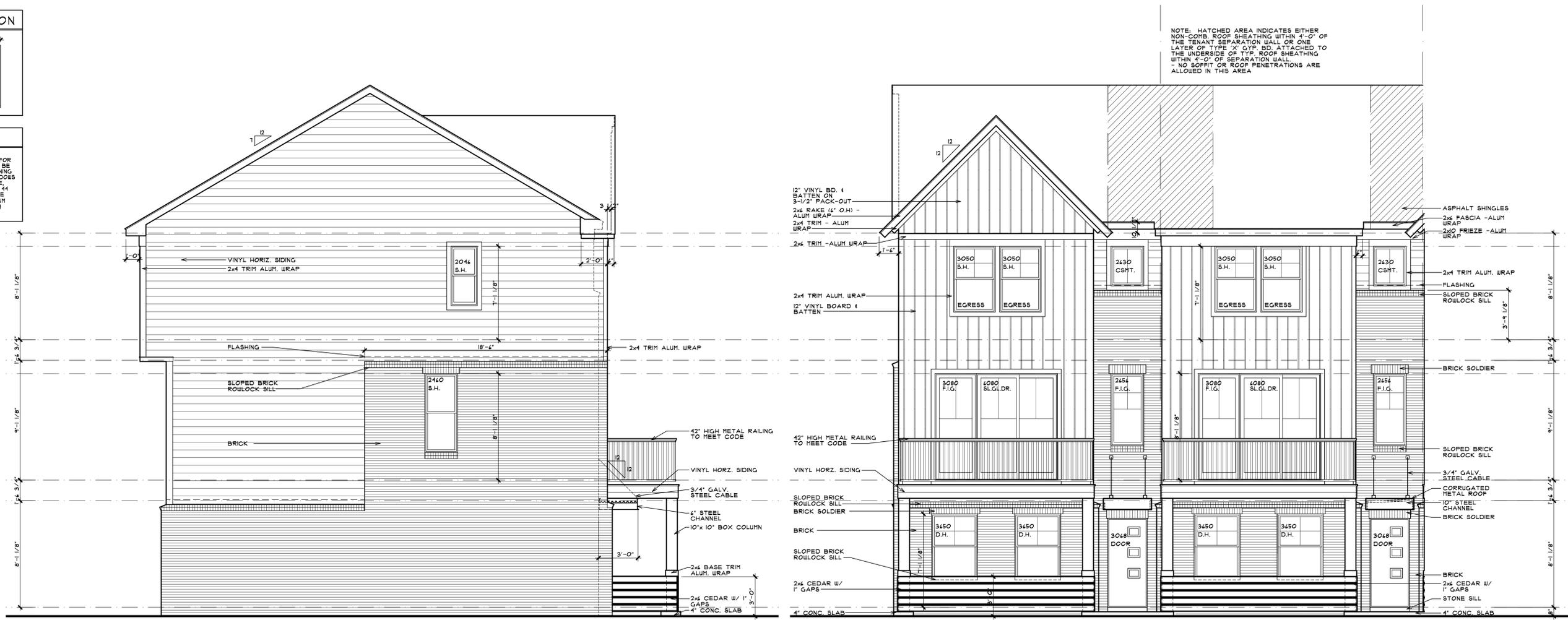
MAX. CLEAR SPAN	LINTEL SIZE
5'-0" OR LESS	3 1/2" x 3 1/2" x 5/16"
7'-0" OR LESS	4" x 3 1/2" x 5/16"
8'-0" OR LESS	5" x 3 1/2" x 5/16"
9'-0" OR LESS	5" x 3 1/2" x 3/8"
10'-0" OR LESS	4" x 3 1/2" x 3/8"

NOTE: THIS SCHEDULE APPLIES UNLESS NOTED OTHERWISE ON THE PLANS AND/OR ELEVATIONS.
 NOTE: STEEL ANGLE LINTELS REQUIRE A SHOP COAT OF RUST-INHIBITIVE PAINT EXCEPT FOR LINTELS MADE OF CORROSION-RESISTANT STEEL.



EGRESS WINDOW

EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE WINDOW OR EXTERIOR DOOR APPROVED FOR EMERGENCY EGRESS OR RESCUE. THE UNITS MUST BE OPERABLE FROM THE INSIDE TO A FULL CLEAR OPENING WITHOUT THE USE OF SEPARATE TOOLS. WHERE WINDOWS ARE PROVIDED AS A MEANS OF EGRESS OR RESCUE, THEY SHALL HAVE SILL HEIGHT OF NOT MORE THAN 44 INCHES ABOVE THE FLOOR. ALL EGRESS OR RESCUE WINDOWS FROM SLEEPING ROOMS MUST HAVE A MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24 INCHES AND WIDTH OF 20 INCHES.



NOTE: HATCHED AREA INDICATES EITHER NON-COMB. ROOF SHEATHING WITHIN 4'-0" OF THE TENANT SEPARATION WALL OR ONE LAYER OF TYPE 'X' GYP. BD. ATTACHED TO THE UNDERSIDE OF TYP. ROOF SHEATHING WITHIN 4'-0" OF SEPARATION WALL. NO SOFFIT OR ROOF PENETRATIONS ARE ALLOWED IN THIS AREA.

WINDOW SILLS

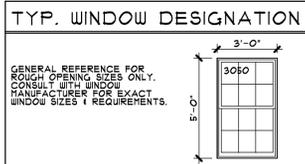
IN DWELLING UNITS, WHERE THE OPENING OF AN OPERABLE WINDOW IS LOCATED MORE THAN 12" ABOVE FINISHED GRADE OR SURFACE BELOW, THE LOWEST PART OF THE CLEAR OPENING OF THE WINDOW SHALL BE A MINIMUM OF 24 INCHES ABOVE THE FINISHED FLOOR OF THE ROOM IN WHICH THE WINDOW IS LOCATED. GLAZING BETWEEN THE FLOOR AND 24" SHALL BE FIXED OR HAVE OPENINGS THROUGH WHICH A 4" DIAMETER SPHERE CANNOT PASS. EXCEPTIONS:

- WINDOWS WHOSE OPENINGS WILL NOT ALLOW A 4" DIA. SPHERE TO PASS THROUGH THE OPENING WHERE THE OPENING IS IN ITS LARGEST OPENED POSITION.
- OPENINGS THAT ARE PROVIDED WITH WINDOW GUARDS THAT COMPLY WITH ASTM F 2004 OR F 2090.

STEEL LINTEL SCHEDULE

LOOSE STEEL LINTELS FOR MASONRY - EXTERIOR ANGLES FOR BRICK OR STONE (NO FLOOR LOAD)

MAX CLEAR SPAN	LINTEL SIZE
5'-0" OR LESS	3 1/2" x 3 1/2" x 5/16"
7'-0" OR LESS	4" x 3 1/2" x 5/16"
8'-0" OR LESS	5" x 3 1/2" x 5/16"
9'-0" OR LESS	5" x 3 1/2" x 3/8"
10'-0" OR LESS	4" x 3 1/2" x 3/8"



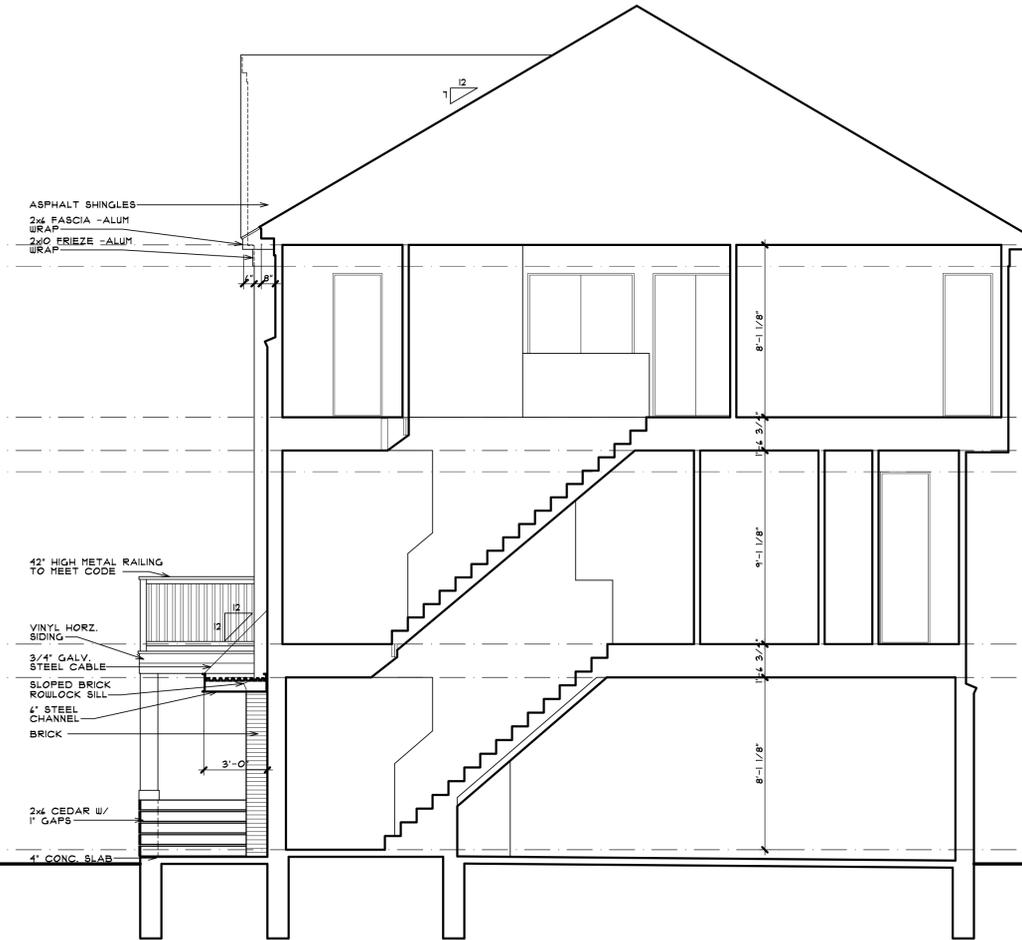
EGRESS WINDOW

EVERY SLEEPING ROOM SHALL HAVE AT LEAST ONE OPERABLE WINDOW OR EXTERIOR DOOR APPROVED FOR EMERGENCY EGRESS OR RESCUE. THE UNIT(S) MUST BE OPERABLE FROM THE INSIDE TO A FULL CLEAR OPENING WITHOUT THE USE OF SEPARATE TOOLS. WHERE WINDOWS ARE PROVIDED AS A MEANS OF EGRESS OR RESCUE, THEY SHALL HAVE SILL HEIGHT OF NOT MORE THAN 44 INCHES ABOVE THE FLOOR. ALL EGRESS OR RESCUE WINDOWS FROM SLEEPING ROOMS MUST HAVE A MINIMUM NET CLEAR OPENING HEIGHT DIMENSION SHALL BE 24 INCHES AND WIDTH OF 20 INCHES.

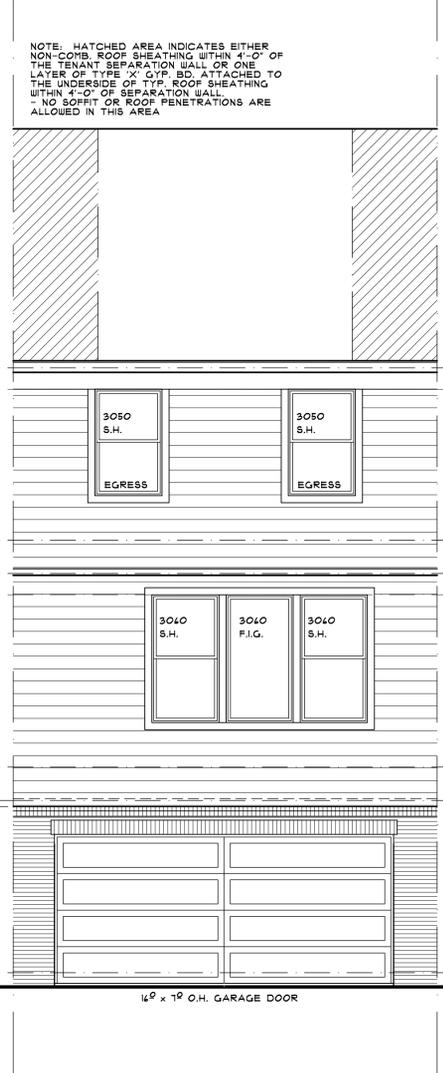
OVERHANGS & DRAINAGE

PROVIDE GUTTERS & DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE LOCATED SO THAT THE DISCHARGE WILL NOT SPILL ON OR FLOW ACROSS ANY PORCHES, WALKS OR DRIVES.

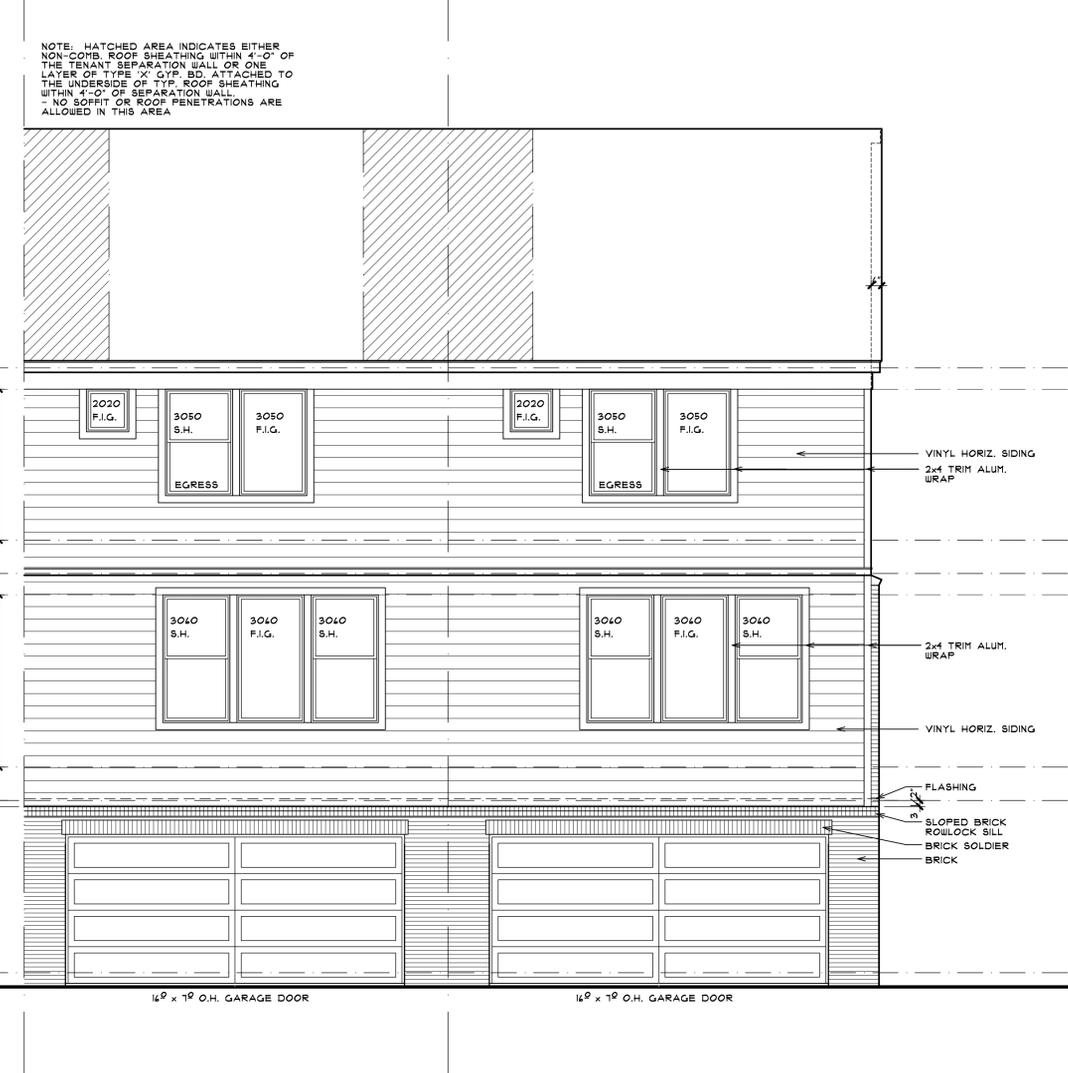
UNLESS NOTED OTHERWISE OVERHANG DIMENSIONS ARE 12" FROM FRAME, RAKE DIMENSIONS ARE 4" AT BRICK AND 2" AT SIDING.



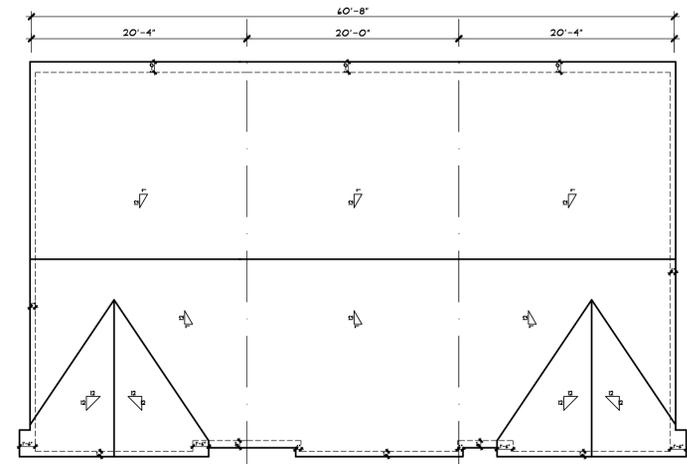
1 BUILDING SECTION
 A5 SCALE: 1/4" = 1'-0"



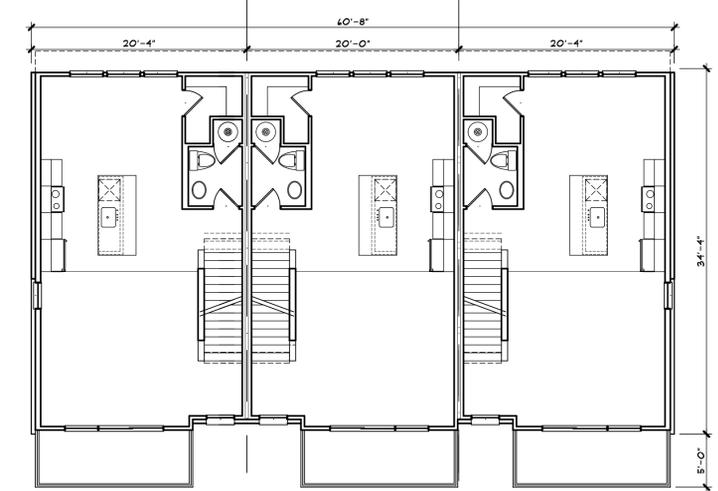
ALT. REAR ELEVATION
 SCALE: 1/4" = 1'-0"



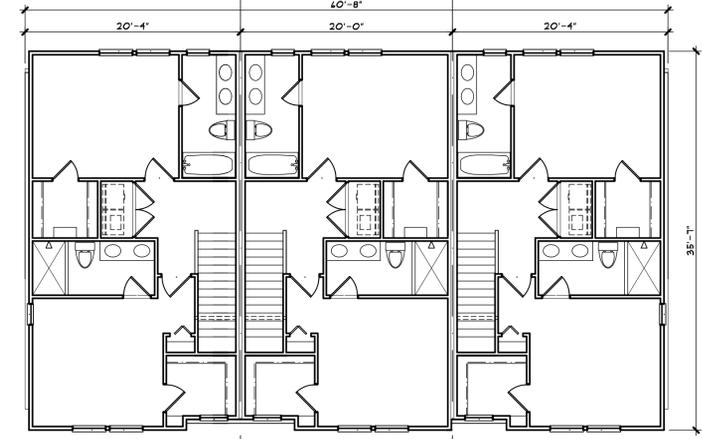
REAR ELEVATION
 SCALE: 1/4" = 1'-0"



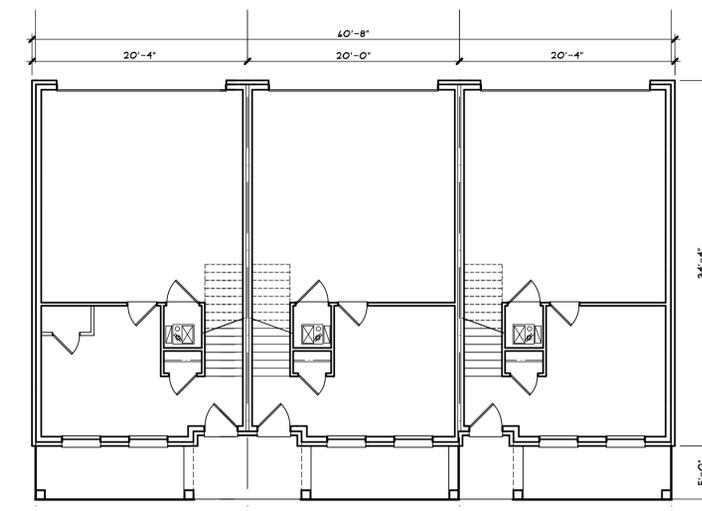
ROOF PLAN
3 UNIT BUILDING SCALE: 1/8" = 1'-0"



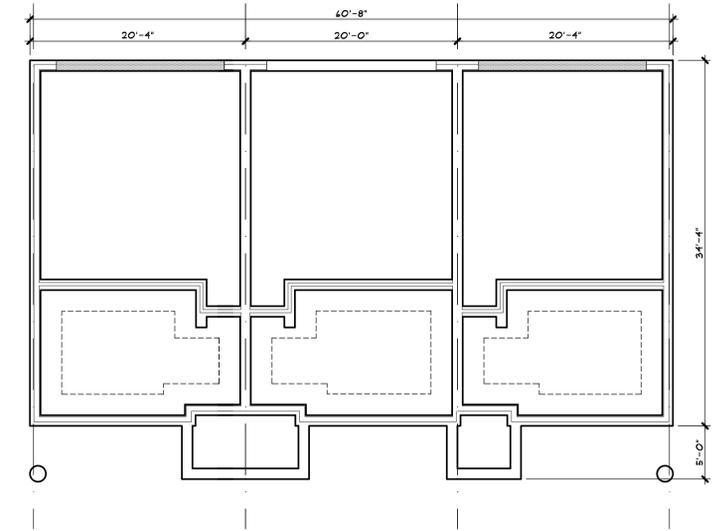
FIRST FLOOR PLAN
3 UNIT BUILDING SCALE: 1/8" = 1'-0"



SECOND FLOOR PLAN
3 UNIT BUILDING SCALE: 1/8" = 1'-0"



LOWER LEVEL PLAN
3 UNIT BUILDING SCALE: 1/8" = 1'-0"



FOUNDATION PLAN
3 UNIT BUILDING SCALE: 1/8" = 1'-0"



REAR ELEVATION
3 UNIT BUILDING

SCALE: 1/8" = 1'-0"



LEFT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



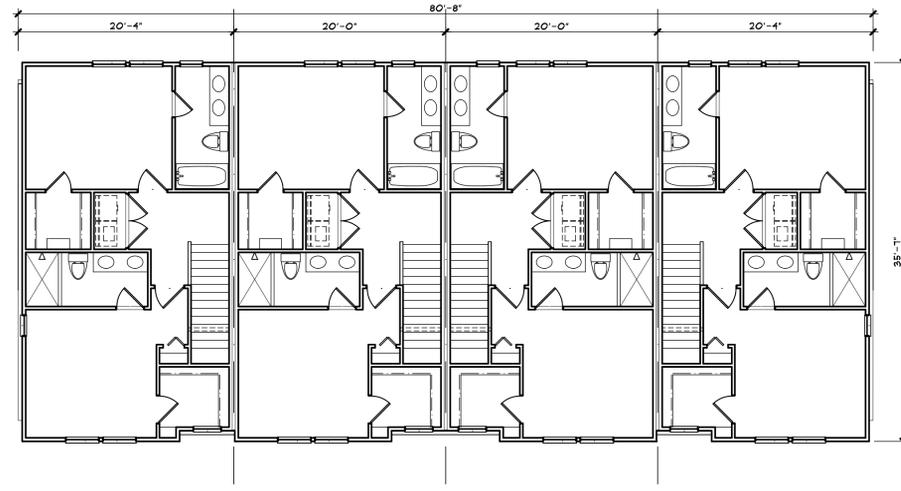
RIGHT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



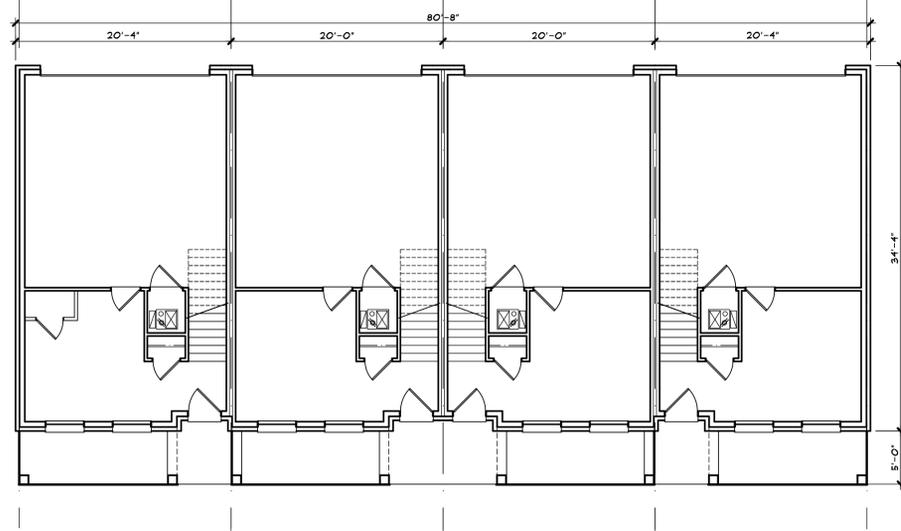
FRONT ELEVATION
3 UNIT BUILDING

SCALE: 1/8" = 1'-0"



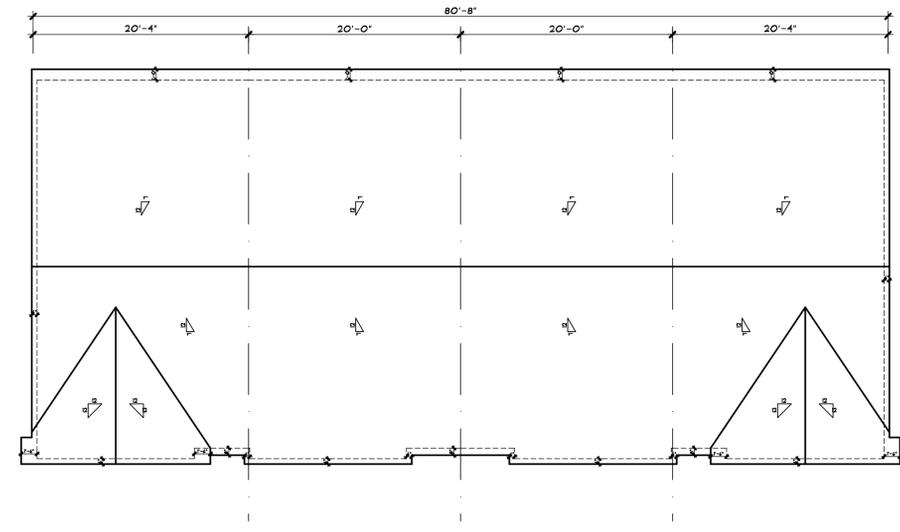
SECOND FLOOR PLAN
4 UNIT BUILDING

SCALE: 1/8" = 1'-0"



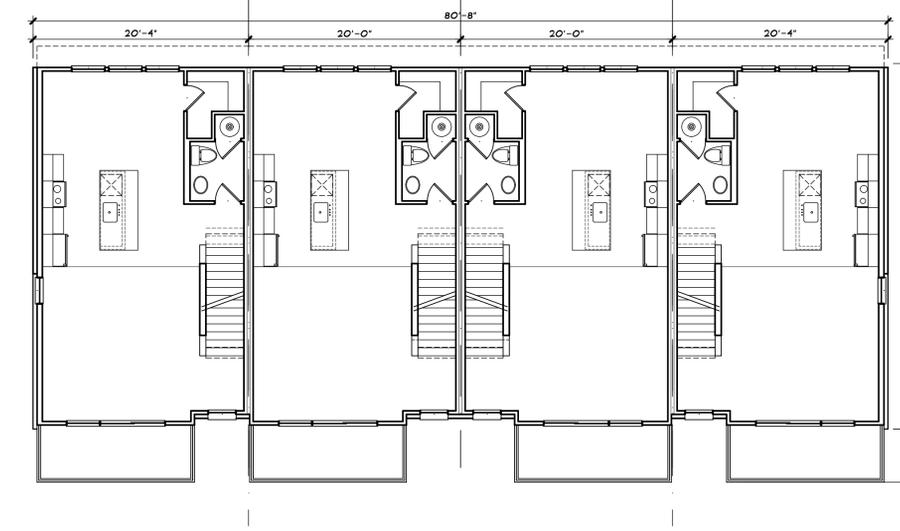
LOWER LEVEL PLAN
4 UNIT BUILDING

SCALE: 1/8" = 1'-0"



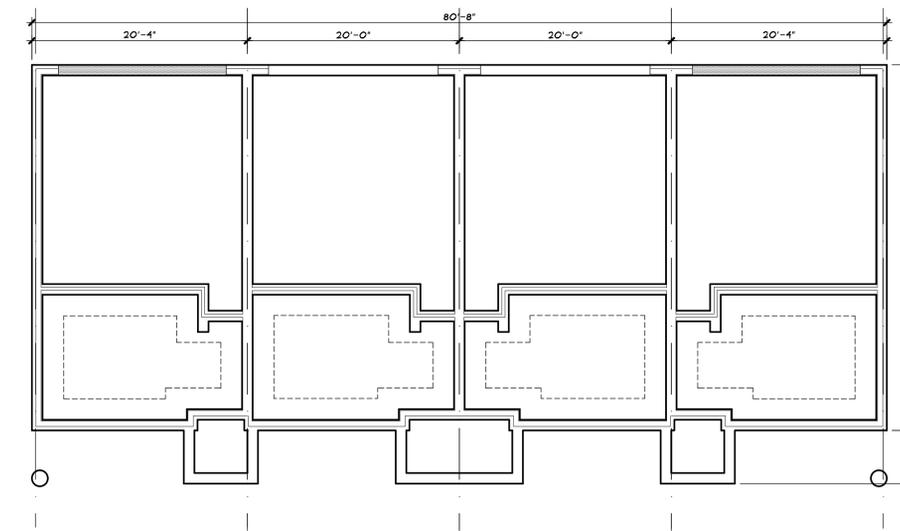
ROOF PLAN
4 UNIT BUILDING

SCALE: 1/8" = 1'-0"



FIRST FLOOR PLAN
4 UNIT BUILDING

SCALE: 1/8" = 1'-0"



FOUNDATION PLAN
4 UNIT BUILDING

SCALE: 1/8" = 1'-0"



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SHEET TITLE
4 UNIT BUILDING
BUILDING PLANS
PRELIMINARY

CLIENT / PROJECT
ROBERTSON HOMES
HUDSON TOWNS
20' TOWNHOUSE UNIT
SOUTH LYON, MICHIGAN

PRELIMINARY	6-18-21
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PERMITS	
FINAL	
REVISIONS	
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A-8



REAR ELEVATION
4 UNIT BUILDING

SCALE: 1/8" = 1'-0"



LEFT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



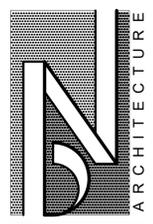
RIGHT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



FRONT ELEVATION
4 UNIT BUILDING

SCALE: 1/8" = 1'-0"



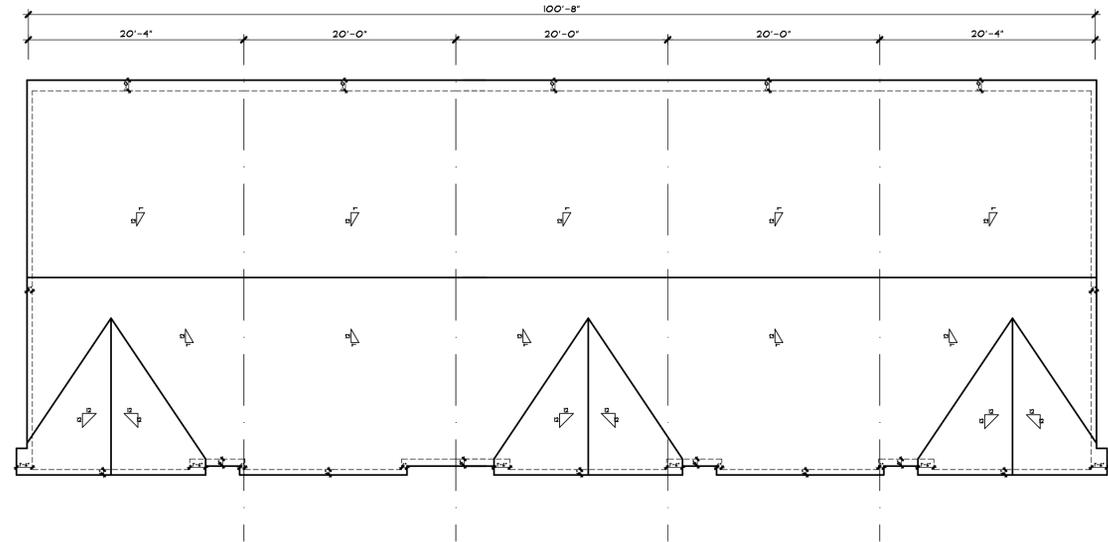
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SHEET TITLE
4 UNIT BUILDING
BUILDING ELEVATIONS
PRELIMINARY

CLIENT / PROJECT
ROBERTSON HOMES
HUDSON TOWNS
20' TOWNHOUSE UNIT
SOUTH LYON, MICHIGAN

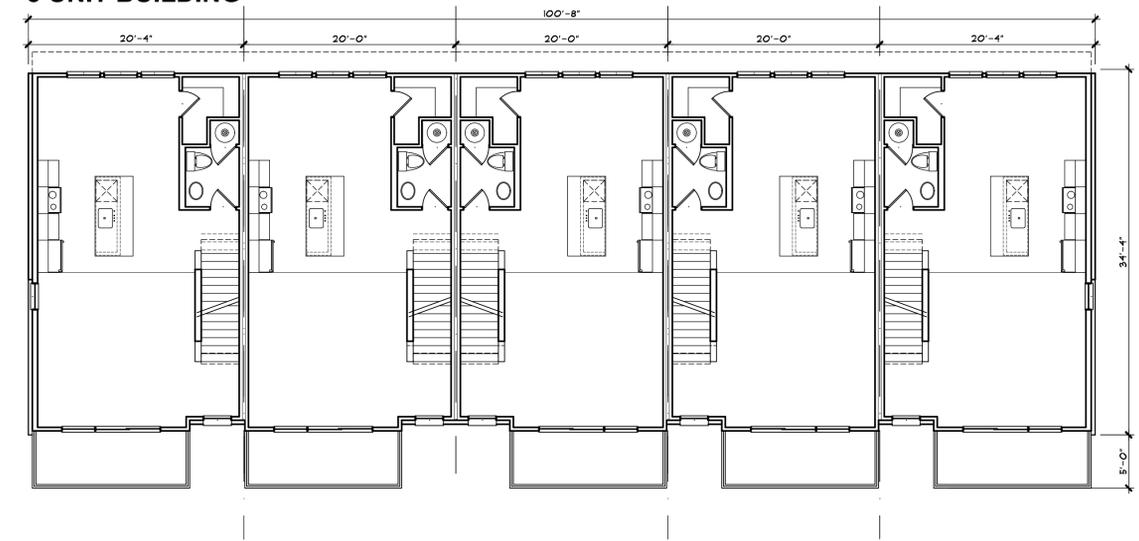
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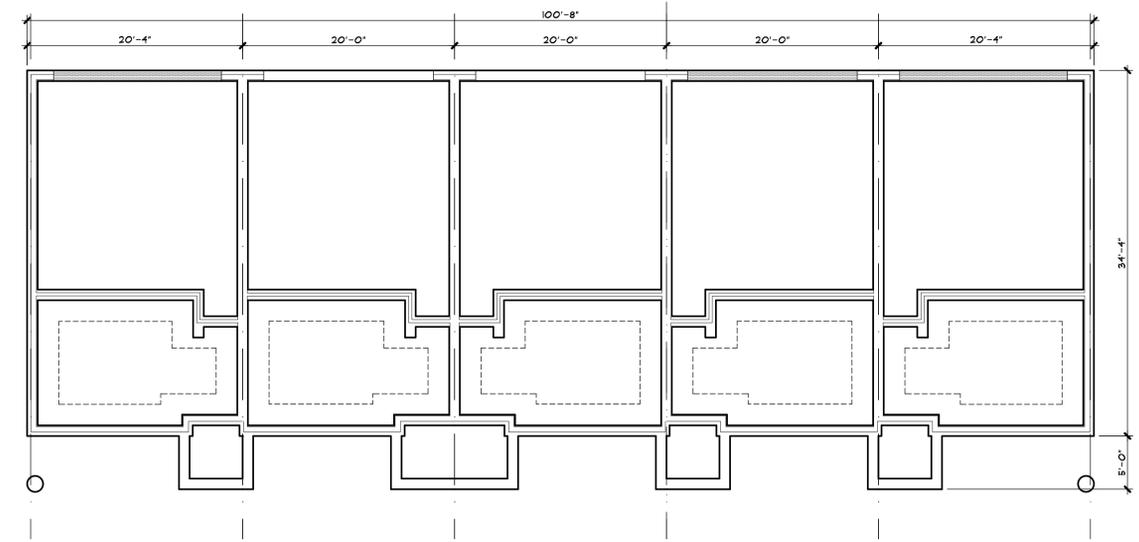
ROOF PLAN
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



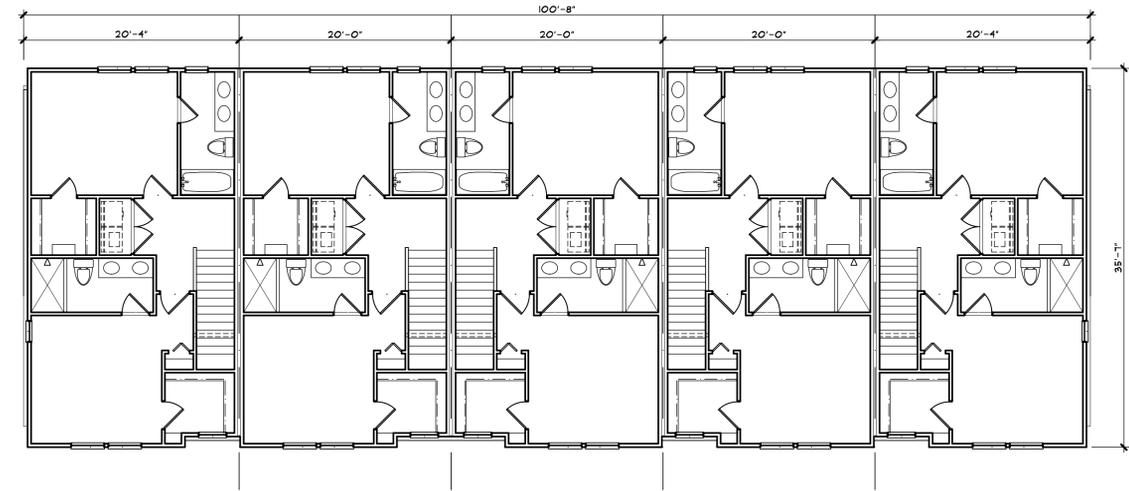
FIRST FLOOR PLAN
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



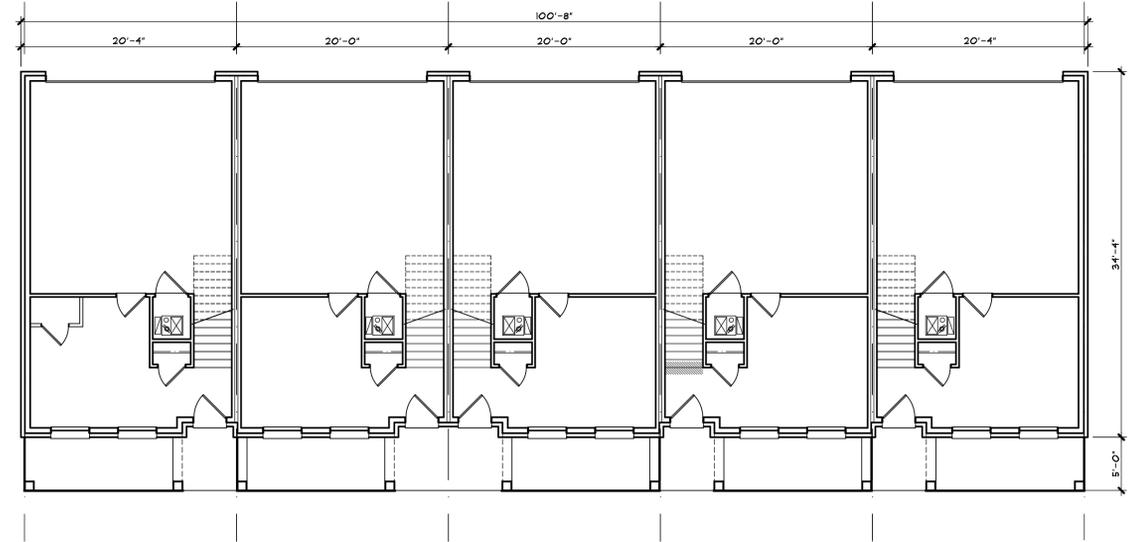
FOUNDATION PLAN
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



SECOND FLOOR PLAN
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



LOWER LEVEL PLAN
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



REAR ELEVATION
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



LEFT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



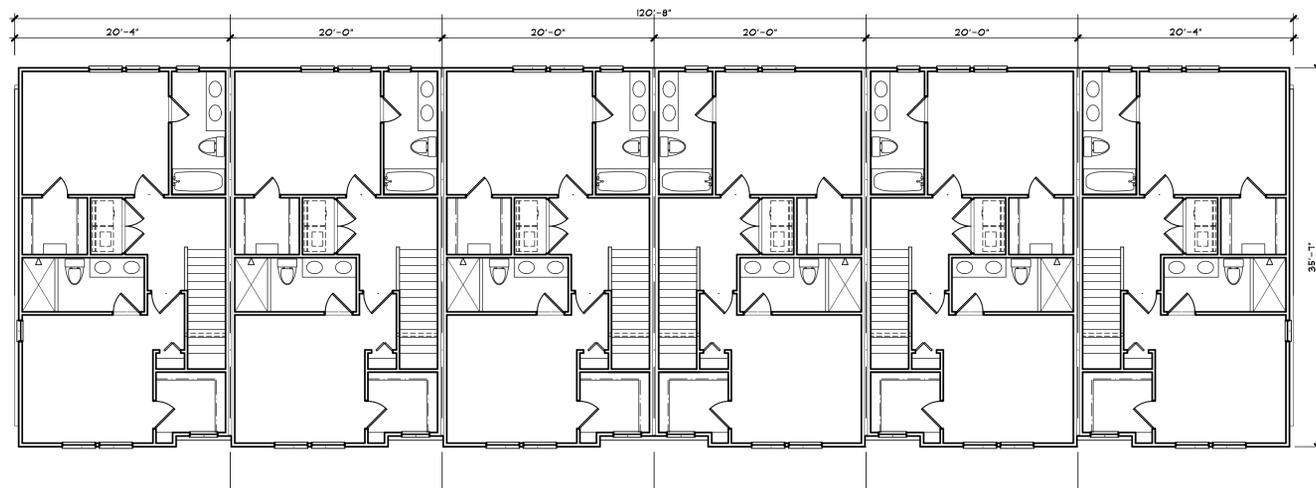
RIGHT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



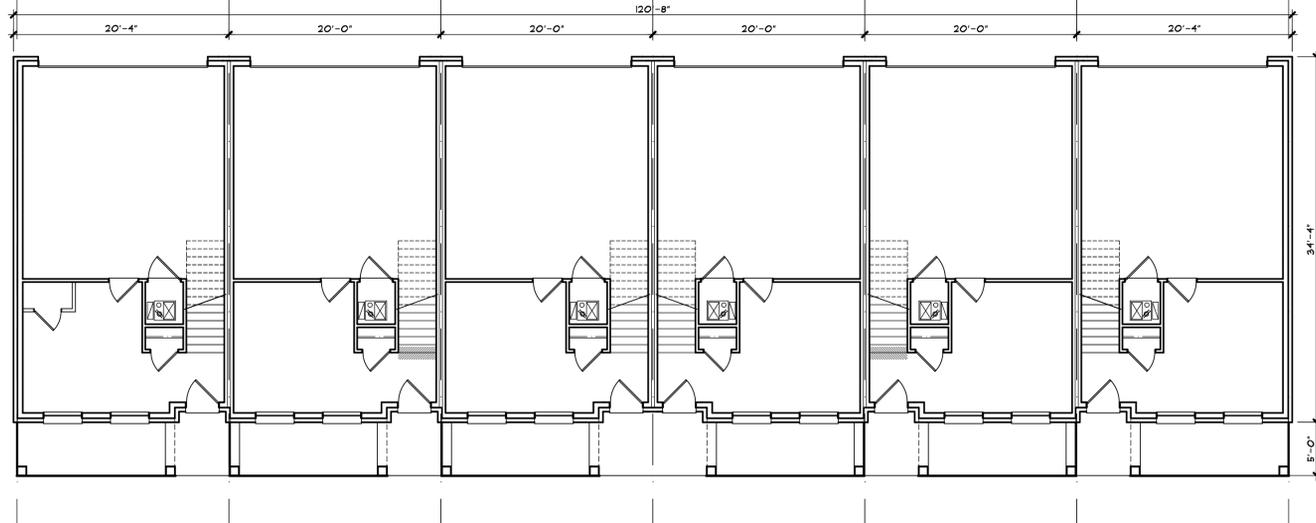
FRONT ELEVATION
5 UNIT BUILDING

SCALE: 1/8" = 1'-0"



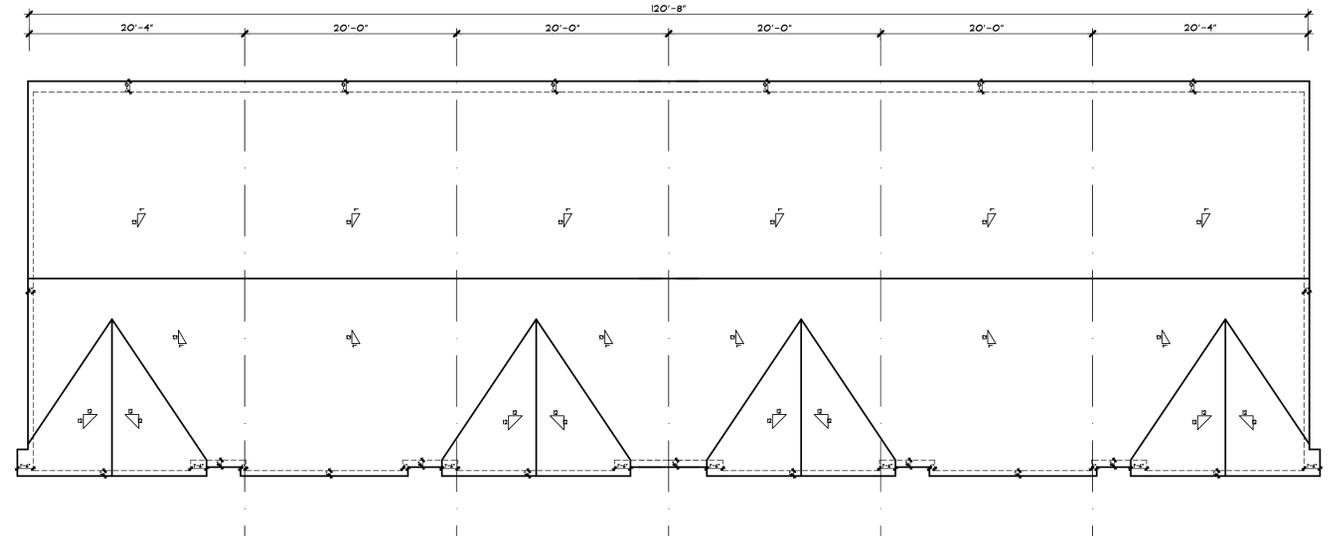
SECOND FLOOR PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



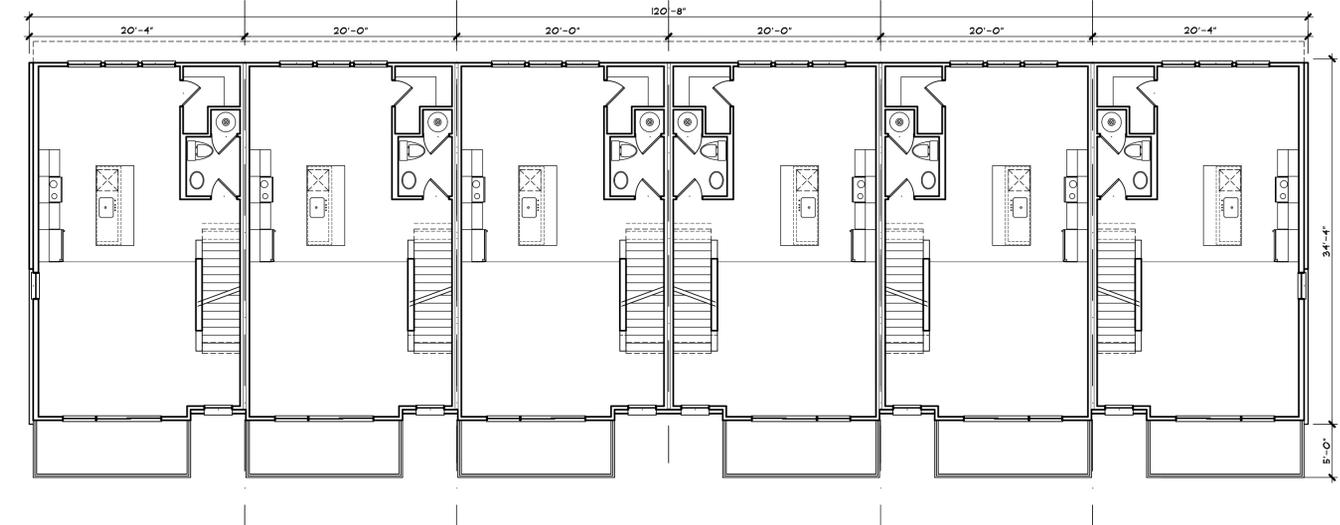
LOWER LEVEL PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



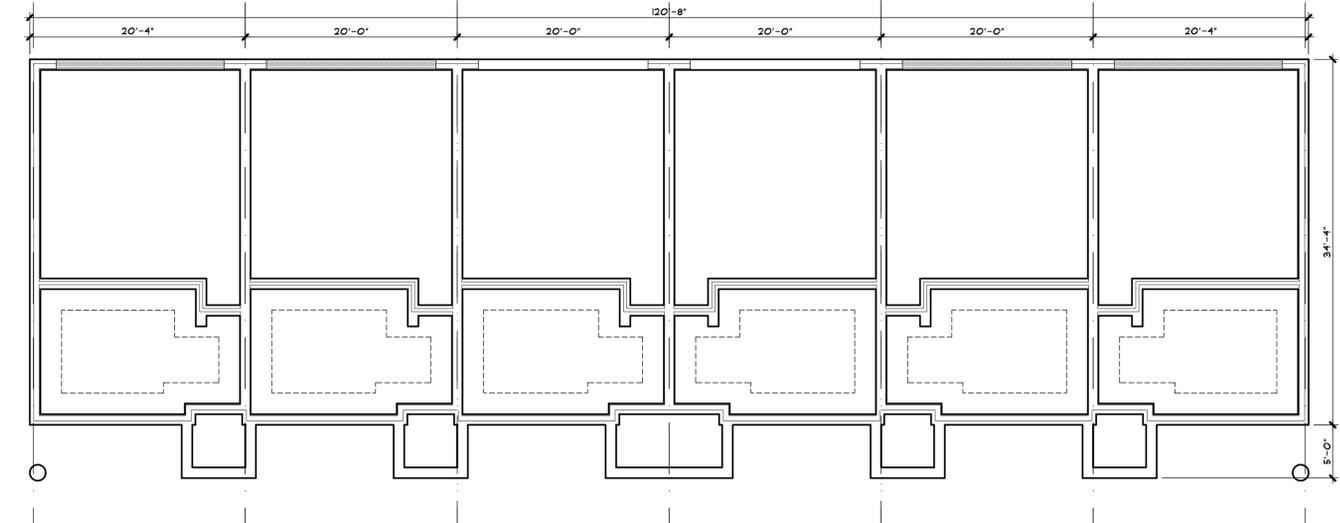
ROOF PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



FIRST FLOOR PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



FOUNDATION PLAN
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



BRIAN NEEP ARCHITECTURE P.C.
DESIGN - PLANNING - INTERIORS
BLOOMFIELD HILLS, MICHIGAN
BRIANNEEP.COM
248.259.1784

SHEET TITLE
6 UNIT BUILDING
BUILDING PLANS
PRELIMINARY

CLIENT / PROJECT
ROBERTSON HOMES
HUDSON TOWNS
20' TOWNHOUSE UNIT
SOUTH LYON, MICHIGAN

PRELIMINARY	6-18-21
BIDS	
PERMITS	
FINAL	
REVISIONS	

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ARCHITECTURE P.C.
JOB NUMBER
21038
DRAWN BY
BN / RR
CHECKED BY

SHEET NUMBER
A-12



REAR ELEVATION
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"



LEFT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



RIGHT SIDE ELEVATION

SCALE: 1/8" = 1'-0"



FRONT ELEVATION
6 UNIT BUILDING

SCALE: 1/8" = 1'-0"

PRELIMINARY	6-18-21
BIDS	
PERMITS	
FINAL	
REVISIONS	
<small>COPYRIGHT 2021 BRIAN NEEPER ARCHITECTURE P.C.</small>	
JOB NUMBER	21038
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CHECKED BY	

CLAREMONT

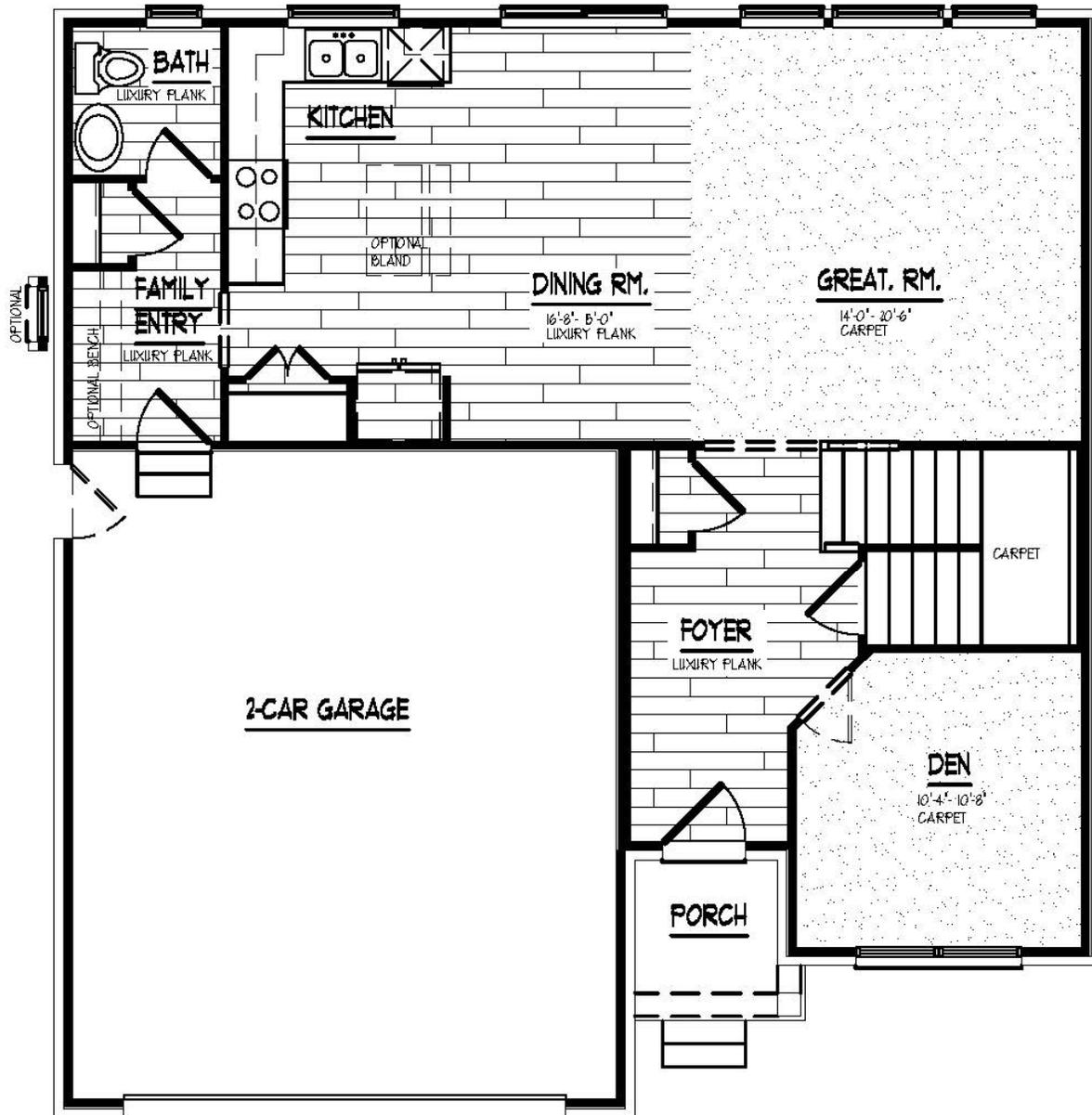
ELEVATIONS



CLAREMONT

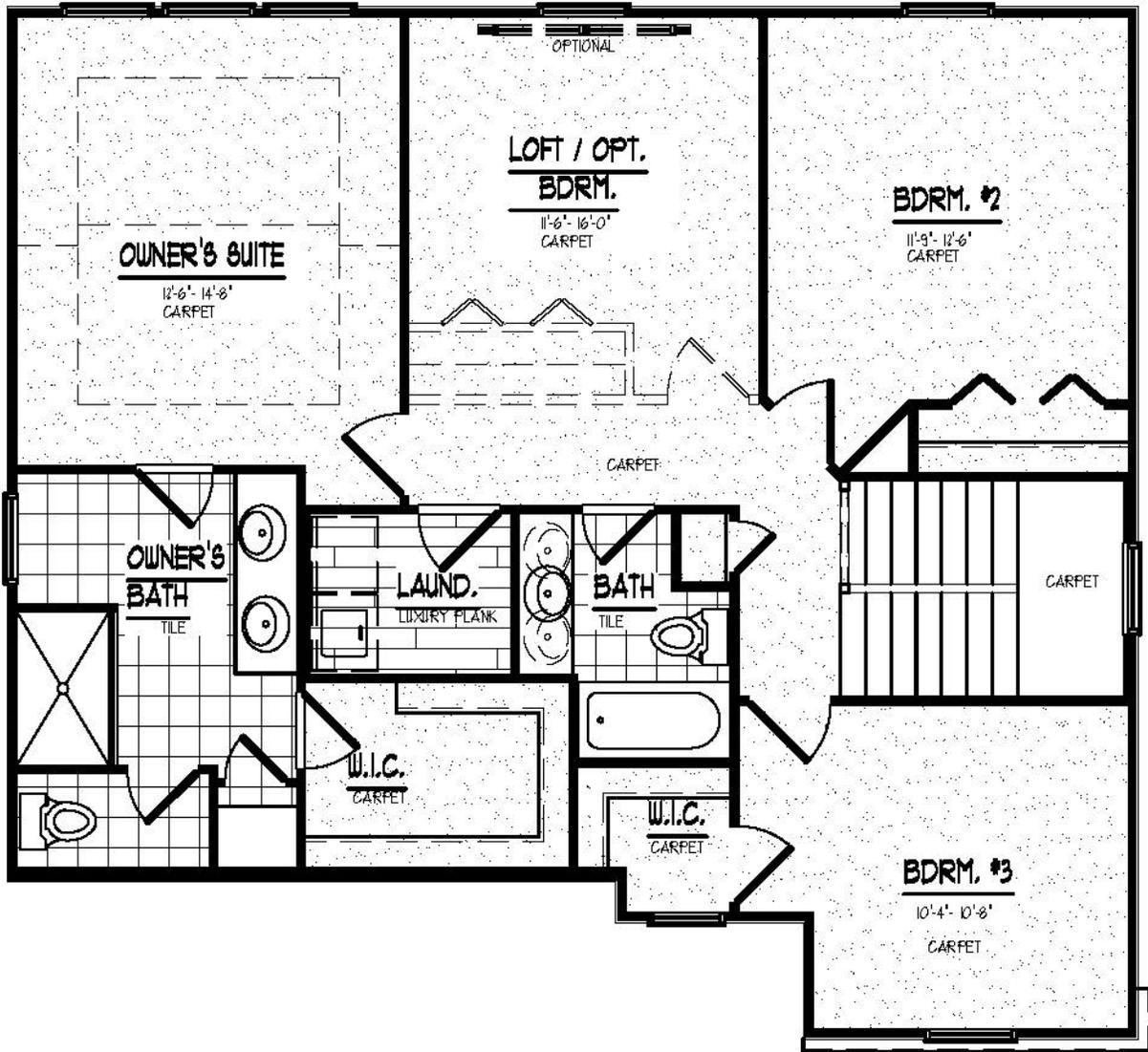
MAIN LEVEL

1,939 sqft.



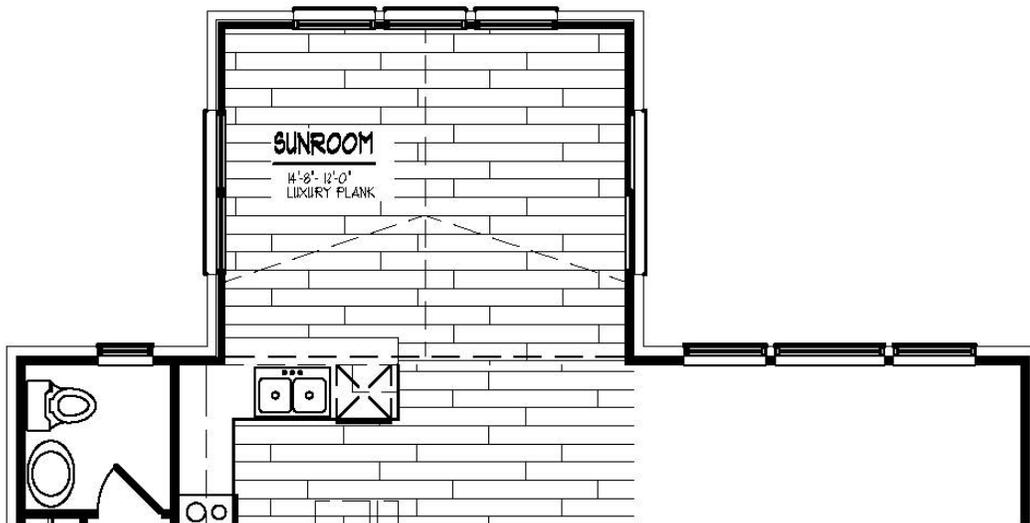
CLAREMONT

SECOND LEVEL

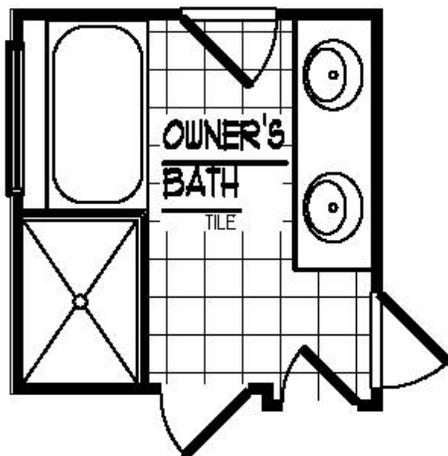


CLAREMONT

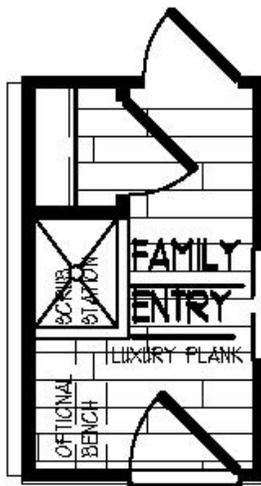
OPTIONS



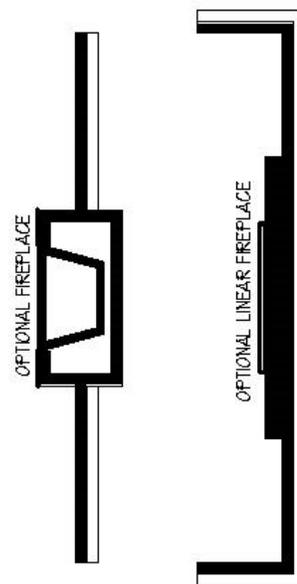
OPT. SUNROOM



OPT. OWNER'S BATH



OPT. FAMILY ENTRY



HAWTHORNE

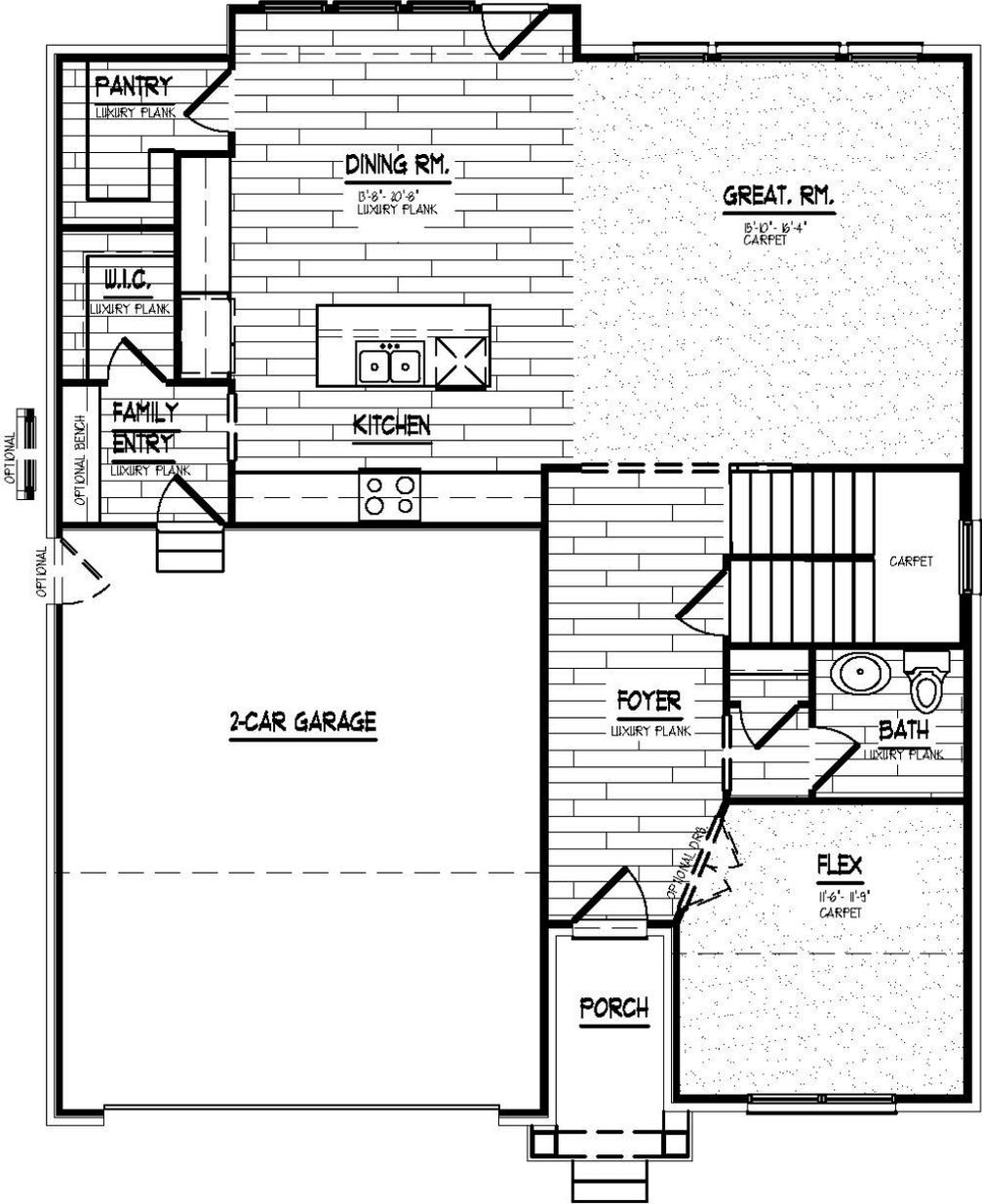
ELEVATIONS



HAWTHORNE

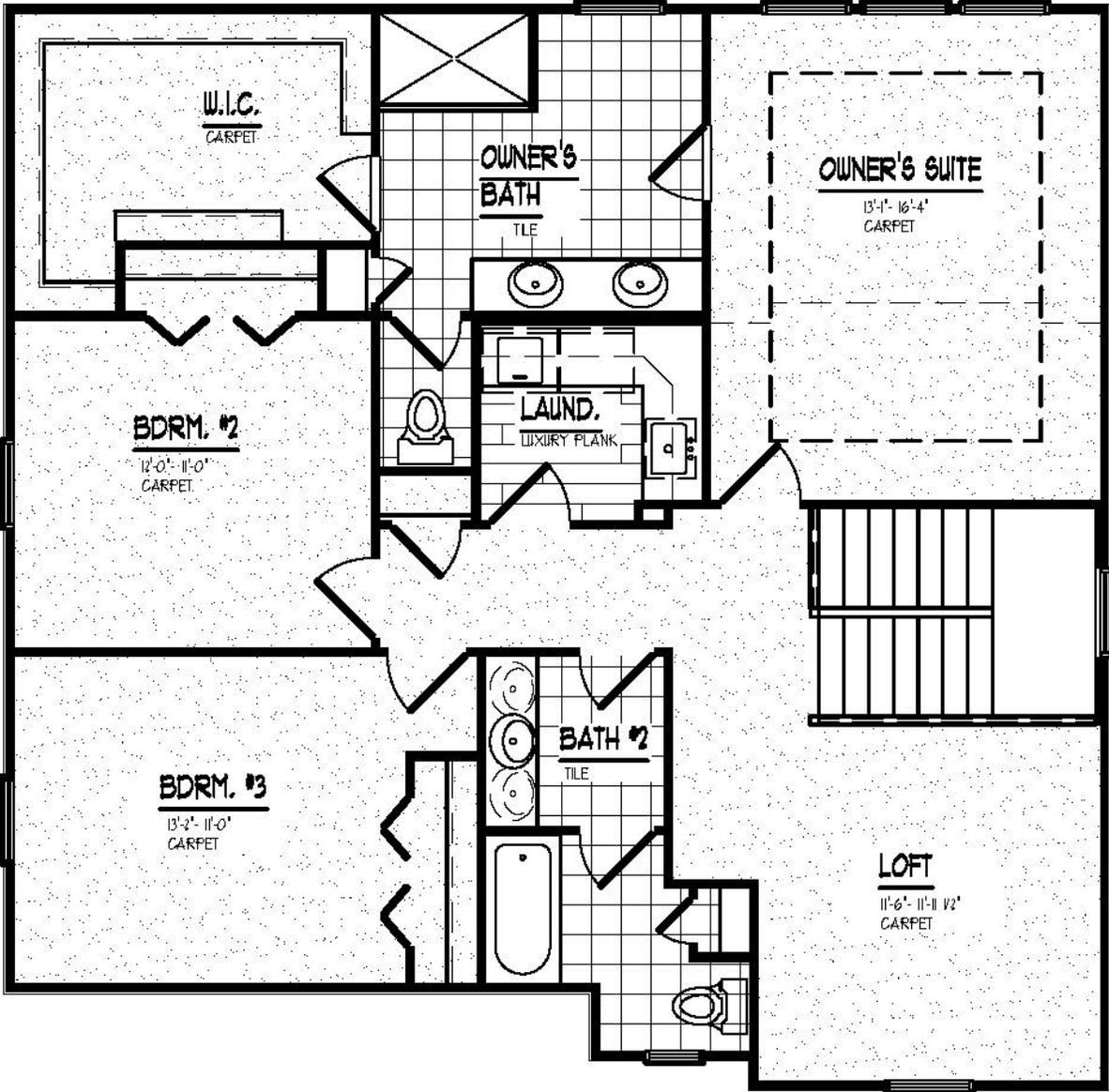
MAIN LEVEL

2,336 sqft.



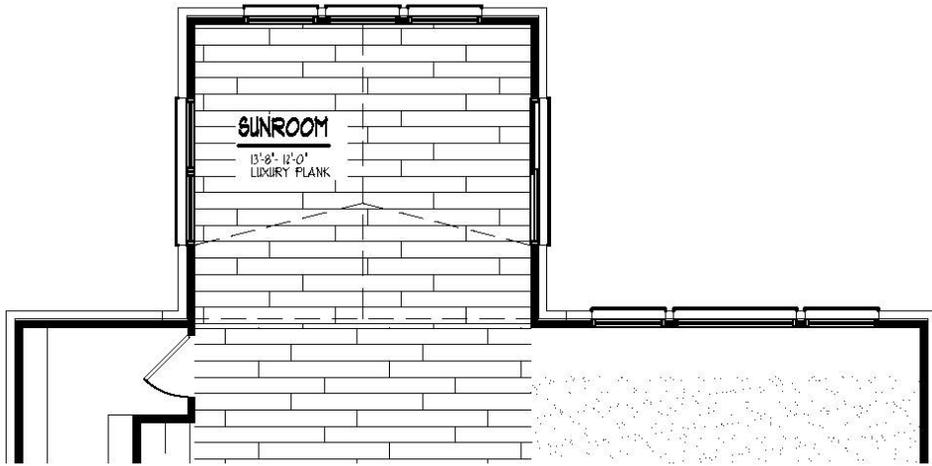
HAWTHORNE

SECOND LEVEL

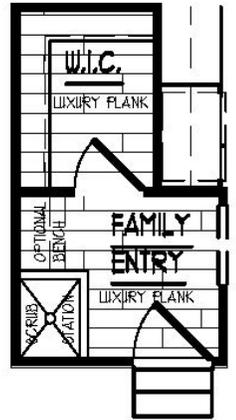
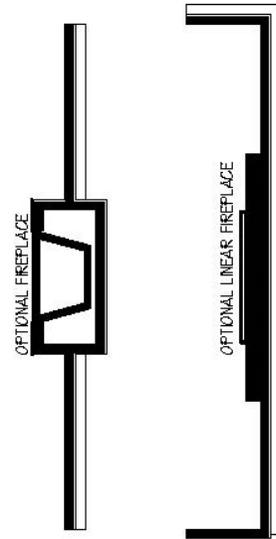


HAWTHORNE

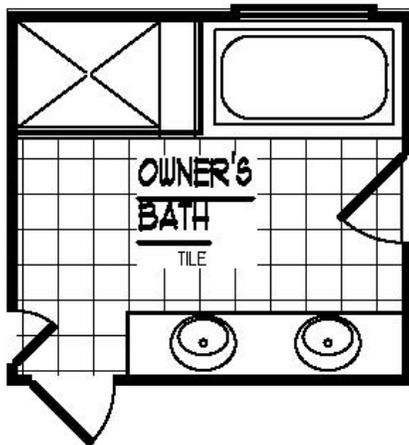
OPTIONS



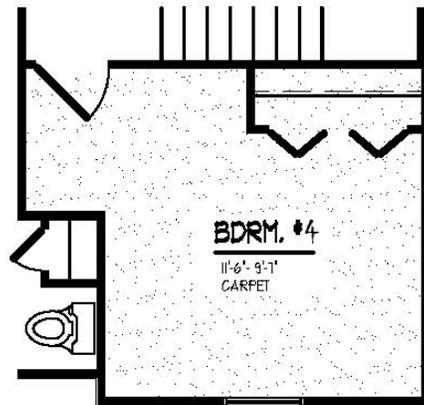
OPT. SUNROOM



OPT. FAMILY ENTRY



OPT. OWNER'S BATH



OPT. BDRM. #4

NORWOOD

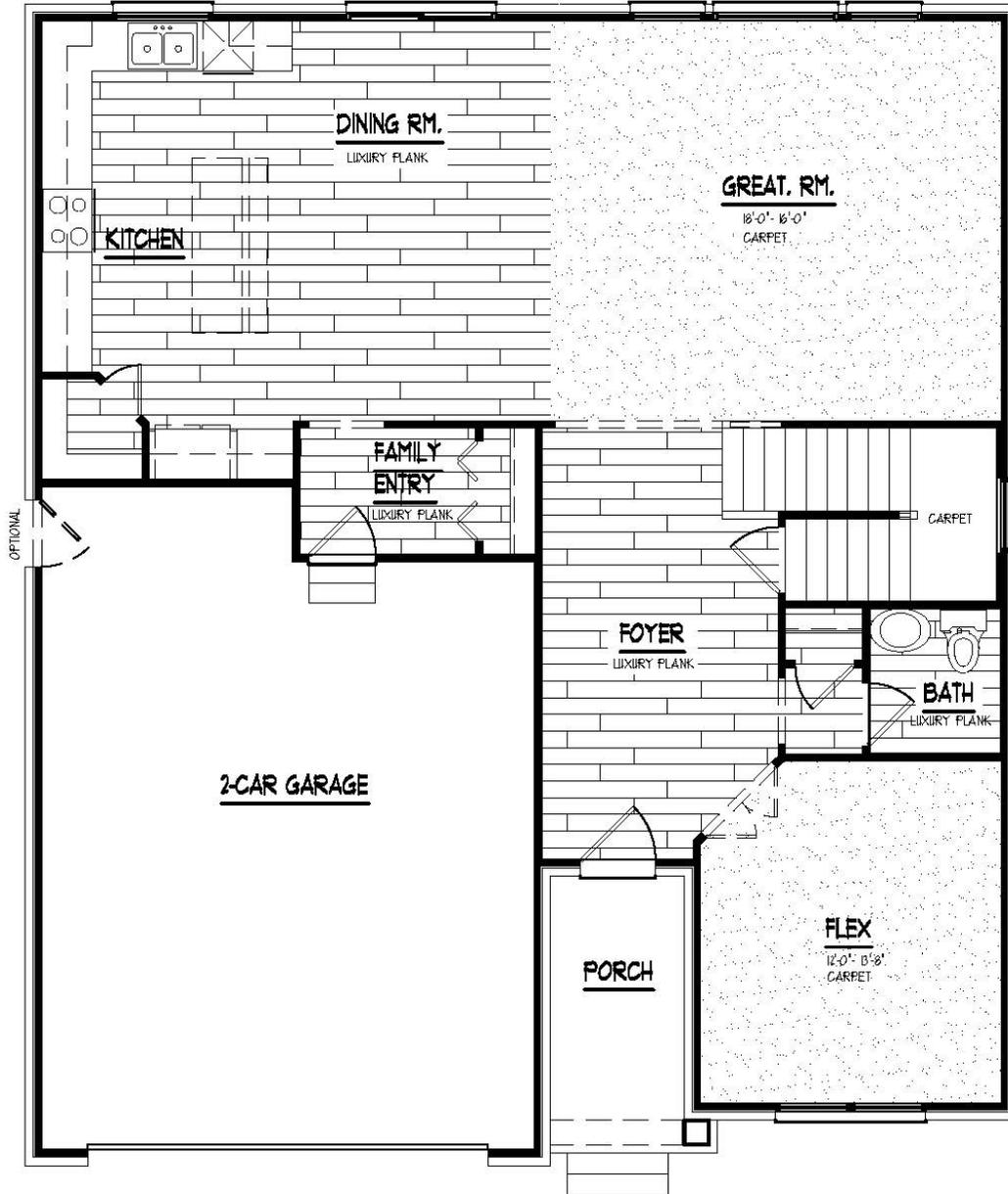
ELEVATIONS



NORWOOD

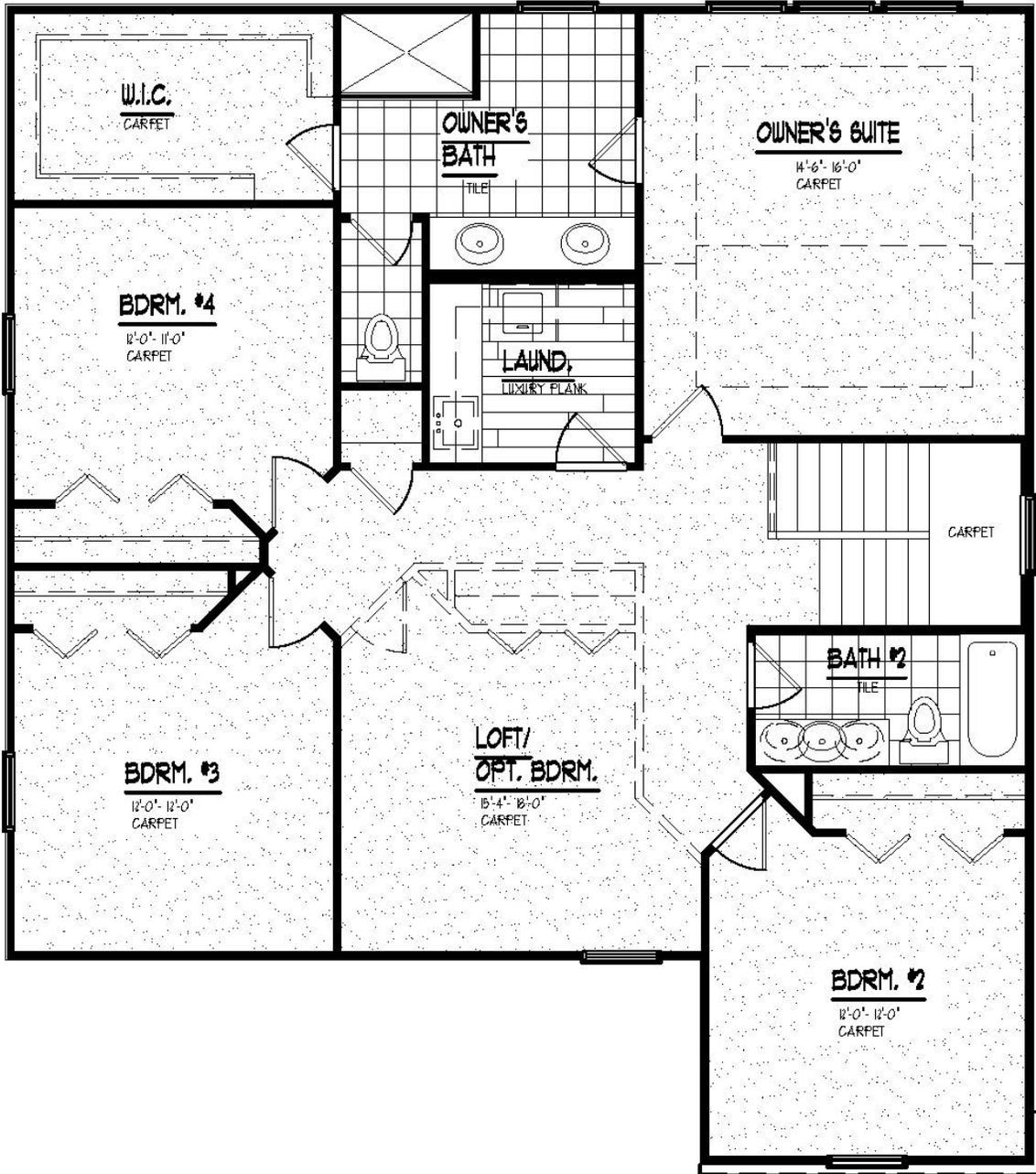
MAIN LEVEL

2,632 sqft.



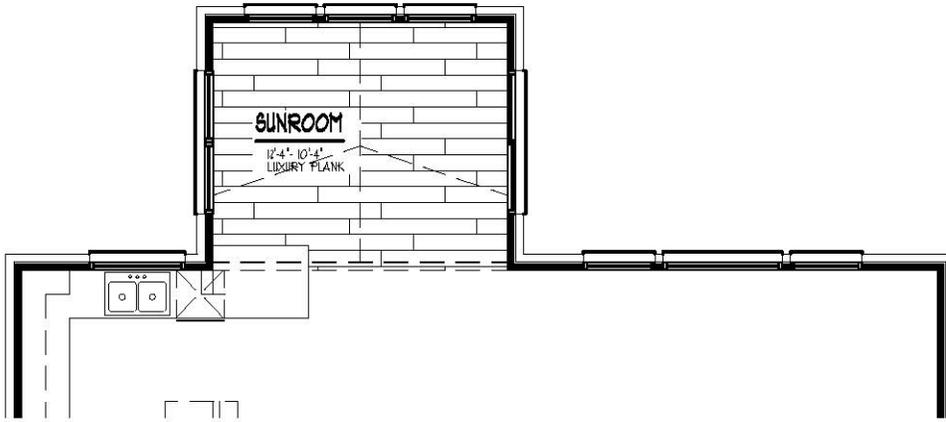
NORWOOD

SECOND LEVEL

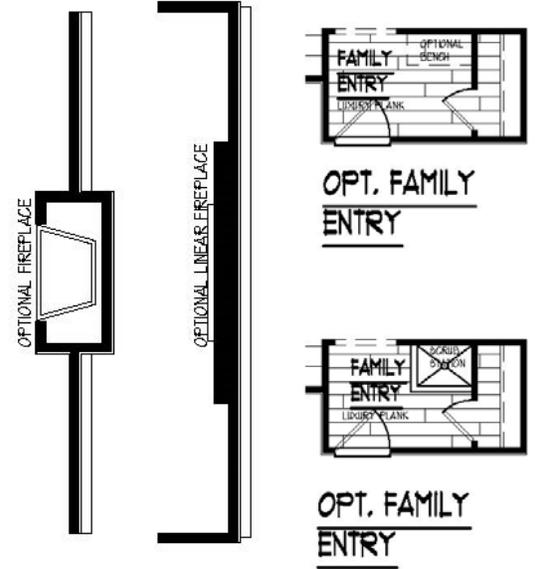


NORWOOD

OPTIONS

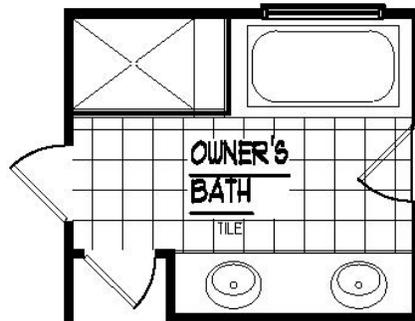
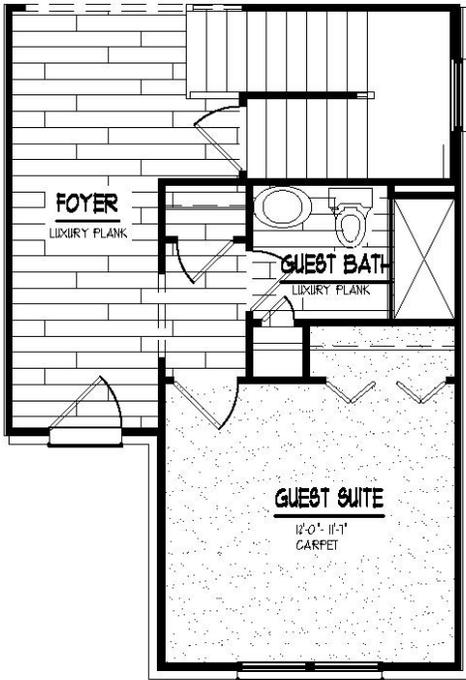


OPT. SUNROOM

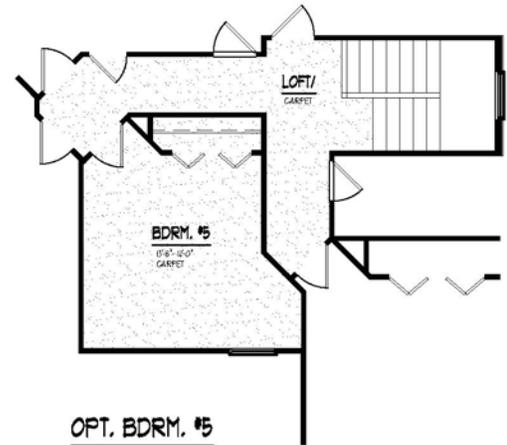


OPT. FAMILY ENTRY

OPT. FAMILY ENTRY



OPT. OWNER'S BATH



OPT. BDRM. #5

RALEIGH

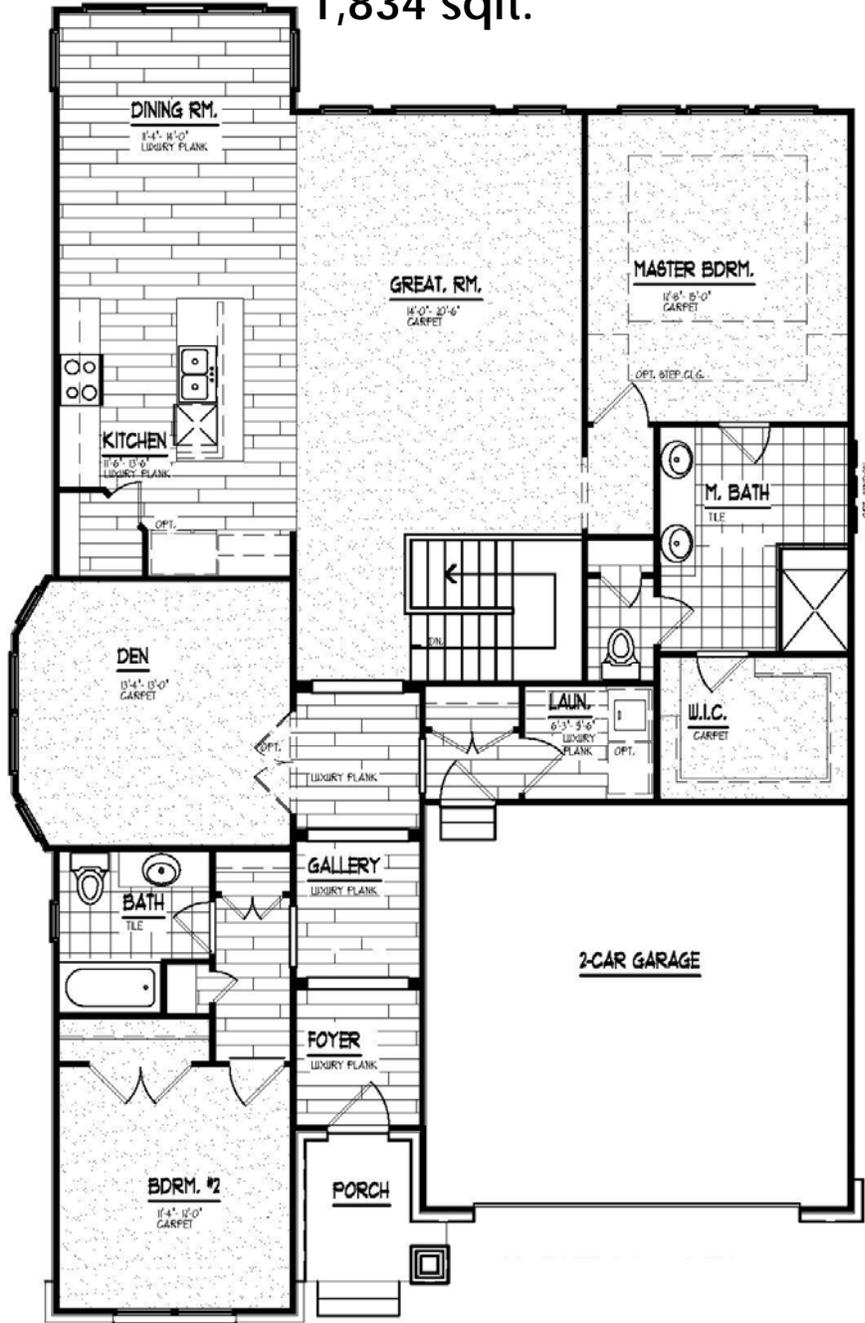
ELEVATIONS



RALEIGH

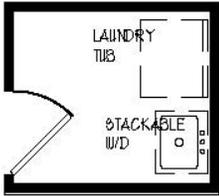
MAIN LEVEL

1,834 sqft.

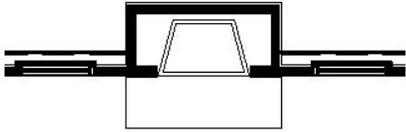


RALEIGH

OPTIONS



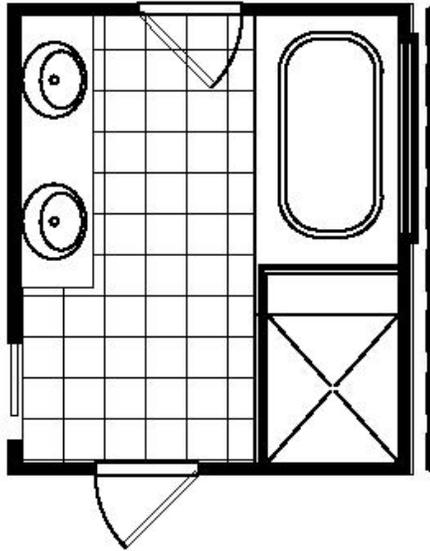
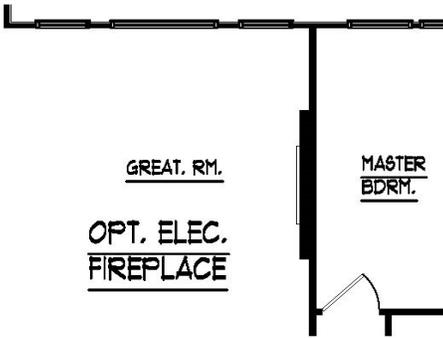
OPT. LAUNDRY



OPT. FIREPLACE



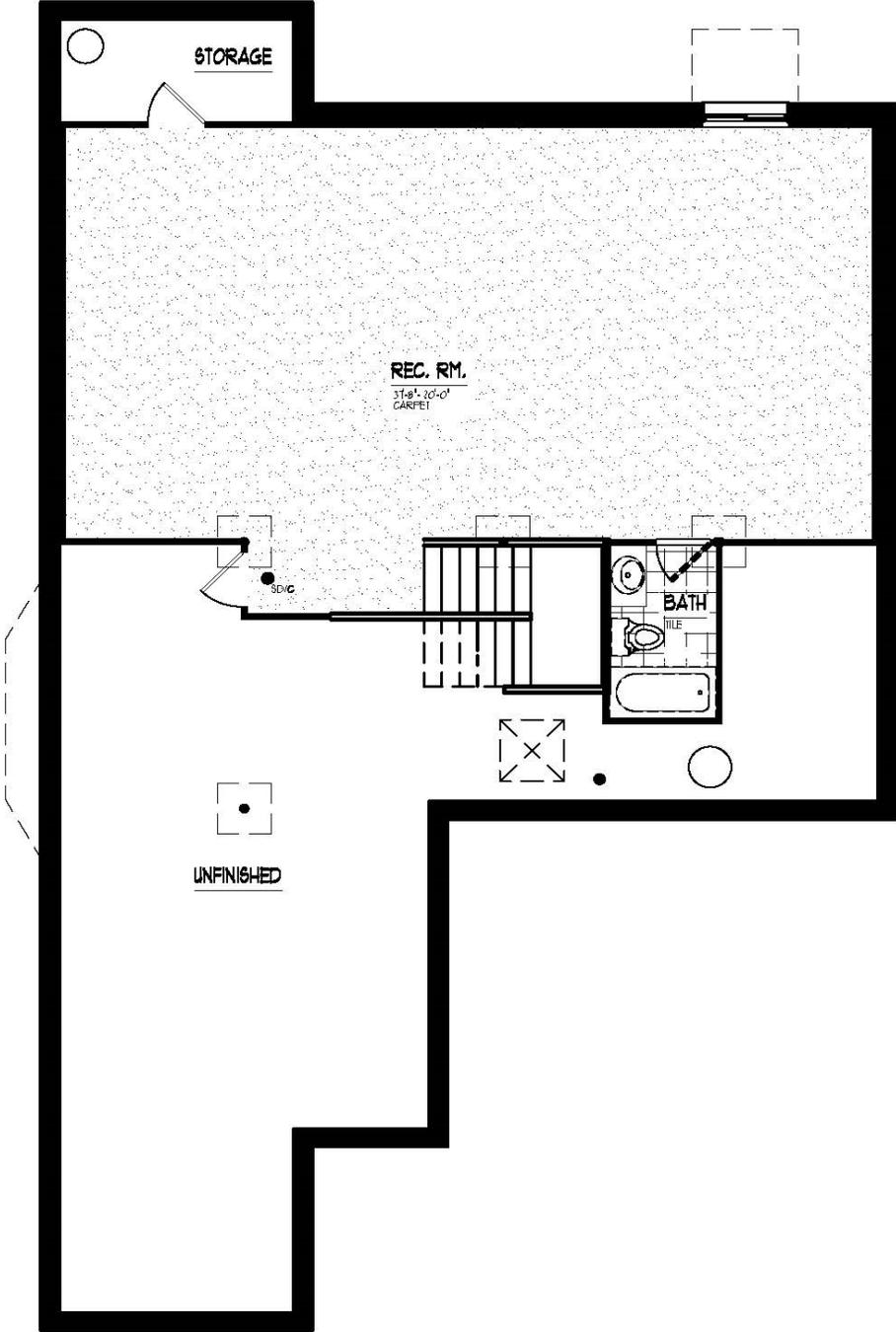
OPT. BEDROOM



OPT. M. BATH

RALEIGH

LOWER LEVEL OPTION 1 936 SQFT



Artistic conceptual rendering should be used as a reference only and not be relied upon as the final details of the residences. Images featured are samples and may not reflect your home site's garage handing, elevation conditions or color package materials. Physical material board signed off will be required during your purchase process. Any specifications in this depiction may change at developer's sole discretion without notice. All information herein was accurate at the time of publication. We reserve the right to make changes in specification, or materials, or to change or discontinue models without notice or obligation.



SHERIDAN

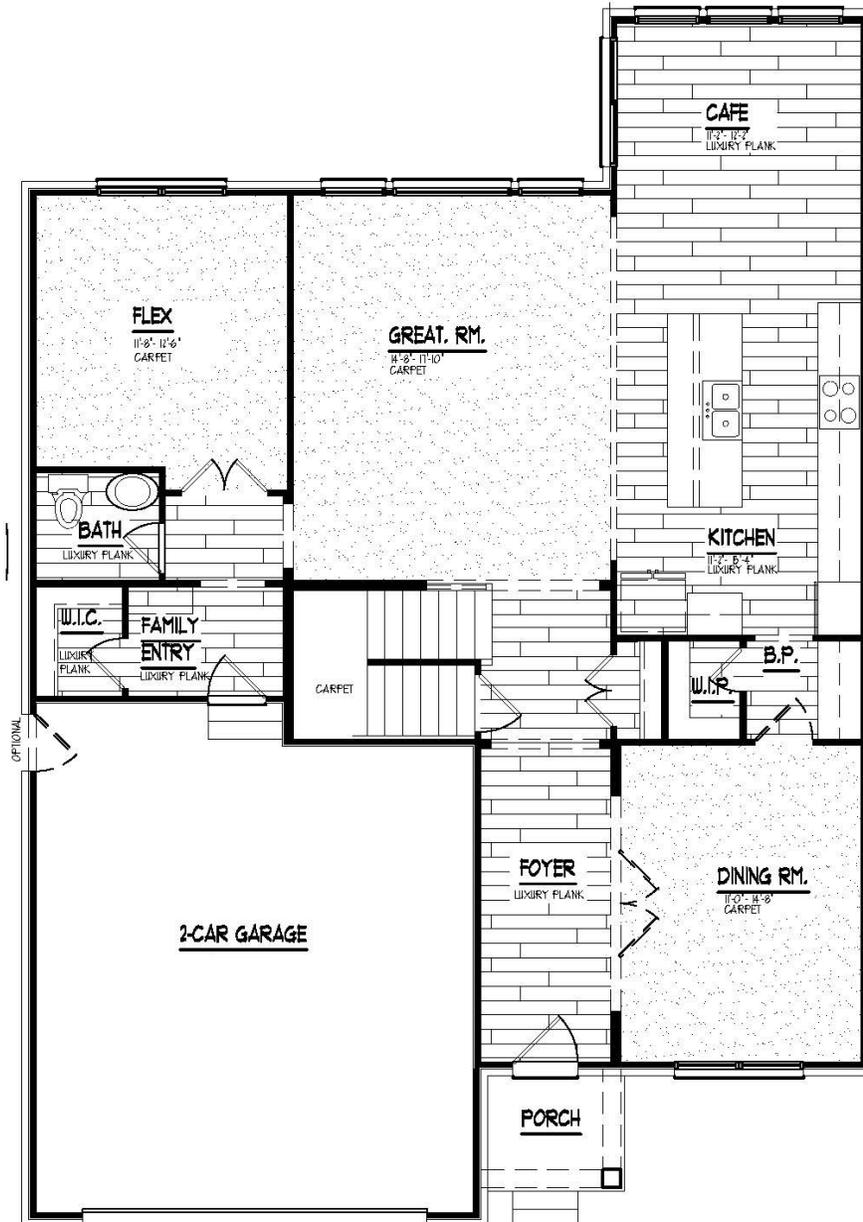
ELEVATIONS



SHERIDAN

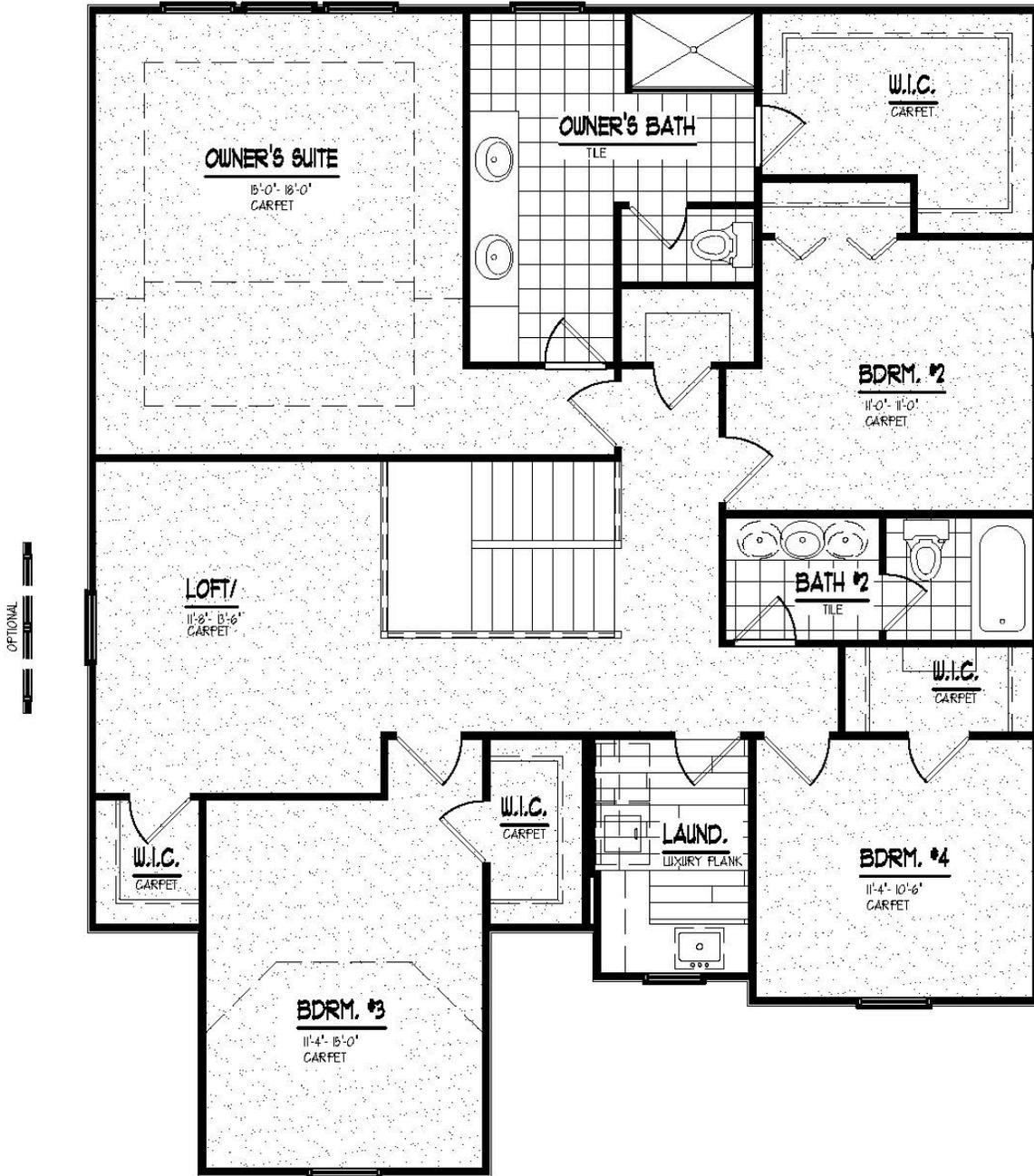
MAIN LEVEL

2,948 sqft.



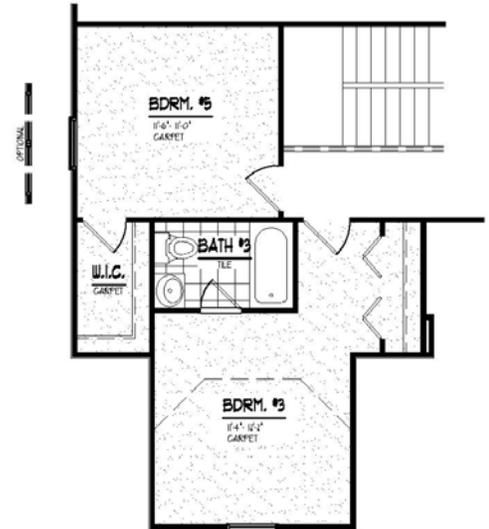
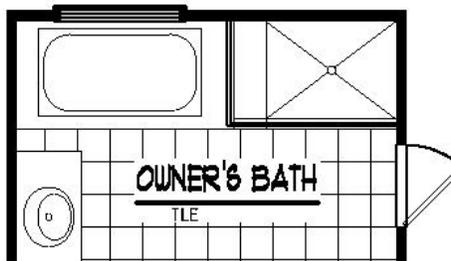
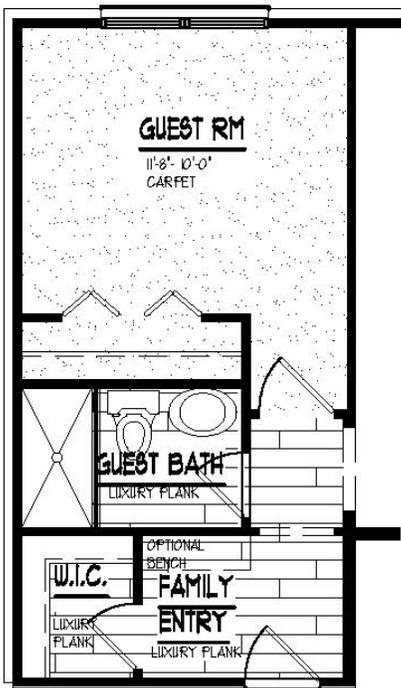
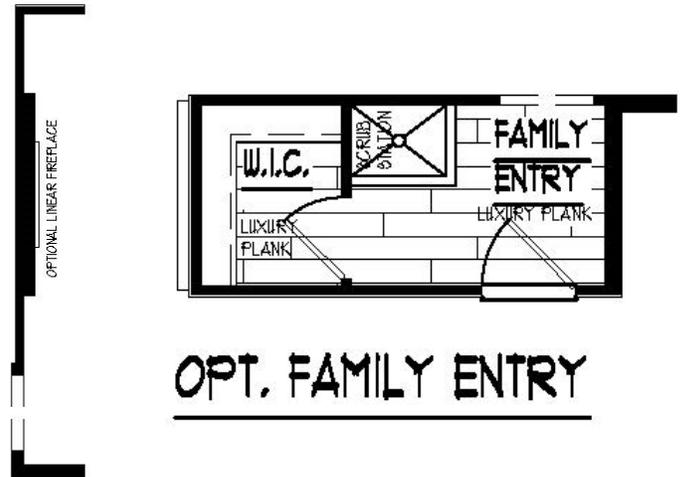
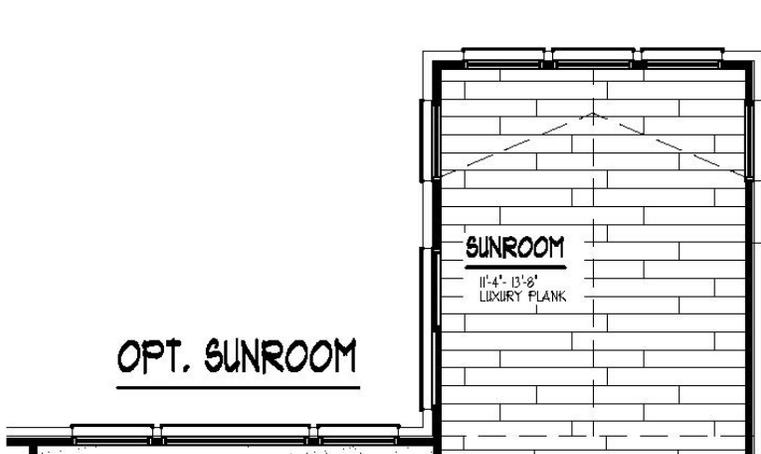
SHERIDAN

SECOND LEVEL



SHERIDAN

OPTIONS



WHITMORE

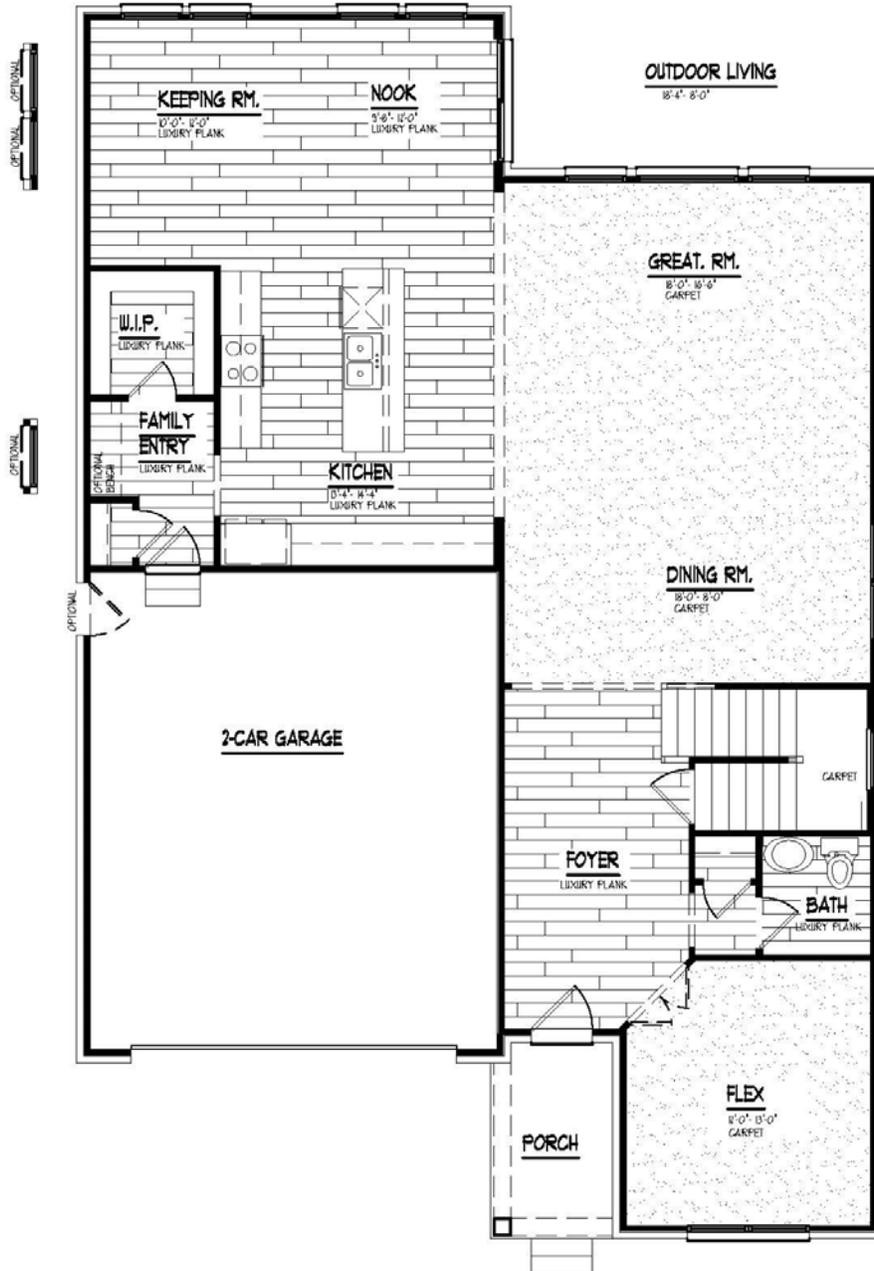
ELEVATIONS



WHITMORE

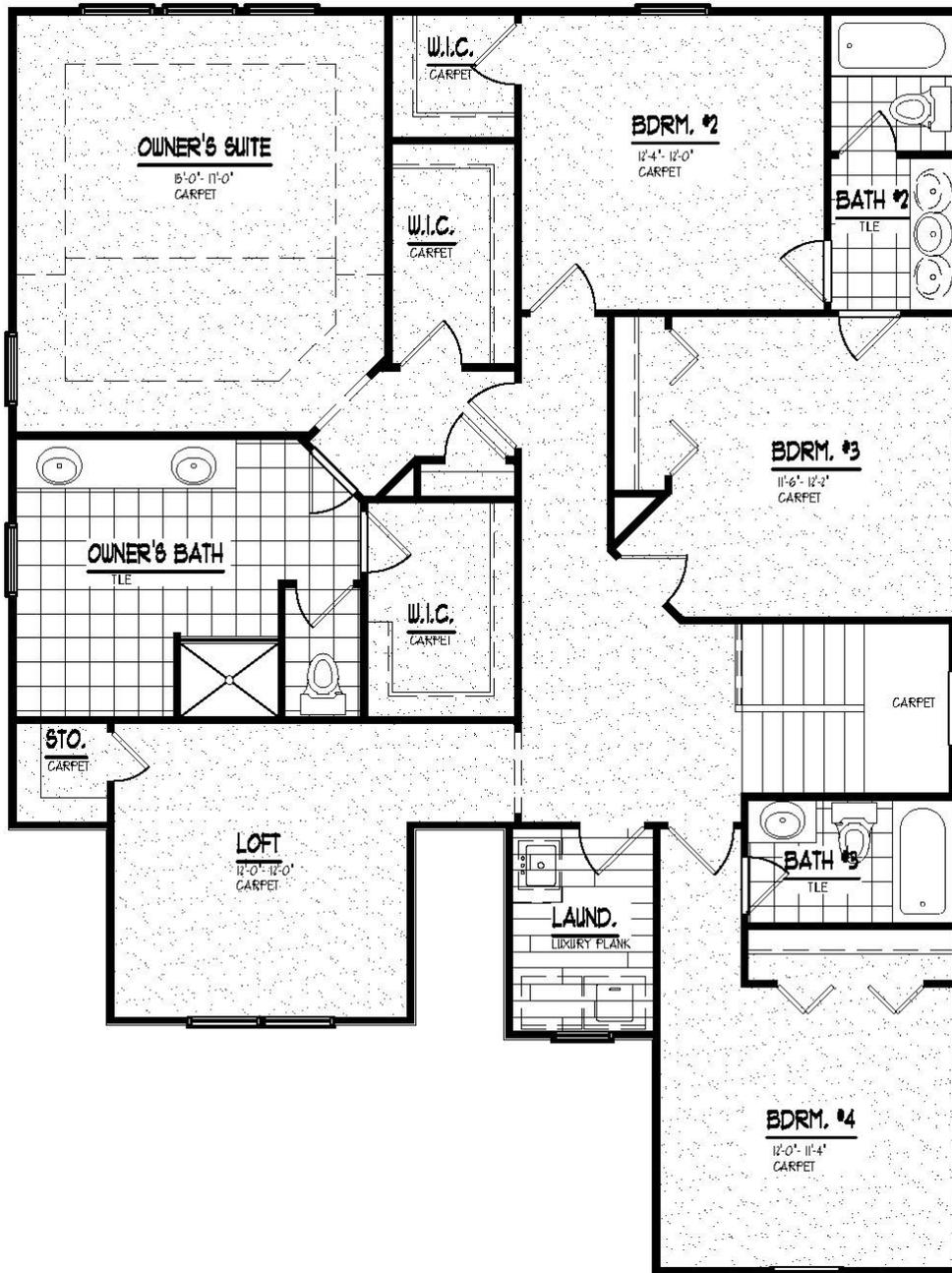
MAIN LEVEL

3,110 sqft.



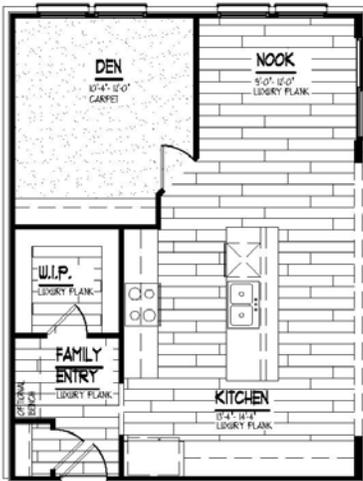
WHITMORE

SECOND LEVEL

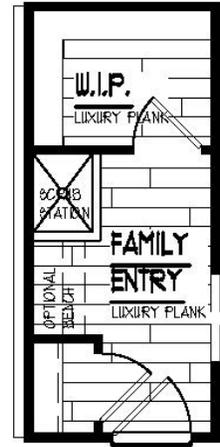
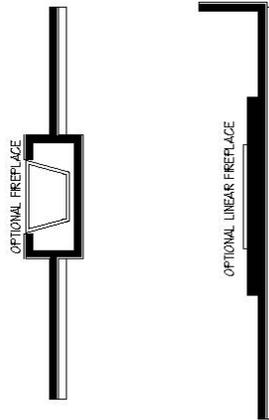


WHITMORE

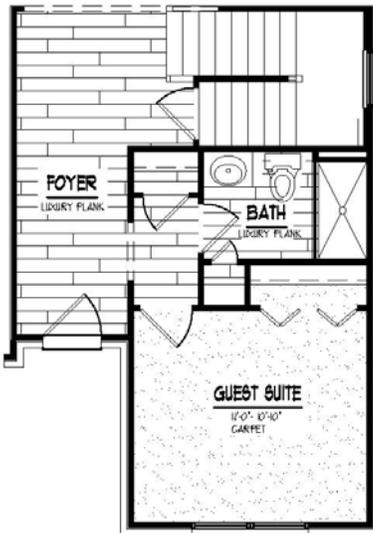
OPTIONS



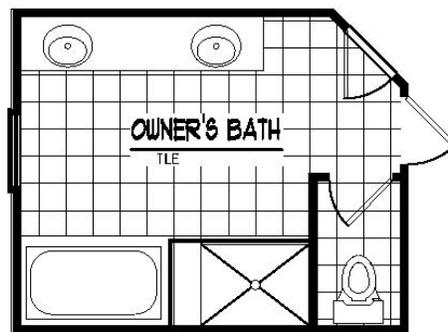
ALT. DEN OPT.



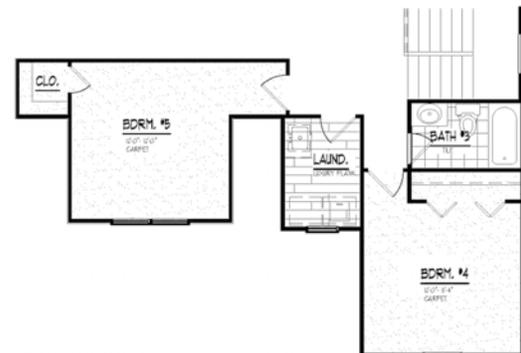
OPT. FAMILY ENTRY



OPT. GUEST SUITE



OPT. OWNER'S BATH



Mailing Address:
P.O. Box 2160
Brighton, MI 48116-2160800 395-ASTI
Fax: 810.225.3800www.asti-env.com**Sent Via Email Only**

April 5, 2021

Mr. Tim Loughrin
Robertson Brothers Homes
6905 Telegraph Road, Suite 200
Bloomfield Hills, MI 48301-3159

*RE: Wetland Delineation and Jurisdictional Assessment
Goodman Property
City of Troy, Oakland County, Michigan
ASTI File No. 11812*

Dear Mr. Loughrin:

On March 24, 2021 ASTI Environmental (ASTI) conducted a site investigation to delineate wetland boundaries on approximately 20 acres of land located west of Rochester Road and south of E. Long Lake Road, City of Troy, Oakland County, Michigan (Property). One wetland (Wetland B) likely regulated by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and three wetlands (Wetland A, Wetland C, Wetland P) not likely regulated by EGLE were found on the Property (Figure 1 – *GPS-Surveyed Wetland Boundaries*). Wetland boundaries, as depicted on Figure 1, were located using a professional grade, hand-held Global Positioning System unit (GPS).

SUPPORTING DATA AND MAPPING

The USDA Web Soil Survey (WSS), the National Wetlands Inventory (NWI), the EGLE Wetlands Map Viewer web site, and digital aerial photographs were all used to support the wetland delineation and subsequent regulatory status determination. The NWI map showed no wetlands on the Property. The EGLE map identified wetlands throughout the western portion of the Property, and wetland soils throughout the western and central portions of the Property.

In addition, the WSS indicated the Property is comprised of the soils Lenawee silty clay loam (0-1% slopes), Metea loamy sand (0-6% slopes), Selfridge loamy sand (0-3% slopes), Owosso silty loam (1-6% slopes), Aquents (sandy, loamy, undulating), and Urban land. According to the WSS, Lenawee and Aquents are listed as hydric soils.

FINDINGS

ASTI investigated the Property for the presence of any lakes, ponds, wetlands, and watercourses. This work is based on *MCL 324 Part 301 (Inland Lakes and Streams)* and *Part 303 (Wetland Protection)*.

It should be noted that some municipalities have local wetland ordinances and natural features setbacks that may apply to this property. In addition, in some circumstances the US Army Corps of Engineers (ACOE) may also have jurisdiction of wetlands or watercourses on your Property. This is not the case for your site.

The delineation protocol used by ASTI for this delineation is based on the US Army Corps of Engineers' *Wetland Delineation Manual*, 1987, the *Regional Supplement to the Corps of Engineer Wetland Delineation Manual: Northcentral and Northeast Region*, and related guidance/documents, as appropriate. Wetland vegetation, hydrology, and soils were used to locate the wetland boundaries. Four wetland areas were found on the Property and are discussed below.

Wetland A

Wetland A is a scrub-shrub wetland (see Figure 1) 0.61 acres in size. Dominant vegetation included green ash (*Fraxinus pennsylvanica*), and dogwood (*Cornus racemosa*, *Cornus amomum*). Soils were considered hydric because the criteria for depleted matrix was met. Indicators of wetland hydrology included water marks.

The adjacent upland was shrubby field. Dominant vegetation included red cedar (*Juniper virginiana*), Canada goldenrod (*Solidago canadensis*), and Queen Anne's lace (*Daucus carota*). There was no evidence of wetland hydrology. Soils were not considered hydric.

It is ASTI's opinion that Wetland A is not regulated by EGLE because it is less than five acres in size and isolated (located over 500 feet from any inland lakes, streams, or ponds).

Wetland B

Wetland B is a forested wetland (see Figure 1) 0.7 acres in size on-site. Dominant vegetation included common reed (*Phragmites australis*), green ash (*Fraxinus pennsylvanica*), silver maple (*Acer saccharinum*), and eastern cottonwood (*Populus deltoides*). Soils were considered hydric because the criteria for depleted below dark surface were met. Indicators of wetland hydrology included a high water table, saturation, and moss trim lines. This wetland continues off-site to the west and also has a culvert connection to linear wetlands located to the north of E. Long Lake Road.

The adjacent uplands included an old field that appears to have been historically developed or graded. Dominant vegetation included annual grasses, Canada thistle (*Cirsium arvense*), and Queen Anne's lace (*Daucus carota*). There was no evidence of wetland hydrology. Soils were not hydric.

It is ASTI's opinion that Wetland B is regulated by EGLE because it is greater than five acres in size, including off-site portions. This size is based off of aerial photograph interpretation.

Wetland C

Wetland C is a forested wetland (see Figure 1) 0.06 acres in size. Dominant vegetation included silver maple (*Acer saccharinum*), and bur oak (*Quercus macrocarpa*). Soils were considered hydric because the criteria for redox dark surface was met. Indicators of wetland hydrology included water stained leaves and Fac-Neutral test.

The adjacent uplands included an old field that appears to have been historically developed or graded. Dominant vegetation included annual grasses, Canada thistle (*Cirsium arvense*), and Queen Anne's lace (*Daucus carota*). There was no evidence of wetland hydrology. Soils were not hydric.

It is ASTI's opinion that Wetland C is not regulated by EGLE because it is less than five acres in size and isolated (located over 500 feet from any inland lakes, streams, or ponds).

Wetland P

Wetland P is an emergent wetland 0.06 acres in size (see Figure 1) dominated by common reed (*Phragmites australis*). Soils were considered hydric because the criteria for redox dark surface was met. Indicators of wetland hydrology included surface soil cracks and Fac-Neutral test. A non-functioning culvert left in place was observed in Wetland P.

The adjacent uplands included an old field that appears to have been historically developed or graded. Dominant vegetation included Siberian elm (*Ulmus pumila*), and common reed (*Phragmites australis*). There was no evidence of wetland hydrology. Soils were considered hydric the criteria for depleted below dark surface were met.

It is ASTI's opinion that Wetland P is not regulated by EGLE because it is less than five acres in size and isolated (located over 500 feet from any inland lakes, streams, or ponds).

Areas of Disturbance

Review of historic aerial photographs as far back as 1999 indicates that the majority of the Property has been developed and ground disturbed. During the wetland delineation activities, there were a number of isolated areas observed within old field that have been historically developed, structures razed, and ground graded. Dominant vegetation included common reed (*Phragmites australis*) and rushes (*Juncus torreyi*, *Juncus dudleyi*). These areas were determined to be upland due to a lack of a primary wetland hydrology indicator. Soil saturation, where present, was due to a restrictive layer (in this case gravel) within 12 inches of the ground surface, not a high water table. Per the USACE methodology, saturation due to a restrictive layer within 12 inches of the ground surface is not considered a primary hydrology indicator. Therefore, these areas were not identified as wetland.

Wetland Flagging

Wetland boundaries were GPS surveyed and marked in the field with day-glow pink and black striped flagging marked with the following flagging numbers:

Wetland A: A-1 through A-32

Wetland B: B-1 through B-43

Wetland C: C-1 through C-7

Wetland P: P-1 through P-8

Wetland Delineation and Jurisdictional Determination

Goodman Property

City of Troy, Oakland Co., MI

ASTI File No. 11812

SUMMARY

Based upon the data, criteria, and evidence noted above, it is ASTI's professional opinion that the Property includes one wetland, Wetland B, regulated by EGLE under the Natural Resources and Environmental Protection Act (1994 P.A. 451), Part 303 (Wetland Protection). In addition, three wetlands not likely regulated by EGLE were also found on the Property. Please note that EGLE has the final authority on the extent of regulated wetlands, lakes, and streams in the State of Michigan. Any proposed impact to the areas that ASTI has identified as regulated will require an EGLE permit.

Attached are Figure 1, which shows the GPS locations of wetland flagging on the Property, and completed US Army Corps of Engineers (ACOE) Wetland Data Forms. Please note that the data sheet numbers match the data collection sampling points shown on Figure 1.

Thank you for the opportunity to assist you with this project. Please let us know if we can be of any further assistance in moving your project forward.

Sincerely yours,

ASTI ENVIRONMENTAL



Brad Kassuba, CWB, PWS
Wetland Ecologist
Professional Wetland Scientist #1330



Dana R. Knox, PWS
Wetland Ecologist
Professional Wetland Scientist #213

Attachments: Figure 1 – *GPS-Surveyed Wetland Boundaries*
Completed ACOE Wetland Data Forms



Long Lake Road and Rochester Road,
Troy, Oakland Co., MI

Goodman Property

Figure 1 - GPS-Surveyed Wetland Boundaries

Client: Robertson Brothers Homes
Created by: RMH, April 1, 2021, ASTI Project 11812
Imagery: Oakland County 2017

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Goodman Property City/County: Oakland County Sampling Date: 3/24/21
 Applicant/Owner: Robertson Brothers Homes State: MI Sampling Point: U1
 Investigator(s): ASTI Environmental - B. Kassuba Section, Township, Range: Section 15, T02N, R11E
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): none Slope %: _____
 Subregion (LRR or MLRA): LRR L Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) 	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) _____ FAC-Neutral Test (D5)
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: U1

<u>Tree Stratum</u> (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
				=Total Cover
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'</u>)				
1. <u><i>Pinus sylvestris</i></u>	5	No	UPL	
2. <u><i>Juniperus virginiana</i></u>	5	No	FACU	
3. <u><i>Fraxinus pennsylvanica</i></u>	10	Yes	FACW	
4. <u><i>Rhamnus cathartica</i></u>	20	Yes	FAC	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
				40 =Total Cover
<u>Herb Stratum</u> (Plot size: <u>5'</u>)				
1. <u><i>Phleum pratense</i></u>	2	Yes	FACU	
2. <u><i>Solidago canadensis</i></u>	5	Yes	FACU	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
12. _____	_____	_____	_____	
				7 =Total Cover
<u>Woody Vine Stratum</u> (Plot size: <u>30'</u>)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
				=Total Cover

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>10</u>	x 2 = <u>20</u>
FAC species <u>20</u>	x 3 = <u>60</u>
FACU species <u>12</u>	x 4 = <u>48</u>
UPL species <u>5</u>	x 5 = <u>25</u>
Column Totals: <u>47</u> (A)	<u>153</u> (B)
Prevalence Index = B/A = <u>3.26</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

 2 - Dominance Test is >50%

 3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Goodman Property City/County: Oakland County Sampling Date: 3/24/21
 Applicant/Owner: Robertson Brothers Homes State: MI Sampling Point: U2
 Investigator(s): ASTI Environmental - B. Kassuba Section, Township, Range: Section 15, T02N, R11E
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): none Slope %: _____
 Subregion (LRR or MLRA): LRR L Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Selfridge loamy sand NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) This area and adjacent areas appear to have been historically developed and/or graded. Concrete rubble and gravel are prevalent. Soils are compacted or rutted as well. Surface soils were saturated at the time of inspection, but did not indicate hydrology because it does not appear to be associated with a high water table below the saturated zone, and there appears to be a restrictive layer of gravel within 12 inches of the surface.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>4</u> (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: U2

<u>Tree Stratum</u> (Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status																	
1. _____	_____	_____	_____	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover				Prevalence Index worksheet: <table style="width:100%; border:none;"> <tr> <td style="width:50%;">Total % Cover of:</td> <td style="width:50%;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>85</u></td> <td>x 2 = <u>170</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>85</u></td> <td>(A) <u>170</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.00</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>85</u>	x 2 = <u>170</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>85</u>	(A) <u>170</u> (B)	Prevalence Index = B/A = <u>2.00</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>85</u>	x 2 = <u>170</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>0</u>	x 4 = <u>0</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>85</u>	(A) <u>170</u> (B)																			
Prevalence Index = B/A = <u>2.00</u>																				
_____ =Total Cover																				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>15'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
_____ =Total Cover																				
<u>Herb Stratum</u> (Plot size: <u>5'</u>)																				
1. <u>Phragmites australis</u>	<u>70</u>	<u>Yes</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Juncus dudleyi</u>	<u>15</u>	<u>No</u>	<u>FACW</u>																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
_____ =Total Cover																				
<u>Woody Vine Stratum</u> (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				
<u>85</u> =Total Cover																				
_____ =Total Cover																				
_____ =Total Cover																				

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Goodman Property City/County: Oakland County Sampling Date: 3/24/21
 Applicant/Owner: Robertson Brothers Homes State: MI Sampling Point: U3
 Investigator(s): ASTI Environmental - B. Kassuba Section, Township, Range: Section 15, T02N, R11E
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): none Slope %: _____
 Subregion (LRR or MLRA): LRR L Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Owosso silty loam NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil Y, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u> If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) Area appears to have been graded in the past. Some gravel is present.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: U3

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30'</u>)																				
1. <u><i>Ulmus pumila</i></u>	<u>10</u>	Yes	FACU	<p>Dominance Test worksheet:</p> <p>Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)</p> <p>Total Number of Dominant Species Across All Strata: <u>4</u> (B)</p> <p>Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)</p> <p>Prevalence Index worksheet:</p> <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Total % Cover of:</th> <th style="width:50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>105</u></td> <td>x 2 = <u>210</u></td> </tr> <tr> <td>FAC species <u>0</u></td> <td>x 3 = <u>0</u></td> </tr> <tr> <td>FACU species <u>29</u></td> <td>x 4 = <u>116</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>134</u> (A)</td> <td><u>326</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.43</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>105</u>	x 2 = <u>210</u>	FAC species <u>0</u>	x 3 = <u>0</u>	FACU species <u>29</u>	x 4 = <u>116</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>134</u> (A)	<u>326</u> (B)	Prevalence Index = B/A = <u>2.43</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>105</u>	x 2 = <u>210</u>																			
FAC species <u>0</u>	x 3 = <u>0</u>																			
FACU species <u>29</u>	x 4 = <u>116</u>																			
UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>134</u> (A)	<u>326</u> (B)																			
Prevalence Index = B/A = <u>2.43</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>10</u>	=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u><i>Fraxinus pennsylvanica</i></u>	<u>50</u>	Yes	FACW	<p>Hydrophytic Vegetation Indicators:</p> <p><u> </u> 1 - Rapid Test for Hydrophytic Vegetation</p> <p><u> </u> 2 - Dominance Test is >50%</p> <p><u>X</u> 3 - Prevalence Index is ≤3.0¹</p> <p><u> </u> 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)</p> <p><u> </u> Problematic Hydrophytic Vegetation¹ (Explain)</p> <p>¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.</p> <p>Definitions of Vegetation Strata:</p> <p>Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.</p> <p>Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.</p> <p>Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.</p> <p>Woody vines – All woody vines greater than 3.28 ft in height.</p> <p>Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u></p>																
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>50</u>	=Total Cover																		
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u><i>Phragmites australis</i></u>	<u>50</u>	Yes	FACW	<p>Woody Vine Stratum (Plot size: <u>30'</u>)</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p> <p>4. _____</p> <p style="text-align:right;">=Total Cover</p>																
2. <u><i>Phalaris arundinacea</i></u>	<u>5</u>	No	FACW																	
3. <u><i>Dipsacus fullonum</i></u>	<u>19</u>	Yes	FACU																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>74</u>	=Total Cover																		

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Goodman Property City/County: Oakland County Sampling Date: 3/24/21
 Applicant/Owner: Robertson Brothers Homes State: MI Sampling Point: W1
 Investigator(s): ASTI Environmental - B. Kassuba Section, Township, Range: Section 15, T02N, R11E.
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): none Slope %: _____
 Subregion (LRR or MLRA): LRR L Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Urban land NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) <u>X</u> Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
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Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
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Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: W1

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30'</u>)																				
1. <u>Populus deltoides</u>	15	Yes	FAC	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align:center;">Total % Cover of:</td> <td style="width:50%; text-align:center;">Multiply by:</td> </tr> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>57</u></td> <td>x 2 = <u>114</u></td> </tr> <tr> <td>FAC species <u>20</u></td> <td>x 3 = <u>60</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>77</u></td> <td>(A) <u>174</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.26</u></td> </tr> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>57</u>	x 2 = <u>114</u>	FAC species <u>20</u>	x 3 = <u>60</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>77</u>	(A) <u>174</u> (B)	Prevalence Index = B/A = <u>2.26</u>	
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Column Totals: <u>77</u>	(A) <u>174</u> (B)																			
Prevalence Index = B/A = <u>2.26</u>																				
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>15</u>	=Total Cover																		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u>Rhamnus cathartica</u>	5	No	FAC	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																
2. <u>Fraxinus pennsylvanica</u>	50	Yes	FACW																	
3. <u>Cornus amomum</u>	2	No	FACW																	
4. _____																				
5. _____																				
6. _____																				
7. _____																				
	<u>57</u>	=Total Cover																		
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u>Phalaris arundinacea</u>	5	Yes	FACW																	
2. _____																				
3. _____																				
4. _____																				
5. _____																				
6. _____																				
7. _____																				
8. _____																				
9. _____																				
10. _____																				
11. _____																				
12. _____																				
	<u>5</u>	=Total Cover																		
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____				Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height.																
2. _____																				
3. _____																				
4. _____																				
				Hydrophytic Vegetation Present? Yes <u>X</u> No _____																

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Goodman Property City/County: Oakland County Sampling Date: 3/24/21
 Applicant/Owner: Robertson Brothers Homes State: MI Sampling Point: W2
 Investigator(s): ASTI Environmental - B. Kassuba Section, Township, Range: Section 15, T02N, R11E
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): concave Slope %: _____
 Subregion (LRR or MLRA): LRR L Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Selfridge loamy sand NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.)	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) <u>X</u> Water-Stained Leaves (B9) <u>X</u> High Water Table (A2) _____ Aquatic Fauna (B13) <u>X</u> Saturation (A3) _____ Marl Deposits (B15) <u>X</u> Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) <u>X</u> Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> _____ Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes <u>X</u> No _____ Depth (inches): <u>6</u> Saturation Present? Yes <u>X</u> No _____ Depth (inches): <u>5</u> (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: W2

	Absolute % Cover	Dominant Species?	Indicator Status																	
Tree Stratum (Plot size: <u>30'</u>)																				
1. <u><i>Acer saccharinum</i></u>	<u>20</u>	Yes	FACW	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) Prevalence Index worksheet: <table style="width:100%; border-collapse: collapse;"> <thead> <tr> <th style="width:50%;">Total % Cover of:</th> <th style="width:50%;">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>0</u></td> <td>x 1 = <u>0</u></td> </tr> <tr> <td>FACW species <u>73</u></td> <td>x 2 = <u>146</u></td> </tr> <tr> <td>FAC species <u>15</u></td> <td>x 3 = <u>45</u></td> </tr> <tr> <td>FACU species <u>0</u></td> <td>x 4 = <u>0</u></td> </tr> <tr> <td>UPL species <u>0</u></td> <td>x 5 = <u>0</u></td> </tr> <tr> <td>Column Totals: <u>88</u></td> <td>(A) <u>191</u> (B)</td> </tr> <tr> <td colspan="2" style="text-align:center;">Prevalence Index = B/A = <u>2.17</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:	OBL species <u>0</u>	x 1 = <u>0</u>	FACW species <u>73</u>	x 2 = <u>146</u>	FAC species <u>15</u>	x 3 = <u>45</u>	FACU species <u>0</u>	x 4 = <u>0</u>	UPL species <u>0</u>	x 5 = <u>0</u>	Column Totals: <u>88</u>	(A) <u>191</u> (B)	Prevalence Index = B/A = <u>2.17</u>	
Total % Cover of:	Multiply by:																			
OBL species <u>0</u>	x 1 = <u>0</u>																			
FACW species <u>73</u>	x 2 = <u>146</u>																			
FAC species <u>15</u>	x 3 = <u>45</u>																			
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UPL species <u>0</u>	x 5 = <u>0</u>																			
Column Totals: <u>88</u>	(A) <u>191</u> (B)																			
Prevalence Index = B/A = <u>2.17</u>																				
2. <u><i>Ulmus americana</i></u>	<u>20</u>	Yes	FACW																	
3. <u><i>Acer negundo</i></u>	<u>15</u>	Yes	FAC																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>55</u> =Total Cover																				
Sapling/Shrub Stratum (Plot size: <u>15'</u>)																				
1. <u><i>Fraxinus pennsylvanica</i></u>	<u>30</u>	Yes	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Definitions of Vegetation Strata: Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height. Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall. Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall. Woody vines – All woody vines greater than 3.28 ft in height. Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
<u>30</u> =Total Cover																				
Herb Stratum (Plot size: <u>5'</u>)																				
1. <u><i>Phragmites australis</i></u>	<u>3</u>	No	FACW																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
5. _____	_____	_____	_____																	
6. _____	_____	_____	_____																	
7. _____	_____	_____	_____																	
8. _____	_____	_____	_____																	
9. _____	_____	_____	_____																	
10. _____	_____	_____	_____																	
11. _____	_____	_____	_____																	
12. _____	_____	_____	_____																	
<u>3</u> =Total Cover																				
Woody Vine Stratum (Plot size: <u>30'</u>)																				
1. _____	_____	_____	_____																	
2. _____	_____	_____	_____																	
3. _____	_____	_____	_____																	
4. _____	_____	_____	_____																	
_____ =Total Cover																				

Remarks: (Include photo numbers here or on a separate sheet.)

WETLAND DETERMINATION DATA FORM – Northcentral and Northeast Region

Project/Site: Goodman Property City/County: Oakland County Sampling Date: 3/24/21
 Applicant/Owner: Robertson Brothers Homes State: MI Sampling Point: W3
 Investigator(s): ASTI Environmental - B. Kassuba Section, Township, Range: Section 15, T02N, R11E
 Landform (hillside, terrace, etc.): _____ Local relief (concave, convex, none): none Slope %: _____
 Subregion (LRR or MLRA): LRR L Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: Selfridge loamy sand NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)
 Are Vegetation N, Soil N, or Hydrology Y significantly disturbed? Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation N, Soil N, or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____ If yes, optional Wetland Site ID: _____
Remarks: (Explain alternative procedures here or in a separate report.) Area appears to be within a constructed swale/ditch. There is a culvert in place connecting this area to another swale/ditch. Surface water was not present.	

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u> _____ Surface Water (A1) _____ Water-Stained Leaves (B9) _____ High Water Table (A2) _____ Aquatic Fauna (B13) _____ Saturation (A3) _____ Marl Deposits (B15) _____ Water Marks (B1) _____ Hydrogen Sulfide Odor (C1) _____ Sediment Deposits (B2) _____ Oxidized Rhizospheres on Living Roots (C3) _____ Drift Deposits (B3) _____ Presence of Reduced Iron (C4) _____ Algal Mat or Crust (B4) _____ Recent Iron Reduction in Tilled Soils (C6) _____ Iron Deposits (B5) _____ Thin Muck Surface (C7) _____ Inundation Visible on Aerial Imagery (B7) _____ Other (Explain in Remarks) _____ Sparsely Vegetated Concave Surface (B8)	<u>Secondary Indicators (minimum of two required)</u> <u>X</u> Surface Soil Cracks (B6) _____ Drainage Patterns (B10) _____ Moss Trim Lines (B16) _____ Dry-Season Water Table (C2) _____ Crayfish Burrows (C8) _____ Saturation Visible on Aerial Imagery (C9) _____ Stunted or Stressed Plants (D1) _____ Geomorphic Position (D2) _____ Shallow Aquitard (D3) _____ Microtopographic Relief (D4) <u>X</u> FAC-Neutral Test (D5)
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes <u>X</u> No _____
------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

VEGETATION – Use scientific names of plants.

Sampling Point: W3

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: <u>30'</u>)				
1. <u>Populus deltoides</u>	<u>15</u>	Yes	FAC	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
	<u>15</u>	=Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
		=Total Cover		
Herb Stratum (Plot size: <u>5'</u>)				
1. <u>Phragmites australis</u>	<u>80</u>	Yes	FACW	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
12. _____				
	<u>80</u>	=Total Cover		
Woody Vine Stratum (Plot size: <u>30'</u>)				
1. _____				
2. _____				
3. _____				
4. _____				
		=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species <u>0</u>	x 1 = <u>0</u>
FACW species <u>80</u>	x 2 = <u>160</u>
FAC species <u>15</u>	x 3 = <u>45</u>
FACU species <u>0</u>	x 4 = <u>0</u>
UPL species <u>0</u>	x 5 = <u>0</u>
Column Totals: <u>95</u> (A)	<u>205</u> (B)
Prevalence Index = B/A = <u>2.16</u>	

Hydrophytic Vegetation Indicators:

 1 - Rapid Test for Hydrophytic Vegetation

2 - Dominance Test is >50%

3 - Prevalence Index is ≤3.0¹

 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)

 Problematic Hydrophytic Vegetation¹ (Explain)

¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Vegetation Strata:

Tree – Woody plants 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/shrub – Woody plants less than 3 in. DBH and greater than or equal to 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vines – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes No

Remarks: (Include photo numbers here or on a separate sheet.)

MEMO

VIA EMAIL tloughrin@robertsonhomes.com

To: Mr. Tim Loughrin
Director of Land Acquisition
Robertson Brothers Homes

From: Julie Kroll, PE, PTOE
Trevor Boer
Fleis & VandenBrink

Date: June 22, 2022

Re: The Village of Troy PUD
City of Troy, Michigan
Traffic Impact Study

1 INTRODUCTION

This memorandum presents the results of the Traffic Impact Study (TIS) for the proposed Village of Troy PUD. The proposed residential development is located generally in the southeast quadrant of the Long Lake Road and Rochester Road intersection in Troy, Michigan. The project includes the construction of single-family detached homes and single-family attached (townhomes/duplex) residential homes, with site access provided via two (2) driveways; one (1) driveway on Long Lake Road and one (1) driveway on Rochester Road. Long Lake Road is under the jurisdiction of the Road Commission for Oakland County (RCOC) and Rochester Road is under the jurisdiction of the City of Troy. The City of Troy has required the completion of Traffic Impact Study for the development as part of the PUD site plan approval process.

The scope of work for this study was developed based on the requirements of the City of Troy, Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practices, and information published by the Institute of Transportation Engineers (ITE). The study analyses were completed using Synchro/SimTraffic (Version 11). Sources of data for this study include F&V subconsultant Gewalt Hamilton Associates, SEMCOG, MDOT, and ITE.

2 BACKGROUND

2.1 EXISTING ROAD NETWORK

The lane uses and traffic control at the study intersections are shown on the attached **Figure 2**, and the study roadways are summarized in **Table 1** and are further described herein. For the purposes of this study, all minor streets, crossovers, and site driveways are assumed to have an operating speed of 25 miles per hour (mph), unless otherwise noted.

Table 1: Roadway Information

Roadway Segment	Long Lake Road	Rochester Road	Glaser Drive
Number of Lanes	4 Lanes (divided boulevard)	5 Lanes (2 lanes each direction + TWLTL)	2 Lanes (1 lane each direction)
Functional Classification	Other Principal Arterial	Other Principal Arterial	Local Road
Roadway Jurisdiction	RCOC	City of Troy	City of Troy
Speed Limit	45 mph	45 mph	25 mph
Traffic Volumes (SEMCOG)	26,695 vpd (2019)	23,209 vpd (2019)	N/A

Long Lake Road generally runs in the east and west directions, north of the project sight, with a posted speed limit of 45 mph. Long Lake Road has an Annual Average Daily Traffic (AADT) volume of approximately 26,695 vehicles per day (SEMCOG 2019); 12,713 vpd EB and 13,982 vpd WB. The roadway has a four-lane, median divided cross-section, with the with two (2) lanes eastbound and two (2) lanes westbound. At the intersection with Rochester Road, Long Lake Road widens to have exclusive right-turn lanes; left-turns are facilitated via median U-turns. Long Lake Road is under the jurisdiction of the RCOC and has a functional classification of an *Other Principal Arterial*.

Rochester Road generally runs in the north and south directions, east of the project site, with a posted speed limit of 45 mph. Rochester Road has an Annual Average Daily Traffic (AADT) volume of approximately 22,342 vehicles per day (SEMCOG 2019) northbound and approximately 23,209 vehicles per day (SEMCOG 2019) southbound. The roadway has five (5) lanes, with the with two (2) lanes northbound, two (2) lanes southbound, and a two-way left-turn lane (TWLTL). At the intersection with Rochester Road, Long Lake Road widens to have exclusive right-turn lanes; left-turns are facilitated via median U-turns. Rochester Road is under the jurisdiction of the City of Troy and has a functional classification of *Other Principal Arterial*.

Glaser Drive generally runs in the east and west directions, adjacent to the east side of the project site. The roadway is classified as *Local Road* and is under the jurisdiction of the City of Troy. Glaser Drive does not have a posted speed limit; therefore, a premia facia residential street speed limit of 25 mph was assumed for this roadway. The roadway geometry is a typical two-lane cross section with one lane in each direction. Additionally, the eastbound approach at Rochester Road permits right-turn only movements.

2.2 EXISTING TRAFFIC VOLUMES

Due to the impacts of COVID-19, current traffic volume data is not representative of “typical” operations. Therefore, the traffic volume data necessary for this study were obtained from multiple sources:

- Sydney Coordinated Automated Traffic System (SCATS) volume data was obtained along Long Lake Road and Rochester Road from RCOC for use in this study. The SCATS data utilized for this study was obtained on Wednesday, March 30th, 2018, and Wednesday, June 5th, 2019 prior to the traffic impacts of COVID-19.
- F&V subconsultant Traffic Data Collection, Inc. (TDC) performed weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hour turning movement counts on Wednesday, June 1st, 2022, at the study intersections.

The mainline traffic volumes at the 2022 intersections were compared with historical volumes and the SCATS mainline volumes at the signalized intersection of Rochester Road & Long Lake Road; then COVID-19 adjustment factors were determined for each of the study intersection’s approaches as shown in **Table 2**. The results of the comparison showed that only the AM peak hour currently has traffic volumes lower than expected. The PM peak hour and during both the AM and PM southbound approach, traffic volumes are higher than expected, therefore no COVID adjustments were applied for these approaches.

Table 2: COVID Adjustment Factors

Rochester Road & Long Lake Road				
Peak Period	EB	WB	NB	SB
AM	33%	39%	24%	N/A
PM	N/A	N/A	N/A	N/A



The COVID-19 adjustment factors and growth rates were applied in order to calculate the baseline ‘existing’ 2022 traffic volumes, as shown on the attached **Figure 3**. The traffic volumes were then balanced upwards through the study network. Dummy nodes were utilized where necessary to account for sink-and-source between intersections.

The peak periods for the adjacent streets were observed to generally occur between 7:30AM to 8:30 AM and 4:45 PM to 5:45 PM. F&V collected an inventory of existing lane use and traffic controls, as shown on the attached **Figure 2**; additionally, F&V obtained the signal timing permits from RCOC. All applicable background data referenced in this memorandum are attached.

3 EXISTING CONDITIONS

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro/SimTraffic (Version 11) traffic analysis software. This analysis was based on the existing lane use and traffic control shown on the attached **Figure 2**, the existing peak hour traffic volumes shown on the attached **Figure 3**, and the methodologies presented in the Highway Capacity Manual, 6th Edition (HCM6). The lane use and traffic control used at of the study intersection of Rochester Road and Long Lake Road includes non-NEMA phasing and clustered intersections, which are not supported by the HCM 6th Edition (HCM6) analysis methodology; therefore, HCM 2000 was determined to be more appropriate for use at signalized intersections.

Descriptions of LOS “A” through “F” as defined in the HCM, are attached for signalized and unsignalized intersections. Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. Microsimulations were also conducted at the study intersections using SimTraffic to further evaluate the network performance and vehicle queueing. The results of the analysis of existing conditions are attached and are summarized in **Table 3**.

Table 3: Existing Intersection Operations

Intersection	Control	Approach	Existing Conditions			
			AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1 Rochester Road & Glaser Drive	Stop (Minor)	EBR	19.2	B	12.8	B
		WB	\$	F	\$	F
		NBL	13.7	B	10.0	A
		SBL	14.6	B	21.0	C
2 Rochester Road & Long Lake Road	Signalized	EBT	17.2	B	42.1	D
		EBR	15.8	B	15.3	B
		WBT	83.0	F	28.3	C
		WBR	25.5	C	26.0	C
		NBT	31.9	C	45.4	D
		NBR	21.0	C	27.0	C
		SBT	69.8	E	27.3	C
		SBR	21.2	C	19.8	B
		Overall	52.1	E	30.4	C
3 WB to EB Long Lake Road X/O West of Rochester Road	Signalized	EB	23.0	C	24.4	C
		SBL	36.9	D	35.2	D
		Overall	26.6	C	26.2	C

\$ Delay Exceeds 300 Seconds

The results of the existing conditions analysis indicates that all approaches and movements at the study intersections are currently operating acceptably (at LOS D or better) during both peak periods with the following exceptions:

Rochester Road & Long Lake Road

- During AM peak hour: The intersection is currently operating at LOS E. The southbound and westbound through movements are currently operating at LOS E and LOS F, respectively.
- The high volumes of southbound and westbound through traffic are both in need of signal split time to accommodate the directional traffic volumes. Since the movements are conflicting, the signal splits are essentially equal, and neither southbound nor westbound approaches operate well.
- The City and RCOC should continue to monitor the intersection operations as traffic volumes recover post-COVID to determine if regional improvements on Rochester Road and Long Lake Road should be considered to improve the intersection operations.

Rochester Road & Glaser Drive

- During AM and PM peak hour: The westbound approach is currently operating at LOS F.
- The westbound approach has very low traffic volumes (6 AM and 23 PM). Although a poor LOS was calculated by the HCM analysis, a review of SimTraffic network simulations indicates vehicles are able to find adequate gaps within the through traffic along Rochester Road without experiencing significant delays or excessive vehicle queueing.

4 BACKGROUND CONDITIONS (2027)

Historical population and economic profile data was obtained for the City of Troy from the Southeast Michigan Council of Governments (SEMCOG) to calculate a background growth rate for the 2022 traffic volumes in order to calculate the 2027 site buildout year traffic volumes. Population and employment projections from 2020 to 2045 were reviewed and show an average annual growth of -0.15% and 0.30%, respectively. Therefore, a conservative background growth rate of **0.50%** per year was applied to the adjusted existing peak hour traffic volumes to forecast the background 2027 traffic volume *without the proposed development*.

Background peak hour vehicles delays and LOS *without the proposed development* were calculated at the study intersections based on the existing lane use and traffic control shown on the attached **Figure 2**, the background traffic volumes shown on the attached **Figure 4**, and the methodologies presented in the HCM6. The results of the background conditions analysis are attached and summarized in **Table 4**.

Table 4: Background Intersection Operations

Intersection		Control	Approach	Existing Conditions				Background Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Rochester Road & Glaser Drive	Stop (Minor)	EBR	19.2	B	12.8	B	20.8	C	13.3	B	1.6	B→C	0.5	-
			WB	\$	F	\$	F	\$	F	\$	F	N/A	-	N/A	-
			NBL	13.7	B	10.0	A	14.6	B	10.3	B	0.9	-	0.3	A→B
			SBL	14.6	B	21.0	C	14.9	B	21.8	C	0.3	-	0.8	-
2	Rochester Road & Long Lake Road	Signalized	EBT	17.2	B	42.1	D	17.3	B	51.0	D	0.1	-	8.9	-
			EBR	15.8	B	15.3	B	15.9	B	16.4	B	0.1	-	1.1	-
			WBT	83.0	F	28.3	C	93.4	F	28.4	C	10.4	-	0.1	-
			WBR	25.5	C	26.0	C	25.6	C	26.1	C	0.1	-	0.1	-
			NBT	31.9	C	45.4	D	32.8	C	50.5	D	0.9	-	5.1	-
			NBR	21.0	C	27.0	C	21.2	C	27.6	C	0.2	-	0.6	-
			SBT	69.8	E	27.3	C	79.5	E	27.9	C	9.7	-	0.6	-
			SBR	21.2	C	19.8	B	21.3	C	20.0	B	0.1	-	0.2	-
			Overall	52.1	E	30.4	C	58.7	E	34.6	C	6.6	-	4.2	-

Intersection		Control	Approach	Existing Conditions				Background Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
3	WB to EB Long Lake Road X/O West of	Signalized	EB	23.0	C	24.4	C	23.1	C	24.9	C	0.1	-	0.5	-
			SBL	36.9	D	35.2	D	34.6	D	35.0	D	-2.3	-	-0.2	-
			Overall	26.6	C	26.2	C	26.2	C	26.6	C	-0.4	-	0.4	-

\$ Delay Exceeds 300 Seconds

The results of the background conditions analysis indicates that all of the study intersection’s approaches and movements will continue to operate in a manner similar to existing conditions analysis. *Note: Several of the intersection movements improved with the addition of background traffic. This is due to the optimization of signal splits with the SCATS operations and increased lane utilization which decreased the delay for certain movements.*

5 SITE TRIP GENERATION

The proposed development includes the construction of 20 single-family detached homes and 126 single-family attached homes. The number of weekday peak hour (AM and PM) and daily vehicle trips that would be generated by the proposed development were calculated using the equations published by the Institute of Transportation Engineers (ITE) in *Trip Generation, 11th Edition*. The site trip generation forecast utilized for the proposed development is summarized in **Table 5**.

Table 4: Site Trip Generation Summary

Land Use	ITE Code	Size	Unit	Weekday Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
					In	Out	Total	In	Out	Total
Single-Family Detached	210	20	DU	230	4	13	17	14	8	22
Single-Family Attached Housing	215	126	DU	910	19	41	60	41	31	72
Total		146	DU	1,140	23	54	77	55	39	94

6 SITE TRIP DISTRIBUTION

The vehicular trips that would be generated by the proposed development were assigned to the study roads based on the proposed site access plan, the existing peak hour traffic patterns on the adjacent roadway network, and the methodologies published by ITE. The adjacent street traffic volumes were used to develop the trip distribution. To determine the projected site traffic distribution, it was assumed that the existing adjacent street traffic volumes in the AM are home-to-work based trips, and in the PM are work-to-home based trips. Therefore, the trip distribution assumes trips are leaving the proposed development and exiting the study network in the AM, then entering the network to return to the proposed development in the PM. The site trip distribution used in the analysis is summarized in **Table 6**.

Table 5: Site Trip Distribution

To/From	via	AM	PM
North	Rochester Road	24%	26%
South	Rochester Road	41%	37%
East	Long Lake Road	13%	15%
West	Long Lake Road	22%	22%
Total		100%	100%

7 FUTURE CONDITIONS

Future peak hour vehicle delays and LOS **with the proposed development** were calculated based on the future lane use shown on the attached **Figure 2**, future traffic volumes shown on the attached **Figure 6**, and the methodologies presented in the HCM6. The results of the future conditions analysis are summarized in **Table 7**. Table 6: Future Intersection Operations

Intersection	Control	Approach	Background Conditions				Future Conditions				Difference			
			AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1 Rochester Road & Glaser Drive	Stop (Minor)	EBR	20.8	C	13.3	B	22.9	C	13.8	B	2.1	-	0.5	-
		WB	\$	F	\$	F	\$	F	\$	F	N/A	-	N/A	-
		NBL	14.6	B	10.3	B	14.8	B	10.4	B	0.2	-	0.1	-
		SBL	14.9	B	21.8	C	14.9	B	21.8	C	0.0	-	0.0	-
2 Rochester Road & Long Lake Road	Signalized	EBT	17.3	B	51.0	D	16.9	B	54.7	D	-0.4	-	3.7	-
		EBR	15.9	B	16.4	B	15.4	B	16.6	B	-0.5	-	0.2	-
		WBT	93.4	F	28.4	C	94.1	F	28.6	C	0.7	-	0.2	-
		WBR	25.6	C	26.1	C	25.9	C	26.3	C	0.3	-	0.2	-
		NBT	32.8	C	50.5	D	32.8	C	50.5	D	0.0	-	0.0	-
		NBR	21.2	C	27.6	C	21.3	C	27.6	C	0.1	-	0.0	-
		SBT	79.5	E	27.9	C	80.0	E	28.0	C	0.5	-	0.1	-
		SBR	21.3	C	20.0	B	21.4	C	20.1	C	0.1	-	0.1	B→C
	Overall	58.7	E	34.6	C	59.0	E	35.7	C	0.3	-	1.1	-	
3 WB to EB Long Lake Road X/O West of Rochester Road	Signalized	EB	23.1	C	24.9	C	23.4	C	25.2	C	0.3	-	0.3	-
		SBL	34.6	D	35.0	D	32.9	D	34.7	D	-1.7	-	-0.3	-
		Overall	26.2	C	26.6	C	25.8	C	26.8	C	-0.4	-	0.2	-
4 Long Lake Road & Site Drive	Stop (Minor)	EB	N/A				Free				N/A			
		WBL					9.2	A	12.5	B				
		NB					15.0	C	20.7	C				

\$ Delay Exceeds 300 Seconds

The results of the future conditions analysis indicates that all of the study intersection approaches and movements will continue to operate in a manner similar to existing background conditions analysis. *Note: Several of the intersection movements improved with the addition of future traffic. This is due to the optimization of signal splits and increased lane utilization which decreased the delay on certain movements.*

Rochester Road & Long Lake Road

- **During AM peak hour:** The intersection is expected to continue operating at LOS E, with the southbound and westbound through movements continuing to operate at LOS E and LOS F, respectively. However, the increase in delay at this intersection due to site generated traffic is negligible (1-2 seconds).
- The high volumes of southbound and westbound through traffic are both in need of signal split time to accommodate the directional traffic volumes. Since the movements are conflicting, the signal splits are essentially equal, and neither southbound nor westbound approaches operate well.
- The City and RCOC should continue to monitor the intersection operations as traffic volumes recover post-COVID to determine if regional improvements on Rochester Road and Long Lake Road should be considered to improve the intersection operations.

Rochester Road & Glaser Drive

- During AM and PM peak hour: The westbound approach is expected to continue operating at LOS F.
- The westbound approach has very low traffic volumes (6 AM and 23 PM). Although a poor LOS was calculated by the HCM analysis, a review of SimTraffic network simulations indicates vehicles are able to find adequate gaps within the through traffic along Rochester Road without experiencing significant delays or excessive vehicle queueing.

Long Lake Road & Site Drive

- The proposed site driveway on Long Lake Road provides full access for the development. The ingress left turns were reviewed to determine the projected queue length and the potential impacts to the adjacent street.
- The SimTraffic network simulations show a 95th percentile queue length of 42 feet (~2 cars) for ingress left turns at the proposed site driveway on Long Lake Road. Therefore, the existing center left-turn lane provides adequate length to store the expected queues.

8 AUXILIARY TURN LANE EVALUATION

Rochester Road and Long Lake Road both have two-way center left-turn lanes at the proposed site drives. Additionally, there is an existing right-turn lane on Rochester Road at Glaser Drive; therefore, only the right-turn treatment criteria was evaluated at the proposed site driveway on Long Lake Road. The results of the analysis are summarized in **Table 8** below, and the RCOC auxiliary lane warrant charts are attached.

Table 7: Turn Lane Warrant Analysis Summary

Intersection	Right-Treatment
Long Lake Road & Site Drive	Right-Turn Taper

9 CONCLUSIONS

The conclusions of this TIS are as follows:

1. Existing Conditions (2022)

The results of the existing conditions analysis indicates that all approaches and movements at the study intersections are currently operating acceptably, at LOS D or better, during both peak periods with following exceptions:

Rochester Road & Long Lake Road

- During AM peak hour: The intersection is currently operating at LOS E. The southbound and westbound through movements are currently operating at LOS E and LOS F, respectively. The high volumes of southbound and westbound through traffic are both in need of signal split time to accommodate the directional traffic volumes. Since the movements are conflicting, the signal splits are essentially equal, and neither southbound nor westbound approaches operate well.
- The City and RCOC should continue to monitor the intersection operations as traffic volumes recover post-COVID to determine if regional improvements on Rochester Road and Long Lake Road should be considered to improve the intersection operations.

Rochester Road & Glaser Drive

During AM and PM peak hour: The westbound approach is currently operating at LOS F. The westbound approach has very low traffic volumes (6 AM and 23 PM). Although a poor LOS was calculated by the HCM analysis, a review of SimTraffic network simulations indicates vehicles are able to find adequate gaps within the through traffic along Rochester Road without experiencing significant delays or excessive vehicle queueing.

2. Background Conditions (2023):

- A conservative 0.5% annual background growth rate was utilized in order to project the existing traffic volumes to the buildout year of 2027.
- The results of the background conditions analysis indicates that all approaches and movements at the study intersections will continue to operate in a manner similar to existing conditions.

3. Future Conditions (2023)

The results of the background conditions analysis indicates that all approaches and movements at the study intersections will continue to operate in a manner similar to existing conditions.

Rochester Road & Long Lake Road

- During AM peak hour: The intersection is expected to continue operating at LOS E, with the southbound and westbound through movements continuing to operate at LOS E and LOS F, respectively. However, the increase in delay at this intersection due to site generated traffic is negligible (1-2 seconds).
- The City and RCOC should continue to monitor the intersection operations as traffic volumes recover post-COVID to determine if regional improvements on Rochester Road and Long Lake Road should be considered to improve the intersection operations.

Rochester Road & Glaser Drive

- During AM and PM peak hour: The westbound approach is expected to continue operating at LOS F.
- The westbound approach has very low traffic volumes (6 AM and 23 PM). Although a poor LOS was calculated by the HCM analysis, a review of SimTraffic network simulations indicates vehicles can find adequate gaps within the through traffic along Rochester Road without experiencing significant delays or excessive vehicle queueing.

Long Lake Road & Site Drive

- The proposed site driveway on Long Lake Road provides full access for the development. The ingress left turns were reviewed to determine the projected queue length and the potential impacts to the adjacent street.
- The SimTraffic network simulations show a 95th percentile queue length of 42 feet (~2 cars) for ingress left turns at the proposed site driveway on Long Lake Road. Therefore, the existing center left-turn lane can accommodate the projected vehicle queues.

4. Auxiliary Turn Lane Evaluation

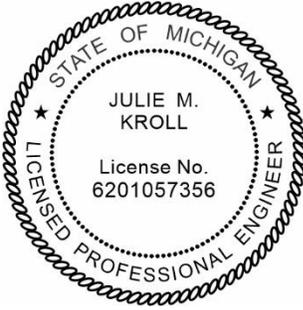
- Rochester Road and Long Lake Road both have two-way center left-turn lanes at the proposed site drives. Additionally, there is an existing right-turn lane on Rochester Road at the Glaser Drive; therefore, only the right turn treatment criteria was evaluated at the proposed site driveway on Long Lake Road.
- The results of the analysis show that a right-turn deceleration taper is recommended on EB Long Lake Road at the proposed Site Drive.

10 RECOMMENDATIONS

The recommendation of this TIS are as follows:

- The City and RCOC should continue to monitor the intersection operations as traffic volumes recover post-COVID to determine if regional improvements on Rochester Road and Long Lake Road should be considered to improve the intersection operations.
- Provide a right-turn deceleration taper on EB Long Lake Road at the proposed W. Site Drive.

Any questions related to this memorandum, study, analysis, and results should be addressed to Fleis & VandenBrink.



I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Michigan.

Attached: Figures 1-6
 Proposed Site Plan
 Traffic Volume Data
 Signal Timing Permits
 Synchro / SimTraffic Results
 Auxiliary Lane Warrant



E LONG LAKE ROAD

ROCHESTER ROAD

SITE DRIVE

SITE

GLASER DRIVE



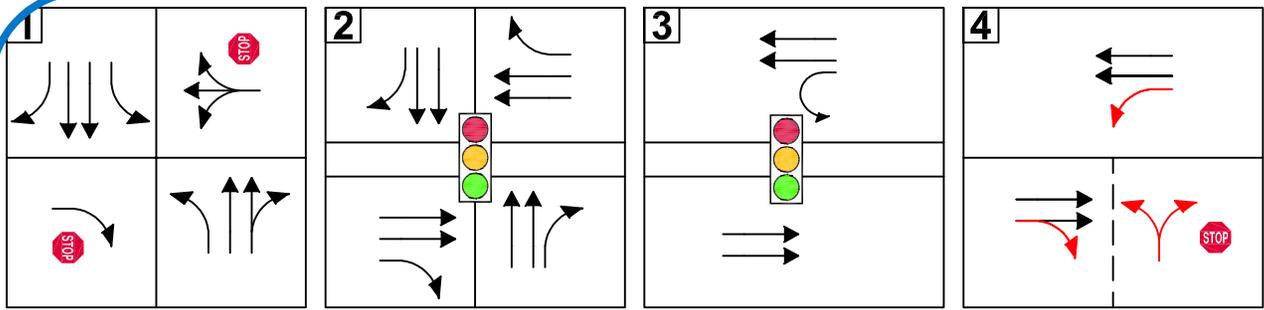
FIGURE 1 SITE LOCATION

Village of Troy PUD - Troy, MI

LEGEND

 SITE LOCATION





E LONG LAKE ROAD

4

SITE DRIVE

3

SITE

2

ROCHESTER ROAD

1

GLASER DRIVE



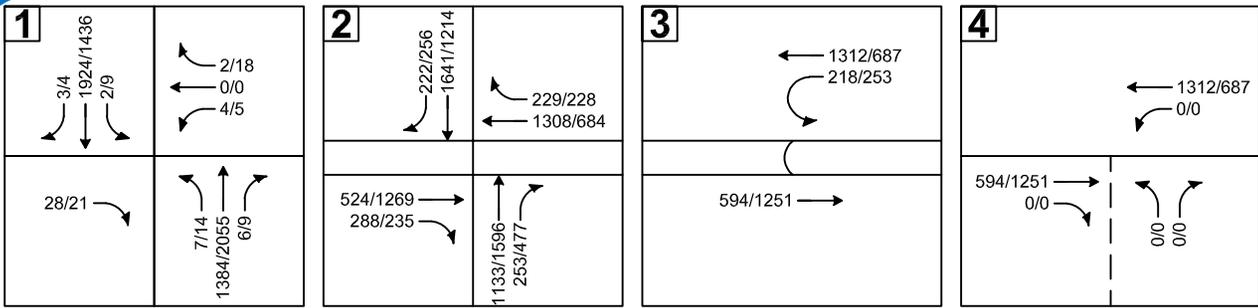
FIGURE 2

LANE USE AND TRAFFIC CONTROL

Village of Troy PUD - Troy, MI

LEGEND

	ROADS		PROPOSED ROADS
	LANE USE		PROPOSED LANE USE
	SIGNALIZED INTERSECTION		
	UNSIGNALIZED INTERSECTION		
	ROUNDBABOUT INTERSECTION		
			NORTH SCALE: NOT TO SCALE



E LONG LAKE ROAD

4

SITE DRIVE

3

SITE

2

ROCHESTER ROAD

1

GLASER DRIVE



FIGURE 3 EXISTING TRAFFIC VOLUMES

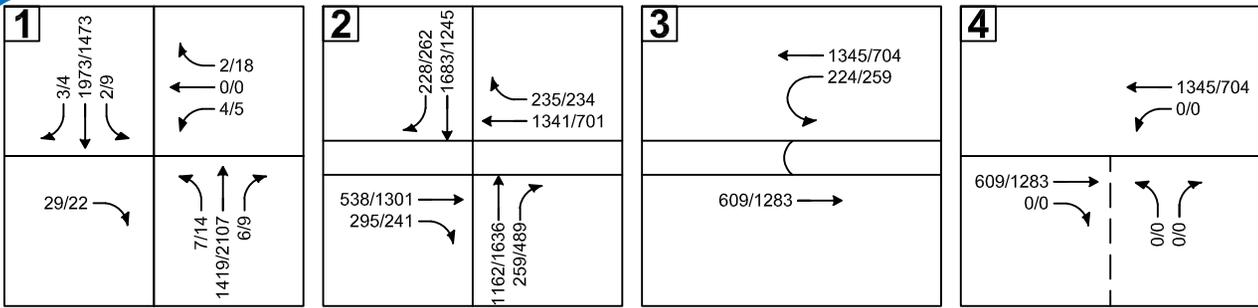
Village of Troy PUD - Troy, MI

LEGEND

- ROADS
- PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)



NORTH
SCALE: NOT TO SCALE



E LONG LAKE ROAD

4

SITE DRIVE

3

SITE

2

ROCHESTER ROAD

1

GLASER DRIVE



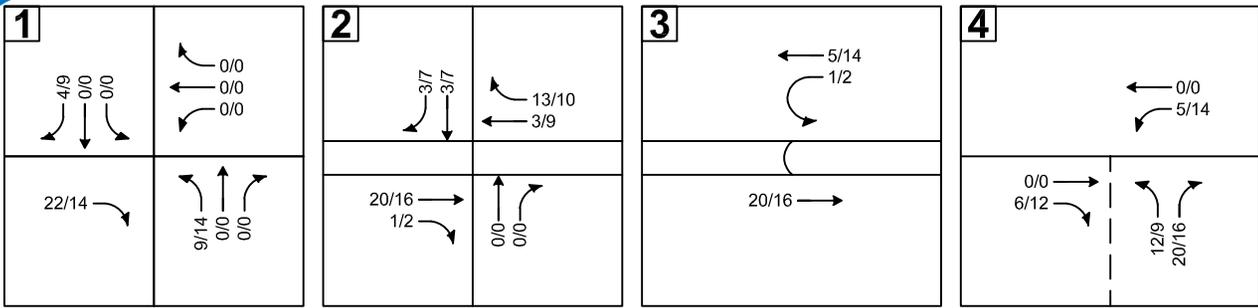
FIGURE 4 BACKGROUND TRAFFIC VOLUMES

Village of Troy PUD - Troy, MI

LEGEND

- ROADS
- PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)





E LONG LAKE ROAD

4

SITE DRIVE

SITE

3

2

ROCHESTER ROAD

1

GLASER DRIVE

+/-[000/000]
PASS-BY



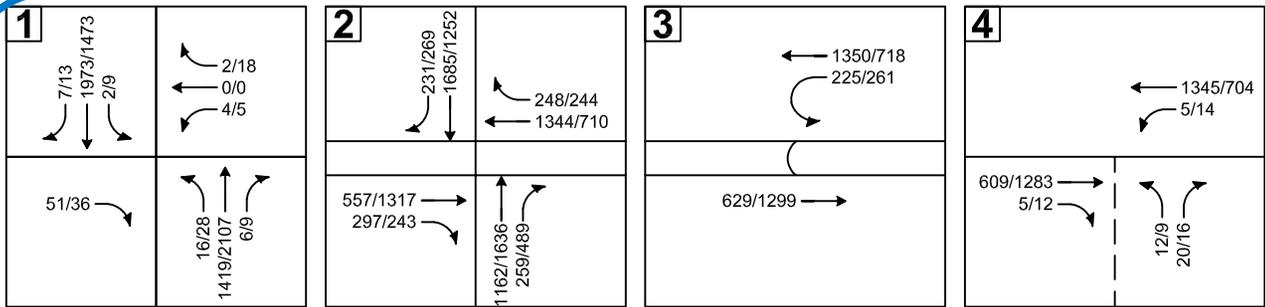
FIGURE 5 SITE-GENERATED TRAFFIC VOLUMES

Village of Troy PUD - Troy, MI

LEGEND

- ROADS
- PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)





E LONG LAKE ROAD

4

SITE DRIVE

3

SITE

2

ROCHESTER ROAD

1

GLASER DRIVE



FIGURE 6

FUTURE TRAFFIC VOLUMES

Village of Troy PUD - Troy, MI

LEGEND

- ROADS
- - - PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)



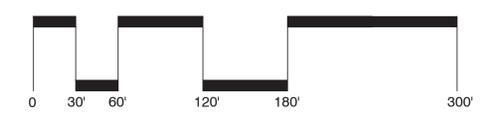
NORTH
SCALE: NOT TO SCALE



Village of Troy

Rendered Site Plan
City of Troy, Michigan

March 2022



Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Glaser Eastbound								Glaser Westbound								Rochester Northbound							
	L	T	R	HR	U	App	Ped*	L	BL	T	R	U	App	Ped*	HL	L	T	R	U	App	Ped*			
2022-06-01 7:00AM	0	0	0	0	0	0	1	1	0	0	3	0	4	0	0	1	194	0	0	195	0			
7:15AM	0	0	0	0	0	0	0	1	0	0	2	0	3	0	0	2	238	1	0	241	0			
7:30AM	0	0	0	0	0	0	0	2	0	0	1	0	3	0	0	1	261	1	0	263	0			
7:45AM	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	2	340	3	0	345	0			
Hourly Total	0	0	0	0	0	0	1	6	0	0	6	0	12	0	0	6	1033	5	0	1044	0			
8:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	259	1	0	261	0			
8:15AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	3	270	1	0	274	0			
8:30AM	0	0	0	0	0	0	1	2	0	0	2	0	4	0	0	4	258	1	0	263	0			
8:45AM	0	0	0	0	0	0	0	1	0	0	5	0	6	0	0	3	286	2	0	291	0			
Hourly Total	0	0	0	0	0	0	1	3	0	0	8	0	11	0	0	11	1073	5	0	1089	0			
4:00PM	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	2	464	3	0	469	0			
4:15PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	3	463	3	0	469	0			
4:30PM	0	0	0	0	0	0	0	1	0	0	3	0	4	0	0	3	499	1	0	503	0			
4:45PM	0	0	0	0	0	0	0	2	0	0	5	0	7	0	0	5	482	3	0	490	0			
Hourly Total	0	0	0	0	0	0	0	3	0	0	12	0	15	0	0	13	1908	10	0	1931	0			
5:00PM	0	0	0	0	0	0	0	2	0	0	1	0	3	0	0	2	509	1	0	512	0			
5:15PM	0	0	0	0	0	0	1	1	0	0	6	0	7	0	0	3	513	1	0	517	0			
5:30PM	0	0	0	0	0	0	0	0	0	0	6	0	6	0	0	4	551	4	0	559	0			
5:45PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	419	4	0	424	0			
Hourly Total	0	0	0	0	0	0	1	3	0	0	14	0	17	0	0	10	1992	10	0	2012	0			
Total	0	0	0	0	0	0	3	15	0	0	40	0	55	0	0	40	6006	30	0	6076	0			
% Approach	0%	0%	0%	0%	0%	-	-	27.3%	0%	0%	72.7%	0%	-	-	0%	0.7%	98.8%	0.5%	0%	-	-			
% Total	0%	0%	0%	0%	0%	0%	-	0.1%	0%	0%	0.3%	0%	0.4%	-	0%	0.3%	47.4%	0.2%	0%	47.9%	-			
Lights	0	0	0	0	0	0	-	15	0	0	38	0	53	-	0	40	5867	29	0	5936	-			
% Lights	0%	0%	0%	0%	0%	-	-	100%	0%	0%	95.0%	0%	96.4%	-	0%	100%	97.7%	96.7%	0%	97.7%	-			
Single-Unit Trucks	0	0	0	0	0	0	-	0	0	0	1	0	1	-	0	0	74	0	0	74	-			
% Single-Unit Trucks	0%	0%	0%	0%	0%	-	-	0%	0%	0%	2.5%	0%	1.8%	-	0%	0%	1.2%	0%	0%	1.2%	-			
Articulated Trucks	0	0	0	0	0	0	-	0	0	0	1	0	1	-	0	0	47	0	0	47	-			
% Articulated Trucks	0%	0%	0%	0%	0%	-	-	0%	0%	0%	2.5%	0%	1.8%	-	0%	0%	0.8%	0%	0%	0.8%	-			
Buses	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	18	0	0	18	-			
% Buses	0%	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.3%	0%	0%	0.3%	-			
Bicycles on Road	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	1	0	1	-			
% Bicycles on Road	0%	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	3.3%	0%	0%	-			
Pedestrians	-	-	-	-	-	-	1	-	-	-	-	-	-	0	-	-	-	-	-	-	0			
% Pedestrians	-	-	-	-	-	-	33.3%	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bicycles on Crosswalk	-	-	-	-	-	-	2	-	-	-	-	-	-	0	-	-	-	-	-	-	0			
% Bicycles on Crosswalk	-	-	-	-	-	-	66.7%	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Rochester Southbound								Slip Lane Northeastbound								Int
	L	T	BR	R	U	App	Ped*	HL	BL	BR	HR	U	App	Ped*			
2022-06-01 7:00AM	0	383	0	0	0	383	0	0	0	0	5	0	5	1	587		
7:15AM	2	474	0	0	0	476	0	0	0	0	9	0	9	0	729		
7:30AM	1	489	0	2	0	492	0	0	0	1	6	0	7	0	765		
7:45AM	0	473	0	0	0	473	0	0	0	0	5	0	5	0	825		
Hourly Total	3	1819	0	2	0	1824	0	0	0	1	25	0	26	1	2906		
8:00AM	1	401	0	0	0	402	0	0	1	0	8	0	9	0	672		
8:15AM	0	450	0	1	0	451	0	0	0	0	9	0	9	0	735		
8:30AM	1	465	0	1	0	467	0	0	0	0	6	0	6	1	740		
8:45AM	0	383	0	1	0	384	0	0	0	0	10	0	10	0	691		
Hourly Total	2	1699	0	3	0	1704	0	0	1	0	33	0	34	1	2838		
4:00PM	2	324	0	0	0	326	0	0	0	0	6	0	6	0	804		
4:15PM	5	400	0	0	0	405	0	0	0	0	6	0	6	0	881		
4:30PM	1	363	0	1	0	365	0	0	3	0	5	0	8	0	880		
4:45PM	1	355	0	1	0	357	0	0	0	0	2	0	2	0	856		
Hourly Total	9	1442	0	2	0	1453	0	0	3	0	19	0	22	0	3421		
5:00PM	3	353	0	1	0	357	0	0	1	0	4	0	5	0	877		
5:15PM	3	349	0	1	0	353	0	0	0	0	8	0	8	1	885		
5:30PM	2	379	0	1	0	382	0	0	3	0	7	0	10	0	957		
5:45PM	2	361	0	0	1	364	0	0	1	0	10	0	11	0	800		
Hourly Total	10	1442	0	3	1	1456	0	0	5	0	29	0	34	1	3519		
Total	24	6402	0	10	1	6437	0	0	9	1	106	0	116	3	12684		
% Approach	0.4%	99.5%	0%	0.2%	0%	-	-	0%	7.8%	0.9%	91.4%	0%	-	-	-		
% Total	0.2%	50.5%	0%	0.1%	0%	50.7%	-	0%	0.1%	0%	0.8%	0%	0.9%	-	-		
Lights	21	6302	0	10	1	6334	-	0	9	1	106	0	116	-	12439		
% Lights	87.5%	98.4%	0%	100%	100%	98.4%	-	0%	100%	100%	100%	0%	100%	-	98.1%		
Single-Unit Trucks	2	46	0	0	0	48	-	0	0	0	0	0	0	-	123		
% Single-Unit Trucks	8.3%	0.7%	0%	0%	0%	0.7%	-	0%	0%	0%	0%	0%	0%	-	1.0%		
Articulated Trucks	1	34	0	0	0	35	-	0	0	0	0	0	0	-	83		
% Articulated Trucks	4.2%	0.5%	0%	0%	0%	0.5%	-	0%	0%	0%	0%	0%	0%	-	0.7%		
Buses	0	20	0	0	0	20	-	0	0	0	0	0	0	-	38		
% Buses	0%	0.3%	0%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	0%	-	0.3%		
Bicycles on Road	0	0	0	0	0	0	-	0	0	0	0	0	0	-	1		
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%		
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-		
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	33.3%	-		
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	2	-		
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	66.7%	-		

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

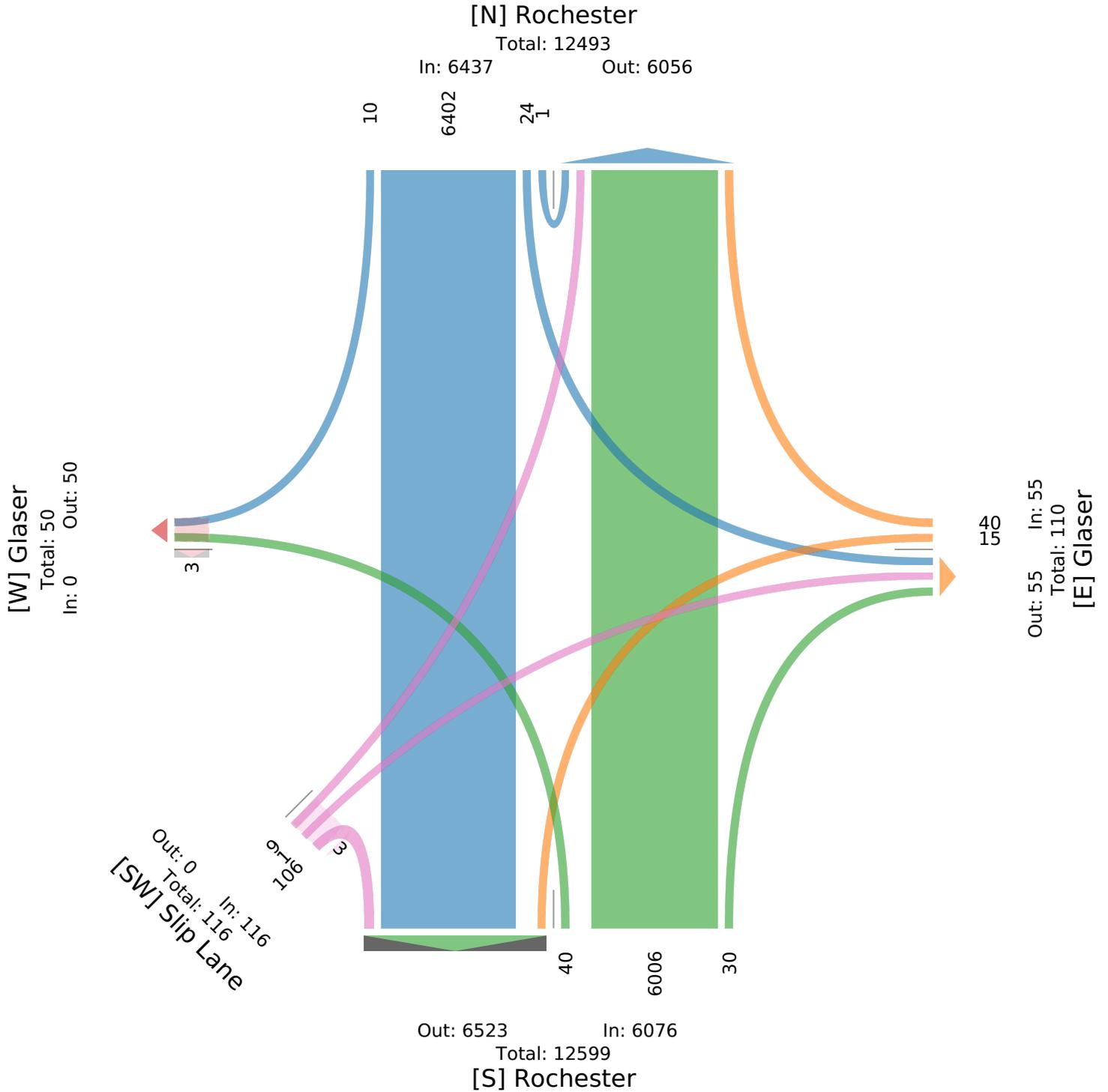
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Glaser Eastbound								Glaser Westbound								Rochester Northbound							
	L	T	R	HR	U	App	Ped*	L	BL	T	R	U	App	Ped*	HL	L	T	R	U	App	Ped*			
2022-06-01 7:30AM	0	0	0	0	0	0	0	2	0	0	1	0	3	0	0	1	261	1	0	263	0			
7:45AM	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	2	340	3	0	345	0			
8:00AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	259	1	0	261	0			
8:15AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	3	270	1	0	274	0			
Total	0	0	0	0	0	0	0	4	0	0	2	0	6	0	0	7	1130	6	0	1143	0			
% Approach	0%	0%	0%	0%	0%	-	-	66.7%	0%	0%	33.3%	0%	-	-	0%	0.6%	98.9%	0.5%	0%	-	-			
% Total	0%	0%	0%	0%	0%	0%	-	0.1%	0%	0%	0.1%	0%	0.2%	-	0%	0.2%	37.7%	0.2%	0%	38.1%	-			
PHF	-	-	-	-	-	-	-	0.500	-	-	0.500	-	0.500	-	-	0.583	0.831	0.625	-	0.830	-			
Lights	0	0	0	0	0	0	-	4	0	0	2	0	6	-	0	7	1078	5	0	1090	-			
% Lights	0%	0%	0%	0%	0%	-	-	100%	0%	0%	100%	0%	100%	-	0%	100%	95.4%	83.3%	0%	95.4%	-			
Single-Unit Trucks	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	27	0	0	27	-			
% Single-Unit Trucks	0%	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	0%	-	0%	0%	2.4%	0%	0%	2.4%	-			
Articulated Trucks	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	16	0	0	16	-			
% Articulated Trucks	0%	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	0%	-	0%	0%	1.4%	0%	0%	1.4%	-			
Buses	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	9	0	0	9	-			
% Buses	0%	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.8%	0%	0%	0.8%	-			
Bicycles on Road	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0	0	0	1	0	1	-			
% Bicycles on Road	0%	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	16.7%	0%	0.1%	-			
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0			
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-	-	-	-	-	-	0			
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Rochester Southbound							Slip Lane Northeastbound							Int
	L	T	BR	R	U	App	Ped*	HL	BL	BR	HR	U	App	Ped*	
Time															
2022-06-01 7:30AM	1	489	0	2	0	492	0	0	0	1	6	0	7	0	
7:45AM	0	473	0	0	0	473	0	0	0	0	5	0	5	0	
8:00AM	1	401	0	0	0	402	0	0	1	0	8	0	9	0	
8:15AM	0	450	0	1	0	451	0	0	0	0	9	0	9	0	
Total	2	1813	0	3	0	1818	0	0	1	1	28	0	30	0	
% Approach	0.1%	99.7%	0%	0.2%	0%	-	-	0%	3.3%	3.3%	93.3%	0%	-	-	
% Total	0.1%	60.5%	0%	0.1%	0%	60.7%	-	0%	0%	0%	0.9%	0%	1.0%	-	
PHF	0.500	0.927	-	0.375	-	0.924	-	-	0.250	0.250	0.778	-	0.833	-	
Lights	2	1784	0	3	0	1789	-	0	1	1	28	0	30	-	
% Lights	100%	98.4%	0%	100%	0%	98.4%	-	0%	100%	100%	100%	0%	100%	-	
Single-Unit Trucks	0	14	0	0	0	14	-	0	0	0	0	0	0	-	
% Single-Unit Trucks	0%	0.8%	0%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	0%	-	
Articulated Trucks	0	8	0	0	0	8	-	0	0	0	0	0	0	-	
% Articulated Trucks	0%	0.4%	0%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	0%	-	
Buses	0	7	0	0	0	7	-	0	0	0	0	0	0	-	
% Buses	0%	0.4%	0%	0%	0%	0.4%	-	0%	0%	0%	0%	0%	0%	-	
Bicycles on Road	0	0	0	0	0	0	-	0	0	0	0	0	0	-	
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

AM Peak (7:30 AM - 8:30 AM)

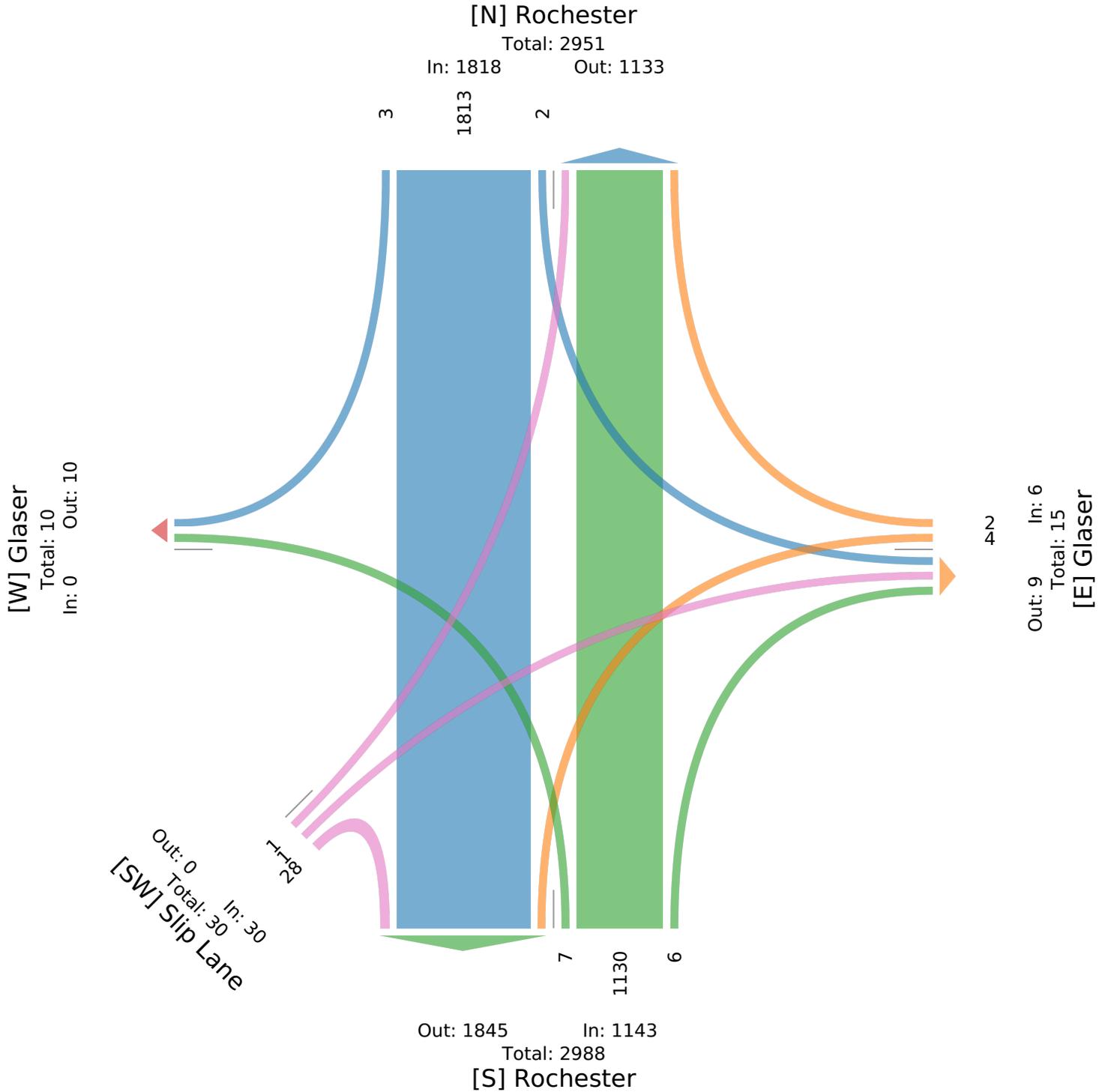
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Glaser Eastbound								Glaser Westbound								Rochester Northbound							
	L	T	R	HR	U	App	Ped*	L	BL	T	R	U	App	Ped*	HL	L	T	R	U	App	Ped*			
Time	2022-06-01 4:45PM	0	0	0	0	0	0	2	0	0	5	0	7	0	0	5	482	3	0	490	0			
	5:00PM	0	0	0	0	0	0	2	0	0	1	0	3	0	0	2	509	1	0	512	0			
	5:15PM	0	0	0	0	0	1	1	0	0	6	0	7	0	0	3	513	1	0	517	0			
	5:30PM	0	0	0	0	0	0	0	0	0	6	0	6	0	0	4	551	4	0	559	0			
Total		0	0	0	0	0	1	5	0	0	18	0	23	0	0	14	2055	9	0	2078	0			
% Approach		0%	0%	0%	0%	0%	-	21.7%	0%	0%	78.3%	0%	-	-	0%	0.7%	98.9%	0.4%	0%	-	-			
% Total		0%	0%	0%	0%	0%	0%	0.1%	0%	0%	0.5%	0%	0.6%	-	0%	0.4%	57.5%	0.3%	0%	58.1%	-			
PHF		-	-	-	-	-	-	0.625	-	-	0.750	-	0.821	-	-	0.700	0.932	0.563	-	0.929	-			
Lights		0	0	0	0	0	0	5	0	0	16	0	21	0	0	14	2044	9	0	2067	0			
% Lights		0%	0%	0%	0%	0%	-	100%	0%	0%	88.9%	0%	91.3%	-	0%	100%	99.5%	100%	0%	99.5%	-			
Single-Unit Trucks		0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	8	0	0	8	0			
% Single-Unit Trucks		0%	0%	0%	0%	0%	-	0%	0%	0%	5.6%	0%	4.3%	-	0%	0%	0.4%	0%	0%	0.4%	-			
Articulated Trucks		0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	0	0	1	0			
% Articulated Trucks		0%	0%	0%	0%	0%	-	0%	0%	0%	5.6%	0%	4.3%	-	0%	0%	0%	0%	0%	0%	-			
Buses		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0			
% Buses		0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0.1%	0%	0%	0.1%	-			
Bicycles on Road		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
% Bicycles on Road		0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-			
Pedestrians		-	-	-	-	-	0	-	-	-	-	-	0	0	-	-	-	-	-	-	0			
% Pedestrians		-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Bicycles on Crosswalk		-	-	-	-	-	1	-	-	-	-	-	0	0	-	-	-	-	-	-	0			
% Bicycles on Crosswalk		-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-			

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Rochester Southbound							Slip Lane Northeastbound							Int
	L	T	BR	R	U	App	Ped*	HL	BL	BR	HR	U	App	Ped*	
Time															
2022-06-01 4:45PM	1	355	0	1	0	357	0	0	0	0	2	0	2	0	856
5:00PM	3	353	0	1	0	357	0	0	1	0	4	0	5	0	877
5:15PM	3	349	0	1	0	353	0	0	0	0	8	0	8	1	885
5:30PM	2	379	0	1	0	382	0	0	3	0	7	0	10	0	957
Total	9	1436	0	4	0	1449	0	0	4	0	21	0	25	1	3575
% Approach	0.6%	99.1%	0%	0.3%	0%	-	-	0%	16.0%	0%	84.0%	0%	-	-	-
% Total	0.3%	40.2%	0%	0.1%	0%	40.5%	-	0%	0.1%	0%	0.6%	0%	0.7%	-	-
PHF	0.750	0.947	-	1.000	-	0.948	-	-	0.333	-	0.656	-	0.625	-	0.934
Lights	8	1416	0	4	0	1428	-	0	4	0	21	0	25	-	3541
% Lights	88.9%	98.6%	0%	100%	0%	98.6%	-	0%	100%	0%	100%	0%	100%	-	99.0%
Single-Unit Trucks	1	11	0	0	0	12	-	0	0	0	0	0	0	-	21
% Single-Unit Trucks	11.1%	0.8%	0%	0%	0%	0.8%	-	0%	0%	0%	0%	0%	0%	-	0.6%
Articulated Trucks	0	9	0	0	0	9	-	0	0	0	0	0	0	-	11
% Articulated Trucks	0%	0.6%	0%	0%	0%	0.6%	-	0%	0%	0%	0%	0%	0%	-	0.3%
Buses	0	0	0	0	0	0	-	0	0	0	0	0	0	-	2
% Buses	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0.1%
Bicycles on Road	0	0	0	0	0	0	-	0	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	-	0	-	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	0%	-
Bicycles on Crosswalk	-	-	-	-	-	-	0	-	-	-	-	-	-	1	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	100%	-

* Pedestrians and Bicycles on Crosswalk. BL: Bear left, BR: Bear right, HL: Hard left, HR: Hard right, L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & Glaser Drive - TMC

Wed Jun 1, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

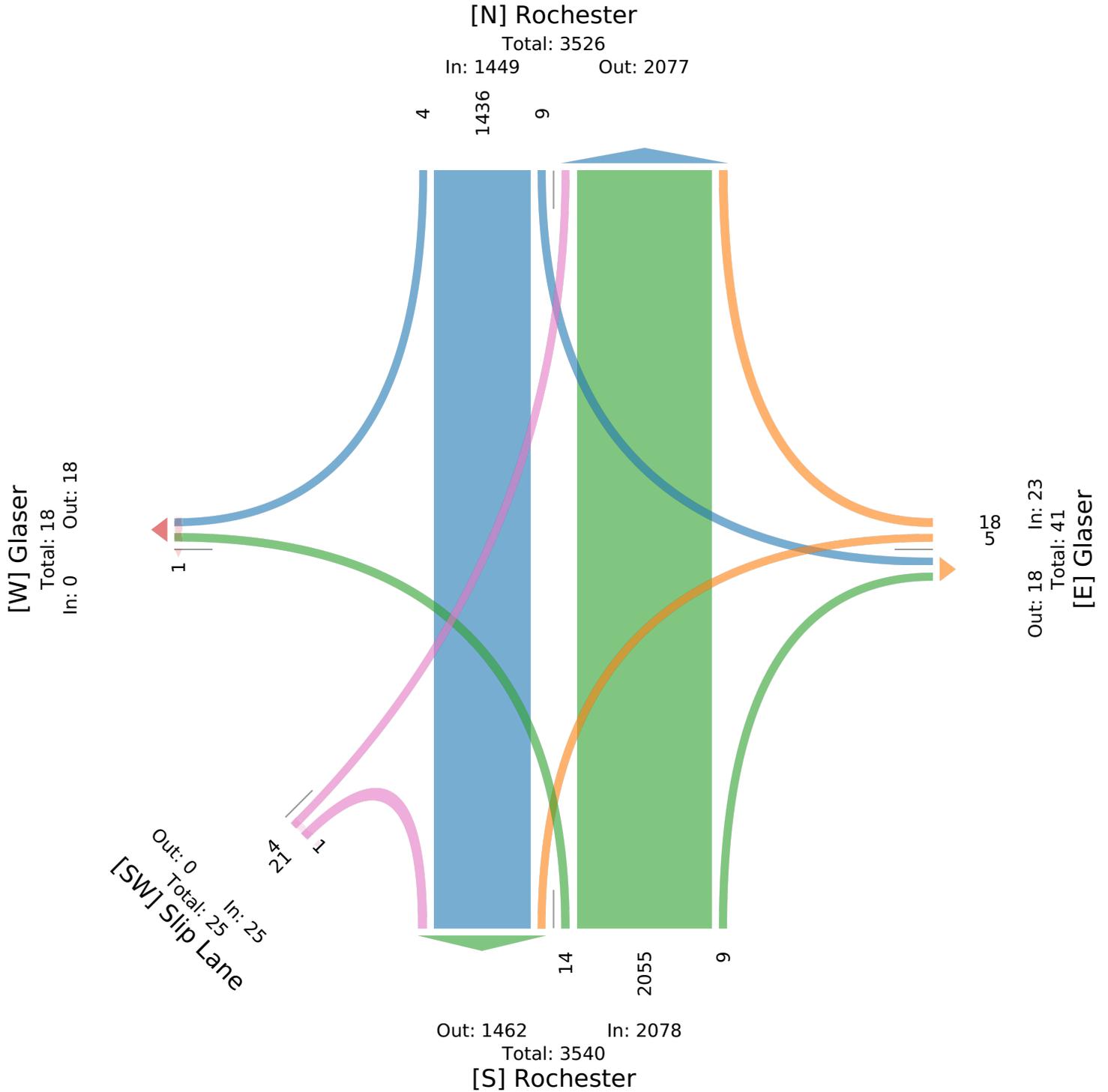
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957212, Location: 42.590185, -83.129014



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



EB East Long Lake Road & WB to EB X/O West o... - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957211, Location: 42.591905, -83.13221



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	West Eastbound					East Westbound					North Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
2022-06-01 7:00AM	0	67	0	67	0	138	0	31	169	0	0	0	0	0	0	236
7:15AM	0	106	0	106	0	221	0	50	271	0	0	0	0	0	0	377
7:30AM	0	110	0	110	0	249	0	59	308	0	0	0	0	0	0	418
7:45AM	0	120	0	120	0	234	0	41	275	0	0	0	0	0	0	395
Hourly Total	0	403	0	403	0	842	0	181	1023	0	0	0	0	0	0	1426
8:00AM	0	120	0	120	0	298	0	41	339	0	0	0	0	0	0	459
8:15AM	0	98	0	98	0	215	0	34	249	0	0	0	0	0	0	347
8:30AM	0	142	0	142	0	257	0	51	308	0	0	0	0	0	0	450
8:45AM	0	105	0	105	0	225	0	51	276	0	0	0	0	0	0	381
Hourly Total	0	465	0	465	0	995	0	177	1172	0	0	0	0	0	0	1637
4:00PM	0	263	0	263	0	181	0	59	240	0	0	0	0	0	1	503
4:15PM	0	264	0	264	0	146	0	64	210	0	0	0	0	0	0	474
4:30PM	0	322	0	322	0	176	0	58	234	0	0	0	0	0	0	556
4:45PM	0	281	0	281	0	183	0	59	242	0	0	0	0	0	0	523
Hourly Total	0	1130	0	1130	0	686	0	240	926	0	0	0	0	0	1	2056
5:00PM	0	317	0	317	0	168	0	60	228	0	0	0	0	0	0	545
5:15PM	0	331	0	331	0	160	0	76	236	0	0	0	0	0	2	567
5:30PM	0	279	0	279	0	169	0	74	243	0	0	0	0	0	1	522
5:45PM	0	285	0	285	0	184	0	73	257	0	0	0	0	0	2	542
Hourly Total	0	1212	0	1212	0	681	0	283	964	0	0	0	0	0	5	2176
Total	0	3210	0	3210	0	3204	0	881	4085	0	0	0	0	0	6	7295
% Approach	0%	100%	0%	-	-	78.4%	0%	21.6%	-	-	0%	0%	0%	-	-	-
% Total	0%	44.0%	0%	44.0%	-	43.9%	0%	12.1%	56.0%	-	0%	0%	0%	0%	-	-
Lights	0	3137	0	3137	-	3127	0	873	4000	-	0	0	0	0	-	7137
% Lights	0%	97.7%	0%	97.7%	-	97.6%	0%	99.1%	97.9%	-	0%	0%	0%	-	-	97.8%
Single-Unit Trucks	0	42	0	42	-	43	0	3	46	-	0	0	0	0	-	88
% Single-Unit Trucks	0%	1.3%	0%	1.3%	-	1.3%	0%	0.3%	1.1%	-	0%	0%	0%	-	-	1.2%
Articulated Trucks	0	14	0	14	-	12	0	2	14	-	0	0	0	0	-	28
% Articulated Trucks	0%	0.4%	0%	0.4%	-	0.4%	0%	0.2%	0.3%	-	0%	0%	0%	-	-	0.4%
Buses	0	17	0	17	-	22	0	3	25	-	0	0	0	0	-	42
% Buses	0%	0.5%	0%	0.5%	-	0.7%	0%	0.3%	0.6%	-	0%	0%	0%	-	-	0.6%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	-	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	4
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	66.7%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	2
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	33.3%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EB East Long Lake Road & WB to EB X/O West o... - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957211, Location: 42.591905, -83.13221



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

[N] North



[W] West
Total: 6414
In: 3210 Out: 3204

3210



3204

881

Out: 4091 In: 4085
Total: 8176
[E] East

EB East Long Lake Road & WB to EB X/O West o... - TMC

Wed Jun 1, 2022

AM Peak (7:45 AM - 8:45 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957211, Location: 42.591905, -83.13221



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	West Eastbound					East Westbound					North Southbound					Int
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*	
2022-06-01 7:45AM	0	120	0	120	0	234	0	41	275	0	0	0	0	0	0	395
8:00AM	0	120	0	120	0	298	0	41	339	0	0	0	0	0	0	459
8:15AM	0	98	0	98	0	215	0	34	249	0	0	0	0	0	0	347
8:30AM	0	142	0	142	0	257	0	51	308	0	0	0	0	0	0	450
Total	0	480	0	480	0	1004	0	167	1171	0	0	0	0	0	0	1651
% Approach	0%	100%	0%	-	-	85.7%	0%	14.3%	-	-	0%	0%	0%	-	-	-
% Total	0%	29.1%	0%	29.1%	-	60.8%	0%	10.1%	70.9%	-	0%	0%	0%	0%	-	-
PHF	-	0.845	-	0.845	-	0.842	-	0.819	0.864	-	-	-	-	-	-	0.899
Lights	0	464	0	464	-	980	0	165	1145	-	0	0	0	0	-	1609
% Lights	0%	96.7%	0%	96.7%	-	97.6%	0%	98.8%	97.8%	-	0%	0%	0%	-	-	97.5%
Single-Unit Trucks	0	7	0	7	-	11	0	1	12	-	0	0	0	0	-	19
% Single-Unit Trucks	0%	1.5%	0%	1.5%	-	1.1%	0%	0.6%	1.0%	-	0%	0%	0%	-	-	1.2%
Articulated Trucks	0	5	0	5	-	5	0	0	5	-	0	0	0	0	-	10
% Articulated Trucks	0%	1.0%	0%	1.0%	-	0.5%	0%	0%	0.4%	-	0%	0%	0%	-	-	0.6%
Buses	0	4	0	4	-	8	0	1	9	-	0	0	0	0	-	13
% Buses	0%	0.8%	0%	0.8%	-	0.8%	0%	0.6%	0.8%	-	0%	0%	0%	-	-	0.8%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	-	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EB East Long Lake Road & WB to EB X/O West o... - TMC

Wed Jun 1, 2022

AM Peak (7:45 AM - 8:45 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957211, Location: 42.591905, -83.13221



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



EB East Long Lake Road & WB to EB X/O West o... - TMC

Wed Jun 1, 2022

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957211, Location: 42.591905, -83.13221



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	West Eastbound					East Westbound					North Southbound					Int	
	L	T	U	App	Ped*	T	R	U	App	Ped*	L	R	U	App	Ped*		
Time																	
2022-06-01 4:30PM	0	322	0	322	0	176	0	58	234	0	0	0	0	0	0	0	556
4:45PM	0	281	0	281	0	183	0	59	242	0	0	0	0	0	0	0	523
5:00PM	0	317	0	317	0	168	0	60	228	0	0	0	0	0	0	0	545
5:15PM	0	331	0	331	0	160	0	76	236	0	0	0	0	0	0	2	567
Total	0	1251	0	1251	0	687	0	253	940	0	0	0	0	0	0	2	2191
% Approach	0%	100%	0%	-	-	73.1%	0%	26.9%	-	-	0%	0%	0%	-	-	-	-
% Total	0%	57.1%	0%	57.1%	-	31.4%	0%	11.5%	42.9%	-	0%	0%	0%	0%	-	-	-
PHF	-	0.945	-	0.945	-	0.939	-	0.832	0.971	-	-	-	-	-	-	-	0.966
Lights	0	1229	0	1229	-	677	0	250	927	-	0	0	0	0	-	-	2156
% Lights	0%	98.2%	0%	98.2%	-	98.5%	0%	98.8%	98.6%	-	0%	0%	0%	-	-	-	98.4%
Single-Unit Trucks	0	17	0	17	-	8	0	1	9	-	0	0	0	0	-	-	26
% Single-Unit Trucks	0%	1.4%	0%	1.4%	-	1.2%	0%	0.4%	1.0%	-	0%	0%	0%	-	-	-	1.2%
Articulated Trucks	0	5	0	5	-	0	0	2	2	-	0	0	0	0	-	-	7
% Articulated Trucks	0%	0.4%	0%	0.4%	-	0%	0%	0.8%	0.2%	-	0%	0%	0%	-	-	-	0.3%
Buses	0	0	0	0	-	2	0	0	2	-	0	0	0	0	-	-	2
% Buses	0%	0%	0%	0%	-	0.3%	0%	0%	0.2%	-	0%	0%	0%	-	-	-	0.1%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	-	0
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0%	0%	-	-	-	0%
Pedestrians	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	1	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.0%	-
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	0	-	-	-	-	-	1	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50.0%	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

EB East Long Lake Road & WB to EB X/O West o... - TMC

Wed Jun 1, 2022

PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

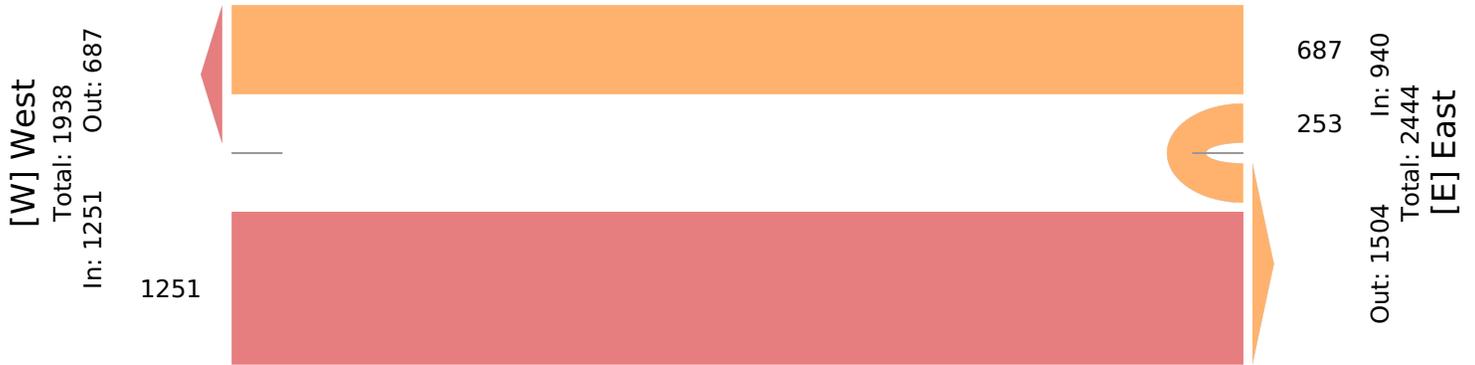
All Movements

ID: 957211, Location: 42.591905, -83.13221



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

[N] North



Rochester Road & WB East Long Lake Road - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957209, Location: 42.592164, -83.129104



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Long Lake Rd Eastbound						Long Lake Rd Westbound						Rochester Northbound						Rochester Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2022-06-01 7:00AM	0	0	0	0	0	0	0	127	22	0	149	0	0	167	1	0	168	0	0	349	42	0	391	0	708
7:15AM	0	0	0	0	0	0	0	222	40	0	262	0	0	177	0	0	177	0	0	416	46	0	462	0	901
7:30AM	0	0	0	0	0	0	0	229	38	0	267	0	0	202	0	0	202	0	0	447	69	0	516	0	985
7:45AM	0	0	0	0	0	0	0	220	47	0	267	0	0	261	0	0	261	0	0	406	61	0	467	0	995
Hourly Total	0	0	0	0	0	0	0	798	147	0	945	0	0	807	1	0	808	0	0	1618	218	0	1836	0	3589
8:00AM	0	0	0	0	0	0	0	295	48	0	343	0	0	205	0	0	205	0	0	360	40	0	400	0	948
8:15AM	0	0	0	0	0	0	0	197	32	0	229	0	0	231	0	0	231	0	0	428	52	0	480	0	940
8:30AM	0	0	0	0	0	1	0	255	50	0	305	1	0	195	0	0	195	0	0	359	54	0	413	0	913
8:45AM	0	0	0	0	0	0	0	223	39	0	262	0	0	234	0	0	234	0	0	353	45	0	398	1	894
Hourly Total	0	0	0	0	0	1	0	970	169	0	1139	1	0	865	0	0	865	0	0	1500	191	0	1691	1	3695
4:00PM	0	0	0	0	0	1	0	183	56	0	239	0	0	321	0	0	321	0	0	257	45	0	302	0	862
4:15PM	0	0	0	0	0	0	0	140	42	0	182	0	0	371	0	0	371	0	0	372	48	0	420	0	973
4:30PM	0	0	0	0	0	0	0	178	73	0	251	0	0	362	0	0	362	0	0	314	41	0	355	0	968
4:45PM	0	0	0	0	0	0	0	164	50	0	214	0	0	396	0	0	396	0	0	318	58	0	376	0	986
Hourly Total	0	0	0	0	0	1	0	665	221	0	886	0	0	1450	0	0	1450	0	0	1261	192	0	1453	0	3789
5:00PM	0	0	0	0	0	0	0	158	60	0	218	0	0	361	0	0	361	0	0	283	66	0	349	0	928
5:15PM	0	0	0	0	0	1	0	152	65	0	217	0	0	405	0	0	405	0	0	293	60	0	353	0	975
5:30PM	0	0	0	0	0	1	0	174	53	0	227	0	1	419	0	0	420	0	0	319	58	0	377	0	1024
5:45PM	0	0	0	0	0	2	0	177	50	0	227	0	0	321	0	0	321	0	0	306	61	0	367	0	915
Hourly Total	0	0	0	0	0	4	0	661	228	0	889	0	1	1506	0	0	1507	0	0	1201	245	0	1446	0	3842
Total	0	0	0	0	0	6	0	3094	765	0	3859	1	1	4628	1	0	4630	0	0	5580	846	0	6426	1	14915
% Approach	0%	0%	0%	0%	0%	-	0%	80.2%	19.8%	0%	-	-	0%	100.0%	0%	0%	-	-	0%	86.8%	13.2%	0%	-	-	-
% Total	0%	0%	0%	0%	0%	-	0%	20.7%	5.1%	0%	25.9%	-	0%	31.0%	0%	0%	31.0%	-	0%	37.4%	5.7%	0%	43.1%	-	-
Lights	0	0	0	0	0	-	0	3030	747	0	3777	-	1	4516	1	0	4518	-	0	5500	831	0	6331	-	14626
% Lights	0%	0%	0%	0%	0%	-	0%	97.9%	97.6%	0%	97.9%	-	100%	97.6%	100%	0%	97.6%	-	0%	98.6%	98.2%	0%	98.5%	-	98.1%
Single-Unit Trucks	0	0	0	0	0	-	0	36	10	0	46	-	0	64	0	0	64	-	0	47	9	0	56	-	166
% Single-Unit Trucks	0%	0%	0%	0%	0%	-	0%	1.2%	1.3%	0%	1.2%	-	0%	1.4%	0%	0%	1.4%	-	0%	0.8%	1.1%	0%	0.9%	-	1.1%
Articulated Trucks	0	0	0	0	0	-	0	8	4	0	12	-	0	37	0	0	37	-	0	26	2	0	28	-	77
% Articulated Trucks	0%	0%	0%	0%	0%	-	0%	0.3%	0.5%	0%	0.3%	-	0%	0.8%	0%	0%	0.8%	-	0%	0.5%	0.2%	0%	0.4%	-	0.5%
Buses	0	0	0	0	0	-	0	20	4	0	24	-	0	9	0	0	9	-	0	7	4	0	11	-	44
% Buses	0%	0%	0%	0%	0%	-	0%	0.6%	0.5%	0%	0.6%	-	0%	0.2%	0%	0%	0.2%	-	0%	0.1%	0.5%	0%	0.2%	-	0.3%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	0	0	0	0	0	-	2
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	
% Pedestrians	-	-	-	-	-	33.3%	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	100%	
Bicycles on Crosswalk	-	-	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	66.7%	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	0%	

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & WB East Long Lake Road - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

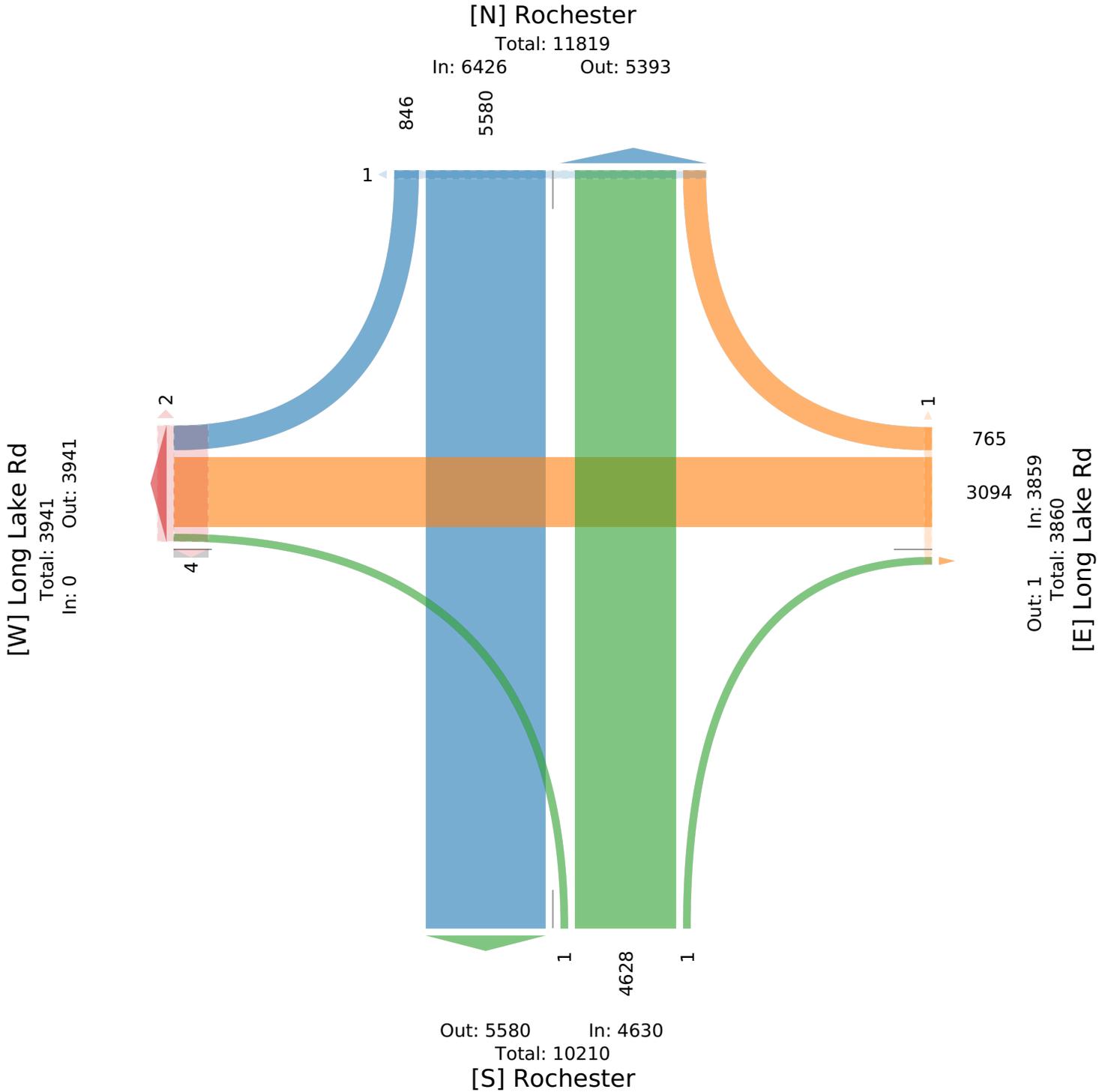
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957209, Location: 42.592164, -83.129104



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Rochester Road & WB East Long Lake Road - TMC

Wed Jun 1, 2022

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957209, Location: 42.592164, -83.129104



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Long Lake Rd Eastbound						Long Lake Rd Westbound						Rochester Northbound						Rochester Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2022-06-01 7:30AM	0	0	0	0	0	0	0	229	38	0	267	0	0	202	0	0	202	0	0	447	69	0	516	0	985
7:45AM	0	0	0	0	0	0	0	220	47	0	267	0	0	261	0	0	261	0	0	406	61	0	467	0	995
8:00AM	0	0	0	0	0	0	0	295	48	0	343	0	0	205	0	0	205	0	0	360	40	0	400	0	948
8:15AM	0	0	0	0	0	0	0	197	32	0	229	0	0	231	0	0	231	0	0	428	52	0	480	0	940
Total	0	0	0	0	0	0	0	941	165	0	1106	0	0	899	0	0	899	0	0	1641	222	0	1863	0	3868
% Approach	0%	0%	0%	0%	-	-	0%	85.1%	14.9%	0%	-	-	0%	100%	0%	0%	-	-	0%	88.1%	11.9%	0%	-	-	-
% Total	0%	0%	0%	0%	0%	-	0%	24.3%	4.3%	0%	28.6%	-	0%	23.2%	0%	0%	23.2%	-	0%	42.4%	5.7%	0%	48.2%	-	-
PHF	-	-	-	-	-	-	-	0.797	0.859	-	0.806	-	-	0.861	-	-	0.861	-	-	0.918	0.804	-	0.903	-	0.972
Lights	0	0	0	0	0	-	0	923	160	0	1083	-	0	852	0	0	852	-	0	1620	219	0	1839	-	3774
% Lights	0%	0%	0%	0%	-	-	0%	98.1%	97.0%	0%	97.9%	-	0%	94.8%	0%	0%	94.8%	-	0%	98.7%	98.6%	0%	98.7%	-	97.6%
Single-Unit Trucks	0	0	0	0	0	-	0	8	2	0	10	-	0	27	0	0	27	-	0	12	1	0	13	-	50
% Single-Unit Trucks	0%	0%	0%	0%	-	-	0%	0.9%	1.2%	0%	0.9%	-	0%	3.0%	0%	0%	3.0%	-	0%	0.7%	0.5%	0%	0.7%	-	1.3%
Articulated Trucks	0	0	0	0	0	-	0	2	2	0	4	-	0	14	0	0	14	-	0	7	1	0	8	-	26
% Articulated Trucks	0%	0%	0%	0%	-	-	0%	0.2%	1.2%	0%	0.4%	-	0%	1.6%	0%	0%	1.6%	-	0%	0.4%	0.5%	0%	0.4%	-	0.7%
Buses	0	0	0	0	0	-	0	8	1	0	9	-	0	6	0	0	6	-	0	2	1	0	3	-	18
% Buses	0%	0%	0%	0%	-	-	0%	0.9%	0.6%	0%	0.8%	-	0%	0.7%	0%	0%	0.7%	-	0%	0.1%	0.5%	0%	0.2%	-	0.5%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & WB East Long Lake Road - TMC

Wed Jun 1, 2022

AM Peak (7:30 AM - 8:30 AM)

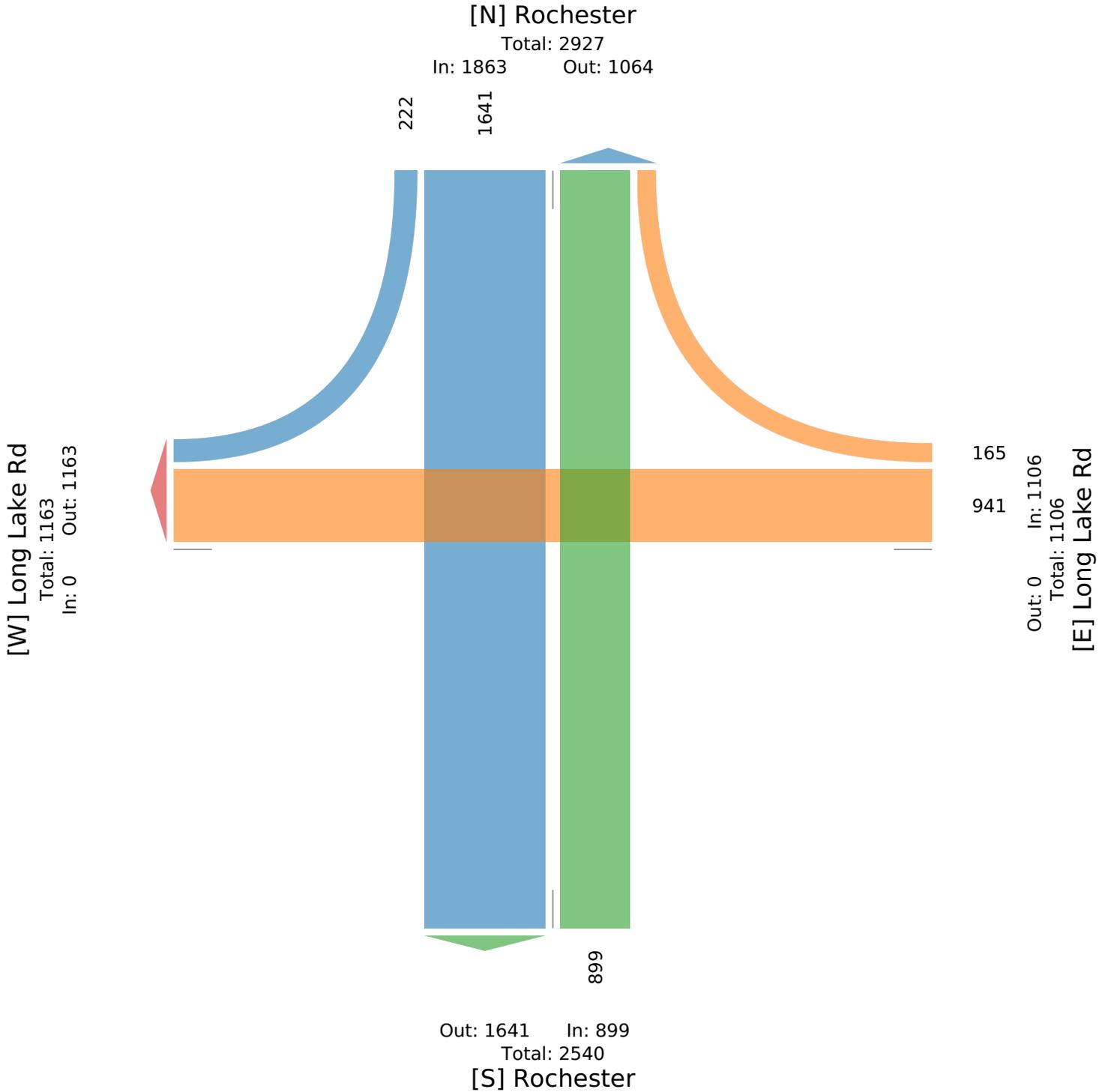
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957209, Location: 42.592164, -83.129104



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Rochester Road & WB East Long Lake Road - TMC

Wed Jun 1, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957209, Location: 42.592164, -83.129104



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Long Lake Rd Eastbound						Long Lake Rd Westbound						Rochester Northbound						Rochester Southbound						Int
	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	L	T	R	U	App	Ped*	
2022-06-01 4:45PM	0	0	0	0	0	0	0	164	50	0	214	0	0	396	0	0	396	0	0	318	58	0	376	0	986
5:00PM	0	0	0	0	0	0	0	158	60	0	218	0	0	361	0	0	361	0	0	283	66	0	349	0	928
5:15PM	0	0	0	0	0	1	0	152	65	0	217	0	0	405	0	0	405	0	0	293	60	0	353	0	975
5:30PM	0	0	0	0	0	1	0	174	53	0	227	0	1	419	0	0	420	0	0	319	58	0	377	0	1024
Total	0	0	0	0	0	2	0	648	228	0	876	0	1	1581	0	0	1582	0	0	1213	242	0	1455	0	3913
% Approach	0%	0%	0%	0%	-	-	0%	74.0%	26.0%	0%	-	-	0.1%	99.9%	0%	0%	-	-	0%	83.4%	16.6%	0%	-	-	-
% Total	0%	0%	0%	0%	0%	-	0%	16.6%	5.8%	0%	22.4%	-	0%	40.4%	0%	0%	40.4%	-	0%	31.0%	6.2%	0%	37.2%	-	-
PHF	-	-	-	-	-	-	-	0.931	0.877	-	0.965	-	0.250	0.943	-	-	0.942	-	-	0.951	0.917	-	0.965	-	0.955
Lights	0	0	0	0	0	-	0	640	225	0	865	-	1	1569	0	0	1570	-	0	1196	238	0	1434	-	3869
% Lights	0%	0%	0%	0%	-	-	0%	98.8%	98.7%	0%	98.7%	-	100%	99.2%	0%	0%	99.2%	-	0%	98.6%	98.3%	0%	98.6%	-	98.9%
Single-Unit Trucks	0	0	0	0	0	-	0	6	3	0	9	-	0	9	0	0	9	-	0	12	4	0	16	-	34
% Single-Unit Trucks	0%	0%	0%	0%	-	-	0%	0.9%	1.3%	0%	1.0%	-	0%	0.6%	0%	0%	0.6%	-	0%	1.0%	1.7%	0%	1.1%	-	0.9%
Articulated Trucks	0	0	0	0	0	-	0	0	0	0	0	-	0	2	0	0	2	-	0	5	0	0	5	-	7
% Articulated Trucks	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0.1%	-	0%	0.4%	0%	0%	0.3%	-	0.2%
Buses	0	0	0	0	0	-	0	2	0	0	2	-	0	1	0	0	1	-	0	0	0	0	0	-	3
% Buses	0%	0%	0%	0%	-	-	0%	0.3%	0%	0%	0.2%	-	0%	0.1%	0%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0.1%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	-	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Pedestrians	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & WB East Long Lake Road - TMC

Wed Jun 1, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

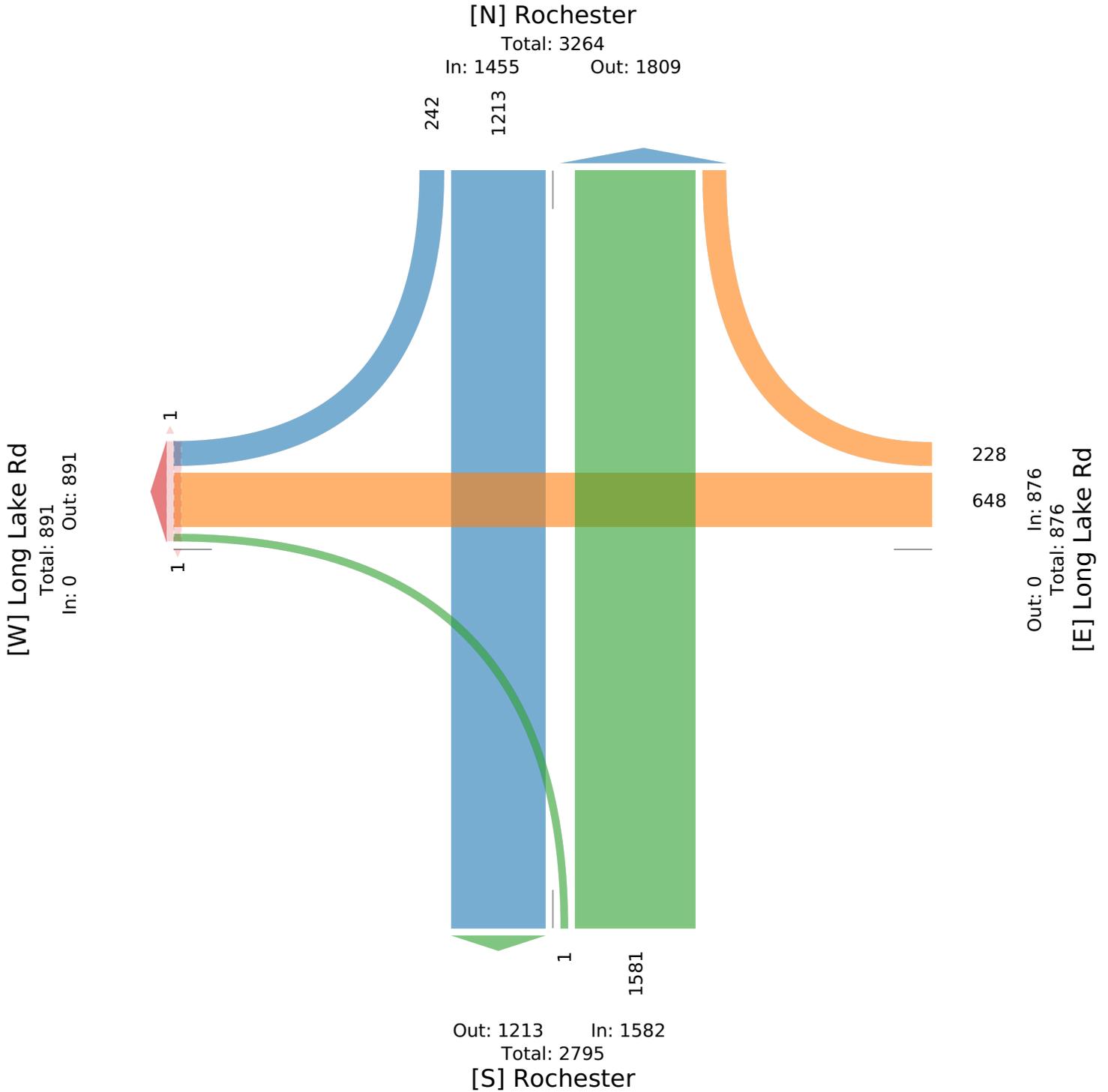
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957209, Location: 42.592164, -83.129104



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Rochester Road & EB East Long Lake Road - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957210, Location: 42.591947, -83.129089



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Long Lake Eastbound						Long Lake Westbound				Rochester Northbound					Rochester Southbound					Int
	L	T	R	U	App	Ped*	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*			
2022-06-01 7:00AM	0	55	42	1	98	0	0	0	173	34	0	207	0	0	346	0	346	0	651		
7:15AM	0	91	60	3	154	0	0	0	190	46	0	236	0	0	403	0	403	0	793		
7:30AM	0	91	70	3	164	1	0	0	212	45	0	257	0	0	432	0	432	0	853		
7:45AM	0	104	53	3	160	0	0	0	258	69	0	327	0	0	395	0	395	0	882		
Hourly Total	0	341	225	10	576	1	0	1	833	194	0	1027	0	0	1576	0	1576	0	3179		
8:00AM	0	109	58	3	170	0	0	0	207	44	0	251	1	0	354	0	354	0	775		
8:15AM	0	90	36	3	129	0	0	0	236	45	0	281	0	0	426	0	426	0	836		
8:30AM	0	136	53	4	193	0	0	1	195	56	0	251	1	0	347	0	347	0	791		
8:45AM	0	98	47	2	147	0	0	0	238	47	0	285	0	0	351	0	351	0	783		
Hourly Total	0	433	194	12	639	0	0	1	876	192	0	1068	2	0	1478	0	1478	0	3185		
4:00PM	0	260	64	2	326	0	0	0	321	94	0	415	1	0	249	0	249	0	990		
4:15PM	0	256	61	3	320	0	0	0	380	120	0	500	0	0	348	0	348	0	1168		
4:30PM	0	331	59	10	400	0	0	0	360	112	0	472	0	0	304	0	304	0	1176		
4:45PM	0	296	52	8	356	0	0	0	394	119	0	513	0	0	312	0	312	0	1181		
Hourly Total	0	1143	236	23	1402	0	0	0	1455	445	0	1900	1	0	1213	0	1213	0	4515		
5:00PM	0	292	58	13	363	0	0	0	358	113	0	471	0	0	283	0	283	1	1117		
5:15PM	0	334	64	15	413	0	0	0	393	114	1	508	1	0	294	0	294	0	1215		
5:30PM	0	276	56	13	345	0	0	0	432	125	0	557	0	0	327	0	327	0	1229		
5:45PM	0	292	66	11	369	0	0	0	325	86	0	411	1	0	288	0	288	0	1068		
Hourly Total	0	1194	244	52	1490	0	0	0	1508	438	1	1947	2	0	1192	0	1192	1	4629		
Total	0	3111	899	97	4107	1	0	2	4672	1269	1	5942	5	0	5459	0	5459	1	15508		
% Approach	0%	75.7%	21.9%	2.4%	-	-	-	-	78.6%	21.4%	0%	-	-	0%	100%	0%	-	-	-		
% Total	0%	20.1%	5.8%	0.6%	26.5%	-	0%	-	30.1%	8.2%	0%	38.3%	-	0%	35.2%	0%	35.2%	-	-		
Lights	0	3058	870	96	4024	-	0	-	4552	1245	1	5798	-	0	5385	0	5385	-	15207		
% Lights	0%	98.3%	96.8%	99.0%	98.0%	-	-	-	97.4%	98.1%	100%	97.6%	-	0%	98.6%	0%	98.6%	-	98.1%		
Single-Unit Trucks	0	40	12	0	52	-	0	-	71	10	0	81	-	0	38	0	38	-	171		
% Single-Unit Trucks	0%	1.3%	1.3%	0%	1.3%	-	-	-	1.5%	0.8%	0%	1.4%	-	0%	0.7%	0%	0.7%	-	1.1%		
Articulated Trucks	0	6	6	0	12	-	0	-	42	5	0	47	-	0	30	0	30	-	89		
% Articulated Trucks	0%	0.2%	0.7%	0%	0.3%	-	-	-	0.9%	0.4%	0%	0.8%	-	0%	0.5%	0%	0.5%	-	0.6%		
Buses	0	7	11	1	19	-	0	-	7	9	0	16	-	0	6	0	6	-	41		
% Buses	0%	0.2%	1.2%	1.0%	0.5%	-	-	-	0.1%	0.7%	0%	0.3%	-	0%	0.1%	0%	0.1%	-	0.3%		
Bicycles on Road	0	0	0	0	0	-	0	-	0	0	0	0	-	0	0	0	0	-	0		
% Bicycles on Road	0%	0%	0%	0%	0%	-	-	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%		
Pedestrians	-	-	-	-	-	1	-	0	-	-	-	-	0	-	-	-	-	-	1		
% Pedestrians	-	-	-	-	-	100%	-	0%	-	-	-	-	0%	-	-	-	-	-	100%		
Bicycles on Crosswalk	-	-	-	-	-	0	-	2	-	-	-	-	5	-	-	-	-	-	0		
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	100%	-	-	-	-	100%	-	-	-	-	-	0%		

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & EB East Long Lake Road - TMC

Wed Jun 1, 2022

Full Length (7 AM-9 AM, 4 PM-6 PM)

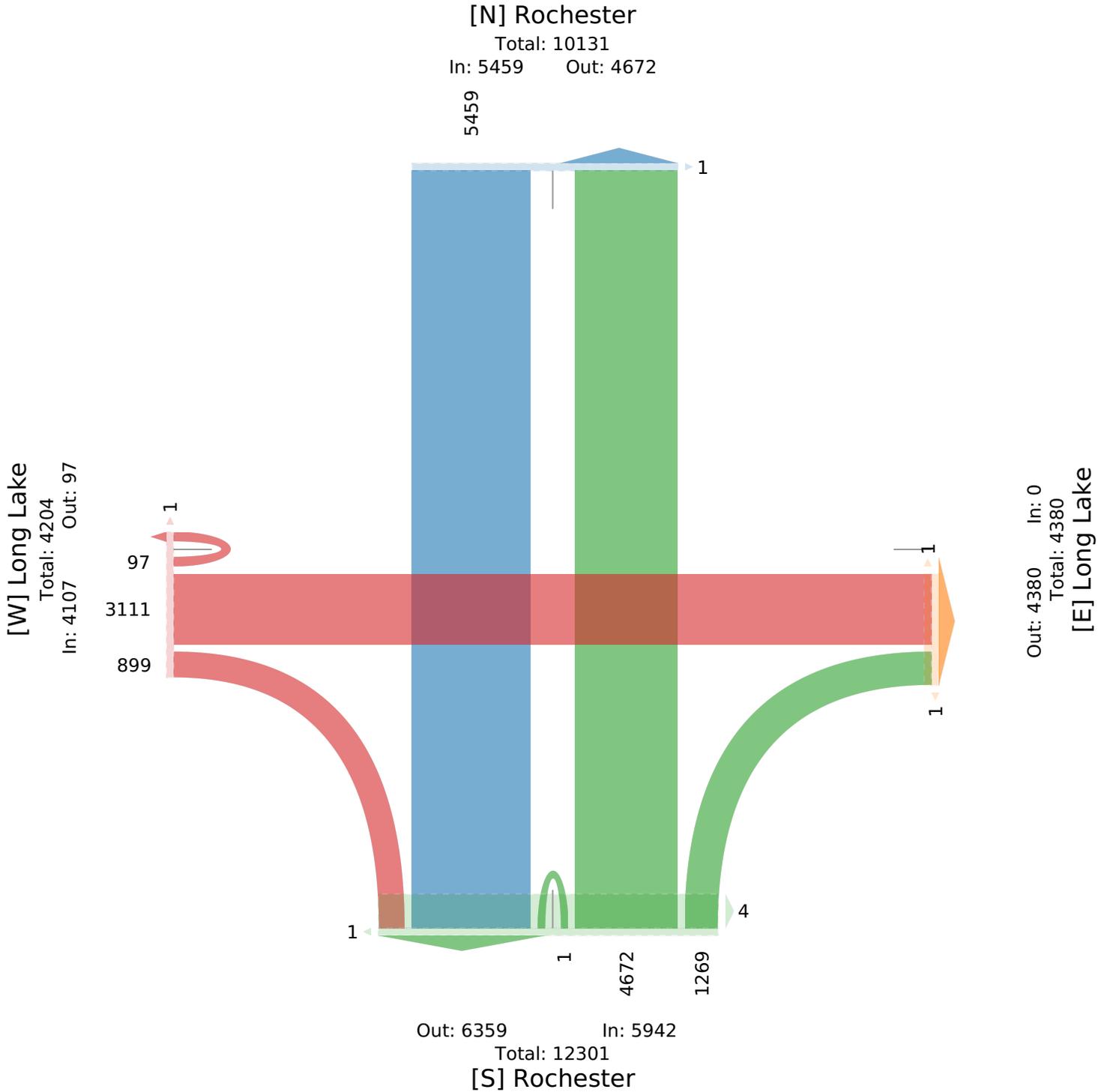
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957210, Location: 42.591947, -83.129089



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Rochester Road & EB East Long Lake Road - TMC

Wed Jun 1, 2022

AM Peak (7:30 AM - 8:30 AM)

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957210, Location: 42.591947, -83.129089



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Long Lake Eastbound						Long Lake Westbound			Rochester Northbound					Rochester Southbound					Int
	L	T	R	U	App	Ped*	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*		
2022-06-01 7:30AM	0	91	70	3	164	1	0	0	212	45	0	257	0	0	432	0	432	0	853	
7:45AM	0	104	53	3	160	0	0	0	258	69	0	327	0	0	395	0	395	0	882	
8:00AM	0	109	58	3	170	0	0	0	207	44	0	251	1	0	354	0	354	0	775	
8:15AM	0	90	36	3	129	0	0	0	236	45	0	281	0	0	426	0	426	0	836	
Total	0	394	217	12	623	1	0	0	913	203	0	1116	1	0	1607	0	1607	0	3346	
% Approach	0%	63.2%	34.8%	1.9%	-	-	-	-	81.8%	18.2%	0%	-	-	0%	100%	0%	-	-	-	
% Total	0%	11.8%	6.5%	0.4%	18.6%	-	0%	-	27.3%	6.1%	0%	33.4%	-	0%	48.0%	0%	48.0%	-	-	
PHF	-	0.904	0.775	1.000	0.916	-	-	-	0.885	0.736	-	0.853	-	-	0.930	-	0.930	-	0.948	
Lights	0	386	209	11	606	-	0	-	866	197	0	1063	-	0	1582	0	1582	-	3251	
% Lights	0%	98.0%	96.3%	91.7%	97.3%	-	-	-	94.9%	97.0%	0%	95.3%	-	0%	98.4%	0%	98.4%	-	97.2%	
Single-Unit Trucks	0	5	3	0	8	-	0	-	25	1	0	26	-	0	13	0	13	-	47	
% Single-Unit Trucks	0%	1.3%	1.4%	0%	1.3%	-	-	-	2.7%	0.5%	0%	2.3%	-	0%	0.8%	0%	0.8%	-	1.4%	
Articulated Trucks	0	2	2	0	4	-	0	-	17	1	0	18	-	0	10	0	10	-	32	
% Articulated Trucks	0%	0.5%	0.9%	0%	0.6%	-	-	-	1.9%	0.5%	0%	1.6%	-	0%	0.6%	0%	0.6%	-	1.0%	
Buses	0	1	3	1	5	-	0	-	5	4	0	9	-	0	2	0	2	-	16	
% Buses	0%	0.3%	1.4%	8.3%	0.8%	-	-	-	0.5%	2.0%	0%	0.8%	-	0%	0.1%	0%	0.1%	-	0.5%	
Bicycles on Road	0	0	0	0	0	-	0	-	0	0	0	0	-	0	0	0	0	-	0	
% Bicycles on Road	0%	0%	0%	0%	0%	-	-	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	
Pedestrians	-	-	-	-	-	1	-	0	-	-	-	-	0	-	-	-	-	-	0	
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	0%	-	-	-	-	-	-	
Bicycles on Crosswalk	-	-	-	-	-	0	-	0	-	-	-	-	1	-	-	-	-	-	0	
% Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	100%	-	-	-	-	-	-	

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & EB East Long Lake Road - TMC

Wed Jun 1, 2022

AM Peak (7:30 AM - 8:30 AM)

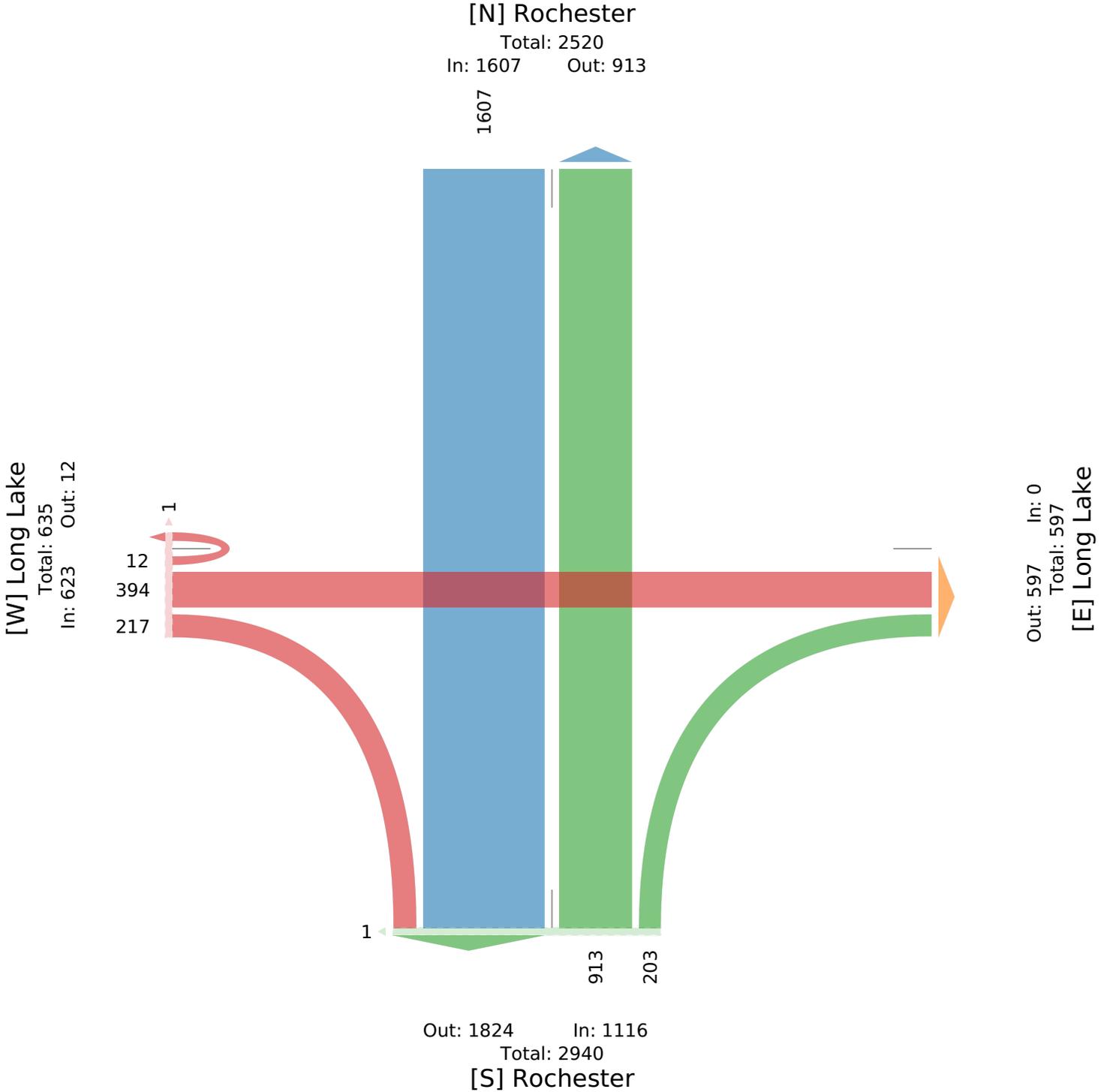
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957210, Location: 42.591947, -83.129089



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



Rochester Road & EB East Long Lake Road - TMC

Wed Jun 1, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957210, Location: 42.591947, -83.129089



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US

Leg Direction	Long Lake Eastbound						Long Lake Westbound		Rochester Northbound					Rochester Southbound					Int
	L	T	R	U	App	Ped*	App	Ped*	T	R	U	App	Ped*	L	T	U	App	Ped*	
Time																			
2022-06-01 4:45PM	0	296	52	8	356	0	0	0	394	119	0	513	0	0	312	0	312	0	1181
5:00PM	0	292	58	13	363	0	0	0	358	113	0	471	0	0	283	0	283	1	1117
5:15PM	0	334	64	15	413	0	0	0	393	114	1	508	1	0	294	0	294	0	1215
5:30PM	0	276	56	13	345	0	0	0	432	125	0	557	0	0	327	0	327	0	1229
Total	0	1198	230	49	1477	0	0	0	1577	471	1	2049	1	0	1216	0	1216	1	4742
% Approach	0%	81.1%	15.6%	3.3%	-	-	-	-	77.0%	23.0%	0%	-	-	0%	100%	0%	-	-	-
% Total	0%	25.3%	4.9%	1.0%	31.1%	-	0%	-	33.3%	9.9%	0%	43.2%	-	0%	25.6%	0%	25.6%	-	-
PHF	-	0.897	0.898	0.817	0.894	-	-	-	0.913	0.942	0.250	0.920	-	-	0.930	-	0.930	-	0.965
Lights	0	1182	222	49	1453	-	0	-	1566	470	1	2037	-	0	1207	0	1207	-	4697
% Lights	0%	98.7%	96.5%	100%	98.4%	-	-	-	99.3%	99.8%	100%	99.4%	-	0%	99.3%	0%	99.3%	-	99.1%
Single-Unit Trucks	0	16	5	0	21	-	0	-	9	1	0	10	-	0	4	0	4	-	35
% Single-Unit Trucks	0%	1.3%	2.2%	0%	1.4%	-	-	-	0.6%	0.2%	0%	0.5%	-	0%	0.3%	0%	0.3%	-	0.7%
Articulated Trucks	0	0	3	0	3	-	0	-	2	0	0	2	-	0	5	0	5	-	10
% Articulated Trucks	0%	0%	1.3%	0%	0.2%	-	-	-	0.1%	0%	0%	0.1%	-	0%	0.4%	0%	0.4%	-	0.2%
Buses	0	0	0	0	0	-	0	-	0	0	0	0	-	0	0	0	0	-	0
% Buses	0%	0%	0%	0%	0%	-	-	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Bicycles on Road	0	0	0	0	0	-	0	-	0	0	0	0	-	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	-	-	-	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	0	-	0	-	-	-	-	0	-	-	-	-	-	1
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	0%	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	0	-	0	-	-	-	-	1	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	100%	-	-	-	-	-	0%

* Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Rochester Road & EB East Long Lake Road - TMC

Wed Jun 1, 2022

PM Peak (4:45 PM - 5:45 PM) - Overall Peak Hour

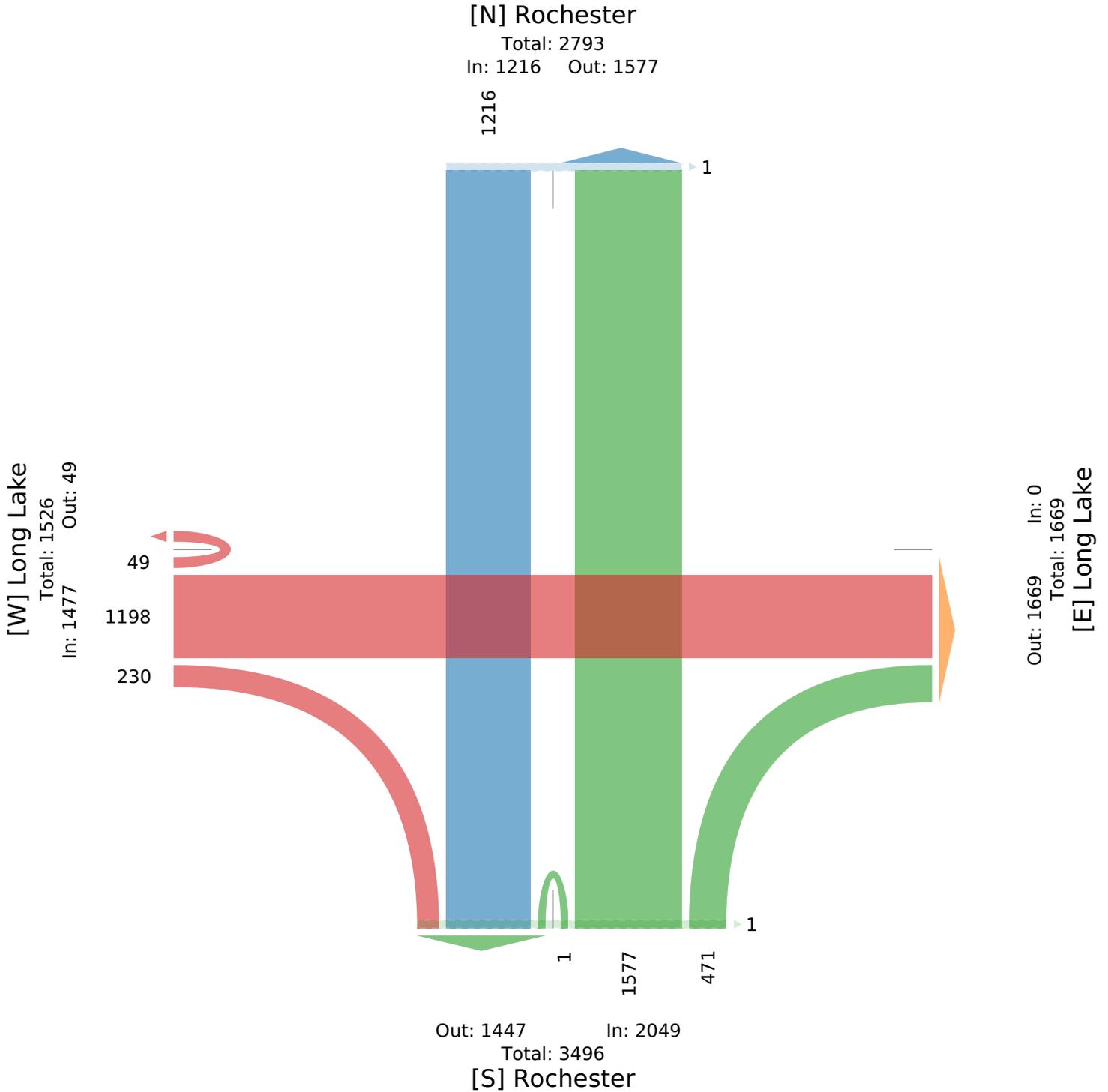
All Classes (Lights, Single-Unit Trucks, Articulated Trucks, Buses, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

ID: 957210, Location: 42.591947, -83.129089



Provided by: Gewalt Hamilton Associates Inc.
625 Forest Edge Drive, Vernon Hills, IL, 60061, US



OAKLAND COUNTY ROAD COMMISSION
TRAFFIC - SAFETY DEPARTMENT
SIGNAL WORK ORDER

LOCATION: Long Lake + x/w/o Rochester DATE: 7/30/19

CITY/TOWNSHIP: Troy BY: C. Markel

COUNTY#: 1058 STATE#: — CHARGES: 78010580

PLEASE PERFORM THE FOLLOWING:

ELECTRICAL DEVICE: INSTALL MODERNIZE MAINTENANCE

UNDERGROUND: _____

EDISON OK: YES NO JOB#: _____

COORDINATE W/DISTRICT 7: _____

DIAL..	1	1	1	1	2	2	2	2	3	3	3	3	4	4	4	4
SPLIT.	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
<input type="checkbox"/> CHANGE TIMING.....																
<input type="checkbox"/> CHANGE OFFSET.....																
<input type="checkbox"/> CHANGE CYCLE LENGTH.....																
<input type="checkbox"/> ADD DIAL/SPLIT.....																

CHANGE BREAKOUT OR EPROM: Change Personality → Rev#2
(Flexi plans)

CHANGE HOURS OF OPERATION:

OLD: _____

NEW: _____

ROAD COMMISSION FOR
OAKLAND COUNTY

AUG 15 2019

REPROGRAM TBC

TRAFFIC OPERATIONS

INSTALL INTERCONNECT: TBC MINITROL TONE

MBT OK: YES NO

NO CHANGE - RECORD CORRECTION

OTHER: Requires a checksum change.

APPROVED BY: _____ DATE: 8/12/19

DATE INSTALLED: 8/13/19

INSTALLED BY: Richardson

INTERSECTION :- 1058 LONG LAKE & X/O W/O ROCHESTER
DESCRIPTION PROMS :- X01058D / F2002
CONTROLLER TYPE :- STANDARD PERSONALITY CONTROLLER
SOFTWARE TYPE :- MOD 52 SCATS

INPUTS :-

- | | |
|----------------------------------|-------------------------------------|
| 1. X/O W/O ROCHESTER L PRES (LK) | 9. NOTE :- ALL DETECTORS ARE LOOPS. |
| 2. X/O W/O ROCHESTER C PRES (LK) | 10. |
| 3. X/O W/O ROCHESTER R PRES (LK) | 11. |
| 4. EB LONG LAKE L PRES (LK) | 12. |
| 5. EB LONG LAKE R PRES (LK) | 13. |
| 6. | 14. |
| 7. | 15. |
| 8. | 16. Opticom 1 |

APPROACHES :-

- A APPR 1 : EB LONG LAKE L,R
- B APPR 1 : X/O W/O ROCHESTER L,C,R

FLEXIDATA :-

SEQUENCE A,B A,B
AUTO REL
R- REL A A
R+ REL B B
Q- REL
Q+ REL
LOOKAHEAD

SPECIAL FEATURES :-

The personality revision number is currently 2 (=B).

A STAGE HAS PERMANENT DEMAND.
DEMAND FOR STAGE B FLEXI AND ISOL, SET ZNEG TO DISABLE.

Opticom 1 calls A stage.

BACKPANEL :- SIZE M CABINET

LOAD SWITCH 2: LONG LAKE	A	FLA
LOAD SWITCH 4: X/O W/O ROCHESTER	B	FLR

JUMPERS : -

121-213, 151-152, 153-154, 155-156, 173-174, 175-176, 177-178, 233-PB1,
237-PB1, 241-PB1, 255-156, 257-258, 259-260, 261-262.

SIGNAL MONITOR :- NONE.

ALL SWITCHES OFF EXCEPT: DUAL SELECT A&B, G&Y ENABLE; SSM 2,4
MINIMUM FLASH = 4+2+1 = 7

* CONTROLLER INFORMATION SHEET *
* FOR SITE NO. 1058 *
* CARISSA MARKEL *
* DATE :- 30-JUL-2019 *

CHECKSUMS
TIMES: 5C/134
PERS: 85/205
TOTAL: D9/331

FLEXILINK PLAN DATA

Intersection # 1058 State # _____ Date: 07/30/19 Prepared By: Carissa Markel

Intersection: Long Lake & X/O W/O Rochester City: Troy

Hours of Operation: Mon-Fri: 6am-11pm; Sat-Sun: 8am-10pm Approved By: Rachel Jones

Hours of Flashing: Mon-Fri: 11pm-6am; Sat-Sun: 10pm-8am

		PL0	PL1	PL2	PL3	PL4	PL5	PL6	PL7	PL8
0	CL		80	120	120					
1	A		0	0	0					
2	B		39	55	55					
3	C									
4	D									
5	E									
6	F									
7	G									
8	R-									
9	R+									
10	Of (Y-)		73	13	18					
11	Y+	C								
12	Z-									
13	Z+									
14	Q-									
15	Q+									
16	XH									
17	XL									

NOTE: Stages with 1 second of phase time are skipped. Blank entries are default values equal to 0. Except for an AWA controller, entries #8 to #15 (=254) and 'C' entry means continuous (=255).

Phase	Direction	Min	Max	ECO	Amber	All Red	Timers		
							Gap	Hdwy	Waste
A	Long Lake	10.0	80.0		4.3	1.3	3.0	1.2	10.0
B	X/O W/O Rochester	5.0	20.0		3.5	1.9	3.0	1.2	10.0
C									
D									
E									
F									
G									

	Day	Hours	Plan#
SC1	14	0:00	0
SC2	8	6:00	2
SC3	8	9:00	1
SC4	8	15:00	3
SC5	8	19:00	1
SC6	8	23:00	0
SC7	13	8:00	1
SC8	13	22:00	0
SC9			
SC10			

Pedestrian Crossing Times

Direction	Walk	CL 1	CL 2

TSM 16 = OPTICOM 1 ALARM TIME = 200

Normal Operating Mode

Isolated	Flexilink	Masterlink	Master Isolated	Flexi Isolated
		X		

DAY OF WEEK CODE NUMBER

	End of Schedule						
0		4	WED	8	MON-FRI	12	MON,FRI,SAT
1	SUN	5	THUR	9	MON-SAT	13	SAT,SUN
2	MON	6	FRI	10	TUE,WED,THU	14	EVERY DAY
3	TUE	7	SAT	11	MON,FRI	15	NEVER



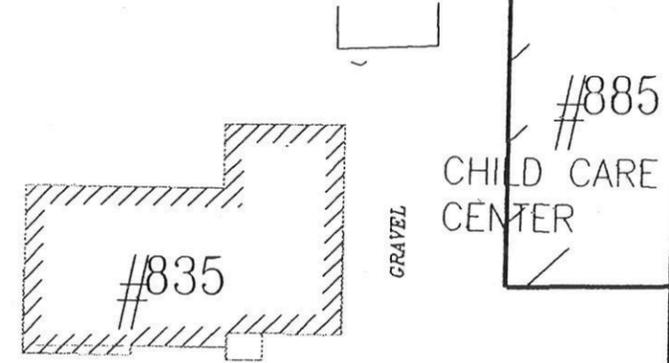
INSTALL CONTROLLER & FOUNDATION
INSTALL 36' STEEL POLE & FOUNDATION

WOOD POLE WIRE
CABLE WIRE

INSTALL HANDHOLE

EXIST. 3.05 EASEMENT

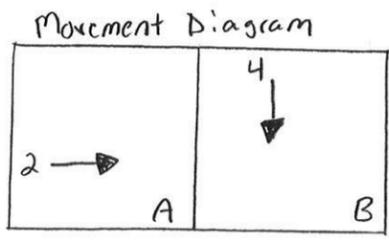
PROP. 1.52 S/W



EXIST. 60' (18.29) R.O.W.

INSTALL 6'X15' (FIGURE 8) TRAFFIC LOOPS

EX. 1.52 S/W



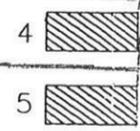
9-00

9-25

9-50

9-75

49.91 FT. [15.211 M]



POCH 30'

1-4" CONDUIT TO HANDHOLE EVERY 150-200'

MATCH LINE 10 + 25

INSTALL HANDHOLE

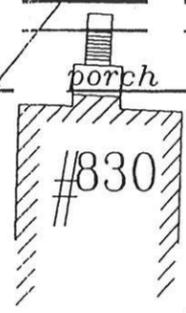
IMP. ENT

PROP. 2.44 S/W

PROP. 19.81 R.O.W.

PROP. 1.52 EASEMENT

EXIST. 33' (10.06) R.O.W.



*Long Lake @ Crossover - W - Rochester
CO#1058
All detectors are Loops.*

INSTALL PIPE EXTENSION AS SHOWN:

T.S.#1 = NO PIPE EXTENSION

T.S.#2 = NO PIPE EXTENSION

INSTALL 36' STEEL POLE & FOUNDATION

OAKLAND COUNTY ROAD COMMISSION
TRAFFIC - SAFETY DEPARTMENT
SIGNAL WORK ORDER

LOCATION: Long Lake + Rochester DATE: 7/25/19
 CITY/TOWNSHIP: Troy BY: C. Markel
 COUNTY#: 585 STATE#: — CHARGES: 78005850

PLEASE PERFORM THE FOLLOWING:

ELECTRICAL DEVICE: INSTALL MODERNIZE MAINTENANCE
 UNDERGROUND: _____
 EDISON OK: YES NO JOB#: _____
 COORDINATE W/DISTRICT 7: _____

DIAL..	1	1	1	1		2	2	2	2		3	3	3	3		4	4	4	4
SPLIT.	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4
CHANGE TIMING.....																			
CHANGE OFFSET.....																			
CHANGE CYCLE LENGTH.....																			
ADD DIAL/SPLIT.....																			

CHANGE BREAKOUT OR EPROM: Change Personality -> Rev #2
(Flexilink data, Det Alarm Cat)
 CHANGE HOURS OF OPERATION: _____

ROAD COMMISSION FOR
OAKLAND COUNTY

OLD: _____
 NEW: _____

AUG 15 2019

REPROGRAM TBC
 INSTALL INTERCONNECT: TBC MINITROL TONE
 MBT OK: YES NO
 NO CHANGE - RECORD CORRECTION

TRAFFIC OPERATIONS

OTHER: Requires a checksum change.

APPROVED BY: [Signature] DATE: 8/12/19
 DATE INSTALLED: 8/13/19
 INSTALLED BY: Rickardson

INTERSECTION :- 585 LONG LAKE & ROCHESTER
DESCRIPTION PROMS :- X00585D / F2806
CONTROLLER TYPE :- STANDARD PERSONALITY CONTROLLER
SOFTWARE TYPE :- MOD 52 SCATS
INPUTS :-

- | | | |
|----------------------------------|-------------------------------------|-------------------------------------|
| 1. WB LONG LAKE L PRES (LK) | 17. - | NOTE :- ALL DETECTORS ARE AUTOSCOPE |
| 2. WB LONG LAKE R PRES (LK) | 18. - | (2004 CAMEARAS). |
| 3. WB LONG LAKE RT TIMED (3 SEC) | 19. - | |
| 4. SB ROCHESTER L PRES (LK) | 20. - | |
| 5. SB ROCHESTER C PRES (LK) | 21. - | |
| 6. SB ROCHESTER R PRES (LK) | 22. - | |
| 7. EB LONG LAKE L PRES (LK) | 23. Opticom 2 (BACKPANEL VD7 (167)) | |
| 8. EB LONG LAKE R PRES (LK) | 24. Opticom 1 (BACKPANEL VD8 (175)) | |
| 9. EB LONG LAKE RT TIMED (3 SEC) | | |
| 10. NB ROCHESTER L PRES (LK) | | |
| 11. NB ROCHESTER C PRES (LK) | | |
| 12. NB ROCHESTER R PRES (LK) | | |
| 13. - | | |
| 14. - | | |
| 15. - | | |
| 16. - | | |

PED 2: NB ROCHESTER PED EAST P.B.
PED 4: WB LONG LAKE PED NORTH P.B.
PED 6: SB ROCHESTER PED WEST P.B.
PED 8: EB LONG LAKE PED SOUTH P.B.

APPROACHES :-

A APPR 1 : SB ROCHESTER L,R,RT	A APPR 2 : NB ROCHESTER L,R,RT
B APPR 1 : WB LONG LAKE L,R	B APPR 2 : WB LONG LAKE RT
B APPR 3 : EB LONG LAKE L,R	B APPR 4 : EB LONG LAKE RT

FLEXIDATA :-

SEQUENCE	A,B	A,B
AUTO REL		
R- REL	A	A
R+ REL	B	B
Q- REL		
Q+ REL		
LOOKAHEAD		

PEDESTRIANS :-

1. NO PED 1
2. NB ROCHESTER PED EAST (P-)
3. NO PED 3
4. WB LONG LAKE PED NORTH (P-)
5. NO PED 5
6. SB ROCHESTER PED WEST (P+)
7. NO PED 7
8. EB LONG LAKE PED SOUTH (P+)

SPECIAL FEATURES :-

The personality revision number is currently 2 (=B).

A stage has a permanent demand.
Demand for B stage in FLEXI & ISOL, set ZNEG to disable.

NB ROCHESTER NEAR has early cut-off operation in A stage.
SB ROCHESTER NEAR has early cut-off operation in A stage.

Opticom 2 calls B stage.
Opticom 1 calls A stage.

NB ROCHESTER PED EAST introduction is suppressed when OPTICOM is active.
WB LONG LAKE PED NORTH introduction is suppressed when OPTICOM is active.
SB ROCHESTER PED WEST introduction is suppressed when OPTICOM is active.
EB LONG LAKE PED SOUTH introduction is suppressed when OPTICOM is active.

BACKPANEL :- SIZE P44-12 CABINET

LOAD SWITCH 1 - SB ROCHESTER FAR	B	FLR
LOAD SWITCH 2 - NB ROCHESTER NEAR	A	FLR
LOAD SWITCH 4 - WB LONG LAKE	C	FLR
LOAD SWITCH 5 - NB ROCHESTER FAR	B	FLR
LOAD SWITCH 6 - SB ROCHESTER NEAR	A	FLR
LOAD SWITCH 8 - EB LONG LAKE	C	FLR
LOAD SWITCH 9 - NB ROCHESTER PED EAST	WA (P1)	
LOAD SWITCH 10- WB LONG LAKE PED NORTH	WC (P2)	
LOAD SWITCH 11- SB ROCHESTER PED WEST	WA (P1)	
LOAD SWITCH 12- EB LONG LAKE PED SOUTH	WC (P2)	

JUMPERS :-

189-190, 191-192, 193-194, 195-196, 197-198, 199-200, 201-202, 207-208, 217-218, 219-220, 221-222, 223-224, 229-230, 233-234, 235-236, 237-238, 239-240, 241-242, 243-244, 245-246, 251-252, 261-262, 263-264, 265-266, 267-268, 273-274, 298-302, 321-322, 323-324, 325-326, 327-328, 329-PB1, 334-335, 343-PB1, 347-348, 349-350, 351-PB1, 356-357, 365-366, 367-368, 369-370, 371-372, 373-PB1, 378-379, 387-PB1, 391-392, 393-394, 395-PB1, 400-401.

SIGNAL MONITOR :- 1-2, 1-5, 1-6, 2-5, 2-6, 4-8, 5-6.

All switches OFF EXCEPT: Dual Select A&B; G&Y Enable; SSM 1, 2, 4, 5, 6, 8.
Minimum Flash = 4 + 2 + 1.

* CONTROLLER INFORMATION SHEET *
* FOR SITE NO. 585 *
* CARISSA MARKEL *
* DATE :- 25-JUL-2019 *

CHECKSUMS
TIMES: 54/124
PERS: E6/346
TOTAL: B2/262

FLEXILINK PLAN DATA

Intersection # 585 **State #** _____ **Date:** 07/25/19 **Prepared By:** Carissa Markel
Intersection: Long Lake & Rochester **City:** Troy
Hours of Operation: 7 Days: 24 Hours **Approved By:** Rachel Jones
Hours of Flashing: None

		PL0	PL1	PL2	PL3	PL4	PL5	PL6	PL7	PL8
0	CL		80	120	120					
1	A		0	0	0					
2	B		41	65	65					
3	C									
4	D									
5	E									
6	F									
7	G									
8	R-									
9	R+									
10	Of (Y-)		36	72	77					
11	Y+	C								
12	Z-									
13	Z+									
14	Q-									
15	Q+									
16	XH									
17	XL									

NOTE: Stages with 1 second of phase time are skipped. Blank entries are default values equal to 0. Except for an AWA controller, entries #8 to #15 (=254) and 'C' entry means continuous (=255).

Phase	Direction	Min	Max	ECO	Amber	All Red	Timers		
							Gap	Hdwy	Waste
A	Rochester	10.0	80.0	3.0	4.3	2.4	3.0	1.2	10.0
B	Long Lake	8.0	20.0		4.3	2.5	3.0	1.2	10.0
C									
D									
E									
F									
G									

	Day	Hours	Plan#
SC1	14	0:00	1
SC2	8	6:00	2
SC3	8	9:00	1
SC4	8	15:00	3
SC5	8	19:00	1
SC6			
SC7			
SC8			
SC9			
SC10			

Pedestrian Crossing Times

Direction	Walk	CL 1	CL 2
NB Rochester Ped East (Ped 2)	7.0	5.0	3.7
WB Long Lake Ped North (Ped 4)	7.0	22.0	3.8
SB Rochester Ped West (Ped 6)	7.0	5.0	3.7
EB Long Lake Ped South (Ped 8)	7.0	22.0	3.8

Normal Operating Mode

Isolated	Flexilink	Masterlink	Master Isolated	Flexi Isolated
		X		

DAY OF WEEK CODE NUMBER

0	End of Schedule	4	WED	8	MON-FRI	12	MON,FRI,SAT
1	SUN	5	THUR	9	MON-SAT	13	SAT,SUN
2	MON	6	FRI	10	TUE,WED,THU	14	EVERY DAY
3	TUE	7	SAT	11	MON,FRI	15	NEVER

Autoscope 37-Pin Male Output Harness (33457G2) Wiring

Autoscope Output Harness Pins #1 & #20 to Logic Common & Pins #18 & # 37 to +24 VDC

CO#585

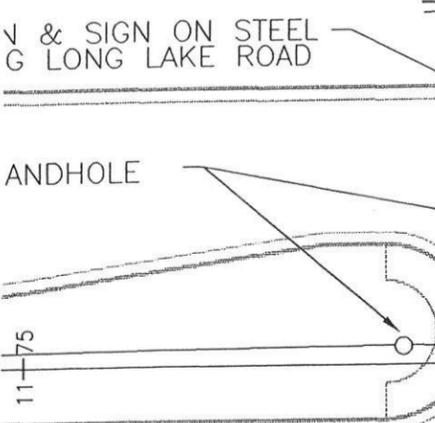
Camera Number	EIM Switch Position	EIM LED#	Output Harness Pin#	D-Conn Pin (1,2,..)	Vehicle Detector No.		Detector Description	Phase No. (1,2,3,...)
					D-Conn format (9,10,...)	On Print (1,2,...)		
1	1	1	29	1	9	1	WB LONG LAKE L	4
	1	2	30	2	10	2	WB LONG LAKE R	4
	1	3	31	3	11	3	WB LONG LAKE RT	4
	1	4	32					
	1	5	33					
	1	6	34					
	1	7	35					
2	2	1	10	4	12	4	SB ROCHESTER L	6
	2	2	11	5	13	5	SB ROCHESTER R	6
	2	3	12	6	14	6	SB ROCHESTER RT	6
	2	4	13					
	2	5	14					
	2	6	15					
	2	7	16					
3	3	1	21	7	15	7	EB LONG LAKE L	8
	3	2	22	8	16	8	EB LONG LAKE R	8
	3	3	23	9	17	9	EB LONG LAKE RT	8
	3	4	24					
	3	5	25					
	3	6	26					
	3	7	27					
4	4	1	2	10	18	10	NB ROCHESTER L	2
	4	2	3	11	19	11	NB ROCHESTER R	2
	4	3	4	12	20	12	NB ROCHESTER RT	2
	4	4	5					
	4	5	6					
	4	6	7					
	4	7	8					
4	8	9						

Autoscope 37-Pin Female Input Harness (33457G3) Wiring

EIM Switch Position	EIM LED#	Input Harness Pin#	Phase Status Input From +24 VDC	Backpanel Terminal Position and Number
5	1	29	Phase 8 Green	LS 8 Green 265
5	1	30	Phase 7 Green	
5	1	31	Phase 6 Green	LS 6 Green 243
5	1	32	Phase 5 Green	
5	1	33	Phase 4 Green	LS 4 Green 221
5	1	34	Phase 3 Green	
5	1	35	Phase 2 Green	LS 2 Green 199
5	1	36	Phase 1 Green	
6	2	10	Phase 8 Red	LS 8 Red 261
6	2	11	Phase 7 Red	
6	2	12	Phase 6 Red	LS 6 Red 239
6	2	13	Phase 5 Red	
6	2	14	Phase 4 Red	LS 4 Red 217
6	2	15	Phase 3 Red	
6	2	16	Phase 2 Red	LS 2 Red 195
6	2	17	Phase 1 Red	



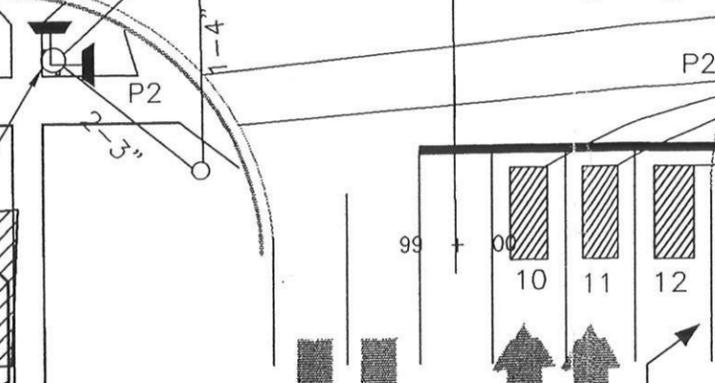
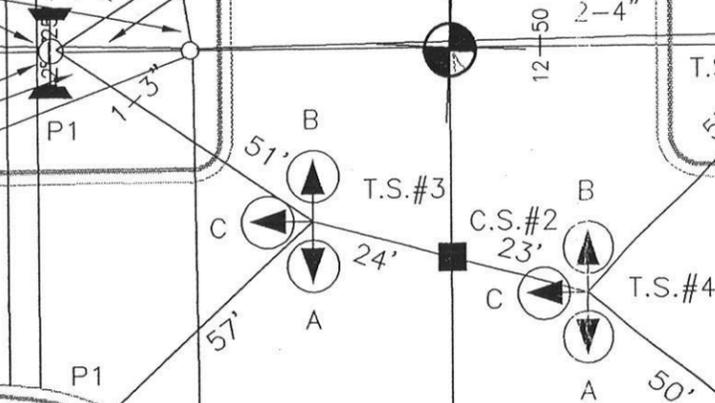
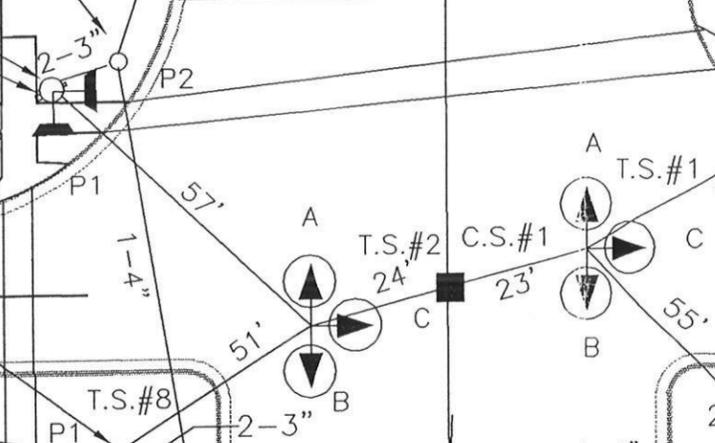
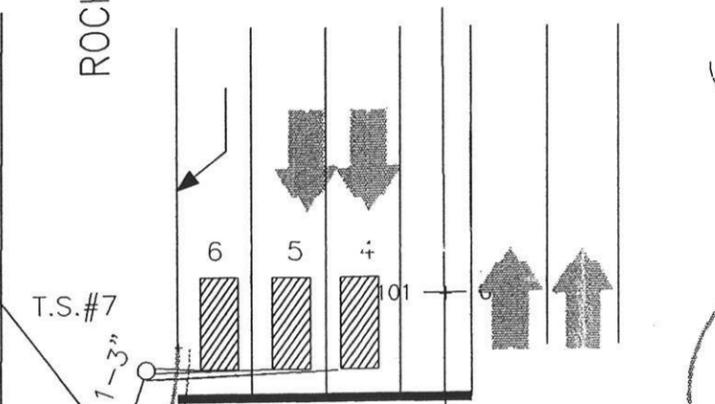
DETAIL "B-3"
 E & FOUNDATION
 EX. STEEL POLE
 LONG LAKE ROAD
 PROP. 3.05 TEMP.
 INST. EASEMENT
 1.52 EASEMENT
 19.81 R.O.W.



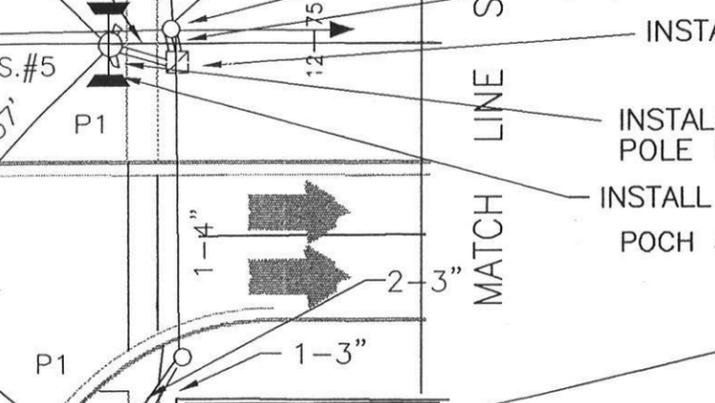
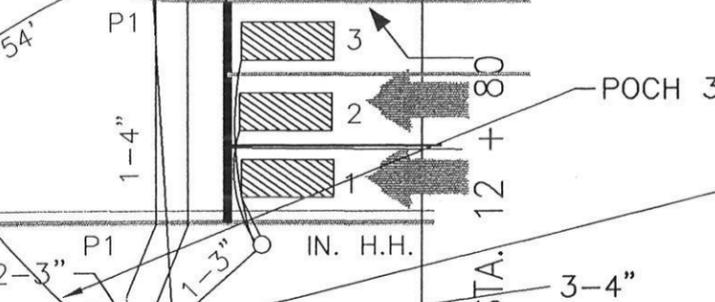
SEE DETAIL "B-3"
 INSTALL 40' STEEL POLE
 & FOUNDATION
 POCH 34'

W. IT
 PROP. 2.44 S/W
 GULF STA.
 #4995
 FUTURE 1.52 EASEMENT

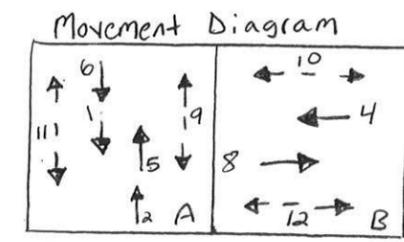
ROCHESTER



PROP. 1.52 SIDEWALK
 PROP. 22.86 R.O.W.
 PROP. 1.52 EASEMENT
 SUNOCO GAS #5010
 SEE DETAIL "B-3"
 INSTALL (2) PUSHBUTTONS ON EX. STEEL POLE
 FOR CROSSING ROCHESTER & LONG LAKE ROAD
 EX. 40' STEEL POLE & FOUNDATION
 POCH 34'
 INSTALL HANDHOLE
 4.57 EASEMENT



PROP. 19.81 R.O.W.
 PROP. 1.52 EASEMENT
 13.72R.
 RZADKOS TIRE
 CENTER
 FUTURE 25.91 R.O.W.
 INSTALL (2) PUSHBUTTONS ON EX.
 STEEL POLE FOR CROSSING
 ROCHESTER & LONG LAKE ROAD
 SEE DETAIL "B-3"



POCH 30'
 SEE DETAIL "B-3"
 INSTALL HANDHOLE (SQUARE)
 FIT-UP STEEL POLE AS T.S. CABLE POLE
 3-4"
 INSTALL CONTROLLER & FOUNDATION
 INSTALL (1) PUSHBUTTON & SIGN ON STEEL
 POLE FOR CROSSING LONG LAKE ROAD
 INSTALL 40' STEEL POLE & FOUNDATION
 POCH 30.5'
 MATCH LINE STA. 12 + 80
 3-4"
 INSTALL 40' STEEL POLE
 & FOUNDATION
 POCH 34'

0861

Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Exhibit 20-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular movement is a function of the number of vehicles in queue, the number of vehicles in the queue, and the number of vehicles in the queue.

When signals are present on the major street, upstream of the subject intersection, flows may not be random but will likely have some platoon structure. Although the procedures in this chapter provide a method for approximating the operations of a TWSC intersection with an upstream signal, the operations of such an intersection is arguably best handled by including it in a complete simulation.

Exhibit 20-2. Level of Service Criteria for Stop-Controlled Intersections (Motor Vehicles)

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. A total delay of 50 sec/veh is assumed as the break point between LOS E and F.

Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection.

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS can be characterized for the entire intersection, each intersection approach, and each lane group. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle. The criteria are given in Exhibit 19-8. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LOS A describes operations with a control delay of 10 s/veh or less. This level is typically assigned when the volume-to-capacity ratio is low and either progression is extremely favorable or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during a green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

Exhibit 19.8. Level-of-Service Criteria for Signalized Intersections (Motorized Vehicles)

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤ 10.0
B	> 10.0 and ≤ 20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	> 80.0

1. If the v/c ratio for a lane group exceeds 1.0, a LOS F is assigned to the individual lane group. LOS for approach-based and intersection-wide assessments are determined solely by the control delay.

LOS C describes operations with control delay between 20 and 35 s/veh. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e. one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicle stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D describes operations with control delay between 35 and 55 s/veh. This level is typically assigned when when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

LOS E describes operations with control delay between 55 and 80 s/veh. This level is typically assigned when when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level, considered to be unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of the intersection. This level is typically assigned when the volume-to-capacity ratio is high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual, 6th Edition. Transportation Research Board, National Research Council

Intersection												
Int Delay, s/veh	1.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕		↖	↕	↗
Traffic Vol, veh/h	0	0	28	4	0	2	7	1384	6	2	1924	3
Future Vol, veh/h	0	0	28	4	0	2	7	1384	6	2	1924	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	-	-	-	500	-	-	500	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	60	60	60	83	83	83	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	2	2	2
Mvmt Flow	0	0	34	7	0	3	8	1667	7	2	2091	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	1046	2737	3785	837	2094	0	0	1674	0	0
Stage 1	-	-	-	1687	1687	-	-	-	-	-	-	-
Stage 2	-	-	-	1050	2098	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.2	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.25	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*288	*10	*0	314	*423	-	-	379	-	-
Stage 1	0	0	-	*100	*151	-	-	-	-	-	-	-
Stage 2	0	0	-	*272	*238	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*288	*8	*0	314	*423	-	-	379	-	-
Mov Cap-2 Maneuver	-	-	-	*8	*0	-	-	-	-	-	-	-
Stage 1	-	-	-	*98	*148	-	-	-	-	-	-	-
Stage 2	-	-	-	*239	*237	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	19.2		\$ 605		0.1		0	
HCM LOS	C		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	*423	-	-	288	12	379	-
HCM Lane V/C Ratio	0.02	-	-	0.117	0.833	0.006	-
HCM Control Delay (s)	13.7	-	-	19.2	\$ 605	14.6	-
HCM Lane LOS	B	-	-	C	F	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	1.8	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
20: Rochester Rd. & EB Long Lake Rd.

Existing
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗					↑↑	↗		↑↑		
Traffic Volume (vph)	0	524	288	0	0	0	0	1133	253	0	1641	0	
Future Volume (vph)	0	524	288	0	0	0	0	1133	253	0	1641	0	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)		6.7	6.7					9.8	9.8		6.8		
Lane Util. Factor		0.95	1.00					0.95	1.00		0.95		
Frt		1.00	0.85					1.00	0.85		1.00		
Flt Protected		1.00	1.00					1.00	1.00		1.00		
Satd. Flow (prot)		3689	1650					3619	1619		3762		
Flt Permitted		1.00	1.00					1.00	1.00		1.00		
Satd. Flow (perm)		3689	1650					3619	1619		3762		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.90	0.90	0.90	
Adj. Flow (vph)	0	570	313	0	0	0	0	1333	298	0	1823	0	
RTOR Reduction (vph)	0	0	37	0	0	0	0	0	92	0	0	0	
Lane Group Flow (vph)	0	570	276	0	0	0	0	1333	206	0	1823	0	
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	5%	5%	5%	1%	1%	1%	
Turn Type		NA	Perm					NA	Perm		NA		
Protected Phases		4						2			6		
Permitted Phases			4						2				
Actuated Green, G (s)		48.3	48.3					55.2	55.2		58.2		
Effective Green, g (s)		48.3	48.3					55.2	55.2		58.2		
Actuated g/C Ratio		0.40	0.40					0.46	0.46		0.49		
Clearance Time (s)		6.7	6.7					9.8	9.8		6.8		
Vehicle Extension (s)		3.0	3.0					3.0	3.0		3.0		
Lane Grp Cap (vph)		1484	664					1664	744		1824		
v/s Ratio Prot		0.15						0.37			c0.48		
v/s Ratio Perm			c0.17						0.13				
v/c Ratio		0.38	0.42					0.80	0.28		1.00		
Uniform Delay, d1		25.3	25.7					27.7	20.1		30.9		
Progression Factor		0.67	0.60					1.00	1.00		0.04		
Incremental Delay, d2		0.2	0.4					4.2	0.9		6.2		
Delay (s)		17.2	15.8					31.9	21.0		7.5		
Level of Service		B	B					C	C		A		
Approach Delay (s)		16.7			0.0			29.9			7.5		
Approach LOS		B			A			C			A		
Intersection Summary													
HCM 2000 Control Delay			17.8									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.76										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			91.2%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
25: Rochester Rd. & WB Long Lake Rd.

Existing
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↗		↑↑			↑↑	↗
Traffic Volume (vph)	0	0	0	0	1308	229	0	1133	0	0	1641	222
Future Volume (vph)	0	0	0	0	1308	229	0	1133	0	0	1641	222
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					6.7	6.7		6.8			9.8	9.8
Lane Util. Factor					0.95	1.00		0.95			0.95	1.00
Frt					1.00	0.85		1.00			1.00	0.85
Flt Protected					1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)					3725	1667		3619			3762	1683
Flt Permitted					1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)					3725	1667		3619			3762	1683
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	1615	283	0	1333	0	0	1823	247
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	0	0	1615	246	0	1333	0	0	1823	229
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	1%	1%	1%
Turn Type					NA	Perm		NA			NA	Perm
Protected Phases					8			6			2	
Permitted Phases						8						2
Actuated Green, G (s)					48.3	48.3		58.2			55.2	55.2
Effective Green, g (s)					48.3	48.3		58.2			55.2	55.2
Actuated g/C Ratio					0.40	0.40		0.49			0.46	0.46
Clearance Time (s)					6.7	6.7		6.8			9.8	9.8
Vehicle Extension (s)					3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)					1499	670		1755			1730	774
v/s Ratio Prot					c0.43			0.37			c0.48	
v/s Ratio Perm						0.15						0.14
v/c Ratio					1.08	0.37		0.76			1.05	0.30
Uniform Delay, d1					35.9	25.1		25.2			32.4	20.2
Progression Factor					1.00	1.00		0.00			1.00	1.00
Incremental Delay, d2					47.2	0.3		1.8			37.4	1.0
Delay (s)					83.0	25.5		1.8			69.8	21.2
Level of Service					F	C		A			E	C
Approach Delay (s)		0.0			74.4			1.8			64.0	
Approach LOS		A			E			A			E	
Intersection Summary												
HCM 2000 Control Delay			52.1		HCM 2000 Level of Service						D	
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)						16.5	
Intersection Capacity Utilization			91.2%		ICU Level of Service						F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Existing
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↘	
Traffic Volume (vph)	0	594	0	0	218	0
Future Volume (vph)	0	594	0	0	218	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.6			5.4	
Lane Util. Factor		0.95			1.00	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3689			1863	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3689			1863	
Peak-hour factor, PHF	0.84	0.84	0.92	0.92	0.86	0.86
Adj. Flow (vph)	0	707	0	0	253	0
RTOR Reduction (vph)	0	0	0	0	76	0
Lane Group Flow (vph)	0	707	0	0	177	0
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type		NA			Prot	
Protected Phases		2			4	
Permitted Phases						
Actuated Green, G (s)		54.4			54.6	
Effective Green, g (s)		54.4			54.6	
Actuated g/C Ratio		0.45			0.46	
Clearance Time (s)		5.6			5.4	
Vehicle Extension (s)		0.2			0.2	
Lane Grp Cap (vph)		1672			847	
v/s Ratio Prot		c0.19			c0.09	
v/s Ratio Perm						
v/c Ratio		0.42			0.21	
Uniform Delay, d1		22.2			19.7	
Progression Factor		1.00			1.87	
Incremental Delay, d2		0.8			0.2	
Delay (s)		23.0			36.9	
Level of Service		C			D	
Approach Delay (s)		23.0	0.0		36.9	
Approach LOS		C	A		D	
Intersection Summary						
HCM 2000 Control Delay			26.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.32			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			58.1%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	594	0	0	1312	0	0
Future Vol, veh/h	594	0	0	1312	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	646	0	0	1426	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	646	0	1359
Stage 1	-	-	-	-	646
Stage 2	-	-	-	-	713
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	935	-	140
Stage 1	-	-	-	-	484
Stage 2	-	-	-	-	447
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	935	-	140
Mov Cap-2 Maneuver	-	-	-	-	276
Stage 1	-	-	-	-	484
Stage 2	-	-	-	-	447

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	935	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection												
Int Delay, s/veh	23											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕		↖	↕	↗
Traffic Vol, veh/h	0	0	21	5	0	18	14	2055	9	9	1436	4
Future Vol, veh/h	0	0	21	5	0	18	14	2055	9	9	1436	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	-	-	-	500	-	-	500	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	60	60	60	93	93	93	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	0	0	33	8	0	30	15	2210	10	9	1512	4

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	-	-	756	3019	3779	1110	1516	0	0	2220	0	0
Stage 1	-	-	-	2245	2245	-	-	-	-	-	-	-
Stage 2	-	-	-	774	1534	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	*493	*~ 3	*0	207	*738	-	-	235	-	-
Stage 1	0	0	-	*44	*79	-	-	-	-	-	-	-
Stage 2	0	0	-	*465	*407	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*493	*~ 2	*0	207	*738	-	-	235	-	-
Mov Cap-2 Maneuver	-	-	-	*~ 2	*0	-	-	-	-	-	-	-
Stage 1	-	-	-	*43	*77	-	-	-	-	-	-	-
Stage 2	-	-	-	*417	*392	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	\$ 2280.5	0.1	0.1
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 738	-	-	493	9	235	-
HCM Lane V/C Ratio	0.02	-	-	0.068	4.259	0.04	-
HCM Control Delay (s)	10	-	-	12.8	\$ 2280.5	21	-
HCM Lane LOS	A	-	-	B	F	C	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	6	0.1	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 20: Rochester Rd. & EB Long Lake Rd.

Existing
 PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗					↑↑	↗		↑↑		
Traffic Volume (vph)	0	1269	235	0	0	0	0	1596	477	0	1214	0	
Future Volume (vph)	0	1269	235	0	0	0	0	1596	477	0	1214	0	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)		6.7	6.7					9.8	9.8		6.8		
Lane Util. Factor		0.95	1.00					0.95	1.00		0.95		
Frt		1.00	0.85					1.00	0.85		1.00		
Flt Protected		1.00	1.00					1.00	1.00		1.00		
Satd. Flow (prot)		3725	1667					3762	1683		3762		
Flt Permitted		1.00	1.00					1.00	1.00		1.00		
Satd. Flow (perm)		3725	1667					3762	1683		3762		
Peak-hour factor, PHF	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	
Adj. Flow (vph)	0	1426	264	0	0	0	0	1735	518	0	1278	0	
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	18	0	0	0	
Lane Group Flow (vph)	0	1426	226	0	0	0	0	1735	500	0	1278	0	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	
Turn Type		NA	Perm					NA	Perm		NA		
Protected Phases		4						2			6		
Permitted Phases			4						2				
Actuated Green, G (s)		46.3	46.3					57.2	57.2		60.2		
Effective Green, g (s)		46.3	46.3					57.2	57.2		60.2		
Actuated g/C Ratio		0.39	0.39					0.48	0.48		0.50		
Clearance Time (s)		6.7	6.7					9.8	9.8		6.8		
Vehicle Extension (s)		3.0	3.0					3.0	3.0		3.0		
Lane Grp Cap (vph)		1437	643					1793	802		1887		
v/s Ratio Prot		c0.38						c0.46			0.34		
v/s Ratio Perm			0.14						0.30				
v/c Ratio		0.99	0.35					0.97	0.62		0.68		
Uniform Delay, d1		36.7	26.2					30.5	23.4		22.6		
Progression Factor		0.62	0.57					1.00	1.00		0.00		
Incremental Delay, d2		19.3	0.3					14.9	3.6		1.4		
Delay (s)		42.1	15.3					45.4	27.0		1.4		
Level of Service		D	B					D	C		A		
Approach Delay (s)		37.9			0.0			41.1			1.4		
Approach LOS		D			A			D			A		
Intersection Summary													
HCM 2000 Control Delay			30.4									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.98										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			89.0%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

25: Rochester Rd. & WB Long Lake Rd.

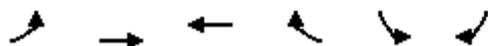
Existing
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑			↑↑	↑
Traffic Volume (vph)	0	0	0	0	684	228	0	1596	0	0	1214	256
Future Volume (vph)	0	0	0	0	684	228	0	1596	0	0	1214	256
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					6.7	6.7		6.8			9.8	9.8
Lane Util. Factor					0.95	1.00		0.95			0.95	1.00
Frt					1.00	0.85		1.00			1.00	0.85
Flt Protected					1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)					3762	1683		3762			3762	1683
Flt Permitted					1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)					3762	1683		3762			3762	1683
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	720	240	0	1735	0	0	1278	269
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	0	0	0	48
Lane Group Flow (vph)	0	0	0	0	720	202	0	1735	0	0	1278	221
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type					NA	Perm		NA			NA	Perm
Protected Phases					8			6			2	
Permitted Phases						8						2
Actuated Green, G (s)					46.3	46.3		60.2			57.2	57.2
Effective Green, g (s)					46.3	46.3		60.2			57.2	57.2
Actuated g/C Ratio					0.39	0.39		0.50			0.48	0.48
Clearance Time (s)					6.7	6.7		6.8			9.8	9.8
Vehicle Extension (s)					3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)					1451	649		1887			1793	802
v/s Ratio Prot					c0.19			c0.46			0.34	
v/s Ratio Perm						0.12						0.13
v/c Ratio					0.50	0.31		0.92			0.71	0.28
Uniform Delay, d1					28.0	25.7		27.7			24.9	18.9
Progression Factor					1.00	1.00		0.02			1.00	1.00
Incremental Delay, d2					0.3	0.3		2.9			2.4	0.9
Delay (s)					28.3	26.0		3.6			27.3	19.8
Level of Service					C	C		A			C	B
Approach Delay (s)		0.0			27.7			3.6			26.0	
Approach LOS		A			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			17.2		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)						16.5	
Intersection Capacity Utilization			89.0%		ICU Level of Service						E	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Existing
PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↘	
Traffic Volume (vph)	0	1251	0	0	253	0
Future Volume (vph)	0	1251	0	0	253	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.6			5.4	
Lane Util. Factor		0.95			1.00	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3725			1881	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3725			1881	
Peak-hour factor, PHF	0.94	0.94	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	1331	0	0	266	0
RTOR Reduction (vph)	0	0	0	0	19	0
Lane Group Flow (vph)	0	1331	0	0	247	0
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%
Turn Type		NA			Prot	
Protected Phases		2			3	
Permitted Phases						
Actuated Green, G (s)		61.4			47.6	
Effective Green, g (s)		61.4			47.6	
Actuated g/C Ratio		0.51			0.40	
Clearance Time (s)		5.6			5.4	
Vehicle Extension (s)		3.0			3.0	
Lane Grp Cap (vph)		1905			746	
v/s Ratio Prot		c0.36			c0.13	
v/s Ratio Perm						
v/c Ratio		0.70			0.33	
Uniform Delay, d1		22.3			25.1	
Progression Factor		1.00			1.36	
Incremental Delay, d2		2.2			1.1	
Delay (s)		24.4			35.2	
Level of Service		C			D	
Approach Delay (s)		24.4	0.0		35.2	
Approach LOS		C	A		D	
Intersection Summary						
HCM 2000 Control Delay			26.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.54			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			58.9%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	1251	0	0	687	0	0
Future Vol, veh/h	1251	0	0	687	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	95	95	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	1331	0	0	723	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1331	0	1693
Stage 1	-	-	-	-	1331
Stage 2	-	-	-	-	362
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	514	-	84
Stage 1	-	-	-	-	211
Stage 2	-	-	-	-	675
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	514	-	84
Mov Cap-2 Maneuver	-	-	-	-	172
Stage 1	-	-	-	-	211
Stage 2	-	-	-	-	675

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	514	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection												
Int Delay, s/veh	3.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕↗		↖	↕↖	↗
Traffic Vol, veh/h	0	0	29	4	0	2	7	1419	6	2	1973	3
Future Vol, veh/h	0	0	29	4	0	2	7	1419	6	2	1973	3
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	-	-	-	500	-	-	500	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	60	60	60	83	83	83	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	2	2	2
Mvmt Flow	0	0	35	7	0	3	8	1710	7	2	2145	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	1073	2807	3882	859	2148	0	0	1717	0	0
Stage 1	-	-	-	1730	1730	-	-	-	-	-	-	-
Stage 2	-	-	-	1077	2152	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.2	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.25	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*262	*~ 6	*0	304	*385	-	-	365	-	-
Stage 1	0	0	-	*94	*144	-	-	-	-	-	-	-
Stage 2	0	0	-	*248	*217	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*262	*~ 5	*0	304	*385	-	-	365	-	-
Mov Cap-2 Maneuver	-	-	-	*~ 5	*0	-	-	-	-	-	-	-
Stage 1	-	-	-	*92	*141	-	-	-	-	-	-	-
Stage 2	-	-	-	*213	*216	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.8		\$ 1198.7		0.1		0	
HCM LOS	C		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 385	-	-	262	7	365	-
HCM Lane V/C Ratio	0.022	-	-	0.133	1.429	0.006	-
HCM Control Delay (s)	14.6	-	-	20	\$ 1198.7	14.9	-
HCM Lane LOS	B	-	-	C	F	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	2.1	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
20: Rochester Rd. & EB Long Lake Rd.

Background
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗					↑↑	↗		↑↑	
Traffic Volume (vph)	0	538	295	0	0	0	0	1162	259	0	1683	0
Future Volume (vph)	0	538	295	0	0	0	0	1162	259	0	1683	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		6.7	6.7					9.8	9.8		6.8	
Lane Util. Factor		0.95	1.00					0.95	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3689	1650					3619	1619		3762	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3689	1650					3619	1619		3762	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	0	585	321	0	0	0	0	1367	305	0	1870	0
RTOR Reduction (vph)	0	0	37	0	0	0	0	0	87	0	0	0
Lane Group Flow (vph)	0	585	284	0	0	0	0	1367	218	0	1870	0
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	5%	5%	5%	1%	1%	1%
Turn Type		NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)		48.3	48.3					55.2	55.2		58.2	
Effective Green, g (s)		48.3	48.3					55.2	55.2		58.2	
Actuated g/C Ratio		0.40	0.40					0.46	0.46		0.49	
Clearance Time (s)		6.7	6.7					9.8	9.8		6.8	
Vehicle Extension (s)		3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)		1484	664					1664	744		1824	
v/s Ratio Prot		0.16						0.38			c0.50	
v/s Ratio Perm			c0.17						0.13			
v/c Ratio		0.39	0.43					0.82	0.29		1.03	
Uniform Delay, d1		25.5	25.9					28.1	20.2		30.9	
Progression Factor		0.67	0.60					1.00	1.00		0.04	
Incremental Delay, d2		0.2	0.4					4.7	1.0		14.2	
Delay (s)		17.3	15.9					32.8	21.2		15.6	
Level of Service		B	B					C	C		B	
Approach Delay (s)		16.8			0.0			30.7			15.6	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			21.5					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			120.0					Sum of lost time (s)		16.5		
Intersection Capacity Utilization			93.2%					ICU Level of Service		F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
25: Rochester Rd. & WB Long Lake Rd.

Background
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					↑↑	↗		↑↑			↑↑	↗	
Traffic Volume (vph)	0	0	0	0	1341	235	0	1162	0	0	1683	228	
Future Volume (vph)	0	0	0	0	1341	235	0	1162	0	0	1683	228	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)					6.7	6.7		6.8			9.8	9.8	
Lane Util. Factor					0.95	1.00		0.95			0.95	1.00	
Frt					1.00	0.85		1.00			1.00	0.85	
Flt Protected					1.00	1.00		1.00			1.00	1.00	
Satd. Flow (prot)					3725	1667		3619			3762	1683	
Flt Permitted					1.00	1.00		1.00			1.00	1.00	
Satd. Flow (perm)					3725	1667		3619			3762	1683	
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.85	0.85	0.85	0.90	0.90	0.90	
Adj. Flow (vph)	0	0	0	0	1656	290	0	1367	0	0	1870	253	
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	0	0	0	18	
Lane Group Flow (vph)	0	0	0	0	1656	253	0	1367	0	0	1870	235	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	1%	1%	1%	
Turn Type					NA	Perm		NA			NA	Perm	
Protected Phases					8			6			2		
Permitted Phases						8						2	
Actuated Green, G (s)					48.3	48.3		58.2			55.2	55.2	
Effective Green, g (s)					48.3	48.3		58.2			55.2	55.2	
Actuated g/C Ratio					0.40	0.40		0.49			0.46	0.46	
Clearance Time (s)					6.7	6.7		6.8			9.8	9.8	
Vehicle Extension (s)					3.0	3.0		3.0			3.0	3.0	
Lane Grp Cap (vph)					1499	670		1755			1730	774	
v/s Ratio Prot					c0.44			0.38			c0.50		
v/s Ratio Perm						0.15						0.14	
v/c Ratio					1.10	0.38		0.78			1.08	0.30	
Uniform Delay, d1					35.9	25.3		25.6			32.4	20.3	
Progression Factor					1.00	1.00		0.00			1.00	1.00	
Incremental Delay, d2					57.5	0.4		1.9			47.1	1.0	
Delay (s)					93.4	25.6		1.9			79.5	21.3	
Level of Service					F	C		A			E	C	
Approach Delay (s)		0.0			83.3			1.9			72.6		
Approach LOS		A			F			A			E		
Intersection Summary													
HCM 2000 Control Delay			58.7		HCM 2000 Level of Service						E		
HCM 2000 Volume to Capacity ratio			1.09										
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					16.5			
Intersection Capacity Utilization			93.2%		ICU Level of Service					F			
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Background
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↓	
Traffic Volume (vph)	0	609	0	0	224	0
Future Volume (vph)	0	609	0	0	224	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.6			5.4	
Lane Util. Factor		0.95			1.00	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3689			1863	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3689			1863	
Peak-hour factor, PHF	0.84	0.84	0.92	0.92	0.86	0.86
Adj. Flow (vph)	0	725	0	0	260	0
RTOR Reduction (vph)	0	0	0	0	72	0
Lane Group Flow (vph)	0	725	0	0	188	0
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type		NA			Prot	
Protected Phases		2			4	
Permitted Phases						
Actuated Green, G (s)		54.4			54.6	
Effective Green, g (s)		54.4			54.6	
Actuated g/C Ratio		0.45			0.46	
Clearance Time (s)		5.6			5.4	
Vehicle Extension (s)		0.2			0.2	
Lane Grp Cap (vph)		1672			847	
v/s Ratio Prot		c0.20			c0.10	
v/s Ratio Perm						
v/c Ratio		0.43			0.22	
Uniform Delay, d1		22.3			19.8	
Progression Factor		1.00			1.74	
Incremental Delay, d2		0.8			0.1	
Delay (s)		23.1			34.6	
Level of Service		C			C	
Approach Delay (s)		23.1	0.0		34.6	
Approach LOS		C	A		C	
Intersection Summary						
HCM 2000 Control Delay			26.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.33			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			59.3%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	609	0	0	1345	0	0
Future Vol, veh/h	609	0	0	1345	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	86	86	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	725	0	0	1564	0	0

Major/Minor	Major1	Major2	Minor1			
Conflicting Flow All	0	0	725	0	1507	363
Stage 1	-	-	-	-	725	-
Stage 2	-	-	-	-	782	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	874	-	112	634
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	411	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	874	-	112	634
Mov Cap-2 Maneuver	-	-	-	-	245	-
Stage 1	-	-	-	-	440	-
Stage 2	-	-	-	-	411	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	874	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection												
Int Delay, s/veh	22.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕↗		↖	↕↖	↗
Traffic Vol, veh/h	0	0	22	5	0	18	14	2107	9	9	1473	4
Future Vol, veh/h	0	0	22	5	0	18	14	2107	9	9	1473	4
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	-	-	-	500	-	-	500	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	60	60	60	93	93	93	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	0	0	35	8	0	30	15	2266	10	9	1551	4

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	-	-	776	3095	3874	1138	1555	0	0	2276	0	0
Stage 1	-	-	-	2301	2301	-	-	-	-	-	-	-
Stage 2	-	-	-	794	1573	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	*468	*~ 2	*0	198	*699	-	-	224	-	-
Stage 1	0	0	-	*40	*74	-	-	-	-	-	-	-
Stage 2	0	0	-	*441	*386	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1		1	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*468	*~ 2	*0	198	*699	-	-	224	-	-
Mov Cap-2 Maneuver	-	-	-	*~ 2	*0	-	-	-	-	-	-	-
Stage 1	-	-	-	*39	*72	-	-	-	-	-	-	-
Stage 2	-	-	-	*392	*371	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	13.3		\$ 2280.5		0.1		0.1	
HCM LOS	B		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 699	-	-	468	9	224	-	-
HCM Lane V/C Ratio	0.022	-	-	0.075	4.259	0.042	-	-
HCM Control Delay (s)	10.3	-	-	13.3	\$ 2280.5	21.8	-	-
HCM Lane LOS	B	-	-	B	F	C	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	6	0.1	-	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
20: Rochester Rd. & EB Long Lake Rd.

Background
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↗					↑↑	↗		↑↑	
Traffic Volume (vph)	0	1301	241	0	0	0	0	1636	489	0	1245	0
Future Volume (vph)	0	1301	241	0	0	0	0	1636	489	0	1245	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		6.7	6.7					9.8	9.8		6.8	
Lane Util. Factor		0.95	1.00					0.95	1.00		0.95	
Frt		1.00	0.85					1.00	0.85		1.00	
Flt Protected		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (prot)		3725	1667					3762	1683		3762	
Flt Permitted		1.00	1.00					1.00	1.00		1.00	
Satd. Flow (perm)		3725	1667					3762	1683		3762	
Peak-hour factor, PHF	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	1462	271	0	0	0	0	1778	532	0	1311	0
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	18	0	0	0
Lane Group Flow (vph)	0	1462	233	0	0	0	0	1778	514	0	1311	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type		NA	Perm					NA	Perm		NA	
Protected Phases		4						2			6	
Permitted Phases			4						2			
Actuated Green, G (s)		46.3	46.3					57.2	57.2		60.2	
Effective Green, g (s)		46.3	46.3					57.2	57.2		60.2	
Actuated g/C Ratio		0.39	0.39					0.48	0.48		0.50	
Clearance Time (s)		6.7	6.7					9.8	9.8		6.8	
Vehicle Extension (s)		3.0	3.0					3.0	3.0		3.0	
Lane Grp Cap (vph)		1437	643					1793	802		1887	
v/s Ratio Prot		c0.39						c0.47			0.35	
v/s Ratio Perm			0.14						0.31			
v/c Ratio		1.02	0.36					0.99	0.64		0.69	
Uniform Delay, d1		36.9	26.3					31.2	23.7		22.9	
Progression Factor		0.63	0.59					1.00	1.00		0.00	
Incremental Delay, d2		25.5	0.3					19.4	3.9		1.4	
Delay (s)		48.6	15.7					50.5	27.6		1.4	
Level of Service		D	B					D	C		A	
Approach Delay (s)		43.4			0.0			45.2			1.4	
Approach LOS		D			A			D			A	
Intersection Summary												
HCM 2000 Control Delay			33.9					HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			120.0					Sum of lost time (s)		16.5		
Intersection Capacity Utilization			90.9%					ICU Level of Service		E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
25: Rochester Rd. & WB Long Lake Rd.

Background
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↗		↑↑			↑↑	↗
Traffic Volume (vph)	0	0	0	0	701	234	0	1636	0	0	1245	262
Future Volume (vph)	0	0	0	0	701	234	0	1636	0	0	1245	262
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					6.7	6.7		6.8			9.8	9.8
Lane Util. Factor					0.95	1.00		0.95			0.95	1.00
Frt					1.00	0.85		1.00			1.00	0.85
Flt Protected					1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)					3762	1683		3762			3762	1683
Flt Permitted					1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)					3762	1683		3762			3762	1683
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	738	246	0	1778	0	0	1311	276
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	0	0	0	45
Lane Group Flow (vph)	0	0	0	0	738	208	0	1778	0	0	1311	231
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type					NA	Perm		NA			NA	Perm
Protected Phases					8			6			2	
Permitted Phases						8						2
Actuated Green, G (s)					46.3	46.3		60.2			57.2	57.2
Effective Green, g (s)					46.3	46.3		60.2			57.2	57.2
Actuated g/C Ratio					0.39	0.39		0.50			0.48	0.48
Clearance Time (s)					6.7	6.7		6.8			9.8	9.8
Vehicle Extension (s)					3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)					1451	649		1887			1793	802
v/s Ratio Prot					c0.20			c0.47			0.35	
v/s Ratio Perm						0.12						0.14
v/c Ratio					0.51	0.32		0.94			0.73	0.29
Uniform Delay, d1					28.2	25.8		28.3			25.2	19.0
Progression Factor					1.00	1.00		0.03			1.00	1.00
Incremental Delay, d2					0.3	0.3		3.3			2.7	0.9
Delay (s)					28.4	26.1		4.2			27.9	20.0
Level of Service					C	C		A			C	B
Approach Delay (s)		0.0			27.9			4.2			26.5	
Approach LOS		A			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			17.7		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)					16.5		
Intersection Capacity Utilization			90.9%		ICU Level of Service					E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Background
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↘	
Traffic Volume (vph)	0	1283	0	0	259	0
Future Volume (vph)	0	1283	0	0	259	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.6			5.4	
Lane Util. Factor		0.95			1.00	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3725			1881	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3725			1881	
Peak-hour factor, PHF	0.94	0.94	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	1365	0	0	273	0
RTOR Reduction (vph)	0	0	0	0	17	0
Lane Group Flow (vph)	0	1365	0	0	256	0
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%
Turn Type		NA			Prot	
Protected Phases		2			3	
Permitted Phases						
Actuated Green, G (s)		61.4			47.6	
Effective Green, g (s)		61.4			47.6	
Actuated g/C Ratio		0.51			0.40	
Clearance Time (s)		5.6			5.4	
Vehicle Extension (s)		3.0			3.0	
Lane Grp Cap (vph)		1905			746	
v/s Ratio Prot		c0.37			c0.14	
v/s Ratio Perm						
v/c Ratio		0.72			0.34	
Uniform Delay, d1		22.6			25.3	
Progression Factor		1.00			1.34	
Incremental Delay, d2		2.3			1.1	
Delay (s)		24.9			35.0	
Level of Service		C			C	
Approach Delay (s)		24.9	0.0		35.0	
Approach LOS		C	A		C	
Intersection Summary						
HCM 2000 Control Delay			26.6		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.55			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			60.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	
Traffic Vol, veh/h	1283	0	0	704	0	0
Future Vol, veh/h	1283	0	0	704	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	95	95	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	1365	0	0	741	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1365	0	1736
Stage 1	-	-	-	-	1365
Stage 2	-	-	-	-	371
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	499	-	79
Stage 1	-	-	-	-	202
Stage 2	-	-	-	-	668
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	499	-	79
Mov Cap-2 Maneuver	-	-	-	-	165
Stage 1	-	-	-	-	202
Stage 2	-	-	-	-	668

Approach	EB	WB	NB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	499	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	0	-
HCM Lane LOS	A	-	-	A	-
HCM 95th %tile Q(veh)	-	-	-	0	-

Intersection												
Int Delay, s/veh	4.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕↗		↖	↕↖	↗
Traffic Vol, veh/h	0	0	51	4	0	2	16	1419	6	2	1973	7
Future Vol, veh/h	0	0	51	4	0	2	16	1419	6	2	1973	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	-	-	-	500	-	-	500	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	83	83	83	60	60	60	83	83	83	92	92	92
Heavy Vehicles, %	0	0	0	0	0	0	5	5	5	2	2	2
Mvmt Flow	0	0	61	7	0	3	19	1710	7	2	2145	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	-	-	1073	2829	3909	859	2153	0	0	1717	0	0
Stage 1	-	-	-	1752	1752	-	-	-	-	-	-	-
Stage 2	-	-	-	1077	2157	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.2	-	-	4.14	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.25	-	-	2.22	-	-
Pot Cap-1 Maneuver	0	0	*262	*~ 5	*0	304	*385	-	-	365	-	-
Stage 1	0	0	-	*91	*141	-	-	-	-	-	-	-
Stage 2	0	0	-	*248	*217	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1	1	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*262	*~ 4	*0	304	*385	-	-	365	-	-
Mov Cap-2 Maneuver	-	-	-	*~ 4	*0	-	-	-	-	-	-	-
Stage 1	-	-	-	*87	*134	-	-	-	-	-	-	-
Stage 2	-	-	-	*188	*216	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	22.9	\$ 1442.4	0.2	0
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 385	-	-	262	6	365	-
HCM Lane V/C Ratio	0.05	-	-	0.235	1.667	0.006	-
HCM Control Delay (s)	14.8	-	-	22.9	\$ 1442.4	14.9	-
HCM Lane LOS	B	-	-	C	F	B	-
HCM 95th %tile Q(veh)	0.2	-	-	0.9	2.2	0	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

20: Rochester Rd. & EB Long Lake Rd.

Future
AM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗					↑↑	↗		↑↑		
Traffic Volume (vph)	0	557	297	0	0	0	0	1162	259	0	1685	0	
Future Volume (vph)	0	557	297	0	0	0	0	1162	259	0	1685	0	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)		6.7	6.7					9.8	9.8		6.8		
Lane Util. Factor		0.95	1.00					0.95	1.00		0.95		
Frt		1.00	0.85					1.00	0.85		1.00		
Flt Protected		1.00	1.00					1.00	1.00		1.00		
Satd. Flow (prot)		3689	1650					3619	1619		3762		
Flt Permitted		1.00	1.00					1.00	1.00		1.00		
Satd. Flow (perm)		3689	1650					3619	1619		3762		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.85	0.85	0.85	0.90	0.90	0.90	
Adj. Flow (vph)	0	605	323	0	0	0	0	1367	305	0	1872	0	
RTOR Reduction (vph)	0	0	37	0	0	0	0	0	82	0	0	0	
Lane Group Flow (vph)	0	605	286	0	0	0	0	1367	223	0	1872	0	
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	5%	5%	5%	1%	1%	1%	
Turn Type		NA	Perm					NA	Perm		NA		
Protected Phases		4						2			6		
Permitted Phases			4						2				
Actuated Green, G (s)		48.3	48.3					55.2	55.2		58.2		
Effective Green, g (s)		48.3	48.3					55.2	55.2		58.2		
Actuated g/C Ratio		0.40	0.40					0.46	0.46		0.49		
Clearance Time (s)		6.7	6.7					9.8	9.8		6.8		
Vehicle Extension (s)		3.0	3.0					3.0	3.0		3.0		
Lane Grp Cap (vph)		1484	664					1664	744		1824		
v/s Ratio Prot		0.16						0.38			c0.50		
v/s Ratio Perm			c0.17						0.14				
v/c Ratio		0.41	0.43					0.82	0.30		1.03		
Uniform Delay, d1		25.6	25.9					28.1	20.3		30.9		
Progression Factor		0.66	0.59					1.00	1.00		0.04		
Incremental Delay, d2		0.2	0.4					4.7	1.0		14.6		
Delay (s)		17.2	15.7					32.8	21.3		16.0		
Level of Service		B	B					C	C		B		
Approach Delay (s)		16.7			0.0			30.7			16.0		
Approach LOS		B			A			C			B		
Intersection Summary													
HCM 2000 Control Delay			21.6									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.78										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			93.3%									ICU Level of Service	F
Analysis Period (min)			15										
c	Critical Lane Group												

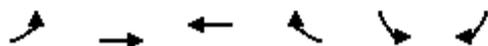
HCM Signalized Intersection Capacity Analysis
25: Rochester Rd. & WB Long Lake Rd.

Future
AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↗		↑↑			↑↑	↗
Traffic Volume (vph)	0	0	0	0	1344	248	0	1162	0	0	1685	231
Future Volume (vph)	0	0	0	0	1344	248	0	1162	0	0	1685	231
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					6.7	6.7		6.8			9.8	9.8
Lane Util. Factor					0.95	1.00		0.95			0.95	1.00
Frt					1.00	0.85		1.00			1.00	0.85
Flt Protected					1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)					3725	1667		3619			3762	1683
Flt Permitted					1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)					3725	1667		3619			3762	1683
Peak-hour factor, PHF	0.92	0.92	0.92	0.81	0.81	0.81	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	0	1659	306	0	1367	0	0	1872	257
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	0	0	0	18
Lane Group Flow (vph)	0	0	0	0	1659	269	0	1367	0	0	1872	239
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	1%	1%	1%
Turn Type					NA	Perm		NA			NA	Perm
Protected Phases					8			6			2	
Permitted Phases						8						2
Actuated Green, G (s)					48.3	48.3		58.2			55.2	55.2
Effective Green, g (s)					48.3	48.3		58.2			55.2	55.2
Actuated g/C Ratio					0.40	0.40		0.49			0.46	0.46
Clearance Time (s)					6.7	6.7		6.8			9.8	9.8
Vehicle Extension (s)					3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)					1499	670		1755			1730	774
v/s Ratio Prot					c0.45			0.38			c0.50	
v/s Ratio Perm						0.16						0.14
v/c Ratio					1.11	0.40		0.78			1.08	0.31
Uniform Delay, d1					35.9	25.5		25.6			32.4	20.4
Progression Factor					1.00	1.00		0.00			1.00	1.00
Incremental Delay, d2					58.3	0.4		1.9			47.6	1.0
Delay (s)					94.1	25.9		1.9			80.0	21.4
Level of Service					F	C		A			E	C
Approach Delay (s)		0.0			83.5			1.9			72.9	
Approach LOS		A			F			A			E	
Intersection Summary												
HCM 2000 Control Delay			59.0		HCM 2000 Level of Service						E	
HCM 2000 Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)						16.5	
Intersection Capacity Utilization			93.3%		ICU Level of Service						F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Future
 AM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↘	
Traffic Volume (vph)	0	629	0	0	225	0
Future Volume (vph)	0	629	0	0	225	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.6			5.4	
Lane Util. Factor		0.95			1.00	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3689			1863	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3689			1863	
Peak-hour factor, PHF	0.84	0.84	0.92	0.92	0.86	0.86
Adj. Flow (vph)	0	749	0	0	262	0
RTOR Reduction (vph)	0	0	0	0	67	0
Lane Group Flow (vph)	0	749	0	0	195	0
Heavy Vehicles (%)	3%	3%	2%	2%	2%	2%
Turn Type		NA			Prot	
Protected Phases		2			4	
Permitted Phases						
Actuated Green, G (s)		54.4			54.6	
Effective Green, g (s)		54.4			54.6	
Actuated g/C Ratio		0.45			0.46	
Clearance Time (s)		5.6			5.4	
Vehicle Extension (s)		0.2			0.2	
Lane Grp Cap (vph)		1672			847	
v/s Ratio Prot		c0.20			c0.10	
v/s Ratio Perm						
v/c Ratio		0.45			0.23	
Uniform Delay, d1		22.5			19.9	
Progression Factor		1.00			1.65	
Incremental Delay, d2		0.9			0.1	
Delay (s)		23.4			32.9	
Level of Service		C			C	
Approach Delay (s)		23.4	0.0		32.9	
Approach LOS		C	A		C	
Intersection Summary						
HCM 2000 Control Delay			25.8		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.34			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			60.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	609	6	5	1345	12	20
Future Vol, veh/h	609	6	5	1345	12	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	86	86	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	725	7	6	1564	13	22

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	732	0	1523 366
Stage 1	-	-	-	-	729 -
Stage 2	-	-	-	-	794 -
Critical Hdwy	-	-	4.14	-	6.84 6.94
Critical Hdwy Stg 1	-	-	-	-	5.84 -
Critical Hdwy Stg 2	-	-	-	-	5.84 -
Follow-up Hdwy	-	-	2.22	-	3.52 3.32
Pot Cap-1 Maneuver	-	-	868	-	109 631
Stage 1	-	-	-	-	438 -
Stage 2	-	-	-	-	406 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	868	-	108 631
Mov Cap-2 Maneuver	-	-	-	-	241 -
Stage 1	-	-	-	-	438 -
Stage 2	-	-	-	-	403 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0	15
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	393	-	-	868	-
HCM Lane V/C Ratio	0.089	-	-	0.007	-
HCM Control Delay (s)	15	-	-	9.2	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.3	-	-	0	-

Intersection												
Int Delay, s/veh	42.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗		↕		↖	↕↗		↖	↕↖	↗
Traffic Vol, veh/h	0	0	36	5	0	18	28	2107	9	9	1473	13
Future Vol, veh/h	0	0	36	5	0	18	28	2107	9	9	1473	13
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	-	-	-	500	-	-	500	-	450
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	63	63	63	60	60	60	93	93	93	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	1	1	1	1	1	1
Mvmt Flow	0	0	57	8	0	30	30	2266	10	9	1551	14

Major/Minor	Minor2	Minor1		Major1		Major2						
Conflicting Flow All	-	-	776	3125	3914	1138	1565	0	0	2276	0	0
Stage 1	-	-	-	2331	2331	-	-	-	-	-	-	-
Stage 2	-	-	-	794	1583	-	-	-	-	-	-	-
Critical Hdwy	-	-	6.9	7.5	6.5	6.9	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	6.5	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	3.3	3.5	4	3.3	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	0	0	*468	*~ 2	*0	198	*699	-	-	224	-	-
Stage 1	0	0	-	*39	*72	-	-	-	-	-	-	-
Stage 2	0	0	-	*441	*386	-	-	-	-	-	-	-
Platoon blocked, %			1	1	1		1	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	*468	*~ 1	*0	198	*699	-	-	224	-	-
Mov Cap-2 Maneuver	-	-	-	*~ 1	*0	-	-	-	-	-	-	-
Stage 1	-	-	-	*37	*69	-	-	-	-	-	-	-
Stage 2	-	-	-	*372	*371	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.8	\$ 4400.8	0.1	0.1
HCM LOS	B	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	* 699	-	-	468	5	224	-
HCM Lane V/C Ratio	0.043	-	-	0.122	7.667	0.042	-
HCM Control Delay (s)	10.4	-	-	13.8	\$ 4400.8	21.8	-
HCM Lane LOS	B	-	-	B	F	C	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	6.4	0.1	-

Notes
 ~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
20: Rochester Rd. & EB Long Lake Rd.

Future
PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑	↗					↑↑	↗		↑↑		
Traffic Volume (vph)	0	1317	243	0	0	0	0	1636	489	0	1252	0	
Future Volume (vph)	0	1317	243	0	0	0	0	1636	489	0	1252	0	
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	
Total Lost time (s)		6.7	6.7					9.8	9.8		6.8		
Lane Util. Factor		0.95	1.00					0.95	1.00		0.95		
Frt		1.00	0.85					1.00	0.85		1.00		
Flt Protected		1.00	1.00					1.00	1.00		1.00		
Satd. Flow (prot)		3725	1667					3762	1683		3762		
Flt Permitted		1.00	1.00					1.00	1.00		1.00		
Satd. Flow (perm)		3725	1667					3762	1683		3762		
Peak-hour factor, PHF	0.89	0.89	0.89	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95	
Adj. Flow (vph)	0	1480	273	0	0	0	0	1778	532	0	1318	0	
RTOR Reduction (vph)	0	0	38	0	0	0	0	0	18	0	0	0	
Lane Group Flow (vph)	0	1480	235	0	0	0	0	1778	514	0	1318	0	
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%	
Turn Type		NA	Perm					NA	Perm		NA		
Protected Phases		4						2			6		
Permitted Phases			4						2				
Actuated Green, G (s)		46.3	46.3					57.2	57.2		60.2		
Effective Green, g (s)		46.3	46.3					57.2	57.2		60.2		
Actuated g/C Ratio		0.39	0.39					0.48	0.48		0.50		
Clearance Time (s)		6.7	6.7					9.8	9.8		6.8		
Vehicle Extension (s)		3.0	3.0					3.0	3.0		3.0		
Lane Grp Cap (vph)		1437	643					1793	802		1887		
v/s Ratio Prot		c0.40						c0.47			0.35		
v/s Ratio Perm			0.14						0.31				
v/c Ratio		1.03	0.37					0.99	0.64		0.70		
Uniform Delay, d1		36.9	26.3					31.2	23.7		22.9		
Progression Factor		0.63	0.59					1.00	1.00		0.00		
Incremental Delay, d2		29.0	0.3					19.4	3.9		1.4		
Delay (s)		52.2	15.9					50.5	27.6		1.5		
Level of Service		D	B					D	C		A		
Approach Delay (s)		46.5			0.0			45.2			1.5		
Approach LOS		D			A			D			A		
Intersection Summary													
HCM 2000 Control Delay			34.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			1.01										
Actuated Cycle Length (s)			120.0									Sum of lost time (s)	16.5
Intersection Capacity Utilization			91.3%									ICU Level of Service	F
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

25: Rochester Rd. & WB Long Lake Rd.

Future
PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑	↑		↑↑			↑↑	↑
Traffic Volume (vph)	0	0	0	0	710	244	0	1636	0	0	1252	269
Future Volume (vph)	0	0	0	0	710	244	0	1636	0	0	1252	269
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)					6.7	6.7		6.8			9.8	9.8
Lane Util. Factor					0.95	1.00		0.95			0.95	1.00
Frt					1.00	0.85		1.00			1.00	0.85
Flt Protected					1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)					3762	1683		3762			3762	1683
Flt Permitted					1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)					3762	1683		3762			3762	1683
Peak-hour factor, PHF	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	0	747	257	0	1778	0	0	1318	283
RTOR Reduction (vph)	0	0	0	0	0	38	0	0	0	0	0	43
Lane Group Flow (vph)	0	0	0	0	747	219	0	1778	0	0	1318	240
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type					NA	Perm		NA			NA	Perm
Protected Phases					8			6			2	
Permitted Phases						8						2
Actuated Green, G (s)					46.3	46.3		60.2			57.2	57.2
Effective Green, g (s)					46.3	46.3		60.2			57.2	57.2
Actuated g/C Ratio					0.39	0.39		0.50			0.48	0.48
Clearance Time (s)					6.7	6.7		6.8			9.8	9.8
Vehicle Extension (s)					3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)					1451	649		1887			1793	802
v/s Ratio Prot					c0.20			c0.47			0.35	
v/s Ratio Perm						0.13						0.14
v/c Ratio					0.51	0.34		0.94			0.74	0.30
Uniform Delay, d1					28.2	26.0		28.3			25.3	19.2
Progression Factor					1.00	1.00		0.03			1.00	1.00
Incremental Delay, d2					0.3	0.3		3.3			2.7	1.0
Delay (s)					28.6	26.3		4.2			28.0	20.1
Level of Service					C	C		A			C	C
Approach Delay (s)		0.0			28.0			4.2			26.6	
Approach LOS		A			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			17.8		HCM 2000 Level of Service						B	
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			120.0		Sum of lost time (s)						16.5	
Intersection Capacity Utilization			91.3%		ICU Level of Service						F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Future
 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑			↘	
Traffic Volume (vph)	0	1299	0	0	261	0
Future Volume (vph)	0	1299	0	0	261	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)		5.6			5.4	
Lane Util. Factor		0.95			1.00	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3725			1881	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3725			1881	
Peak-hour factor, PHF	0.94	0.94	0.92	0.92	0.95	0.95
Adj. Flow (vph)	0	1382	0	0	275	0
RTOR Reduction (vph)	0	0	0	0	17	0
Lane Group Flow (vph)	0	1382	0	0	258	0
Heavy Vehicles (%)	2%	2%	2%	2%	1%	1%
Turn Type		NA			Prot	
Protected Phases		2			3	
Permitted Phases						
Actuated Green, G (s)		61.4			47.6	
Effective Green, g (s)		61.4			47.6	
Actuated g/C Ratio		0.51			0.40	
Clearance Time (s)		5.6			5.4	
Vehicle Extension (s)		3.0			3.0	
Lane Grp Cap (vph)		1905			746	
v/s Ratio Prot		c0.37			c0.14	
v/s Ratio Perm						
v/c Ratio		0.73			0.35	
Uniform Delay, d1		22.8			25.3	
Progression Factor		1.00			1.33	
Incremental Delay, d2		2.4			1.1	
Delay (s)		25.2			34.7	
Level of Service		C			C	
Approach Delay (s)		25.2	0.0		34.7	
Approach LOS		C	A		C	
Intersection Summary						
HCM 2000 Control Delay			26.8		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			120.0		Sum of lost time (s)	11.0
Intersection Capacity Utilization			61.0%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM 6th TWSC
40: Site Drive & Long Lake Rd.

Future
PM Peak Hour

Intersection						
Int Delay, s/veh	0.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↖	↑↑	↘	
Traffic Vol, veh/h	1283	12	14	704	9	16
Future Vol, veh/h	1283	12	14	704	9	16
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	150	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	95	95	92	92
Heavy Vehicles, %	3	3	2	2	2	2
Mvmt Flow	1365	13	15	741	10	17

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	1378	0	1773
Stage 1	-	-	-	-	1372
Stage 2	-	-	-	-	401
Critical Hdwy	-	-	4.14	-	6.84
Critical Hdwy Stg 1	-	-	-	-	5.84
Critical Hdwy Stg 2	-	-	-	-	5.84
Follow-up Hdwy	-	-	2.22	-	3.52
Pot Cap-1 Maneuver	-	-	493	-	74
Stage 1	-	-	-	-	201
Stage 2	-	-	-	-	645
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	493	-	72
Mov Cap-2 Maneuver	-	-	-	-	161
Stage 1	-	-	-	-	201
Stage 2	-	-	-	-	626

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	257	-	-	493	-
HCM Lane V/C Ratio	0.106	-	-	0.03	-
HCM Control Delay (s)	20.7	-	-	12.5	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.3	-	-	0.1	-

Intersection: 10: Rochester Rd. & Glaser Dr.

Movement	EB	WB	NB	SB
Directions Served	R	LTR	L	L
Maximum Queue (ft)	52	39	30	5
Average Queue (ft)	18	7	4	0
95th Queue (ft)	41	28	18	4
Link Distance (ft)	888	1866		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			500	500
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: Rochester Rd. & EB Long Lake Rd.

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T	R	T	T
Maximum Queue (ft)	154	150	191	420	428	140	35	45
Average Queue (ft)	80	88	105	247	227	50	9	9
95th Queue (ft)	128	136	170	356	341	105	32	33
Link Distance (ft)	737	737		582	582		32	32
Upstream Blk Time (%)							12	12
Queuing Penalty (veh)							99	100
Storage Bay Dist (ft)			500			500		
Storage Blk Time (%)						0		
Queuing Penalty (veh)						0		

Intersection: 25: Rochester Rd. & WB Long Lake Rd.

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	T	T	R	T	T	T	T	R
Maximum Queue (ft)	993	1017	612	15	16	1507	1532	600
Average Queue (ft)	497	499	200	1	1	915	931	390
95th Queue (ft)	937	939	609	9	11	1728	1743	815
Link Distance (ft)	2792	2792		32	32	3693	3693	
Upstream Blk Time (%)				1	0			
Queuing Penalty (veh)				4	0			
Storage Bay Dist (ft)			650					525
Storage Blk Time (%)		11					36	
Queuing Penalty (veh)		25					79	

Intersection: 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	170	173	70
Average Queue (ft)	120	122	51
95th Queue (ft)	172	173	64
Link Distance (ft)	123	123	14
Upstream Blk Time (%)	8	9	26
Queuing Penalty (veh)	24	27	57
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Site Drive & Long Lake Rd.

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 45: WB-to-EB X/O, W. of Rochester Rd & WB Long Lake Rd.

Movement	WB
Directions Served	L
Maximum Queue (ft)	182
Average Queue (ft)	72
95th Queue (ft)	151
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	600
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 416

Intersection: 10: Rochester Rd. & Glaser Dr.

Movement	EB	WB	NB	NB	NB	SB
Directions Served	R	LTR	L	T	TR	L
Maximum Queue (ft)	41	147	31	125	152	42
Average Queue (ft)	12	49	7	11	10	11
95th Queue (ft)	34	128	25	66	66	36
Link Distance (ft)	888	1866		904	904	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			500			500
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 20: Rochester Rd. & EB Long Lake Rd.

Movement	EB	EB	EB	NB	NB	NB	SB
Directions Served	T	T	R	T	T	R	T
Maximum Queue (ft)	409	397	204	594	584	508	23
Average Queue (ft)	231	241	95	401	388	213	2
95th Queue (ft)	357	364	171	582	570	448	14
Link Distance (ft)	737	737		582	582		32
Upstream Blk Time (%)				1	1		2
Queuing Penalty (veh)				12	9		13
Storage Bay Dist (ft)			500			500	
Storage Blk Time (%)		0			4	0	
Queuing Penalty (veh)		0			20	1	

Intersection: 25: Rochester Rd. & WB Long Lake Rd.

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	T	T	R	T	T	T	T	R
Maximum Queue (ft)	248	252	202	25	6	344	359	134
Average Queue (ft)	163	151	102	2	0	226	239	54
95th Queue (ft)	225	222	174	14	5	309	324	103
Link Distance (ft)	2792	2792		32	32	3693	3693	
Upstream Blk Time (%)				3	0			
Queuing Penalty (veh)				21	2			
Storage Bay Dist (ft)			650					525
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	175	175	61
Average Queue (ft)	160	156	52
95th Queue (ft)	169	174	57
Link Distance (ft)	123	123	14
Upstream Blk Time (%)	26	22	36
Queuing Penalty (veh)	161	140	91
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Site Drive & Long Lake Rd.

Movement	EB	EB
Directions Served	T	TR
Maximum Queue (ft)	29	14
Average Queue (ft)	1	0
95th Queue (ft)	13	6
Link Distance (ft)	1106	1106
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 45: WB-to-EB X/O, W. of Rochester Rd & WB Long Lake Rd.

Movement	WB
Directions Served	L
Maximum Queue (ft)	238
Average Queue (ft)	118
95th Queue (ft)	204
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	600
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 471

Intersection: 10: Rochester Rd. & Glaser Dr.

Movement	EB	WB	NB	NB	SB
Directions Served	R	LTR	L	TR	L
Maximum Queue (ft)	55	31	35	17	29
Average Queue (ft)	16	5	3	1	1
95th Queue (ft)	41	24	18	12	11
Link Distance (ft)	888	1866		904	
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			500		500
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 20: Rochester Rd. & EB Long Lake Rd.

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T	R	T	T
Maximum Queue (ft)	158	158	184	398	392	209	32	32
Average Queue (ft)	90	97	105	249	230	56	7	10
95th Queue (ft)	139	147	170	369	362	137	28	33
Link Distance (ft)	737	737		582	582		32	32
Upstream Blk Time (%)					0		9	13
Queuing Penalty (veh)					0		78	112
Storage Bay Dist (ft)			500			500		
Storage Blk Time (%)					0			
Queuing Penalty (veh)					0			

Intersection: 25: Rochester Rd. & WB Long Lake Rd.

Movement	WB	WB	WB	NB	SB	SB	SB
Directions Served	T	T	R	T	T	T	R
Maximum Queue (ft)	1043	1046	725	6	1926	1950	600
Average Queue (ft)	491	492	184	0	1139	1155	407
95th Queue (ft)	936	941	568	6	2075	2094	809
Link Distance (ft)	2792	2792		32	3693	3693	
Upstream Blk Time (%)				0			
Queuing Penalty (veh)				2			
Storage Bay Dist (ft)			650				525
Storage Blk Time (%)		10				40	
Queuing Penalty (veh)		24				90	

Intersection: 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	167	168	60
Average Queue (ft)	125	124	51
95th Queue (ft)	173	179	63
Link Distance (ft)	123	123	14
Upstream Blk Time (%)	10	10	26
Queuing Penalty (veh)	32	33	57
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Site Drive & Long Lake Rd.

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Intersection: 45: WB-to-EB X/O, W. of Rochester Rd & WB Long Lake Rd.

Movement	WB
Directions Served	L
Maximum Queue (ft)	183
Average Queue (ft)	78
95th Queue (ft)	167
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	600
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 429

Intersection: 10: Rochester Rd. & Glaser Dr.

Movement	EB	WB	NB	NB	NB	SB
Directions Served	R	LTR	L	T	TR	L
Maximum Queue (ft)	38	142	128	277	320	43
Average Queue (ft)	13	63	15	63	63	8
95th Queue (ft)	34	169	116	329	333	31
Link Distance (ft)	888	1866		904	904	
Upstream Blk Time (%)				0	1	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			500			500
Storage Blk Time (%)				1		
Queuing Penalty (veh)				0		

Intersection: 20: Rochester Rd. & EB Long Lake Rd.

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T	R	T	T
Maximum Queue (ft)	736	736	550	580	589	511	6	19
Average Queue (ft)	414	426	209	423	413	264	0	1
95th Queue (ft)	722	726	545	616	616	538	6	8
Link Distance (ft)	737	737		582	582		32	32
Upstream Blk Time (%)	1	1		4	3		0	1
Queuing Penalty (veh)	6	5		41	37		2	6
Storage Bay Dist (ft)			500				500	
Storage Blk Time (%)		12	0		9			
Queuing Penalty (veh)		30	0		44			

Intersection: 25: Rochester Rd. & WB Long Lake Rd.

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	T	T	R	T	T	T	T	R
Maximum Queue (ft)	278	262	211	32	32	372	405	148
Average Queue (ft)	176	157	113	3	2	232	246	58
95th Queue (ft)	248	233	189	17	15	331	348	120
Link Distance (ft)	2792	2792		32	32	3693	3693	
Upstream Blk Time (%)				4	3			
Queuing Penalty (veh)				29	24			
Storage Bay Dist (ft)			650					525
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	172	179	63
Average Queue (ft)	158	155	52
95th Queue (ft)	171	177	56
Link Distance (ft)	123	123	14
Upstream Blk Time (%)	24	22	42
Queuing Penalty (veh)	155	142	109
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Site Drive & Long Lake Rd.

Movement	EB	EB
Directions Served	T	TR
Maximum Queue (ft)	38	44
Average Queue (ft)	2	3
95th Queue (ft)	26	36
Link Distance (ft)	1106	1106
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 45: WB-to-EB X/O, W. of Rochester Rd & WB Long Lake Rd.

Movement	WB
Directions Served	L
Maximum Queue (ft)	267
Average Queue (ft)	136
95th Queue (ft)	232
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	600
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 631

Intersection: 10: Rochester Rd. & Glaser Dr.

Movement	EB	WB	NB	SB
Directions Served	R	LTR	L	L
Maximum Queue (ft)	84	44	36	16
Average Queue (ft)	26	8	8	1
95th Queue (ft)	56	35	26	8
Link Distance (ft)	888	1866		
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			500	500
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 20: Rochester Rd. & EB Long Lake Rd.

Movement	EB	EB	EB	NB	NB	NB	SB	SB
Directions Served	T	T	R	T	T	R	T	T
Maximum Queue (ft)	173	153	207	402	415	138	36	32
Average Queue (ft)	88	95	107	267	248	56	7	9
95th Queue (ft)	146	144	185	373	358	111	28	31
Link Distance (ft)	737	737		582	582		32	32
Upstream Blk Time (%)							10	12
Queuing Penalty (veh)							82	98
Storage Bay Dist (ft)			500			500		
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 25: Rochester Rd. & WB Long Lake Rd.

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	T	T	R	T	T	T	T	R
Maximum Queue (ft)	1370	1369	725	4	20	1894	1902	600
Average Queue (ft)	744	743	381	0	1	1206	1219	432
95th Queue (ft)	1371	1370	901	3	12	2455	2459	828
Link Distance (ft)	2792	2792		32	32	3693	3693	
Upstream Blk Time (%)				0	1			
Queuing Penalty (veh)				2	3			
Storage Bay Dist (ft)			650					525
Storage Blk Time (%)		27					42	
Queuing Penalty (veh)		68					97	

Intersection: 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	168	181	71
Average Queue (ft)	123	131	52
95th Queue (ft)	175	177	63
Link Distance (ft)	123	123	14
Upstream Blk Time (%)	9	11	25
Queuing Penalty (veh)	28	34	56
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Site Drive & Long Lake Rd.

Movement	WB	NB
Directions Served	L	LR
Maximum Queue (ft)	23	57
Average Queue (ft)	2	21
95th Queue (ft)	12	48
Link Distance (ft)		660
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	150	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 45: WB-to-EB X/O, W. of Rochester Rd & WB Long Lake Rd.

Movement	WB	WB
Directions Served	L	T
Maximum Queue (ft)	184	8
Average Queue (ft)	75	0
95th Queue (ft)	155	6
Link Distance (ft)		768
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	600	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 469

Intersection: 10: Rochester Rd. & Glaser Dr.

Movement	EB	WB	NB	NB	NB	SB
Directions Served	R	LTR	L	T	TR	L
Maximum Queue (ft)	51	255	232	367	351	43
Average Queue (ft)	17	102	38	143	145	10
95th Queue (ft)	41	257	220	645	652	34
Link Distance (ft)	888	1866		904	904	
Upstream Blk Time (%)				3	6	
Queuing Penalty (veh)				0	0	
Storage Bay Dist (ft)			500			500
Storage Blk Time (%)				6		
Queuing Penalty (veh)				2		

Intersection: 20: Rochester Rd. & EB Long Lake Rd.

Movement	EB	EB	EB	NB	NB	NB	SB
Directions Served	T	T	R	T	T	R	T
Maximum Queue (ft)	644	656	481	592	590	509	19
Average Queue (ft)	372	379	187	445	435	287	1
95th Queue (ft)	707	707	496	624	630	569	12
Link Distance (ft)	737	737		582	582		32
Upstream Blk Time (%)	0	0		5	5		2
Queuing Penalty (veh)	3	4		54	54		12
Storage Bay Dist (ft)			500			500	
Storage Blk Time (%)		11	0		11		
Queuing Penalty (veh)		26	0		56		

Intersection: 25: Rochester Rd. & WB Long Lake Rd.

Movement	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	T	T	R	T	T	T	T	R
Maximum Queue (ft)	283	264	209	19	19	358	368	154
Average Queue (ft)	177	160	116	3	2	232	248	61
95th Queue (ft)	246	231	186	17	15	323	340	121
Link Distance (ft)	2792	2792		32	32	3693	3693	
Upstream Blk Time (%)				3	3			
Queuing Penalty (veh)				27	21			
Storage Bay Dist (ft)			650					525
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 30: EB Long Lake Rd. & WB-to-EB X/O, W. of Rochester Rd

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	183	184	63
Average Queue (ft)	160	158	52
95th Queue (ft)	173	179	58
Link Distance (ft)	123	123	14
Upstream Blk Time (%)	30	28	37
Queuing Penalty (veh)	197	184	96
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 40: Site Drive & Long Lake Rd.

Movement	EB	EB	WB	NB
Directions Served	T	TR	L	LR
Maximum Queue (ft)	72	46	39	70
Average Queue (ft)	8	5	14	22
95th Queue (ft)	43	30	40	56
Link Distance (ft)	1106	1106		660
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			150	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 45: WB-to-EB X/O, W. of Rochester Rd & WB Long Lake Rd.

Movement	WB
Directions Served	L
Maximum Queue (ft)	244
Average Queue (ft)	123
95th Queue (ft)	216
Link Distance (ft)	
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	600
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 734

WARRANTS FOR RIGHT TURN DECELERATION LANE OR TAPER

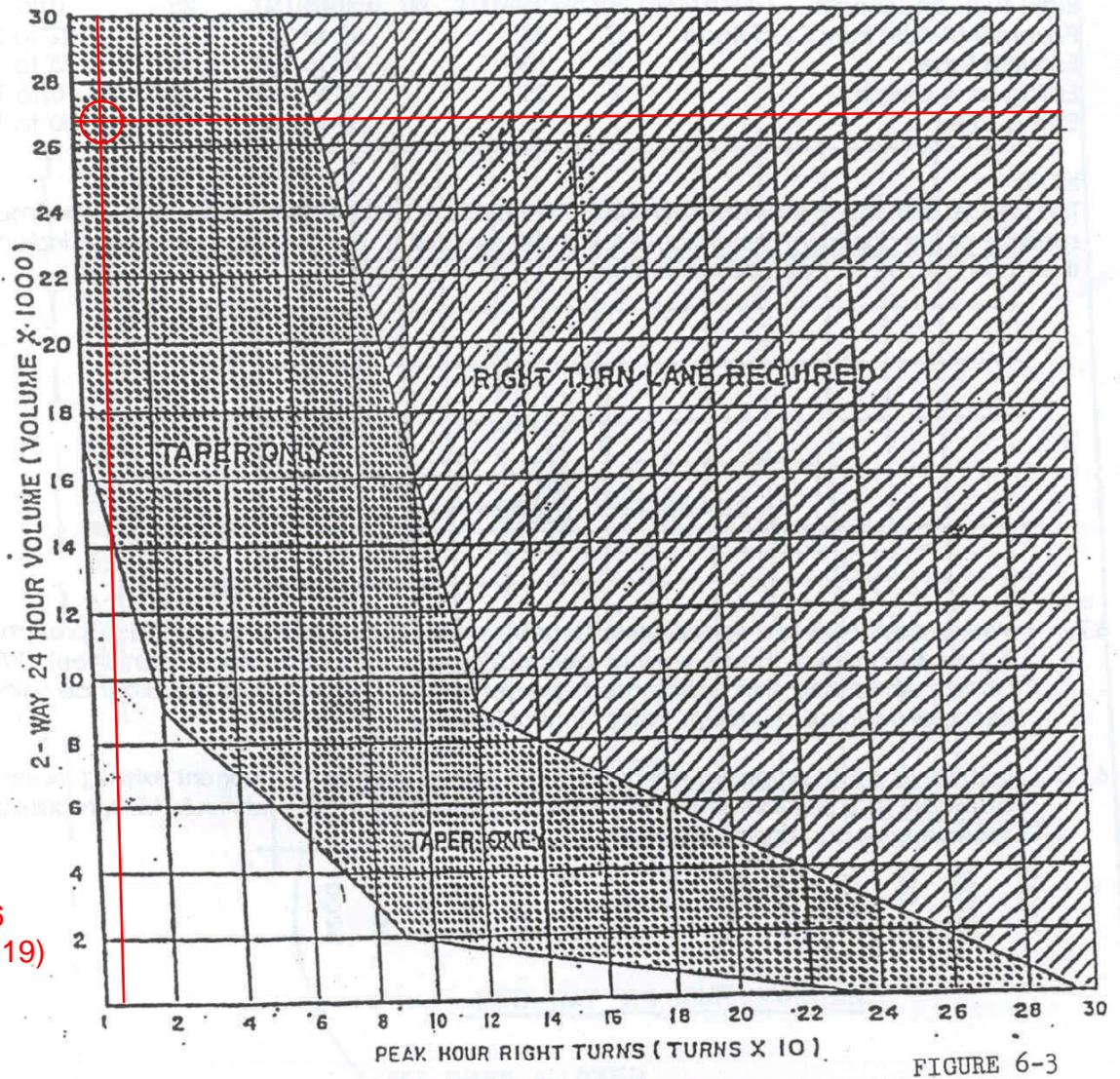


FIGURE 6-3

AAADT: 26,696
(SEMOG 2019)

PEAK HOUR RIGHT TURNS:
AM: 6
PM: 12

RIGHT-TURN TAPER
REQUIRED



memorandum

Date: November 23, 2022

To: Scott Finlay, PE
From: Stephen Dearing, PE, PTOE &
Sara Merrill, PE, PTOE &
Lauren Hull, EIT

Re: Village of Troy
Site Plan Review

We have reviewed the site plan for the proposed Village of Troy residential development, located on the south side of Long Lake Road west of Rochester Road. The proposed site includes 20 single-family residential homes, 56 two-story townhomes, and 70 three-story townhomes, for a combined total of 146 dwelling units. There are two proposed access points, one on Long Lake Road and one on Rochester Road. The plans were prepared by Nowak & Fraus Engineers and dated November 7th, 2022.

At this time, OHM recommends approval of the site plan, subject to revisions for the following minor comments.

1. Site Access:
 - a. Proposed curb radii must be clearly dimensioned. At the new roads, proposed curb return radii must be at least 30' minimum radius.
2. Fire department approval for not providing Tee-turnarounds at the end of each aisle in the multi-family townhome area (near Buildings #1-8).

From: [Harpreet Singh](#)
To: [Jackie Ferencz](#); Clerks
Subject: Re: Site Plans for proposed development Village of Troy
Date: Thursday, September 1, 2022 1:28:20 AM
Attachments: [image001.png](#)
[image002.png](#)
[image003.png](#)
[image004.png](#)
[image005.png](#)
[image006.png](#)

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Jackie,

Thanks for providing the information. I am concerned about this building plan's impact on my property and my neighborhood is also concerned in a similar manner.

1) New home's backyard will face my home's front yard area, Back yard area are a loud area for outside play, This is not acceptable and decrease our property value. Houses on opposite sides of the road should not face other people's back yard. I request to be fixed on the proposed planning with the front yards facing each other.

2) Current tree line is not on the map, it's part of each property sold and no guarantee they will be there. Boundry line between "River bend court" and "Village of Troy" property line. Confirmation in writing is required from the builder to the new homeowner to keep the tree line in place all the time.

3) 108 mixed home housing planned by the builder with an entry point at Long Lake road. Even "River bank" road is with no outlet and a lot of traffic by mistake to entry. During property sale activity and even after that time, As the map updates will not be available to the public. Concern with around 17 years old River bank street get damage and required unplanned repair.

- What Troy city can support us for this type of passive damage by this housing approval?
Troy city to repair the street just like another city street?

4) " Village of Troy" zoning review date and time are not clear from online information. Please share this confirmation to join virtually or in person.

Thanks

On Fri, Aug 19, 2022 at 11:32 AM Jackie Ferencz <Jackie.Ferencz@troymi.gov> wrote:

Thank you for the inquiry.

The proposed development, Village of Troy, documents are attached for your review. Should you like to view additional items related to this proposed development please email me and I will send a link since the file size is large.

Thank you,



Jackie Ferencz
Administrative Assistant |

City of Troy Planning Dept
O: 248.524.3364



VILLAGE OF TROY
PLANNED UNIT DEVELOPMENT AGREEMENT

Entered into between:

City of Troy, a Michigan Municipal Corporation

And

Robertson Village of Troy, LLC, a Michigan limited liability company

Dated: February 27, 2023

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VILLAGE OF TROY PLANNED UNIT DEVELOPMENT AGREEMENT

THIS VILLAGE OF TROY PLANNED UNIT DEVELOPMENT AGREEMENT (the “Development Agreement”) is made and entered into this ___ day of _____ 2023, by and between THE CITY OF TROY (“City”) a Michigan municipal corporation, with offices located at 500 W. Big Beaver Rd, Troy, MI 48084, and Robertson Village of Troy, LLC, (“Developer”), a Michigan limited liability company, with offices located at 6905 Telegraph Rd, Suite 200, Bloomfield Hills, Michigan 48301.

RECITALS

A. Developer has legal equitable interest in certain real property that is set on vacant land currently owned by Good Development Holdings, LLC located in the City of Troy. The subject property is adjacent to the Rochester Road corridor and is located south and west of the southwest corner of Long Lake Road and Rochester Road, more particularly described in Exhibit A attached to this Development Agreement (“Property”).

B. This development shall be known as Village of Troy and will be comprised of a community of twenty (20) detached single family homes, fifty-six (56) attached single family homes, and seventy (70) three-story townhomes (collectively, the “Development”). The purpose and intent of this Development Agreement is to document the agreements between the parties and to regulate the placement of units within the property and identify the several amenities, including open space parks and a trail connection, included as part of the plan.

C. Village of Troy is a unique community of detached and attached style homes set in a village concept to meet the needs of multiple demographics currently found in Troy.

D. The proposed Development will be a benefit to the community through the redevelopment of vacant and underutilized property. The Development will be a for-sale community that will include residents that have pride in ownership and are responsible homeowners. The Development includes a variety of desired home types. The plan includes an amenity overlook and connection to an extension to the City’s trail and pathway system which will provide direct access to schools and parks.

E. Prior to execution of this Development Agreement, the Property was

split zoned RT, R-1C, and CB. Upon execution of this Development Agreement the Property shall be rezoned by the City to PUD, (“Planned Unit Development,”) which meets the City’s goal of transitional density from industrial and commercial uses to the south and east of the site to the single-family community to the west.

F. Subject to execution and recording of this Development Agreement, the Development illustrated and described in this Development Agreement and in the Exhibits attached hereto, is hereby approved in accordance with the authority granted to and vested in the Troy City Council pursuant to Michigan Public Act 110 of 2006, as amended (the Michigan Zoning Enabling Act); Michigan Public Act 33 of 2008, as amended (the Michigan Planning Enabling Act); Michigan Public Act 59 of 1978, as amended (the Michigan Condominium Act); and in accordance with the Zoning Ordinance of the City, as amended, except as modified herein and subject to the terms of this Development Agreement.

G. The approval of the Village of Troy Planned Unit Development does not relieve the Developer from compliance with applicable provisions of the Michigan Condominium Act and the City’s Zoning Ordinance, except as modified herein, nor shall it be deemed to confer any approval other than required by law.

H. The City and the Developer now desire to enter into this Agreement which, among other things, shall set forth the mutual and respective covenants, obligations, and undertakings of the City and Developer with respect to the Development. All successors and assigns of Developer shall be bound by the terms of this Agreement.

NOW, THEREFORE, it is hereby agreed as follows:

1. SUMMARY DESCRIPTION OF THE DEVELOPMENT

The Development covers an area comprising 20.55 acres. The Property is located south and west of the southwest corner of Long Lake Road and Rochester Road in the City of Troy. Developer is proposing to construct a detached and attached residential community. The proposed uses are as follows:

- a) A total of one hundred and forty-six (146) residential homes shall be constructed as follows:

- i. Twenty (20) detached single family homes ranging in size from approximately 1,834 to 3,110 square feet, and
 - ii. Fifty-six (56) attached single family homes approximately 1,850 square feet, and
 - iii. Seventy (70) three-story townhomes ranging in size from approximately 1,200 to 1,600 square feet in size, the latter of which will be permitted to serve as a buffer to the existing industrial uses to the south of the site.
- b) The homes will be built with attached one or two-car garages. A homeowner's association will be responsible for maintenance of all common areas as well as building exterior maintenance of the townhomes.
- c) The project will be built in two or more phases of development.
- d) The project will be the catalyst for the expansion of a regional detention pond to be sized to accommodate the Village of Troy and several other developments that will be developed in the vicinity. The City agrees to provide engineering design and permitting for the expanded regional pond. Developer agrees to expand the regional detention pond and may enter into a cost sharing agreement with the surrounding developments. Such cost sharing agreement shall be recorded with the Oakland County Register of Deeds. The expansion of the regional pond includes the construction of a storm sewer from the Property boundary (and not including the contributing developments to the south of the Property) to the detention pond. Developer's failure to enter into a cost sharing agreement with the surrounding developments does not relieve the Developer of the obligation to construct the expanded detention pond.
- e) Significant construction fill dirt exists on the Property as a result of its use as a temporary staging site for various road and freeway improvements over the years. As part of the development plan of the Village of Troy, the fill dirt will be placed onsite in the southwest corner of the Development to be utilized as an additional buffer to the existing salt dome and will be programmed as an amenity to the Development such as a scenic overlook.

- f) The Development will include amenities throughout, including an overlook and a public trail that will traverse the Development to connect Long Lake Road with a future City trail extension that will connect to the City's existing trail system. The Development will include a small public parking area for a public trailhead to encourage the public to use the trail.

2. ADHERENCE TO REQUIREMENTS FOR DEVELOPMENT

The Property shall be developed and improved in full compliance with the following ("Development Documents"):

- a) The City of Troy of Troy's Zoning Ordinance, Chapter 39, as amended and revised.
- b) The Preliminary Site Plan for Village of Troy prepared by Nowak & Fraus with revisions dated November 7, 2022 and attached as Exhibit B, and is otherwise referred to as the General Development Plan ("GDP"). The GDP shall correlate to the Exhibit B condominium subdivision plan attached to the condominium master deed.
- c) Conditions imposed on the Development by the City Planning Commission in its recommendation to City Council, including the conditions recommended by the City's Planner and Engineer, and any other reasonable conditions which may be subsequently imposed by City Council with respect to Village of Troy PUD approval and the Planning Commission with respect to the Site Plan or other required approvals.
- d) The City of Troy Engineering Design Standards and any other reasonable conditions which might be required by the City's Engineer.
- e) The recorded Regional Pond Maintenance Cost Sharing Agreement as established on a per rata basis based on cubic feet per second generated by the surrounding developments and existing City DPW yard.
- f) This Development Agreement and any conditions imposed herein.

The Developer and City acknowledge and agree that rezoning of the Property to PUD constitutes approval of the GDP for general configuration, road layout, location and amount of land occupied by permitted uses, building separation

and setbacks, subject to final site plan review and condominium approval.

All future owner(s) of the Property shall be bound by the terms of this Development Agreement and the Developer's authority and responsibilities stated herein. It shall be the responsibility of the Developer to provide notice of these requirements to all future owner(s) of the Property. A homeowner's association shall accept responsibility for maintenance of its portion of the regional storm pond, internal streets, landscaping and amenities.

3. INTENT OF DEVELOPMENT

The Village of Troy will be a quality residential community designed to appeal to prospective Troy home buyers looking for several new home options, including both single family living and maintenance free living, all set in a village atmosphere accompanied by integrated amenities and open spaces. It is the Developer's intent to construct quality units that will be targeted toward buyers seeking housing products that are severely lacking in the area. Homeowners who are looking to have a sense of community will find the offerings to be an attractive housing option. This Development will provide a vibrant diverse community that builds off our success over the years.

4. ADHERENCE TO ORDINANCES

Developer shall comply with the City's Zoning Ordinance in effect at the time of construction of the Development, except where modified by this Development Agreement. Developer acknowledges that certain provisions of this Development Agreement may exceed the requirements of the Zoning Ordinance, and the City acknowledges that items shown in the GDP may be less than the requirements of the Zoning Ordinance. Developer shall fully comply with all engineering and other local, state and federal codes and regulations in effect at the time of construction of the Development, unless superseded or otherwise covered in this Development Agreement and the GDP. Permitted uses shall be limited to single family and condominium residences and all accessory uses thereof as regulated by the City of Troy Zoning Ordinance.

Development standards will generally conform to the GDP as shown on Exhibit B and established per the Schedule of Regulations and Modifications within the City of Troy PUD Ordinance. Specific waivers being sought from the

PUD provisions are as follows:

- a. Maximum density as follows: 7.11 dwelling units per acre as per plan
- b. Front setback as follows:
 - i. 20' for detached single family units; and
 - ii. 20' (to curb) for attached single family units
- c. Building separation as follows:
 - i. 13' between single family units - 5'/8' side setbacks (13' Total),
and
 - ii. 40' between attached single family buildings, and
 - iii. 15' between townhome buildings
- d. Rear setback as follows: 35' to property line for detached single family units (15' for deck or patios)
- e. Maximum building height as follows:
 - i. 30' to midpoint for detached single family units;
 - ii. 30' to midpoint for attached single family units;
 - iii. 35' to midpoint for townhomes
- f. Shared stormwater conveyance and offsite stormwater retention which is to maintained by the City

5. PERMITS AND AUTHORIZATIONS

The City shall grant to Developer and its contractors and subcontractors all City permits and authorizations necessary to modify the existing utilities including electric, telephone, gas, cable television, water, storm and sanitary sewer to the Property and to otherwise develop and improve the Property in accordance with approved plans, provided the Developer has first made all requisite applications for permits, complied with the requirements for said permits, and paid all required fees. Any applications for permits from the City will be processed in the customary manner. The City will cooperate with Developer in connection with Developer's applications for any necessary county, state, federal

or utility company approvals, permits or authorizations to the extent that such applications and/or discussions are consistent with the GDP, and this Development Agreement.

The Developer may install, occupy, and operate one temporary sales trailer(s) on the Property, subject to Building Inspector approval, in a location to be selected by the Developer. Installation of a sales trailer(s) shall be permitted when the Developer completes general grading of the lot on which the sales trailers(s) will be located, and has provided gravel access to the trailer. Use and occupancy of the trailer shall terminate thirty (30) days after the certificate of occupancy has been issued for a model home in the development, at which time the trailer(s) shall be removed. One construction trailer shall be permitted at a location determined by Developer and shall be permitted through the duration of the project.

The Developer is permitted to sell units in Village of Troy from an offsite location within the City or the surrounding area in lieu of a temporary sales trailer, if desired by the Developer.

Building Permits: With the exception of the model home for each product type as described in this Development Agreement, building permits shall not be issued until all public site improvements have been accepted and approved by the governmental agency having jurisdiction. Alternatively, the Developer may post sufficient bonding or a letter of credit to obtain building permits prior to final installation and acceptance of such facilities.

Other governmental approvals: It is understood that construction of some of the improvements included in the Development will require the approval from other governmental agencies.

Model units: One model unit per building type shall be permitted at locations to be determined by the Developer. The model units may be staffed by licensed real estate agents during normal daytime hours up to seven days a week. One lot may be established as a temporary parking lot at each model at a location to be determined by the Developer. At the risk to the Developer, construction of the model homes shall be permitted prior to the completion and acceptance of land development. The model building permit shall be expeditiously reviewed by the City immediately following final engineering plan approval.

6. DEVELOPMENT SEQUENCE/PHASING

The parties agree and acknowledge that the approved plans represent the current intent of the Developer to develop the Property, with the knowledge and market condition information possessed by the Developer as of the present date. The parties acknowledge that housing market conditions may change over time, which could cause the Developer to change its plans or timing with respect to the Development. The parties further acknowledge that the buildings and improvements as shown on the approved plans may be constructed, if at all, at different dates in the future, and that the Developer may elect to develop such improvements in the order and at such times as it determines necessary and appropriate in its discretion, if at all. Site improvements reasonably necessary or reasonably related to any particular building, including without limitation road improvements, storm drainage facilities, sidewalks and landscaping, will be made at the time of construction of such particular building, as determined through the site plan process. Provided that the Developer is proceeding in good faith and with due diligence to develop the Project in light of existing economic conditions, and is otherwise in compliance with this Development Agreement and City ordinances, the City will not unreasonably refuse to extend any time periods for Project completion for a reasonable time to enable the Developer to complete the Development. The Developer shall provide City Staff with a written report of the status of the development of the Project on an annual basis commencing one year from the date of this Development Agreement until project development is completed. Time is of the essence to this Development Agreement. The GDP shall be in effect for a period of 5 years, during which time Developer shall obtain building permits and commence construction of the Development within 18 months following approval of the GDP and substantially complete construction of the Development within 42 months once commenced. The Development shall be completed in two or more phases.

7. ENGINEERING PLAN

The Developer shall prepare and submit for review and approval detailed engineering plans for improvements. Such plans shall be reviewed by the City Engineer to ensure that they are substantially consistent with the GDP and other applicable requirements. The Developer will make diligent and good faith efforts to obtain all approvals and permits on a timely basis, and the City will, in a timely manner, process all reviews and approvals required of it.

8. WATER, SANITARY AND STORM SEWER SYSTEMS

Developer shall, at its sole expense, construct and install all connections tying into the municipal water and sanitary sewer systems. The Developer shall convey to the City all easements necessary for the City's access to sewer and water facilities within the Development or such facilities will be installed in City rights-of-way.

9. ROADS, DRIVES AND PARKING

- a) The Developer shall construct the roads as depicted on Exhibit B. The roads shall be private and will be maintained by an established homeowner's association.
- b) Parking shall be provided onsite in the designated spaces as shown on Exhibit B and on street parking shall be permitted as depicted.

10. ARCHITECTURAL AND SITE DESIGN GUIDELINES

Dependent on specific housing product, building elevation materials will consist primarily of brick, stone, Hardie board siding and/or high-quality vinyl siding as shown on the conceptual architecture drawings, attached as Exhibit C.

Development standards will generally conform to the Site Plan GDP as shown on Exhibit B and established per the City of Troy PUD Ordinance. Unless otherwise described in this Planned Development Agreement, all architectural and site design guidelines shall meet City Ordinances and regulations.

11. LANDSCAPING AND MAILBOXES

- a) Developer shall provide frontage and internal landscaping which shall meet or exceed replacement requirements as depicted on Exhibit B.
- b) Mailboxes shall be installed in cluster boxes, as approved by the United States Postal Office.

12. SIGNAGE

- a) Developer shall be permitted to install one monument sign at each main entrance within the development as indicated on the approved Landscape Plan (Exhibit B). The signs shall meet the requirements of the City Code of Ordinances.
- b) One temporary onsite marketing sign each up to (72) square feet may be installed on the main frontages immediately following approval of this Development Agreement and shall be able to remain to the end of the five –year period the GDP is in effect. The sign shall be maintained by Developer in good repair during the five-year period.

13. AMENITY AND IMPROVEMENT COMPLETION

- a) Amenities shall be installed per the Landscape Plan (Exhibit B).
- b) In the event of a home closing in a time of year that does not allow for certain exterior items to be completed (i.e. concrete and landscaping during the winter season) then a temporary certificate of occupancy shall be issued. In the event a bond is required to be posted by the Developer with First American Title Company to secure these incomplete items to facilitate a closing of the home then the evidence of the bond shall be provided by the Developer to the City to serve as security with the City so the Developer is not posted a bond twice for the same incomplete items. The bond shall not be released until the City issues a certificate of occupancy on the home.

14. MINOR MODIFICATIONS TO APPROVED PUD SITE PLANS.

Minor modifications to the approved PUD Site Plan for the Project, including, but not limited to, minor shifting of roads, which are consistent with the intent of this Development Agreement may be approved by the City Planning and Zoning Administrator, which approval shall not be unreasonably withheld. Minor modifications which are approved by the City Manager shall not require an amendment to this Development Agreement, but shall become a part of this Development Agreement. For purposes of this Development Agreement, "minor

modifications" shall mean that the City Manager may consider the factors listed in the City Zoning Ordinance. Minor modifications do not include, for example, any change that would alter the specific use allowed by this Development Agreement, any change that would relieve the Developer of its obligations to construct improvements including roads, stormwater system, or any change that would result in a decrease or elimination of open space or preserved areas.

15. CONDOMINIUM ASSOCIATIONS

The Developer shall have the responsibility to legally organize condominium associations for all parts of the residential development. The Master Deeds and Bylaws for the condominium shall set forth the restrictions and regulations contained in this Development Agreement; prescribe the responsibilities of the condominium association; set forth the manner, method and timing of transferal of maintenance responsibilities for common areas, and other facilities to the association; provide a feasible method of funding maintenance activities, such as annual dues and/or assessments; and reserve rights to the City to assess private property owners for the cost of maintenance of any common areas and roads.

The Developer shall be responsible for the maintenance of roads, walkways, landscaped areas, open space areas, and drains over which jurisdiction has not been assumed by the City or other agency, until the Developer assigns such responsibilities to the condominium associations to be organized. Following the assignment of such maintenance responsibilities to the condominium associations, the Developer shall have no further maintenance obligations for such improvements.

16. REIMBURSABLE COSTS

- a) Developer shall reimburse the City for the following costs:
 - i. All reasonable planning, engineering and any consultant fees incurred in connection with the review and approval of the Development, in accordance with the City's Planning Services Fee Schedule.

- ii. All reasonable planning, engineering and any consultant fees, along with applicable permit and inspection fees, which may be incurred throughout the construction of the Project as a result of any required inspections or actions taken to ensure compliance with the Development documents.
- b) In addition, Developer shall be responsible for all costs associated with the submission to the City and consideration of all plans and documents associated with the Development, including, but not limited to, site plans, landscaping plans, engineering plans and conveyances on park land, as-built plans, permits, inspections, etc. Further, Developer shall be responsible for all costs related to variance requests, special use requests, and review and approval of any other agreements associated with the Development, including but not limited to, petition for any special assessments district, and other similar documents, plans and costs.

17. REMEDIES.

In the event that a party believes that the other party is not acting reasonably or in conformity with this Development Agreement, then the aggrieved party may petition the Oakland County Circuit Court to resolve such dispute and the parties shall make themselves immediately available for a hearing on a date to be set by the Court. In the event that the Court finds that party has not acted in good faith or in conformity with this Development Agreement, then the Court may order reasonable costs and attorney fees incurred to the prevailing party. All remedies afforded in this Development Agreement shall be taken and construed as cumulative, that is, in addition to every other remedy provided by law and in equity.

18. MISCELLANEOUS

a) Binding Effect

This Development Agreement shall be binding upon and inure to the benefit of the parties and their heirs, successors and assigns. The rights and

obligations contained in this Development Agreement shall run with the Property.

b) Authority

This Development Agreement has been duly authorized by all necessary action of Developer and the City, through the public hearing held on September 13, 2022 and a meeting held on December 13, 2022 where Planning Commission recommended approval of the Development Agreement. (Exhibit D). Troy City Council granted approval at a public meeting held on February 27, 2023 in accordance with the laws of the State of Michigan, and the Ordinances of the City. (Resolution and Minutes to be attached as Exhibit E). By the execution of this Development Agreement, the parties each warrant that they have the authority to execute this Development Agreement and bind the Property in its respective entities to its terms and conditions.

c) Amendment

This Development Agreement may not be modified, replaced, amended, or terminated, without the prior written consent of the Troy City Council and the Developer or its successors in title to the Property as of the date of the modification, replacement, amendment, or termination. The City of Troy Zoning Board of Appeals shall not have any authority to grant any variances for any of the subject matter contained within this Development Agreement. Modifications to the General Development Plan shall be made in accordance with the requirements and procedures set forth in City zoning ordinance.

The Developer and the City agree to amend this Development Agreement and the Exhibits attached hereto as may be necessary or required to comply with the requirements of any federal, state or county statute, ordinance, rule, regulation, or requirement relating to the Planned Unit Development, and that any such amendment shall be effective as if originally set forth herein. In addition, the Developer and the City agree to amend this Development Agreement and the Exhibits attached hereto as may be appropriate, necessary, or required in order to conform to any final surveys and engineering requirements and any final plats or plans that shall have been approved by The City of Troy from time to time.

d) City Not Responsible for Damages

The Developer agrees that, absent gross negligence or willful misconduct

on the part of the City, its employees, agents, representatives or contractors, or by reason of the City's course of conduct resulting in a continuing or material default of its obligations under this Development Agreement, the City shall not be responsible to the Developer for damages arising out of a claimed breach of this Development Agreement. In such event, the Developer's sole remedy (except in the event of a material defect) shall be a claim for specific performance in the Oakland County Circuit Court. In the event of any litigation relating to this Development Agreement, the prevailing party (as determined by the trial Court) will be entitled to reimbursement of reasonable attorney fees and costs.

e) Entire Development Agreement: Termination

This Development Agreement constitutes the entire agreement between the parties relating to the subject matter herein and may not be modified replaced or amended, without the prior written consent of the Developer and The City of Troy.

f) Modification.

Except as provided in section 14 above, this Development Agreement may not be modified, replaced, amended or terminated without the prior written consent of the parties to this Development Agreement.

g) Governing Law.

This Development Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

h) Counterparts.

This Development Agreement may be executed in multiple counterparts, each of which shall be deemed an original and all of which shall constitute one agreement. The signature of any party to any counterpart shall be deemed to be a signature to, and may be appended to, any other counterpart.

i. Successors and Assigns.

The terms, provisions and conditions of this Development Agreement are and shall be deemed to be of benefit to the Property and shall run with and bind the Property, and shall bind and inure to the benefit of the successors and assigns of the parties to this Development Agreement. Developer shall record, at its sole cost, a copy of this Development Agreement in the Oakland County Register of Deeds, and provide a recorded copy to the City.

j. Partial Invalidity.

Invalidation of any of the provisions contained in this Development Agreement or of the application thereof to any person by judgment or court order shall in no way affect any of the other provisions hereof or the application thereof to any other person and the same shall remain in full force and effect.

k. No Partnership.

None of the terms or provisions of this Development Agreement shall be deemed to create a partnership or joint venture between Developer and the City.

l. Notice

Unless later information is provided, notices under this Development Agreement will be provided to:

To Owner and Developer

Robertson Village of Troy, LLC
Attention: Tim Loughrin
6905 Telegraph Rd, Suite 200
Bloomfield Hills, MI 48301
Phone: 248-282-1428
Email: tloughrin@robertsonhomes.com

With a copy to

Williams Williams Rattner & Plunkett, PC
Attention: C. Kim Shierk
380 North Old Woodward Avenue, Suite 300
Birmingham, Michigan 48009
Email: cks@wwrplaw.com

To City:

City of Troy
Attention: City Clerk
500 W. Big Beaver Road
Troy, MI 48084
Email: clerk@troymi.gov

With a copy to

City of Troy
Attention: City Attorney
500 W. Big Beaver Road
Troy, MI 48084
Email: bluhmlg@troymi.gov

With a copy to
City of Troy
Attention: Planning Department
500 W. Big Beaver Road
Troy, MI 48084
Email: Planning@troymi.gov

m. Integration Clause.

This Development Agreement is intended as the complete integration of all understandings between the parties related to the subject matter herein. No prior contemporaneous addition, deletion or other amendment shall have any force or effect whatsoever, unless referenced in this Development Agreement. No subsequent notation, renewal, addition, deletion or other amendment shall have any force or effect unless embodied in a written

[Signatures continued from page 18]

CITY OF TROY, MICHIGAN,
a Michigan municipality

By: _____

Ethan Baker

Its: Mayor

By: _____

Aileen Dickson

Its: Clerk

STATE OF MICHIGAN)
) SS.
COUNTY OF OAKLAND)

The foregoing Planned Unit Development Agreement was acknowledged before me this ____ day of _____, 2023, Ethan Baker on behalf of the City of Troy, a Michigan municipality.

_____, Notary Public
_____ County, Michigan
Acting in Oakland County
My Commission Expires: _____

STATE OF MICHIGAN)
) SS.
COUNTY OF OAKLAND)

The foregoing Planned Unit Development Agreement was acknowledged before me this ____ day of _____, 2023, by Aileen Dickson on behalf of the City of Troy, a Michigan municipality.

_____, Notary Public
_____ County, Michigan
Acting in Oakland County
My Commission Expires: _____

This Instrument Drafted By:
C. Kim Shierk
Williams, Williams, Rattner &
Plunkett, P.C. 380 North Old
Woodward Avenue, Suite 300
Birmingham, Michigan 48009
When recorded, return to drafter.

Recording Fee \$_____
County Transfer Tax: Exempt pursuant to MCL
207.505(a) State Transfer Tax: Exempt pursuant
to MCL 207.526(a)

Table of Exhibits

- Exhibit A: Property Description
- Exhibit B: Site Plan and Landscape Plan
- Exhibit C: Conceptual Architecture Drawings
- Exhibit D: Planning Commission Minutes
- Exhibit E: Resolution and Minutes of Troy City Council

EXHIBIT A

Legal Description

Land situated in the City of Troy, County of Oakland and State of Michigan, to wit:

TAX PARCEL ID.: 2015201046

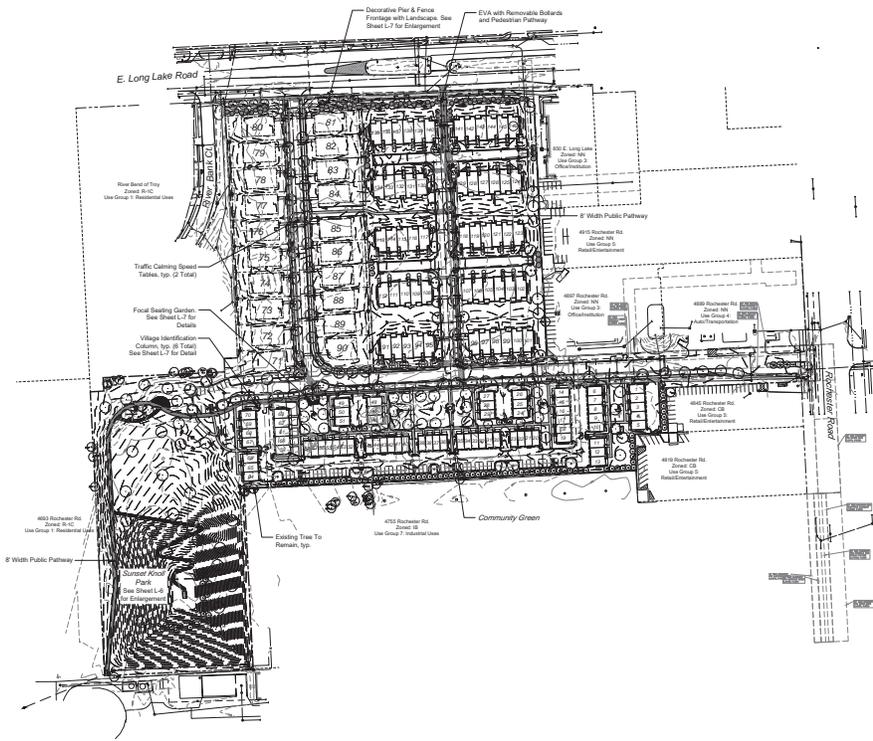
T2N, R11E, SEC 15 PART OF NE 1/4 BEG AT PT DIST S 00-36-30 E 660 FT FROM NE SEC COR, TH S 00-36-30 E 80 FT, TH S 89-37-30 W 375 FT, TH S 00-36-30 E 100 FT, TH S 89-37-30 W 75 FT, TH S 00-36-30 E 80 FT, TH S 89-37-30 W 870 FT, TH N 00-36-30 W 920 FT, TH N 89-37-30 E 684 FT, TH S 00-36-30 E 660 FT, TH N 89-37-30 E 636 FT TO BEG EXC N 60 FT TAKEN FOR RD 15.62 A 2-9-00 FR 010 TO 014 INCL, 20 035 & 037 21 4-11-16 CORR

TAX PARCEL ID.: 2015201033

T2N, R11E, SEC 15 PART OF NE 1/4 BEG AT PT DIST S 89-38-34 W 1320 FT & S 00-36-30 E 630 FT FROM NE SEC COR, TH S 00-36-30 E 360 FT, TH S 01-06-30 E 330 FT, TH S 89-10-30 W 330 FT, TH N 01-06-30 W 330 FT, TH N 00-36-30 W 300 FT, TH N 89-38-34 E 30 FT, TH N 00-36-30 W 30 FT, TH N 89-38-34 E 270 FT, TH N 00-36-30 W 30 FT, TH N 89-38-34 E 30 FT TO BEG 5 A

Exhibit B

Preliminary Site Plan



Landscape Summary

- Use of Native Plant Material**
 Required: 50% of the total trees and shrubs planted are native
 Proposed: Final percentage to be determined during final site plan approval
- Screening of Adjoining Uses**
 Required: Per Table 13.02.B in Article 13 of the Troy Zoning Ordinance, no screening is required between Use Group 1: Residential Uses, Use Group 2: Residential/Lodging Uses, and the surrounding land uses in these specific situations. See Plan for Zoning relationships.
- Parking Lot Landscaping**
 Required: 1 Tree / 8 Parking Spaces
 Proposed: 77 spaces
 Required: 10 Trees
 Provided: 10 Trees
- Greenbelts along Public Streets**
 Required: 10' Greenbelt along public street right-of-ways
 Proposed: 1 Tree / 30 LF
- E. Long Lake Road**
 Length of Frontage: 684.03 LF
 Required: 10' Greenbelt & 23 Trees
 Provided: 10' Greenbelt & 13 Trees
- Rochester Road**
 Length of Frontage: 80.00 LF
 Required: 10' Greenbelt & 3 Trees
 Provided: 10' Greenbelt & 3 Trees
- Internal Street Trees**
 Required: 1 Tree / 50 LF of internal public & private streets
 Road Length: 4,311.37 LF
 Required: 87 Trees
 Proposed: 87 Trees
- R.O.W. Screening**
 Required: Screening Alternative 2 when site abuts a R.O.W. of 120' or 150'
 Proposed: 1 Large Evergreen / 10 LF of frontage
 Length of Frontage: 684.03 LF
 Required: 68 Trees
 Provided: 68 Trees

Tree Replacement Summary

- Total Trees Surveyed: 656
- Total Trees Offsite: 26
- Total Onsite Trees: 632
- Total Landmark Trees: 10
- Total Trees Saved: 6
- Total Landmark Trees: 0
- Total Trees Removed: 626
- Landmark Trees: 562 (These trees include prohibited species & Poor Quality)
- Total Woodland DBH Removed: 640.00'
- Total Landmark DBH Removed: 232.30'
- Replacement Requirements:**
 Required: 100% Landmark, DBH + 50% Woodland DBH
 Required Replacement DBH Total: 552.00' (165 - 2" trees or equivalent)
 Proposed Replacement DBH Total: 555.00' (165 - 3" trees or equivalent)



sheet title:
Concept Landscape Plan - Overall

project title:
Village of Troy

City of Troy, Michigan

prepared for:
 Robertson Brothers Homes
 6905 Telegraph Rd. - Suite 200
 Bloomfield Hills, MI 48301

Phone: 248.657.4968

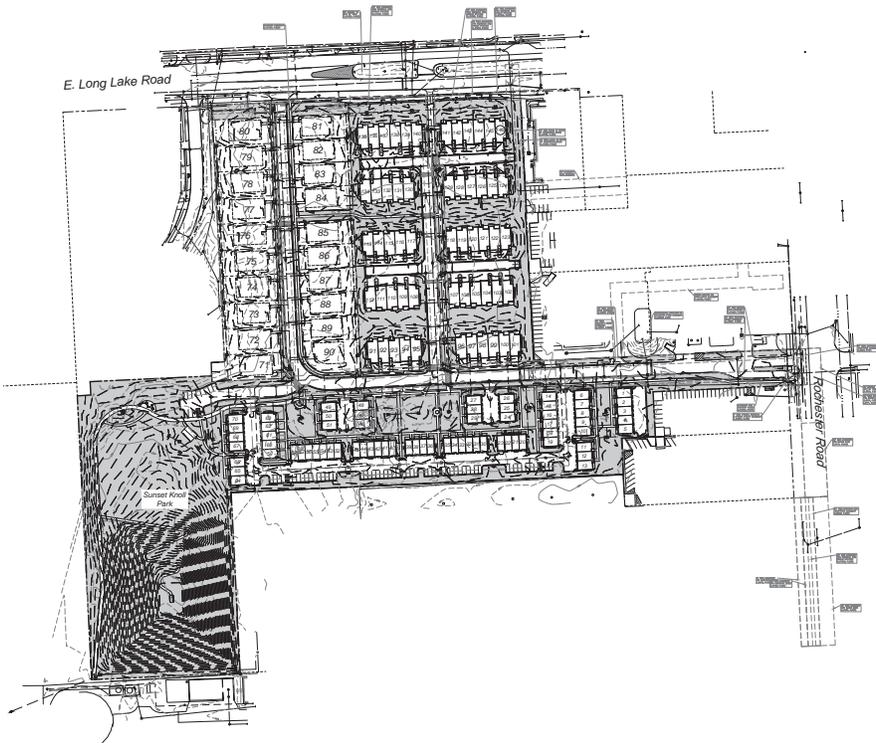
job number: 19017
 date: 03.29.2022

drawn by: EMJ
 checked by: WTK

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Landscape Area Summary

Site Landscapable	Min. 20% of site area shall be landscape material
Required:	20.49 Ac.
Required:	4.21 Ac.
Provided:	9.24 Ac. (45.09%)



sheet title:
Landscape Area Calculations

project title:
Village of Troy
 City of Troy, Michigan

prepared for:
 Robertson Brothers Homes
 6905 Telegraph Rd., Suite 200
 Bloomfield Hills, MI 48301
 Phone: 248.657.4968

job number: 19017
 date: 03.29.2022

drawn by: EMJ
 checked by: WTK



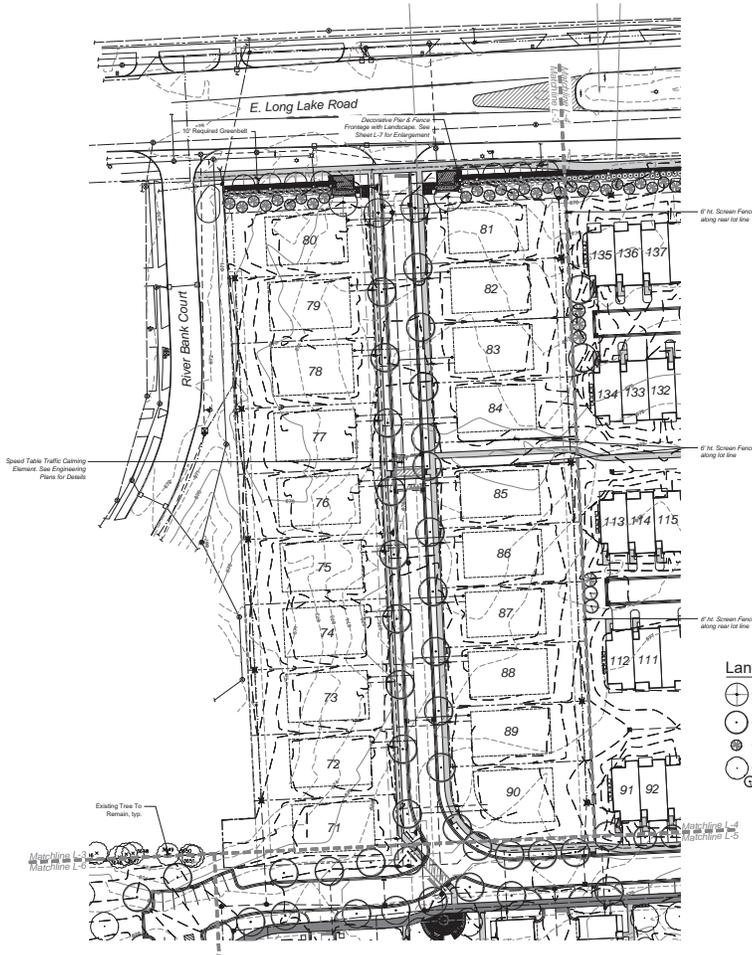
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revisions:	date	for
10.31.2022	Per Plan Revisions	
11.07.2022	Per Plan Revisions	



sheet no.
L-2

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sheet title:
Enlargement Plans - Single Family Lots

project title:
Village of Troy

City of Troy, Michigan

prepared for:
 Robertson Brothers Homes
 6905 Telegraph Rd. - Suite 200
 Bloomfield Hills, MI 48301
 Phone: 248.657.4988

job number: 19017 date: 03.29.2022

drawn by: EMJ checked by: WTK

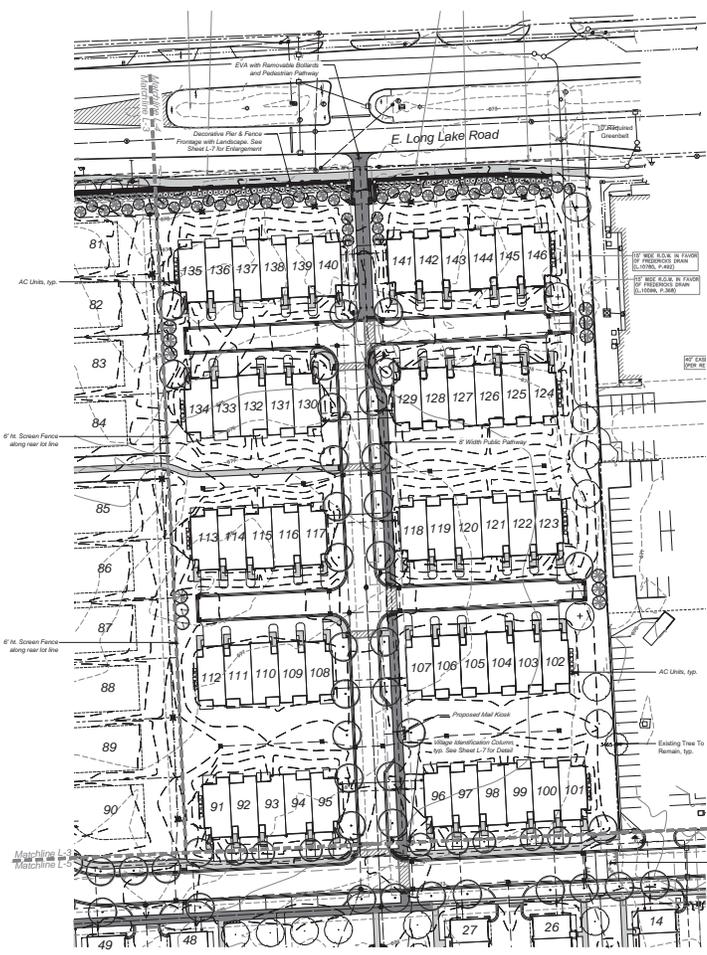


revisions:
 10.31.2022 Per Plan Revisions
 11.07.2022 Per Plan Revisions



sheet no.
L-3

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Landscape Legend

- Parking Lot Landscape Tree
- Internal Street Tree
- R.O.W. Screening Tree
- Woodland Replacement Trees



sheet title:
**Enlargement Plans -
 Townhomes North**

project title:
Village of Troy

City of Troy, Michigan
 prepared for:
 Robertson Brothers Homes
 6905 Telegraph Rd. - Suite 200
 Bloomfield Hills, MI 48301
 Phone: 248.657.4968

job number: 19017
 date: 03.29.2022
 drawn by: EMJ
 checked by: WTK

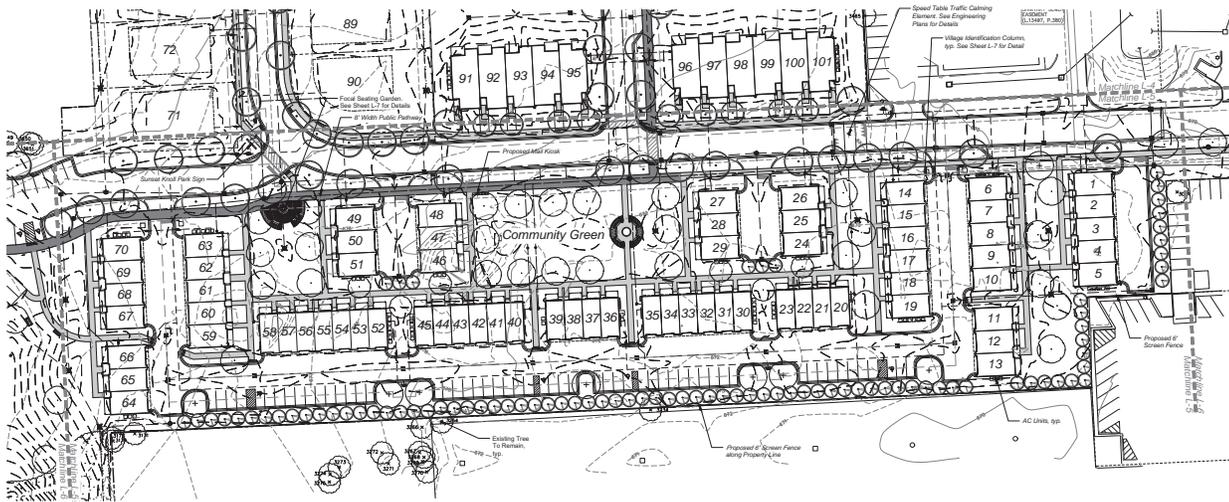


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revisions:	date:
10.31.2022	Per Plan Revisions
11.07.2022	Per Plan Revisions



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Sheet title:
**Enlargement Plans -
 Townhomes South**

Project title:
Village of Troy

City of Troy, Michigan
 prepared for:
 Robertson Brothers Homes
 6905 Telegraph Rd. - Suite 200
 Bloomfield Hills, MI 48301
 Phone: 248.657.4968

Job number: 19017
 Date: 03.29.2022
 Drawn by: EMJ
 Checked by: WTK

Landscape Legend

- Parking Lot Landscape Tree
- Internal Street Tree
- Woodland Replacement Trees



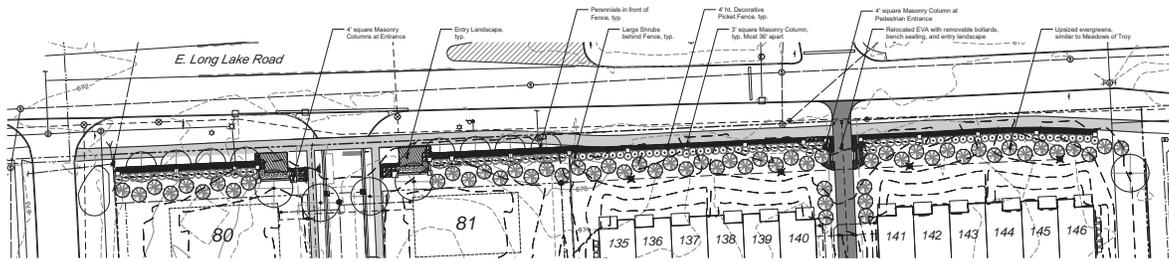
Know what's Below.
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Revisions:	Date:
10.31.2022 Per Plan Revisions	
11.07.2022 Per Plan Revisions	



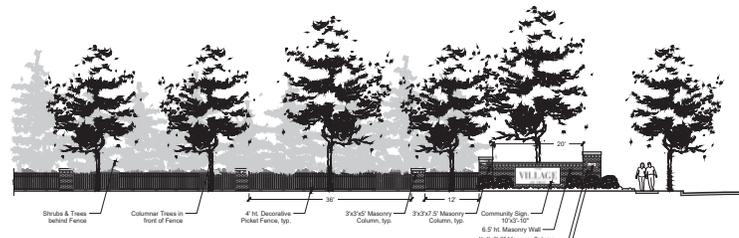
sheet no.
L-5

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East Long Lake Road Frontage Enlargement Plan

Scale: 1" = 30'



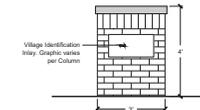
E. Long Lake Road Entry Sign & Frontage Elevation

Scale: 1" = 10'

Sign Ordinance

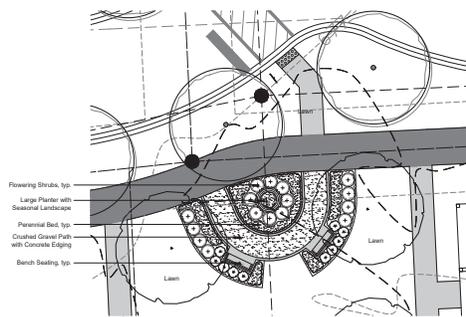
	Allowed	Proposed
- Sign Area:	151 sq'	24,478, 38,323 sq'
- Sign Height:	12 ft. max	5.4 ft. ft.
- Sign Setback:	15 ft.	21 ft'

Note: Allowable Sign Area takes into consideration 2 entry signs where the combined sign areas cannot exceed 150 sq'



Village Identification Column Detail

Scale: 2" = 1'



Focal Garden Enlargement Concept

Scale: 1" = 10'



Clay Planter from Landscaping Forms
 20" dia. with 4" ht.



Project title:
Long Lake Frontage & Focal Park

City of Troy, Michigan

prepared for:
 Robertson Brothers Homes
 6905 Telegraph Rd., Suite 200
 Bloomfield Hills, MI 48301
 Phone: 248.657.4968

Job number: 19017
 Date: 10.20.2022
 Drawn by: EMJ
 Checked by: WTK

revisions:
 11.07.2022 Per Plan Revisions



sheet no.
L-7

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Exhibit C

Conceptual Architecture Drawings

CLAREMONT

ELEVATIONS



Artistic conceptual rendering should be used as a reference only and not be relied upon as the final details of the residences. Images featured are samples and may not reflect your home site's garage handing, elevation conditions or color package materials. Physical material board signed off will be required during your purchase process. Any specifications in this depiction may change at developer's sole discretion without notice. All information herein was accurate at the time of publication. We reserve the right to make changes in specification, or materials, or to change or discontinue models without notice or obligation.



HAWTHORNE

ELEVATIONS



Artistic conceptual rendering should be used as a reference only and not be relied upon as the final details of the residences. Images featured are samples and may not reflect your home site's garage handing, elevation conditions or color package materials. Physical material board signed off will be required during your purchase process. Any specifications in this depiction may change at developer's sole discretion without notice. All information herein was accurate at the time of publication. We reserve the right to make changes in specification, or materials, or to change or discontinue models without notice or obligation.



NORWOOD

ELEVATIONS



Artistic conceptual rendering should be used as a reference only and not be relied upon as the final details of the residences. Images featured are samples and may not reflect your home site's garage handing, elevation conditions or color package materials. Physical material board signed off will be required during your purchase process. Any specifications in this depiction may change at developer's sole discretion without notice. All information herein was accurate at the time of publication. We reserve the right to make changes in specification, or materials, or to change or discontinue models without notice or obligation.



RALEIGH

ELEVATIONS



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SHERIDAN

ELEVATIONS

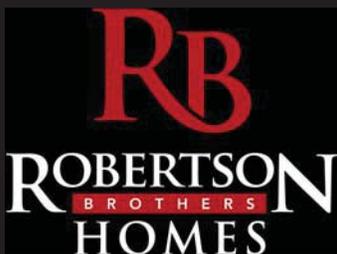


Artistic conceptual rendering should be used as a reference only and not be relied upon as the final details of the residences. Images featured are samples and may not reflect your home site's garage handing, elevation conditions or color package materials. Physical material board signed off will be required during your purchase process. Any specifications in this depiction may change at developer's sole discretion without notice. All information herein was accurate at the time of publication. We reserve the right to make changes in specification, or materials, or to change or discontinue models without notice or obligation.



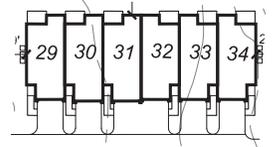
WHITMORE

ELEVATIONS



Artistic conceptual rendering should be used as a reference only and not be relied upon as the final details of the residences. Images featured are samples and may not reflect your home site's garage handing, elevation conditions or color package materials. Physical material board signed off will be required during your purchase process. Any specifications in this depiction may change at developer's sole discretion without notice. All information herein was accurate at the time of publication. We reserve the right to make changes in specification, or materials, or to change or discontinue models without notice or obligation.





"D"

"C"

"B"

"C"

"E"

"F"



6 UNIT BUILDING ELEVATION





Exhibit D

Planning Commission Minutes

[Following]

Chair Lambert called the Regular meeting of the Troy City Planning Commission to order at 7:01 p.m. on December 13, 2022, in the Council Chamber of the Troy City Hall. Chair Lambert presented opening remarks relative to the role of the Planning Commission and procedure of tonight’s meeting.

1. ROLL CALL

Present:

Toby Buechner
 Carlton M. Faison
 Tom Krent
 David Lambert
 Lakshmi Malalahalli
 Sadek Rahman
 John J. Tagle

Absent:

Michael W. Hutson
 Marianna Perakis

Also Present:

Ben Carlisle, Carlisle Wortman Associates
 Julie Quinlan Dufrane, Assistant City Attorney
 Kathy L. Czarnecki, Recording Secretary

2. APPROVAL OF AGENDA

Chair Lambert opened discussion on revising the agenda, as follows:

- Add 2023 Planning Commission Regular Meeting Dates.
- Applicant’s request to postpone Agenda item #5, Special Use Approval and Preliminary Site Plan Review for 2690 Crooks Road Apartments. Chair Lambert noted the Board is required to open the Public Hearing this evening.
- Consideration to address all and/or a limited number of items, and/or set a time limit on the meeting, and/or change the order of business items.

Resolution # PC-2022-12-059

Moved by: Malalahalli
 Support by: Rahman

RESOLVED, To revise the agenda as follows: 1) postpone Agenda item #5 to the January 10, 2023 meeting with exception to open the Public Hearing; 2) postpone Agenda item #9 to the January 10, 2023 meeting; and 3) add the 2023 Planning Commission Regular Meeting Dates at the end of the Agenda.

Yes: All present (7)
 Absent: Hutson, Perakis

MOTION CARRIED

3. APPROVAL OF MINUTES – October 25, 2022 and November 1, 2022

Resolution # PC-2022-12-060

Moved by: Krent
Support by: Tagle

RESOLVED, To approve the minutes of the October 25, 2022 Regular meeting as submitted.

Yes: All present (7)
Absent: Hutson, Perakis

MOTION CARRIED

Resolution # PC-2022-12-061

Moved by: Faison
Support by: Malalahalli

RESOLVED, To approve the minutes of the November 1, 2022 Special meeting as submitted.

Yes: All present (7)
Absent: Hutson, Perakis

MOTION CARRIED

4. PUBLIC COMMENT – For Items Not on the Agenda

There was no one present who wished to speak.

SPECIAL USE APPROVAL AND PRELIMINARY SITE PLAN REVIEW

5. SPECIAL USE APPROVAL AND PRELIMINARY SITE PLAN REVIEW (File Number SU JPLN2022-0004) – Proposed 2690 Crooks Road Apartments, East side of Crooks, South of Big Beaver (2690 Crooks), Section 28, Currently Zoned BB (Big Beaver) District

(Item postponed, refer to Resolution # PC-2022-12-059)

PUBLIC HEARING OPENED

There was no one present who wished to speak.

PUBLIC HEARING CLOSED

PRELIMINARY SITE PLAN REVIEWS

6. PRELIMINARY SITE PLAN REVIEW (File Number SP JPLN2022-0023) – Proposed 5920 Livernois Office Building, East side of Livernois, South of Square Lake (PIN 88-20-10-101-018), Section 10, Currently Zoned O (Office) District

Mr. Carlisle reviewed the Preliminary Site Plan application for 5920 Livernois Office Building. He addressed the proposed uses of the first and second stories, the required 50-foot residential setback, parking as relates to the first and second floor uses, applicant's request to waive the loading space requirement and consideration to allow required parking lot trees to be located outside of the parking lot.

In summary, Mr. Carlisle asked the Board to take into consideration in its discussion and deliberation:

- Condition approval that the second story shall remain storage for the first-floor use.
- Allowance of loading space waiver.
- Allowance for parking lot trees outside of parking lot.
- Architectural and material details.
- Compliance with Site Plan Standards set forth in Section 8.06.

Discussion among administration and Planning Commission:

- Parking calculations.
- Dedication of second story storage space as relates to first story office space.
- Building height and placement as relates to surrounding office and residential uses.
- Building entrance off Cutting; no requirement that entrance must front primary street.

Erion Nikolla addressed the flexible office arrangement as relates to small business owners, dedicated offices and assigned storage space. He indicated the maximum number of people on site at any given time is eight (8). He said at times off-site visitors for conference meetings might bring a total of (12) to fifteen (15) people. Mr. Nikolla addressed the building height in relation to the roof slope and placement of the building in relation to the required setback to residential.

There was discussion, some comments related to:

- Communication with adjacent residential.
- Setback requirements as relates to office and neighborhood node zoning classifications.
- Storage space sectioned off to accommodate file cabinets, shelving, paperwork, small equipment, etc.
- Management of office and storage space by an administrative scheduler.
- Twelve (12) offices and four (4) conference rooms on first floor.
- Screening of residential with six-foot arborvitaes.
- Confirmation of fourteen (14) parking spaces provided.
- Perspective of building placement with existing buildings/residential.
- Building entrances.

Chair Lambert opened the floor for public comment. Acknowledging there was no one present who wished to speak, Chair Lambert closed the floor for public comment.

Resolution # PC-2022-12-062

Moved by: Krent
 Seconded by: Rahman

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed office building located on the east side of Livernois, south of Square Lake (5920 Livernois), Section 10, within the O (Office) District, be granted, subject to the following:

1. The second story shall remain storage for the first-floor use and shall not be used for purposes that require parking.
2. The loading space is not required due to the proposed office use.
3. Allowance for parking lot trees outside of the parking lot.

Discussion on the motion on the floor.

In reply to questions on the parking lot, Mr. Carlisle clarified the layout of striped parking spaces and noted a section of pavement would not be striped for parking but used for turnarounds.

Vote on the motion on the floor.

Yes: All present (7)
 Absent: Hutson, Perakis

MOTION CARRIED

7. PRELIMINARY SITE PLAN REVIEW (File Number SP JPLN2022-0025) – Proposed Lange View Townhouses, Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Currently Zoned NN Neighborhood Node (Node “H”) District

Mr. Carlisle said the proposed Lange View Townhomes application was last reviewed by the Planning Commission on May 24, 2022. He reviewed the discussion points at the May meeting and reported that the Planning Commission denied the application because it found the development did not meet the Zoning Ordinance requirements for transition.

Mr. Carlisle reviewed the revisions to the application since last reviewed and displayed comparisons between the May 2022 site plan and the Site Plan before the Board this evening. Mr. Carlisle addressed the changes to the application as identified on page 6 of his report dated November 22, 2022. He addressed concerns with the office site being overparked.

Mr. Carlisle asked the Planning Commission to take into consideration Section 5.06E Design Standards, Section 5.06E (3) Transitional Features and Section 8.06 Site Plan Review Standards, and the following items in its discussion and deliberation:

- Proposed transitional features as it relates to reducing height to two stories but adding an additional unit thus creating one singular massing along Leetonia.
- Proposed changes to architectural style.
- Relief of overall site parking.
- Relocation of parking lot light.

Discussion among administration and Planning Commission:

- Approval process of potential future development of southern parcel.
- No requirement in the Zoning Ordinance to break up massing of a building.
- Resolution of approval should address the required number of barrier-free and bicycle parking spaces.

Vince Pangle, owner of all three parcels, addressed the revisions to the Site Plan application, noticeably the reduction of building height to facilitate Planning Commission concerns.

There was discussion on:

- Architectural style of townhomes, building materials, massing of building.
- Screening of residential property to the east.
- Vision of potential future development of southern parcel.
- Relocation of parking lot light.
- Setback requirements.
- Alternatives to break up massing of building.

Chair Lambert opened the floor for public comment.

- Feiling Li, 58 Leetonia, addressed concerns with architectural style fitting in with the neighborhood, existing drainage and building placement so near Leetonia. She expressed her preference for a six-foot screening wall. Ms. Li thanked the applicant for being open and transparent about the development.
- Yijun Deng, 58 Leetonia, thanked the applicant for being open and communicating with them. He addressed concerns with the existing drainage and expressed his preference for a screening wall.

Chair Lambert closed the floor for public comment.

Mr. Carlisle addressed various setback zoning requirements as relates to different zoning districts.

Resolution # PC-2022-12-063

Moved by: Tagle

Seconded by: Krent

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed Lange View Townhouses, 9 units, located on the Southeast corner of Livernois and Leetonia (4080 Livernois), Section 15, Zoned

Neighborhood Node (Node “H”) District, be postponed, so that the applicant can return with the following:

1. A three-dimensional (3D) modeling to show the context of the building with the surrounding buildings.
2. Appropriate building materials showing what the applicant is proposing to use.
3. A revised design that would take away the flatness of the face, the long elevation of the building.
4. Show the screen wall that would be between the residential property to the east and the property in question.

Yes: All present (7)
 Absent: Hutson, Perakis

MOTION CARRIED

PLANNED UNIT DEVELOPMENTS

8. **PLANNED UNIT DEVELOPMENT (File Number PUD 019 JPLN2022-0013) – Proposed Village of Troy PUD, South side of Long Lake, West of Rochester (Parcels 88-20-15-201-046 and 88-20-15-201-033), Section 15, Currently Zoned RT (One Family Attached Residential), R-1C (One Family Residential) and CB (Community Business) District**

Mr. Tagle disclosed his firm is currently working with Robertson Brothers Homes on a project that has no association with the project before the Board this evening. He assured Board members that he can act upon the project in an unbiased way.

Board members agreed there is no reason for Mr. Tagle to recuse himself.

Mr. Carlisle said the Village of Troy Planned Unit Development (PUD) application has been before the Board multiple times for review. Mr. Carlisle reviewed discussion points during the September 13, 2022 meeting and changes to the application since last reviewed by the Planning Commission. Mr. Carlisle displayed comparisons between the September 2022 site plan and the Site Plan before the Board this evening.

In summary, Mr. Carlisle said as part of the deliberation the Planning Commission should consider:

- Has the applicant sufficiently redesigned/improved plan to address comments from the Planning Commission and public?
- Has the applicant met the site plan standards?
- Has the applicant met the PUD standards?
- Has the applicant presented a project where the benefits are commensurate with requested deviations?

Tim Loughrin and Darian Neubecker of Robertson Brothers Homes were present.

Some items Mr. Loughrin addressed in a PowerPoint presentation were:

- Various revisions to the plan.
- Project renderings/drawings from different perspectives.
- Village concept, project summary, highlights, product design, housing options and pedestrian conveyance.

There was discussion, some comments related to:

- Redesign of southwest corner to offer a year-round amenity.
- Development phases/ stages.
- Establishment of Master Homeowners Association (HOA).
- Homebuyers’ preferences would determine number of ranch style homes.
- Architecture, exterior building materials; consideration to adding elements to flat area.
- Energy efficiency resources; electric vehicle charging stations.
- Long Lake and Rochester Road entrances.

Mr. Neubecker of Robertson Brothers addressed energy efficiency resources proposed for the development.

Mr. Neubecker stated that development phases have not yet clearly been defined. He indicated single family homes, amenities and the regional detention pond would be most likely the first phase and the townhomes would be the second phase.

Ms. Dufrane addressed the draft PUD Agreement. She asked the applicant to flush out the development phases prior to the City Council presentation and indicated there would be forthcoming changes relating to the regional detention pond.

Chair Lambert opened the floor for public comment. Acknowledging there was no one present who wished to speak, Chair Lambert closed the floor for public comment.

City Traffic Consultant Stephen Dearing of OHM addressed:

- Rochester Road entrance in relation to imminent road widening and expansion.
- Long Lake entrance as relates to vehicular turning lanes.
- Neighborhood safety issues associated with the plan layout.
- Fire Department approval for no T-turnarounds in multi-family townhome aisles.
- Dimensions of proposed curb radii.

Resolution # PC-2022-12-064

Moved by: Faison
 Seconded by: Krent

WHEREAS, The applicant Robertson Brothers Homes seeks Conceptual Development Plan (CDP) and Preliminary Development Plan (PDP) approval for the Village of Troy Planned Unit Development (PUD), located on the south side of Long Lake, west of Rochester, in Section 15, approximately 20.48 acres in area; and

WHEREAS, The Village of Troy PUD features 20 detached single-family homes, 56 attached single-family homes (2 stories) and 70 attached townhomes (3 stories); and

WHEREAS, The PUD provides a walkable urban environment that is compact, designed to human scale, and exhibits contextual integration of buildings and city spaces; and

WHEREAS, The PUD provides a compatible mix of open space, landscaped areas and pedestrian amenities, including incorporation of a regional railway system; and

WHEREAS, The PUD proposes appropriate land use transitions between the PUD and surrounding properties, and

WHEREAS, The PUD will reasonably mitigate impacts to the transportation system and enhance non-motorized facilities and amenities; and

WHEREAS, The PUD provides a complementary variety of housing types; and

BE IT RESOLVED, That the Planning Commission recommends to City Council that Concept Development Plan Approval and Preliminary Development Plan Approval for the proposed Village of Troy, be granted.

Discussion on the motion on the floor.

Comments related to whether the Resolution should reference development phases and Fire Department approval for no T-turnarounds in multi-family aisles.

Chair Lambert thanked the applicant for working with the Planning Commission and City staff.

Vote on the motion on the floor.

Yes: All present (7)
Absent: Hutson, Perakis

MOTION CARRIED

- 9. POTENTIAL PLANNED UNIT DEVELOPMENT (PUD) APPLICATION – Concept Plan Discussion, East of Livernois, North of Square Lake (PIN 88-20-03-301-088, 88-20-03-301-025, -024, -023), Section 35, Currently Zoned Neighborhood Node (Node “Q”) and R-1B (One Family Residential) Districts

(Item postponed, refer to Resolution # PC-2022-12-059)

OTHER ITEMS

- 10. 2023 CALENDAR DATES

Resolution # PC-2022-12-065

Moved by: Buechner
Seconded by: Faison

RESOLVED, To approve the 2023 calendar dates as submitted.

Yes: All present (7)
Absent: Hutson, Perakis

MOTION CARRIED

11. PUBLIC COMMENT – For Items on the Agenda

Tyler Fox, 1623 Milverton, recently appointed by the City Council to the Planning Commission, said he was looking forward to working with the Planning Commission.

12. PLANNING COMMISSION COMMENT

Board members graciously thanked Mr. Rahman for his service to the Board and wished him well.

Mr. Rahman thanked the entire staff for their support.

Board members welcomed Mr. Fox to the Planning Commission.

Happy holidays were wished by one and to all.

13. ADJOURN

The Regular meeting of the Planning Commission adjourned at 9:23 p.m.

Respectfully submitted,



David Lambert, Chair



Kathy L. Ozarnecki, Recording Secretary

Chair Lambert called the Regular meeting of the Troy City Planning Commission to order at 7:00 p.m. on September 13, 2022, in the Council Chamber of the Troy City Hall. Chair Lambert and Vice Chair Perakis presented opening remarks relative to the role of the Planning Commission and procedure of tonight’s meeting.

1. ROLL CALL

Present:

- Toby Buechner
- Michael W. Hutson
- Tom Krent
- David Lambert
- Lakshmi Malalahalli
- Marianna Perakis
- Sadek Rahman
- John J. Tagle

Absent:

- Carlton M. Faison

Also Present:

- R. Brent Savidant, Community Development Director
- Julie Quinlan Dufrane, Assistant City Attorney
- Kathy L. Czarnecki, Recording Secretary

2. APPROVAL OF AGENDA

Resolution # PC-2022-09-049

- Moved by: Krent
- Support by: Buechner

RESOLVED, To approve the Agenda as prepared.

- Yes: All present (8)
- Absent: Faison

MOTION CARRIED

3. APPROVAL OF MINUTES – August 23, 2022

Resolution # PC-2022-09-050

- Moved by: Tagle
- Support by: Perakis

RESOLVED, To approve the minutes of the August 23, 2022 Regular meeting as submitted.

Yes: Hutson, Krent, Lambert, Malalahalli, Perakis, Tagle
 Abstain: Buechner, Rahman
 Absent: Faison

MOTION CARRIED

4. PUBLIC COMMENT – For Items Not on the Agenda

There was no one present who wished to speak.

PLANNED UNIT DEVELOPMENT

5. **PUBLIC HEARING - PLANNED UNIT DEVELOPMENT (File Number PUD 019 JPLN2022-0013)**
 – Proposed Village of Troy PUD, South side of Long Lake, West of Rochester (Parcels 88-20-15-201-046 and 88-20-15-201-033), Section 15, Currently Zoned RT (One Family Attached Residential), R-1C (One Family Residential) and CB (Community Business) Districts

Mr. Tagle disclosed his firm is currently working with Robertson Brothers Homes on a project that has no association with the project before the Board this evening. He assured Board members that he can act upon the project in an unbiased way.

Board members agreed there is no reason for Mr. Tagle to recuse himself.

Mr. Savidant summarized the Planned Unit Development (PUD) review and approval process. He stated the applicant this evening is bundling together the Concept Development Plan and Preliminary Site Plan applications. Mr. Savidant addressed the location, natural features, wetlands and woodlands, zoning, access and circulation, proposed residential housing, parking and how the plan relates to the Master Plan.

Mr. Savidant reviewed items discussed at the January 11, 2022 Planning Commission meeting. He noted the applicant maintained the townhome concept contrary to the Board’s suggestion to consider alternative housing options. Mr. Savidant reviewed the proposed changes to the Site Plan since January 2022. He addressed dimensional deviations, benefits characterized by the applicant and the PUD Standards in Section 11.03 B of the Zoning Ordinance. Various elevations and housing types proposed by the applicant were displayed.

Mr. Savidant stated the City Traffic Engineer Consultant OHM recommends approval of the traffic impact study prepared by Fleis & Vanderbrink, dated June 22, 2022, with two exceptions as noted in the Planning Consultant report dated September 6, 2022. He announced Stephen Dearing of OHM is present in the audience should Board members have any questions.

In summary, Mr. Savidant said as part of the deliberation, the Planning Commission should consider:

- Does the applicant meet the intent and standards of a Planned Unit Development?
- Difference/distinction from attached townhomes and attached single-family homes.
- If alternatives to townhomes were considered?
- Are the proposed benefits commensurate with the relief requested?
- Materials and architectural details.
- Has the applicant sufficiently redesigned the site and provided a “villaging” concept as requested by the Planning Commission?

Mr. Savidant stated the role of the Planning Commission is to make a recommendation to City Council. He indicated another public hearing would be scheduled at the time City Council considers the application.

Tim Loughrin, Director of Land Acquisition for Robertson Brothers Homes, conducted a PowerPoint presentation. Some items addressed by Mr. Loughrin were:

- Village concept interconnecting various housing styles.
- Reduction in density; cut 40% townhomes.
- Increase of open space; 7 pocket parks, central park, pavilion.
- Parallel plan; what could be built under existing zoning.
- Elevations; design, square footage, building material, floor plans, price point.
- Sledding hill; quasi-public space located in southwest corner.
- Pedestrian pathway(s).
- Stormwater management; regional pond.
- Over 40% of site is active or passive recreational.
- Owner occupied homes.
- Surrounding zoning and area.
- PUD Standards.

Several members shared individual views on orientation of buildings, location of access drives, internal road design, public amenities and “village” concept. The applicant was encouraged to create something impactful that might attract one’s eyes within the project’s internal design such as a fountain or sculpture.

There was discussion, some comments related to:

- Quasi-public open space; liability, activity schedules.
- Orientation of homes, access drives, centrally located terminus drives.
- Screening on north and south sides; landscaping, berms, fencing.
- Stormwater management; regional pond.
- Parking; formula used to factor required number of spaces; consideration to landbank spaces if determined overparked.
- Building material; color scheme, cost, and maintenance of material.
- Board’s objection to vinyl siding.

- Potential to create additional pedestrian connections.
- Establishment of homeowners' associations.

PUBLIC HEARING OPENED

- Leonard Joseph, 4909 River Bank Court; addressed concerns with screening, asked about type of screening and additional tree line if trees are removed, asked if retention pond is connected to residents on River Bank Court and if streets are private.
- Susheel Vu, 4921 River Bank Court; addressed concerns with increase in traffic, left turn lane, noise and lights.
- Gary Osak, 4919 Davis Court; addressed concerns with density, increase in traffic, stormwater management, encouraged quality building materials and screening.
- Deepan Shrivastava, 4969 River Bank Court; addressed concerns with increase in traffic, no left turn, internal road design and wetlands.
- Sendhil Damodavan, 4933 River Bank Court; addressed project design and concerns with effect on property values.

PUBLIC HEARING CLOSED

Chair Lambert stated one email communication was received from Harpreet Singh. The resident asked that a tree line for screening be maintained and addressed concerns with property values.

Questions posed during public hearing were addressed as follows:

- Applicant is receptive to address concerns with screening.
- Applicant acknowledged the streets are private.
- Applicant will work with EGLE (Environment, Great Lakes, & Energy) with respect to wetland regulations.
- Applicant addressed stormwater management; regional pond; no connection with residents on River Bank Court.
- Applicant addressed amenities that might be incorporated in pocket parks.

City Traffic Consultant Stephen Dearing of OHM addressed the proposed project's traffic impact as relates to access points, future reconfiguration of median and westbound left turn lane, crossover traffic, trip distribution analysis and planned future road improvements.

Ms. Malalahalli stated she would like to see the applicant take into consideration Planning Commission feedback and public comment expressed this evening and come back to the Board.

Resolution # PC-2022-09-051

Moved by: Malalahalli
Support by: Krent

RESOLVED, To postpone the Village of Troy PUD application to allow the developer an opportunity to take into consideration the direction given by the Board and public comment and to meet some of the PUD Standards cited in Section 11.03 B of the Zoning Ordinance that the Board feels have not been met.

Yes: All present (8)
Absent: Faison

MOTION CARRIED

Mr. Savidant clarified there would be no public hearing when the application comes back to the Planning Commission. He encouraged residents to view agendas posted on the City website to find out the meeting date the application would be considered again.

Ms. Dufrane asked the applicant to share with their attorney that revisions to the application might necessitate changes in the draft PUD agreement.

OTHER ITEMS

6. **PUBLIC COMMENT** – For Items on the Agenda

There was no one present in the audience who wished to speak.

Chair Lambert opened the floor to Planning Commission comment.

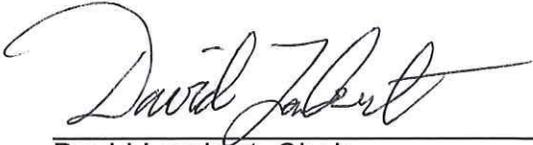
Mr. Savidant acknowledged Stephen Dearing and Sara Merrill of OHM for their assistance in traffic consultations and thanked Mr. Dearing for his explanation of complicated traffic matters in simplistic terms.

After a brief discussion, it was determined to schedule a few study session meetings in 2023 to discuss diverse topics.

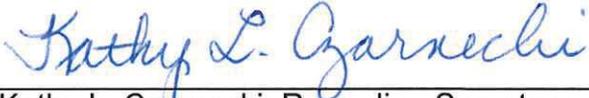
7. **ADJOURN**

The Regular meeting of the Planning Commission adjourned at 9:29 p.m.

Respectfully submitted,



David Lambert, Chair



Kathy L. Czarnecki, Recording Secretary

G:\Planning Commission Minutes\2022 PC Minutes\FINAL\2022 09 13 FINAL.docx

Exhibit E

City Council Meeting Minutes

[To be inserted following meeting]



500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Date: February 27, 2023

To: Mark F. Miller, City Manager

From: Robert J. Bruner, Assistant City Manager
Rob Maleszyk, Chief Financial Officer
Dee Ann Irby, Controller
Emily Dumas, Library Director
Emily Frontera, Purchasing Manager

Subject: Standard Purchasing Resolution 4: OMNIA Partners Purchasing Cooperative – Troy Public Library Bookmobile (Introduced by; Emily Dumas and Olivia Olson)

History

The Troy Public Library services an area of approximately 34 square miles and 87,000 residents. While many public libraries serving a comparably-sized community offer multiple branch locations, the Troy Public Library has only one library building. There is a sizeable portion of the city’s population that is not able to visit the library in person due to physical disability or illness, difficulty with mobility, lack of transportation or driver’s license, and other barriers to access. The Community Engagement staff seeks to institute a Bookmobile service within the City of Troy to deliver library services to the community and reach populations that have previously been underserved.

Purchasing

- Pricing to purchase a customized Farber Sprinter Bookmobile for the Troy Library has been secured from *Farber Specialty Vehicles of Columbus, OH*, through the OMNIA Partners Cooperative Purchasing Contract #128867 for an estimated total cost of \$249,867, as detailed in the attached quote dated 2/17/2023.
- The OMNIA Partners Contract pricing is valid thru November 30, 2023 on selected Emergency and Specialty Vehicles, Equipment and Accessories and Any Related Equipment, Supplies and Services.
- Troy City Council authorized participation in the Cooperative Purchasing Programs on November 14, 2022 (Resolution #2022-11-157)

Financial

The acquisition will require a budget reallocation in the amount of \$250,000 to Bookmobile project #2023C0131 from the Building and Renovations project #2022C0071. Expenditures will be charged to account number 401.790.7975.900. The library has already raised \$173,416 towards the purchase of the vehicle, and will continue to fundraise. This budget amendment ensures that the total cost of the project is available in Fiscal Year 2023 and work can begin.



500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Recommendation

City Management recommends awarding a contract to purchase a customized Farber Sprinter Bookmobile, from *Farber Specialty Vehicles of Columbus, OH*, for an estimated cost of \$249,867, as detailed in the attached quote and as per the OMNIA Partners Cooperative Purchasing Contract #128867.



7052 Americana Parkway
 Columbus Ohio, 43068
 Toll Free (800) 331-3188
 Fax (614)759-2098



CUSTOMER
Troy Public Library
 510 West Big Beaver Road
 Troy, MI 48084

QUOTE/PROJECT DESCRIPTION
Farber Sprinter Bookmobile Contract # 12886
 170" Wheelbase, Extended Body, High Roof
 Diesel

TOTAL UNIT PRICE \$ **249,867.00**

CONTACT	DELIVERY	SHIPPED VIA	TERMS	DATE
Brock Templin	365 Days After Receipt of Chassis	Farber	Net 30	2/17/2023

PART NUMBER	QUANTITY		UNIT PRICE	TOTAL PRICE
VEHICLES - FOB Continental US				
USCFVSV 1000001	1	FSV Van Includes Custom Floorplan Design	\$ 112,267.00	\$ 112,267.00
USCFVSV 1100005	24	Custom Book Mobile (per foot)	\$ 291.00	\$ 6,984.00
USCFVSV 1100032	3	Air lift tie down	\$ 385.00	\$ 1,155.00
				\$ -
INTERIOR OPTIONS				
USCFVSV 1200002	5	Fixed Window	\$ 446.00	\$ 2,230.00
USCFVSV 1200013	1	Wheelchair lift, automatic, ADA approved, w/door	\$ 6,194.00	\$ 6,194.00
USCFVSV 1200028	24	Shelving Book Mobile (per foot)	\$ 646.00	\$ 15,504.00
USCFVSV 1200029	5	Custom Cabinet	\$ 1,109.00	\$ 5,545.00
FINISHES & UPGRADES				
USCFVSV 1300002	1	Upgraded vinyl flooring	\$ 1,555.00	\$ 1,555.00
USCFVSV 1300003	2	Exterior graphics package (One to four units required)	\$ 4,681.00	\$ 9,362.00
USCFVSV 1300005	1	CSI package level I	\$ 9,268.00	\$ 9,268.00
EXTERIOR OPTIONS				
USCFVSV 1400007	1	Lateral arm box awning, Sunbrella color selection ,up to 12'	\$ 4,436.00	\$ 4,436.00
USCFVSV 1400042	2	Add one foot of body length including finishes	\$ 987.00	\$ 1,974.00
RETROFIT OPTIONS				
USCFVSV 1600005	1	Basic electrical, power panel, panduit, receptacles, interior lighting, heaters, HVAC connections	\$ 28,200.00	\$ 28,200.00
AUDIO/VIDEO OPTIONS				
USCFVSV 1800017	1	Back-up camera system, 7" LCD color monitor	\$ 1,175.00	\$ 1,175.00
ELECTRONICS				
USCFVSV 2400009	1	Wireless router	\$ 1,109.00	\$ 1,109.00
H.V.A.C.				
USCFVSV 2600004	1	Roof mounted air conditioner	\$ 916.00	\$ 916.00
GENERATORS & POWER SUPPLIES				
USCFVSV 2800029	1	6 KW Engine Driven Generator	\$ 7,689.00	\$ 7,689.00
INTERIOR LIGHTING				
USCFVSV 3000005	1	LED ceiling light package	\$ 3,440.00	\$ 3,440.00
EXTERIOR LIGHTING				
USCFVSV 3100005	2	Scene lights, LED , each	\$ 432.00	\$ 864.00
NON-CONTRACT OPTIONS				
	1	2023 Economic Price Adjustment	\$ 30,000.00	\$ 30,000.00
TOTAL PRICE				\$ 249,867.00

SPECIAL NOTES AND INSTRUCTIONS

Once signed, please fax, mail or email to the provided address.
 Above information is not an invoice and only an estimate of services/goods described above.
 Payment will be collected in prior to provision of services/goods described in this quote.
 Please confirm your acceptance of this quote by signing this document.

Thank you for your business!

Signature _____ Print Name _____ Date _____

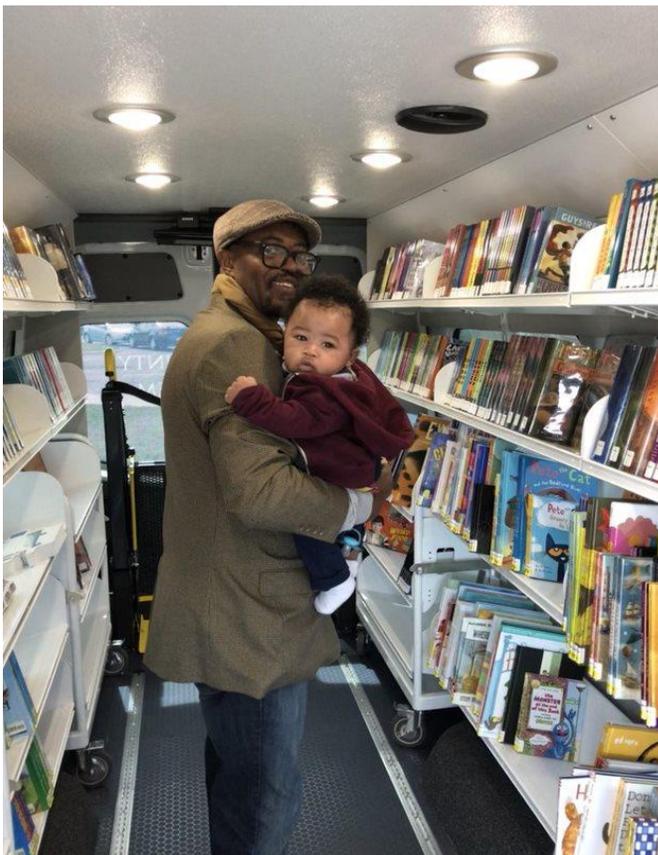
Troy Public Library Bookmobile Inspiration



Bookmobile with rendering of TPL branding



Patrons visiting a bookmobile (Monroe County Library System)



Pastor Robert Cholette from Troy Assembly of God performed the Invocation. The Pledge of Allegiance to the Flag was given.

A. CALL TO ORDER:

A Regular Meeting of the Troy City Council was held on Monday, February 13, 2023, at City Hall, 500 W. Big Beaver Rd. Mayor Baker called the meeting to order at 7:32 PM.

B. ROLL CALL:

- a) Mayor Ethan Baker
- Edna Abraham
- Theresa Brooks
- Rebecca A. Chamberlain-Creanga
- Ann Erickson Gault
- David Hamilton
- Ellen Hodorek

C. CERTIFICATES OF RECOGNITION AND SPECIAL PRESENTATIONS:

- C-1** Troy Youth Assistance Annual Report (*Presented by: Karl Schmidt, Troy Youth Assistance Advisor, and Shari Pawlus, Troy Youth Assistance Co-Chair*)

D. CARRYOVER ITEMS:

- D-1** No Carryover Items

E. PUBLIC HEARINGS:

- E-1** No Public Hearings

F. PUBLIC COMMENT FOR ITEMS ON THE AGENDA FROM TROY RESIDENTS AND BUSINESSES:

G. CITY COUNCIL/CITY ADMINISTRATION RESPONSE/REPLY TO PUBLIC COMMENT FOR ITEMS ON THE AGENDA FROM TROY RESIDENTS AND BUSINESSES:

H. POSTPONED ITEMS:

- H-1** No Postponed Items

I. REGULAR BUSINESS:

- I-1** Board and Committee Appointments: a) Mayoral Appointments – Board of Review; b) City Council Appointments – Liquor Advisory Committee

- a) Mayoral Appointments:

Resolution #2023-02-019
Moved by Baker
Seconded by Hamilton

RESOLVED, That the Mayor of the City of Troy hereby **APPOINTS** the following nominated person(s) to serve on the Boards and Committees as indicated:

Board of Review
Appointed by Mayor
3 Regular Members
3 Year Term

Nominations to the Board of Review:

**Unexpired Term Expiring:
1/31/2024**

Karen Greenwood

Term currently held by: Frank Strahl resigned 12/13/2022

Yes: All-7
No: None

MOTION CARRIED

b) City Council Appointments:

Resolution #2023-02-020
Moved by Chamberlain-Creanga
Seconded by Erickson Gault

RESOLVED, That Troy City Council hereby **APPOINTS** the following nominated person(s) to serve on the Boards and Committees as indicated:

Liquor Advisory Committee
Appointed by Council
7 Regular Members
3 Year Term

Nominations to the Liquor Advisory Committee:

Term Expires: 1/31/2026

David Gorcyca

Term currently held by: David Gorcyca

Term Expires: 1/31/2026

Kelly Jones

Term currently held by: Kelly Jones

Yes: All-7
No: None

MOTION CARRIED

I-2 Board and Committee Nominations: a) Mayoral Nominations – None; b) City Council Nominations – Election Commission, Traffic Committee

a) **Mayoral Nominations: None**

b) **City Council Nominations:**

Resolution #2023-02-021
Moved by Chamberlain-Creanga
Seconded by Brooks

RESOLVED, That Troy City Council hereby **FORWARDS** the following nominated person(s) to serve on the Boards and Committees as indicated to the next Regular City Council Meeting for action:

Election Commission

Appointed by Council
2 Regular Members and 1 Charter Member
1 Year Term

Nominations to the Election Commission:

Term Expires: 1/31/2024	Stephen Sadlier	Democrat
Term currently held by: Stephen Sadlier		

Term Expires: 1/31/2024	Ray Watts	Republican
Term currently held by: Ray Watts (Republican Party Recommendation)		

Yes: All-7
No: None

MOTION CARRIED

Resolution #2023-02-022
Moved by Chamberlain-Creanga
Seconded by Erickson Gault

RESOLVED, That Troy City Council hereby **FORWARDS** the following nominated person(s) to serve on the Boards and Committees as indicated to the next Regular City Council Meeting for action:

Traffic Committee

Appointed by Council

7 Regular Members

3 Year Term

Nominations to the Traffic Committee:**Term Expires: 7/31/2023****Deepti Aggarwal****Student**

Term currently held by: Tyler Koralewski

Term Expires: 1/31/2026**Richard Kilmer**

Term currently held by: Richard Kilmer

Term Expires: 1/31/2026**Al Petrulis**

Term currently held by: Al Petrulis

Term Expires: 1/31/2026**Peter Ziegenfelder**

Term currently held by: Peter Ziegenfelder

Yes: All-7
No: None**MOTION CARRIED****I-3 No Closed Session Requested****J. CONSENT AGENDA:****J-1a Approval of "J" Items NOT Removed for Discussion**

Resolution #2023-02-023-J-1a

Moved by Abraham

Seconded by Hodorek

RESOLVED, That Troy City Council hereby **APPROVES** all items on the Consent Agenda as presented.Yes: All-7
No: None**MOTION CARRIED****J-1b Address of "J" Items Removed for Discussion by City Council****J-2 Approval of City Council Minutes**

Resolution #2023-02-023-J-2

RESOLVED, That Troy City Council hereby **APPROVES** the following Minutes as submitted:

- a) City Council Minutes-Draft – January 23, 2023

J-3 Proposed City of Troy Proclamations: None Submitted

J-4 Standard Purchasing Resolutions:

- a) **Standard Purchasing Resolution 4: OMNIA Partners Cooperative Purchasing Contract – Stage Nature Center Boardwalk Replacement Phase I and Standard Purchasing Resolution 5: Approval to Expend Budgeted Funds – Stage Nature Center Boardwalk Replacement Additional Materials, Equipment and Installation**

Resolution #2023-02-023-J-4a

RESOLVED, That in the best interest of the City, Troy City Council hereby **WAIVES** the bid process and **AWARDS** a contract to *Home Depot* for the purchase of materials for the Stage Nature Center Boardwalk Replacement Phase I for an estimated cost of \$29,244.96 per the OMNIA Partners Cooperative Purchasing Contract #16154 with a 10% contingency.

BE IT FURTHER RESOLVED, That Troy City Council hereby **APPROVES** expending budgeted Capital Funds for additional materials, equipment and installation as required to complete the in-house replacement by City Staff; not to exceed budgetary limitations.

- b) **Standard Purchasing Resolution 4: State of Michigan MiDeal Cooperative Purchasing Contract – Four (4) Ton Falcon Asphalt Recycler Hot Box Trailer**

Resolution #2023-02-023-J-4b

RESOLVED, That in the best interest of the City, Troy City Council hereby **WAIVES** the bid process and **APPROVES** a contract to purchase one (1) 4-Ton Falcon Asphalt Recycler & Hot Box Trailer including various options from *Falcon Asphalt Repair Equipment, of Midland, MI* for an estimated total cost of \$22,979.43 which includes a \$5,000 trade-in allowance, at prices contained in the attached quote #OZ0112023-017 and as per the State of Michigan MiDeal Contract #071B7700092.

- c) **Standard Purchasing Resolution 10: Travel Authorization and Approval to Expend Funds for Troy City Council Member Travel – 2023 Michigan Municipal League Cap Con**

Resolution #2023-02-023-J-4c

RESOLVED, That Troy City Council hereby **AUTHORIZES** City Council Member travel expenses for the Michigan Municipal League 2023 Cap Con, in accordance with accounting procedures of the City of Troy.

d) **Standard Purchasing Resolution 2: Award to Low Bidder Meeting Specifications – Demolition of Buildings and Structures – 109 Lange**

Resolution #2023-02-023-J-4d

RESOLVED, That Troy City Council hereby **AWARDS** a contract for the demolition of all buildings and structures at 109 Lange to the low bidder meeting specifications, *The Adams Group Inc. of Rochester Hills, MI* for an estimated total cost of \$16,950 at prices contained in the bid tabulation opened January, 26, 2023; a copy of which shall be **ATTACHED** to the original Minutes of this meeting; not to exceed budgetary limitations.

BE IT FURTHER RESOLVED, That the award is **CONTINGENT** upon the submission of properly executed bid and proposal documents, including insurance certificates and all other specified requirements.

e) **Standard Purchasing Resolution 1: Award to Low Bidder – Contract 23-02 – Beach Road Pavement Rehabilitation**

Resolution #2023-02-023-J-4e

RESOLVED, That Troy City Council hereby **AWARDS** Contract No. 23-02, Beach Road Pavement Rehabilitation, to *Pro-Line Asphalt Paving Corp., 11797 29 Mile Road, Washington, MI 48095*, for their low bid of \$1,378,054.50.

BE IT FURTHER RESOLVED, That the award is **CONTINGENT** upon submission of proper contract and bid documents, including bonds, insurance certificates and all specified requirements, and if additional work is required such additional work is **AUTHORIZED** in an amount not to exceed 20% of the total project cost.

f) **Standard Purchasing Resolution 4: Sourcewell and Oakland County Cooperative Purchasing Contracts – Report Area Renovation, Troy Police Department, and Standard Purchasing Resolution 5: Approval to Expend Budgeted Funds – Police Department Report Area Painting and Wall Repairs**

Resolution #2023-02-023-J-4f

RESOLVED, That in the best interest of the City, Troy City Council hereby **WAIVES** the bid process and **AWARDS** contracts to *NBS Commercial Interiors of Troy, MI (via Steelcase)* for the Report Area renovation furniture for an estimated cost of \$36,039.11 as detailed in the attached quote and as per the Sourcewell Cooperative Purchasing Contract #19Z08621, and to *Shaw Service & Maintenance of Southfield, MI* for the electrical and network installation for an estimated cost of \$19,217.00 and a 15% contingency as detailed in the attached quote and as per the Oakland County Extended Purchasing Program Contract #008405.

BE IT FURTHER RESOLVED, That Troy City Council hereby **APPROVES** expending budgeted Capital Funds for the painting and wall repairs at the Police Department Report Area for an estimated cost of \$8,000 and a 15% contingency.

BE IT FINALLY RESOLVED, That the award is **CONTINGENT** upon contractors' submission of properly executed contract documents, including insurance certificates and all other specified requirements.

g) Standard Purchasing Resolution 3: Exercise Renewal Option – Municipal Testing Services

Resolution #2023-02-023-J-4g

WHEREAS, On March 5, 2018, Troy City Council approved a five (5) year contract to provide Municipal Testing Services with an option to renew for an additional five (5) years based upon mutual consent of both parties, to Intertek PSI and Testing Engineers & Consultants as a result of a best value process, (Resolution #2018-03-027-J-4b); and,

WHEREAS, Intertek PSI and Testing Engineers & Consultants have offered to renew their contract for five (5) additional years under the same terms and conditions as the 2018 contract, except as provided by their revised pricing schedule, a copy of which shall be **ATTACHED** to the original Minutes of this meeting;

NOW, THEREFORE, BE IT RESOLVED, That Troy City Council hereby **EXERCISES** the five-year option to renew contracts for Municipal Testing Services with *Intertek PSI of Troy, MI* and *Testing Engineers & Consultants, Inc (TEC) of Troy, MI*, under the same terms and conditions as the 2018 contract and their respective revised pricing schedules, which includes 3% annual adjustments.

J-5 PA 152 – Publicly Funded Health Care

Resolution #2023-02-023-J-5

WHEREAS, Public Act 152 of 2011 allows for a Local Government Opt-Out alternative; and,

WHEREAS, Choosing the Opt-Out alternative allows the City to continue to offer medical insurance to all full-time employees with the premium contribution percent established in current collective bargaining agreements;

THEREFORE, BE IT RESOLVED, That the Troy City Council hereby **SELECTS** the Local Unit Opt-Out for plan year 2023/24.

J-6 Traffic Committee Recommendations and Minutes – January 18, 2023

Resolution #2023-02-023-J-6

4. Request for Traffic Control – Cidermill Drive at Country Ridge Drive

RESOLVED, That the intersection of Cidermill Drive at Country Ridge Drive be **MODIFIED** from UNCONTROLLED on the Cidermill Drive approach to STOP control on the Cidermill Drive approach to the intersection.

J-7 City of Troy Investment Policy and Establishment of Investment Accounts

Resolution #2023-02-023-J-7

RESOLVED, That Troy City Council hereby **APPROVES** the *Investment Policy and Establishment of Investment Accounts* as outlined in the memorandum and revised by Chief Financial Officer, Robert C. Maleszyk, dated February 13, 2023; a copy of which shall be **ATTACHED** to the original Minutes of this meeting.

J-8 Private Agreement – Contract for Installation of Municipal Improvements – Springhill Suites – Project No. 19.914.3

Resolution #2023-02-023-J-8

RESOLVED, That Troy City Council hereby **APPROVES** the Contract for the Installation of Municipal Improvements (Private Agreement) between the City of Troy and *Stellar Hospitality Troy, LLC* for the installation of Water Main, Storm Sewer, Concrete Sidewalk and Pavement, and Underground Detention System, and the Mayor and City Clerk are **AUTHORIZED** to execute the documents; a copy of which shall be **ATTACHED** to the original Minutes of this meeting.

J-9 Private Agreement – Contract for Installation of Municipal Improvements – Forum Flats – Project No. 22.921.3

Resolution #2023-02-023-J-9

RESOLVED, That Troy City Council hereby **APPROVES** the Contract for the Installation of Municipal Improvements (Private Agreement) between the City of Troy and *F Squared, LLC* for the installation of Water Main, Storm Sewer, Sanitary Sewer, and Underground Detention System, and the Mayor and City Clerk are **AUTHORIZED** to execute the documents; a copy of which shall be **ATTACHED** to the original Minutes of this meeting.

K. MEMORANDUMS AND FUTURE COUNCIL AGENDA ITEMS:

K-1 Announcement of Public Hearings: None Submitted

K-2 Memorandums (Items submitted to City Council that may require consideration at some future point in time): None Submitted**L. PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA FROM TROY RESIDENTS AND BUSINESSES:****M. CITY COUNCIL/CITY ADMINISTRATION RESPONSE/REPLY TO PUBLIC COMMENT FOR ITEMS NOT ON THE AGENDA FROM TROY RESIDENTS AND BUSINESSES:**

N. COUNCIL REFERRALS:

Items Advanced to the City Manager by the Mayor and City Council Members for Placement on the Agenda

N-1 No Council Referrals Submitted**O. REPORTS:****O-1 Minutes – Boards and Committees:**

- a) Civil Service Commission (Act 78)-Final – November 15, 2022
 - b) Traffic Committee-Final – November 16, 2022
 - c) Planning Commission-Final – January 10, 2023
Noted and Filed
-

O-2 Department Reports:

- a) Interim Financial Report 2nd Quarter For The Six Months Ended December 31, 2022
 - b) Recreation Administration Staff Retreat Report
 - c) Troy Historical Society Annual Report for Fiscal Year Ending 2022 and Financial Statements for Fiscal Year Ending 2022
 - d) Planning Commission 2022 Annual Report
 - e) Troy Public Library Annual Report
 - f) Federal Funding for Major Road Work – Rochester Road, Elmwood to Maple
Noted and Filed
-

O-3 Letters of Appreciation: None Submitted**O-4 Proposed Proclamations/Resolutions from Other Organizations: None Submitted****O-5 Notice of Hearing for the Gas Customers of DTE Gas Company Case No. U-21271**
Noted and Filed**O-6 Notice of Hearing for the Customers of Consumers Energy Company Case No. U-21269**

Noted and Filed

O-7 Notice of Hearing for the Gas Customers of Consumers Energy Company Case No. U-21344

Noted and Filed

P. COUNCIL COMMENTS:**P-1 Council Comments**

Council Member Brooks commented on the discussion regarding the liquor license issue for the Nature Center. City Attorney Bluhm responded that she will be meeting with City Manager Miller this week regarding liquor licenses.

Mayor Pro Tem Chamberlain-Creanga read a prayer that was read in her church, offered for people impacted directly and indirectly by the natural disaster in Turkey and Syria.

Mayor Pro Tem Chamberlain-Creanga commented that assistance is available to residents from Ukraine who need help with documentation, or any other needs during their time in the United States.

Mayor Pro Tem Chamberlain-Creanga commented that she and Council Member Erickson Gault serve on MML committees in Lansing that help guide the MML in advocating for cities and their residents. She commented that the Governor's proposed budget offers a 10% increase in revenue sharing and new funding for public safety.

Mayor Pro Tem Chamberlain-Creanga commented that she would like to see the Volunteer Appreciation event return to thank the many volunteers who serve the City of Troy.

Council Member Hodorek commented on the important work that is continuously being done by the Troy Police Department to investigate and arrest criminals, especially in the news lately; also, the preventative advice offered by the Troy Police to residents to lock their doors, not leave guns in vehicles, and be aware of valuables, in order to prevent thieves from stealing these belongings.

Mayor Baker discussed Troy Athens High School Charity Week that is being held this week, with the big reveal of the total amount of money raised this Friday. He thanked everyone who is working to make this event successful.

Mayor Ethan Baker announced the State of the City 2023 to be held on Wednesday, May 3, 2023.

Q. PUBLIC COMMENT FOR ITEMS ON OR NOT ON THE AGENDA FROM MEMBERS OF THE PUBLIC OUTSIDE OF TROY (NOT RESIDENTS OF TROY AND NOT FROM TROY BUSINESSES):

R. CLOSED SESSION

R-1 No Closed Session

S. ADJOURNMENT:

The Meeting **ADJOURNED** at 8:08 PM.

Mayor Ethan Baker

M. Aileen Dickson, MMC, MiPMC II
City Clerk

2023 SCHEDULED SPECIAL CITY COUNCIL MEETINGS:

April 10, 2023.....Special Meeting – Budget
April 17, 2023.....Special Meeting – Budget

2023 SCHEDULED REGULAR CITY COUNCIL MEETINGS:

February 27, 2023..... Regular Meeting
March 13, 2023..... Regular Meeting
March 20, 2023..... Regular Meeting
April 10, 2023..... Regular Meeting
April 17, 2023..... Regular Meeting
May 8, 2023..... Regular Meeting
May 22, 2023..... Regular Meeting
June 12, 2023..... Regular Meeting
June 26, 2023..... Regular Meeting
July 10, 2023..... Regular Meeting
July 24, 2023..... Regular Meeting
August 7, 2023..... Regular Meeting
August 21, 2023..... Regular Meeting
September 11, 2023..... Regular Meeting
September 18, 2023..... Regular Meeting
October 2, 2023..... Regular Meeting
October 16, 2023..... Regular Meeting
November 13, 2023..... Regular Meeting
November 20, 2023..... Regular Meeting
December 4, 2023..... Regular Meeting
December 11, 2023..... Regular Meeting

**PROCLAMATION TO HONOR
LIEUTENANT THOMAS O'HERRON
2022 FIREFIGHTER OF THE YEAR**

WHEREAS, **Thomas O'Herron** became a volunteer Firefighter, joining Troy's Fire Station One, 26 years ago on February 3, 1997; and

WHEREAS, His selection as **Firefighter of the Year** is due to his many years of dedication to the Troy Fire Department, having served with honor and dignity in all of his roles at Station 1 including Firefighter and Lieutenant; and

WHEREAS, During his service with the department, **Lt. O'Herron** has routinely performed his duties in an exemplary manner. He served on their special response unit from 2003 until 2006. More recently, he oversaw and led the revitalization of the Troy Fire Department Honor Guard. This task included recruiting and training new members, redesigning and modernizing the uniforms, and expanding the role and involvement of the team within the community; and

WHEREAS, **Lt. O'Herron** was the leader of the Troy Fire Department's water battle team for over a decade, which won many of the battles against other fire departments. At Fire Station 1, he often leads weekly training, serves on the open house committee and helps in any aspect he can; and

WHEREAS, **Lt. O'Herron** is an excellent role model for the probationary members, and has been recognized for his efforts with several awards including Station Member of the Year (Station #1) in 2009 and 2020, He also received multiple meritorious service awards, safe driving awards, and unit commendations for his actions at incidents over his 26 years serving the Troy community. He also served on the Special Response Unit from November, 2002 until March, 2009; and

WHEREAS, **Tom** grew up in Troy and graduated from Athens High School in 1992. He and his wife **Annette** are proud of their children, **Chloe** 18 and **Riley** 14. He works for Cregger Plumbing as a journeyman plumber;

NOW, THEREFORE, BE IT RESOLVED, that the Mayor, City Council, and City Management of the City of Troy, does hereby join with the citizens of Troy, to express sincere congratulations to **Lt. Tom O'Herron** on the occasion of being chosen **2022 Firefighter of the Year** by the Troy Fire Department; and

BE IT FURTHER RESOLVED that the Mayor and City Council commends and thanks **Lt. Tom O'Herron** for his achievement, leadership and dedicated service to the citizens of Troy.

Presented this 13th day of March 2023.



500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Date: February 21, 2023

To: Mark F. Miller, City Manager

From: Robert J. Bruner, Assistant City Manager
Rob Maleszyk, Chief Financial Officer
Dee Ann Irby, Controller
Kurt Bovensiep, Public Works Director
Brian D Varney, Fleet Operations Manager
Emily Frontera, Purchasing Manager

Subject: Standard Purchasing Resolution 4 Sourcewell Purchasing Cooperative – Utility Tractor with Trailer and Related Equipment

History

- The utility tractor with trailer and related equipment being purchased are planned replacement equipment used by the Department of Public Works.
- This purchase replaces an existing tractor and trailer that has exceeded intended life expectancy.
- The tractor being replaced is a 1991 model year that has outdated technology and no longer meets the operational needs of the department.
- The trailer being replaced is a 1975 model.
- The obsolete equipment will be removed from service and sold at auction with estimated proceeds of \$3,200.00.
- This purchase replaces existing equipment that has exceeded intended life expectancy and does not increase the size of the existing Department of Public Works motor pool fleet.

Purchasing

- Kubota L5460HSTC Utility Tractor and related equipment.
- Hudson HTMBK-21 Equipment Trailer.
- Kubota is the awarded low bidder of the Sourcewell Cooperative Purchasing contract #031121-KBA; pricing is valid thru April 20, 2025 on selected utility tractor with trailer and related equipment.
- *ROSY BROS., INC. of Dryden, MI* is an authorized Kubota dealer in the State of Michigan and participates in the Sourcewell contract process.
- City Council authorized participation in the Cooperative Purchasing Programs on November 14, 2022 (Resolution #2022-11-157)
- On February 10, 2014 City Council authorized departments to utilize sites such as GovDeals.com to dispose of city owned surplus items (Resolution# 2014-02-017-J-4a). Therefore, note that the city will utilize and market the obsolete equipment on GovDeals.com site for optimal trade-in value.



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CITY COUNCIL AGENDA ITEM

Financial

- Funds are budgeted and available in the Public Works Fleet Division Capital Fund under project number 2023C0110 for the 2023 fiscal year. Expenditures of \$69,926.55 will be charged to account number 661.549.565.7981.

Recommendation

City management requests authorization to purchase a Kubota Utility Tractor with Trailer and related equipment from the authorized Michigan dealer; *ROSY BROS., INC. of Dryden, MI* utilizing the Sourcewell Cooperative Contract #031121-KBA for an estimated total cost of \$69,926.55 not to exceed budgetary limitations.



Not actual vehicle – Example only

-- Standard Features --

-- Custom Options --



L Series L5460HSTC

*** EQUIPMENT IN STANDARD MACHINE ***

DIESEL ENGINE

Model # V2403CRTE4GL2/GL3
 Tier IV Engine
 Common Rail Direct Injection
 w/ DPF and EGR
 Turbo Charged
 4 Cyl., 148.5 cu. in.
 ^ 54.0 Net Eng. HP
 ^ 46.5 PTO HP
 @ 2600 Eng. rpm
 12V 45Amp - 582CCA
 Radial Air Flow Cooling
 Dual Air Cleaner Element

POWER TAKE OFF

1 Speed Rear Live — HYD. IND.
 540 rpm @ 2550 Eng. rpm
 SAE 1-3/8 6 Splines
 Electric over Hydraulic PTO
 Switch

DIMENSIONS

Overall Height w/Cab 92.5"
 Overall Length w/3pt. 135.0"
 Wheel Base 75.4"
 Crop Clearance 16.7"

HYDRAULICS

Open Center
 Tandem Pump Gear Type
 4.7 gpm Power Steering
 9.4 gpm Remote/3 Pt. Hitch
 14.1 gpm Total Hyd. Flow
 Category I 3-Pt. Hitch
 Lift Capacity —
 At lift Point 3858 lbs.
 24" Behind 2976 lbs.
 Position Control

STANDARD EQUIPMENT

ROPS Certified Cab w/Retractable
 Seat Belt
 Highback Adj. Swivel Seat w/
 Deluxe
 Suspension w/Arm Rests
 Safety Start Switches
 Operator Presence Control
 System
 Parking Brakes
 Flat Deck w/Hanging Pedals
 Electric Key Shut-off
 2 Front Work Lights
 Tilt Steering
 Wide Anti-Slip Step
 ISO Mounted Platform
 Turn Signals / Hazard Flashers
 SMV Sign
 Operator Presence Control
 System
 Telescoping Lower Links
 2 Tier Halogen Head Lights
 4 Position Loader Valve
 One Piece Metal Hood
 12V Outlet and Cup Holder
 Front Wiper w/ asher
 60 Amp Alternator
 Interior Light
 AC/Heater with Internal/External
 Ventilation
 Speakers and Radio Wired
 Horn

FRONT AXLE

Hydrostatic Power Steering
 Cast iron 4WD front axle
 Tread Spacing - Non-adjustable
 Bevel Gear drive

DRIVE TRAIN

HST PLUS
 3 Forward Speeds / 3 Reverse
 Speeds
 High-Med-Low
 Mech. Wet Disc Brakes
 Differential Lock
 Cruise Control

FLUID CAPACITY

Fuel Tank 13.5 gal.
 Cooling System 8.7 qts.
 Crankcase 9.9 qts
 Transmission and
 Hydraulics 11.9 gal.
 Front Axle Differential 9.5 qts.

^ Manufacturer Estimate

IntelliPanel™

Lighted Communications Symbols
 Standard Tachometer
 Digital Read for Speed, MPH,
 PTO
 speeds, diagnostics system and
 DPF system
 Warning Symbols

SELECTED TIRES

ALR8869A & AMXR8862
 FRONT - 10-16.5 R4 Titan Trac Loader
 REAR - 17.5L-24 R4 Titan Industrial Contractor TL

L5460HSTC Base Price: \$53,161.00

(1) HYDRAULIC SPILL GUARD FOR LA1055 L2271-HYDRAULIC SPILL GUARD FOR LA1055	\$753.00
(1) AIR RIDE SEAT L6026-AIR RIDE SEAT	\$1,070.00
(1) SIDE WINDOW DEFOGGER KIT L8381-SIDE WINDOW DEFOGGER KIT	\$376.00
(1) BOLT ON CUTTING EDGE(73" w/11 Holes) TL1748-BOLT ON CUTTING EDGE(73" w/11 Holes)	\$286.00
(1) REMOTE HYD CONTROL / E36 CAB L8396-REMOTE HYD CONTROL / E36 CAB	\$717.00
(1) 2ND VALVE LEVER KIT L8393-2ND VALVE LEVER KIT	\$387.00
(1) 3RD POSITION LEVER & STACKING KIT L8394-3RD POSITION LEVER & STACKING KIT	\$387.00
(1) REAR WIPER KIT / E36 CAB L8364-REAR WIPER KIT / E36 CAB	\$175.00
(1) REAR DEFOGGER KIT / E36 CAB L8340-REAR DEFOGGER KIT / E36 CAB	\$344.00
(1) 3RD FUNCTION VALVE KIT L2265-3RD FUNCTION VALVE KIT	\$1,130.00
(1) DROP DRAWBAR L6850-DROP DRAWBAR	\$113.00
(1) REAR WORK LIGHT CAB/E30 L8333-REAR WORK LIGHT CAB/E30	\$161.00
(1) FRONT LOADER PACKAGE (LIFT CAPACITY 1,784 LBS) LA1055-FRONT LOADER PACKAGE (LIFT CAPACITY 1,784 LBS)	\$6,514.00
(1) HIGH CAPACITY ALTERNATOR KIT L5534-HIGH CAPACITY ALTERNATOR KIT	\$567.00
(1) 72" TWO-LEVER QUICK ATTACH 4-IN-1 BUCKET L2245-72" TWO-LEVER QUICK ATTACH 4-IN-1 BUCKET	\$2,687.00
(1) FLOAT DETENT VALVE L8309-FLOAT DETENT VALVE	\$369.00
(2) DOUBLE ACTING VALVE L8308-DOUBLE ACTING VALVE	\$588.00
Configured Price:	<u>\$69,785.00</u>
Sourcewell Discount:	(\$15,352.70)
SUBTOTAL:	<u>\$54,432.30</u>
Dealer Assembly:	\$2,073.50
Freight Cost:	\$1,262.50
PDI:	\$400.00
Load Rear Tires with Ballast.	\$400.00
Dealer Prep and Set up.	\$500.00
Hybrid R14 Tire Upgrade	\$1,200.00
Hudson HTMBK-21 Equipment Trailer	\$7,475.00
Kubota BH4982 Mount Kit.	\$709.00
Kubota BH4999 Subframe	\$1,185.00
LTL Shipping Charges for Subframe and Mount Kit for Backhoe Mounting.	\$289.25

Total Unit Price: \$69,926.55

Quantity Ordered: 1

Final Sales Price: \$69,926.55

**Final pricing will be based upon pricing at the time of
 final delivery to Sourcewell members.
 Purchase Order Must Reflect Final Sales Price.**

To order, place your Purchase Order directly with the quoting dealer

***Some series of products are sold out for 2022. All equipment specifications are as complete as possible as of the date on the quote. Additional attachments, options, or accessories may be added (or deleted) at the discounted price.** All specifications and prices are subject to change. Taxes are not included. The PDI fees and freight for attachments and accessories quoted may have additional charges added by the delivering dealer. These charges will be billed separately. Prices for product quoted are good for 60 days from the date shown on the quote. All equipment as quoted is subject to availability.

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198.143.32.10



500 West Big Beaver
Troy, MI 48084
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CITY COUNCIL AGENDA ITEM

Date: February 21, 2023

To: Mark F. Miller, City Manager

From: Robert J. Bruner, Assistant City Manager
Rob Maleszyk, Chief Financial Officer
Dee Ann Irby, Controller
Kurt Bovensiep, Public Works Director
Dennis Trantham, Facilities and Grounds Operations Manager
Emily Frontera, Purchasing Manager

Subject: Standard Purchasing Resolution 4: Oakland County Extended Purchasing Contract – 52-4 District Court Exterior Envelope Repairs

History

- Oakland County has leased space from the City of Troy for many years.
- In 1996, the City of Troy entered into an agreement with Oakland County and allowed for the relocation of the 52-4 District Court from City Hall to its current location at 520 W. Big Beaver.
- The location of the 52-4 District Court was the former Troy Community Center.
- The lease agreement requires that the City keep the facility in good repair.
- The exterior envelope of the facility is in need of repairs to manage water infiltration and energy loss.
- Repairs include but are not limited to:
 - Tuckpointing
 - Flashing details
 - Brick replacement and sealing
 - Replacement of aluminum where needed
 - EFIS Maintenance
- The repairs were identified in the Facilities Condition Assessment and Analysis.

Purchasing

- Pricing to provide the labor, materials, and equipment for the 52-4 District Court Exterior Envelope Repairs has been secured from *National Restoration, of Milford, MI* through the Oakland County Extended Purchasing Contract #006325 as detailed in the attached proposal dated February 7, 2023.
- City Council authorized participation in the Cooperative Purchasing Programs on November 14, 2022 (Resolution # 2022-11-157).

Financial

Funds are budgeted and available in the Building Operations, District Court Capital Fund under Project Number 2023C0113 for the 2023 fiscal year. Expenditures will be charged to account number 401.264.277.7975.145.



500 West Big Beaver
Troy, MI 48084
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CITY COUNCIL AGENDA ITEM

Recommendation

City Management recommends waiving the bid process and awarding a contract to *National Restoration, of Milford, MI* for the 52-4 District Court Exterior Envelope Repairs for an estimated amount of \$60,000 as detailed in the attached proposal per the Oakland County Extended Purchasing Contract #006325; not to exceed budgetary limitations.

NATIONAL RESTORATION INC

2021 RECIPIENT OF THE GOVERNOR'S AWARD FOR HISTORIC PRESERVATION!

2165 Fyke Dr.

Milford, MI 48381

248-318-0609 Fax 248-714-6323

johnf@nationalrestoration.net

February 7, 2023

Its Not Luck, Its know How!

Licensed Builder

Mr. Dennis Trantham

Operations Manager, Facilities and Grounds

City of Troy, MI

500 West Big Beaver Road

Troy, MI 48084

248-524-3503, cell 586-219-7461

Dennis.trantham@troymi.gov

RE: 52-4 2023 Exterior Maintenance

Mr. Trantham,

Per my onsite visit, we are proposing to provide, all material, labor and equipment needed to complete the following items of work.

Scope of Work:

- Mobilize
- Cut out and tuck point approximately 650 sq. ft. of deteriorated mortar joints in various locations, but primarily on the lower west wall and the short masonry wall on the roof level.
- Remove and replace up to 250 individual brick that are deteriorated from the salting of the walks. The new brick will match the existing as close as possible.
- Remove and replace 16 of the landscaping blocks on the top course of the wall. We will need to notch these in lieu of removing the rails and coring the block.
- Remove and replace the existing sealant and backer rod at the perimeter of the windows on the west elevation.
- On the above windows on the west elevation trim the existing gaskets to a flush condition and then install a new cap glazing bead of Dow Corning 795 sealant.
- Prepare and repair any damaged areas in the EIFS on the west elevation of the building.
- Wash down the EIFS and apply two coats of elastomeric coating to the EIFS. The new coating will match the color of the EIFS on the North elevation.
- Jobsite cleanup.
- Cost is not to exceed \$60,000.00. It is to be completed on a time and material basis per our publicly bid annual contract with Oakland County.

Exclusions:

- Cost for permits and inspections.
- Prevailing wages
- Premium time
- Lawn damage

We appreciate the opportunity to quote your work. If you have any questions or concerns, please contact me.

Sincerely,
John Fletcher, President



500 West Big Beaver
Troy, MI 48084
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CITY COUNCIL AGENDA ITEM

Date: February 22, 2023

To: Mark F. Miller, City Manager

From: Robert Bruner, Assistant City Manager
Dee Ann Kirby, Controller
Kurt Bovensiepe, Public Works Director
Zachary Haapala, Streets & Drains Project Manager
Emily Frontera, Purchasing Manager

Subject: Standard Purchasing Resolution: Award to Low Bidders Meeting Specifications – Asphalt Paving Materials – Hot Patch

History

- Hot asphalt material is used in the patching and maintenance of 121 miles of asphalt roads and 222 miles of concrete roads maintained by the City.
- Asphalt Paving Materials – Hot Patch is purchased on an as needed basis throughout the year.
- The current contract expired December 31, 2022.

Purchasing

- On February 16, 2023 a bid opening was conducted as required by the City Charter/Code for one (1) year requirements of Asphalt Paving Materials – Hot Patch with an option to renew for one (1) additional year.
- The bid was posted on the MITN Purchasing Group website; www.bidnetdirect.com/city-of-troy-mi. Ninety-Three (93) vendors were notified via the MITN website. Three (3) bids were received. Below is a detail summary of the vendor responses.

Companies notified via MITN	93
Troy Companies notified via MITN	1
Troy Companies - Active email Notification	1
Troy Companies - Active Free	0
Companies that viewed the bid	9
Troy Companies that viewed the bid	1

MITN provides a resourceful online platform to streamline the procurement process, reduce costs, and make it easier and more transparent for vendors to do business with the City of Troy.

Active MITN members with a current membership and paying annual dues receive automatic electronic notification which allows instant access to Bids, RFPS and Quote opportunities with the City.

Active MITN non-paying members are responsible to monitor and check the MITN website for opportunities to do business with the City.

Inactive MITN member status can occur when a company does not renew their account upon expiration. Inactive members cannot be notified of solicitations or access any bid information.

- The award will include a primary and a secondary supplier in the event the primary supplier is unable to provide material as needed or if the proximity of the supplier is more advantageous for the specific patch job as approved and directed by the Streets and Drains Operations Manager.
- Based upon the bid responses and as per the attached bid tabulation, it is in the City's best interest to award the bid; *low bid as specified* by line item. The award is contingent upon contractors' submission of proper insurance certificates and all other specified requirements.

Financial

Funds are available in the Local and Major Road Funds for the Streets and Drains Division.



500 West Big Beaver
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CITY COUNCIL AGENDA ITEM

Recommendation

City management recommends awarding a one (1) year contract to provide Asphalt Paving Materials – Hot Patch with an option to renew for one (1) additional year to the lowest bidder(s) by line item as detailed below;

Cadillac Asphalt of Shelby Township, MI

Primary supplier for items #1, #2, #3, #4, #5, #6 and #7
Secondary supplier for item #9.

Ajax Materials Corporation of Troy, MI

Secondary supplier for items #1, #2, #3, #6, #7 and #8.

Sealmaster of Michigan/GemSeal of Romulus, MI

Primary supplier for items #8, #9, #10 and #11.

All items will be awarded per the unit prices listed in the bid tabulation opened February 16, 2023; to be ordered on an as needed basis and based on proximity; contracts expiring December 31, 2024.

CITY OF TROY
 BID TABULATION
 ASPHALT PAVING MATERIAL - HOT PATCH

VENDOR NAME:	Cadillac Asphalt, LLC	Ajax Materials Corporation	Sealmaster of Michigan/GemSeal
CITY:	Farmington Hills, MI	Troy, MI	Romulus, MI

PROPOSAL: One-Year Requirements of Asphalt Paving Material - Hot Patch; with an option to renew for one (1) additional year.

Item	Est. Qty	Unit	Description	Unit Price	Total Price	Unit Price	Total Price	Unit Price	Total Price
1.	100	Tons	1100T 36A Wearing	\$76.00	\$7,600.00	\$92.50	\$9,250.00	NO BID	NO BID
2.	300	Tons	1100T 20AA Wearing	\$74.00	\$22,200.00	\$86.50	\$25,950.00		
3.	200	Tons	1100L 20AA Leveling	\$73.00	\$14,600.00	\$85.50	\$17,100.00		
4.	1200	Tons	Commercial Top	\$75.00	\$90,000.00	NO BID			
5.	125	Tons	Commercial Base	\$74.50	\$9,312.50	NO BID			
6.	100	Tons	5E3 Asphalt Mix	\$78.00	\$7,800.00	\$96.75	\$9,675.00		
7.	500	Tons	0"-0.5" Crushed Reclaimed Asphalt Pavement	\$8.00	\$4,000.00	\$10.00	\$5,000.00		
8.	500	Gallon	Bulk Tack Coat	\$7.00	\$3,500.00	\$6.50	\$3,250.00	\$4.45	\$2,225.00
9.	100	Per 5 gal pail	Tack Coat	\$65.00	\$6,500.00	\$67.00	\$6,700.00	\$59.35	\$5,935.00
10.	100	Per 5 gal pail	Biodiesel-Soybean Asphalt Release Agent 5-gallon pail	NO BID		NO BID		\$196.18	\$19,618.00
11.	165	Gallon	Biodiesel-Soybean Asphalt Release Agent 55-gallon drum	NO BID		NO BID		\$1,983.21	\$327,229.65
ESTIMATED TOTAL:				\$165,512.50		\$76,925.00		\$355,007.65	

Hours of Operation:	7AM-3PM	M-F 7:30AM-4:30PM	Monday - Saturday
Notice of Pick up M-F (Hrs):	24 hours	24 hours	7AM-3:30PM
For Saturday (Hrs):	24 hours	Call for availability (248) 388-1687	7AM-11:30PM
Location of Closest Plant (Address & Zip Code):	2040 Barret Dr. Troy MI 48084	2240 Avon Industrial Dr. Rochester Hills, MI 48309	2280 Auburn Rd. Auburn Hills, MI 48326
Distance from Plant to the DPW Yard (Miles):	4.4 miles	6 miles	10.5 miles
References Provided:	Y or N	Y	Y
Insurance Met:	Y or N	Y	Y
Payment Terms:	Net 30	Net 30 days upon receipt	30 days
Warranty:	N/A	N/A	Not Specified
Delivery Time:	7AM-2PM	N/A	Upon PO
Exceptions:	Commercial top is quoted with 5E1; Commercial base is quoted with 13A	None	None
Acknowledgement:	Y or N	Y	
Forms:	Y or N	Y	

Attest:
 (*Bid Opening conducted via a Zoom Meeting)
 Andrew Chambliss
 Zach Haapala
 Heather Chomiak

Emily Frontera
 Purchasing Manager



500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Date: February 20, 2023

To: Mark F. Miller, City Manager

From: Robert J. Bruner, Assistant City Manager
Robert C. Maleszyk, Chief Financial Officer
Dee Ann Irby, Controller
Kurt Bovensiep, Public Works Director
Ashely Tebedo, Administrative Services Manager

Subject: 2023 Specialized Services Operating Assistance Program

History

Community Municipal Credits are funds collected by the Suburban Mobility Authority for Regional Transportation (SMART) through property taxes from communities opting in to regional transportation. A portion of these funds are divided among every city, township and village in Oakland, Wayne and Macomb Counties based on the specialized services it provides. Prior to the city starting the Troy R.Y.D.E (Reach Your Destination Easily) program, Specialized Services funds were distributed directly to Troy MediGo. The Troy R.Y.D.E. program is now eligible to receive this funding as it is operating in accordance with SMART's Community Partnership Program.

Financial

The Specialized Services funding through SMART allows the City of Troy to use an additional \$27,692.00 towards the Troy R.Y.D.E. service. The City of Troy received the same amount in FY2022.

Recommendation

It is recommended that the City enter into a contract for the Specialized Services Operation Assistance Program with SMART for \$27,692.00. These funds are utilized for transportation service for senior citizens and persons with disabilities through the new Troy R.Y.D.E service.

Legal Review

The subject contract or agreement was submitted to the City Attorney and approved with respect to its form and legality pursuant to City Charter Section 12.2 (Contracts).

**SPECIALIZED SERVICES OPERATING ASSISTANCE PROGRAM
THIRD-PARTY CONTRACT, FY23**

THIS AGREEMENT (“Agreement” or “Contract”) is made and entered between the Suburban Mobility Authority for Regional Transportation (hereinafter referred to as “**AUTHORITY**”), whose address is 535 Griswold Suite 600, Detroit, Michigan 48226, and **CITY of TROY** (hereinafter referred to as “**SUBRECIPIENT**”), whose address is **500 W. Big Beaver, Troy, MI 48083**

SECTION 1. - DEFINITIONS

PROGRAM	Means the Michigan Specialized Services Operating Assistance Program designed primarily for seniors and persons with disabilities as defined under Section 10e(4)(c)(i) of Act 51, of the Public Acts of 1951, as amended; MCL 247.660e(4)(c)(i).
DEPARTMENT	Means the Michigan Department of Transportation.
BUREAU	Means the Bureau of Urban and Public Transportation of the Michigan Department of Transportation.
AUTHORITY	Means the Suburban Mobility Authority for Regional Transportation (SMART).
PROJECT	Means the providing of SPECIALIZED SERVICES .
SPECIALIZED SERVICES	Means public transportation services primarily designed for persons with disabilities or who are sixty-five (65) years of age or older.
STATE	Means the State of Michigan.
SUBRECIPIENT	Means CITY of TROY , which will provide the transit services with funds received under this Contract.
APPLICATION	Means the AUTHORITY ’s application, submitted in cooperation with the SUBRECIPIENT , for funding from this PROGRAM for the period from October 1, 2022 to September 30, 2023 .

SECTION 2. - PURPOSE

The purpose of this Contract is to pass through operating assistance funding received from the DEPARTMENT PROGRAM, to the SUBRECIPIENT. The transit services provided shall be as described in the APPLICATION submitted by the SUBRECIPIENT through the AUTHORITY and approved for funding by the DEPARTMENT.

SECTION 3. - FUNDING

The AUTHORITY is only obligated to provide funds under this Contract to the extent that funds for the PROGRAM are made available to it and approved by the DEPARTMENT as outlined in the Contract Authorization provided to us by the DEPARTMENT.

The SUBRECIPIENT is eligible for contract costs in the amount of **\$27,692.00**.

The maximum amount of the AUTHORITY funds to be given the SUBRECIPIENT shall not be increased without a prior written amendment to this Contract. DEPARTMENT funds made available to the AUTHORITY, through legislative appropriation, are based on projected revenue estimates. In the event that revenue actually received is insufficient to support the appropriation, it may necessitate a reduction in the maximum amount of said funds available to the SUBRECIPIENT. In such event, the AUTHORITY reserves the right, without notice, to reduce the maximum obligation of funds for the SUBRECIPIENT by the amount of any reduction by the DEPARTMENT to the AUTHORITY.

SECTION 4. - BUDGET ADJUSTMENTS

Budget adjustments must be requested in writing by the SUBRECIPIENT. Upon receipt of the request, the AUTHORITY shall have thirty-five (35) business days to provide written approval or disapproval of the budget adjustment. If no action is taken within thirty-five (35) working days, the budget adjustment shall be deemed approved. Expenditure of funds in excess of any line-item will not be considered an eligible PROJECT cost. The addition of any new line-item, or any line-item changes which represent a deviation from the PROJECT as described in the APPLICATION, shall require a prior written amendment to this Contract.

SECTION 5. - PROJECT COSTS AND REVENUES

The SUBRECIPIENT shall complete and submit to the AUTHORITY the information required by the DEPARTMENT, on the quarterly reporting form (available online at SMARTbus.org), within ten (10) days after the end of each state of Michigan fiscal year quarter. Failure to provide the quarterly report within thirty (30) days after the end of each state of Michigan fiscal year quarter, may result in a loss of a portion of or all funding. The AUTHORITY reserves the right to withhold payment of PROJECT funds if the SUBRECIPIENT fails to file reports as required in this paragraph.

If the SUBRECIPIENT also receives funding under 1951 P.A. 51, Section 10e(4)(a); MCL 247.660e(4)(a), as amended as its cost allocation plans must be submitted to the BUREAU for

approval. Any PROJECT costs in excess of revenues reported on the quarterly reporting form will **not** be eligible under any other state and federal program administered by the AUTHORITY or the DEPARTMENT.

Section 6. - BILLING, PAYMENTS AND QUARTERLY REPORTS

Notwithstanding the provisions set-forth in Section 3 of this Contract, the AUTHORITY shall provide to the SUBRECIPIENT the STATE funds designated for the eligible project costs incurred in performance of this Contract within ten (10) business days of the receipt of said funds from the DEPARTMENT.

The AUTHORITY may appropriately reduce payments if written reports submitted by the SUBRECIPIENT as required under this section indicate that the level of service described in the APPLICATION has been reduced.

Actual reimbursement shall be based on a rate per mile, or one-way passenger trips of SPECIALIZED SERVICES up to the maximum amount provided for herein.

The actual reimbursement method selected by the SUBRECIPIENT is **\$1.20 per mile**, but subject to change.

Should the per-mile rate method be selected by SUBRECIPIENT, the actual reimbursement may be subject to change, per DEPARTMENT and/or BUREAU reimbursement rate modifications.

SECTION 7. - TERMINATION OR SUSPENSION

For any violation of this Contract or legislative change, the AUTHORITY may, by thirty (30) days written notice, suspend any and all of the rights and obligations under this Contract until such time as the event or condition resulting in such suspension has ceased or been corrected, or the AUTHORITY may, by thirty (30) days written notice to the SUBRECIPIENT, terminate any and all of the rights and obligations under this Contract.

SECTION 8. - ACCOUNTING RECORDS, AUDITS, AND DOCUMENTATION

(a) Establishment and Maintenance of Accounting Records

The SUBRECIPIENT shall maintain books, records, documents, and other accounting records in accordance with generally accepted governmental accounting principles. Said records shall be sufficient to properly reflect all costs of whatever nature claimed to have been incurred or anticipated to be incurred in the performance of the identified PROJECT. To facilitate the administration of the PROJECT, separate records shall be established and maintained. The SUBRECIPIENT shall assure that the records to support the miles traveled and the passengers carried as reported pursuant to Section 6 of this Contract are established and maintained.

(b) Audit

The SUBRECIPIENT shall permit the AUTHORITY and/or the DEPARTMENT or the authorized representatives of the AUTHORITY to audit all data and records relating to the performance of this contract. The SUBRECIPIENT shall retain and allow access to, and require its contractors to retain and allow access to all data and records pertaining to the PROJECT for a period of not less than six (6) years after the final payment by the AUTHORITY pursuant to the Contract.

The period of access, examination, and retention of data and records which relate to litigation or the settlement, of claims arising out of the performance of this Contract, or costs of this Contract as to which exception has been taken by the AUTHORITY or the DEPARTMENT or the authorized representative of the AUTHORITY or the DEPARTMENT, shall continue until such litigation, claims, or exceptions have been disposed of.

(c) Costs Supported by Documentation

PROJECT costs shall be supported by properly executed canceled checks, invoices or vouchers evidencing the nature and propriety of the charges.

(d) Accuracy of Financial Documentation

If a third-party contract is required for rendering of the services herein, then the SUBRECIPIENT is responsible for the accuracy of the financial and non-financial data and reports submitted for reimbursement.

(e) Revenue Expense Guidelines

If the SUBRECIPIENT also receives funding under 1951 P.A. 51, Section 10e(4)(a); MCL 247.660e(4)(a), as amended, determination of PROJECT costs shall be in conformity with the criteria set forth in the DEPARTMENT'S Office of Passenger Transportation's "Local Public Transit Revenue and Expense Manual." All other providers of service shall use the "Specialized Services Manual" (effective October 1, 2015, and any subsequent revisions, amendments and replacements).

SECTION 9. - THIRD-PARTY CONTRACT PROCEDURE

The SUBRECIPIENT shall **not** enter into contracts with third parties for provision of services herein without prior written approval from the AUTHORITY; notice of potential third-party contracts shall be submitted to the AUTHORITY for approval in writing. Approval or denial of said third-party contract will be submitted, in writing, to SUBRECIPIENT by the AUTHORITY. The AUTHORITY shall approve any third-party contracts at its sole discretion.

Approval does not constitute an assumption of liability, a waiver or an estoppel to enforce any of the requirements of this Contract, nor shall any such approval by the AUTHORITY be construed as a warranty of the third-party's qualifications, professional standards, ability to perform the work being subcontracted, or financial integrity.

SECTION 10 - ACCESS

SUBRECIPIENT agrees to provide, and will require its contractors to provide, access by the AUTHORITY and/or the DEPARTMENT to all technical data, reports, documents and work in progress pertaining to the PROJECT. Copies of technical data and reports shall be provided by the SUBRECIPIENT or its contractors to the AUTHORITY upon request.

SECTION 11. - INDEMNIFICATION

Notwithstanding any other provision in this Agreement, SUBRECIPIENT shall indemnify, defend and save harmless AUTHORITY, its officers, agents, employees, and members of its Board of Directors from any and all claims, losses and damages, including costs and attorney fees, occurring or resulting from any act or omission the SUBRECIPIENT or its officers, agents, employees, subcontractors, successors or assigns arising out of and/or pursuant to this Agreement without regard to the negligence of the SUBRECIPIENT.

This Agreement is not intended to alter or increase SMART or SUBRECIPIENT's liability for tort claims, to other third-parties. Nor is this indemnity provision intended to be a third-party beneficiary contract, and therefore it confers no rights or third-party status on anyone other than the parties hereto.

SECTION 12. - ENTIRE AGREEMENT

This Contract, along with any exhibits, addendums, schedules, and amendments hereto, merges and concludes the entire agreement of SUBRECIPIENT and the AUTHORITY. Any previous communications, whether oral or written, are superseded through by this document. The SUBRECIPIENT and AUTHORITY acknowledge, by executing this document that said parties have not relied on any representation, assertion, guarantee, warranty, ancillary contract or other assurance, except those set out in this AGREEMENT. SUBRECIPIENT hereby waives all rights and remedies, at law or in equity, which may arise as the result of said party's reliance on such representation, assertion, guarantee, warranty, ancillary contract or other assurance, provided that no clause herein shall be construed as a restriction or limitation of said party's right to remedies associated with the gross negligence, willful misconduct or fraud of any person or party taking place prior to, or contemporaneously with, the execution of this Agreement.

SECTION 13. - PROHIBITED DISCRIMINATION

The SUBRECIPIENT shall not discriminate against any passenger because of race, color, sex, age, handicap, religion, ancestry, marital status, national origin, place of birth or sexual orientation in accordance with the State of Michigan provisions for "Prohibition of Discrimination in State Contracts", dated August of 1985, which is hereby incorporated by reference.

The SUBRECIPIENT shall not discriminate based upon race, color, creed, national origin, sex, age, disability, height, weight, familial status, marital status, or sexual orientation, in accordance with Civil Rights Act of 1964, being P.L. 88-352, 78 Stat. 241, as amended, being Title 42 U.S.C. Sections 1971, 1975a-1975d, and 2000a-2000h-6, Section 303 of the Age Discrimination Act of

1975, Section 202 of the Americans with Disabilities Act of 1990, 49 U.S.C. Section 5332, the Michigan Elliot-Larsen Civil Rights Act, MCLA 37.2101 et seq., and SMART policy.

The SUBRECIPIENT shall comply with FTA Circular C 9070.1G, as may be amended or updated, with respect to all provisions on Civil Rights and discrimination including, but not limited to, Chapter VIII, §9.

The SUBRECIPIENT shall require similar covenants on the part of any contractor or subcontractor employed in the performance of the PROJECT for which this Contract is made.

SECTION 14. - MBE/WBE

In accordance with 1980 P.A. 278, MCL 423.321 at seq; MCL 445.901 et seq, the SUBRECIPIENT, in the performance of this Agreement, shall not enter into a Contract with a subcontractor, manufacturer, or supplier listed in the register maintained by the STATE, Department of Labor, of employers who have been found in contempt of court by a federal court of appeals, on not less than three (3) occasions involving different violations during the preceding seven (7) years, for failure to correct an unfair labor practice, as prohibited by Section 8 of Chapter 372 of the National Labor Relations Act, 29 U.S.C. 158. The AUTHORITY may void this Contract if the name of the SUBRECIPIENT, or the name of a subcontractor, manufacturer, or supplier utilized by the SUBRECIPIENT in the performance of this Contract subsequently appears in the register during the performance period of this Contract.

SECTION 15. - MISCELLANEOUS PROVISIONS

(a) If any provision of this contract is held invalid, the remainder of this Contract shall not be affected, if any such remainder continues to conform to the provisions and requirements of applicable law.

(b) The SUBRECIPIENT shall commence, carry on, and complete the PROJECT in accordance with all applicable laws. Nothing in this Contract shall require the SUBRECIPIENT to observe, comply, or do any other thing in contravention of any STATE, Local or Federal law.

(c) The SUBRECIPIENT warrants that it has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of SPECIALIZED SERVICES required to be performed under this Contract. The SUBRECIPIENT further warrants that in the performance of this Contract, no person having any such interest shall be employed.

(d) None of the funds, materials, property, or services obtained by the AUTHORITY or the SUBRECIPIENT under this Contract shall be used for any partisan political activity, or to further the election or defeat of any political activity or candidate for public office.

(e) The SUBRECIPIENT shall not assign any interest in this Contract without the prior written approval of the AUTHORITY, however, that compensation due to the SUBRECIPIENT under this Contract may be assigned to a bank, trust company, or other financial institution without such approval. Notice of any such assignment shall be furnished promptly to the AUTHORITY in

writing. Any such assignment does not relieve the SUBRECIPIENT of its obligations under this Contract.

(f) If the SUBRECIPIENT enters into any contracts with other governmental agencies for the purposes of providing SPECIALIZED SERVICES outside of its jurisdictional boundaries, as defined and provided by law, it shall immediately provide the BUREAU with a copy of any contracts and true copies of any resolutions passed by its governing board which relate to the providing of service under such contracts.

SECTION 16. - TERM OF CONTRACT

Upon execution, this Contract shall cover the period commencing **October 1, 2022**, and extending through **September 30, 2023**.

The SUBRECIPIENT agrees to notify the AUTHORITY of any event which may have significant potential impact on PROJECT progress, direction, control or cost.

SECTION 17. - EXECUTION

This Contract shall become binding on the parties hereto upon the execution thereof by the duly authorized official(s) for the SUBRECIPIENT and the AUTHORITY; and upon the adoption of a resolution approving said Contract and authorizing the signatures thereto of the respective official(s) of the SUBRECIPIENT, a certified copy of which resolution shall be attached to this Contract.

The Parties acknowledge and agree that this Agreement may be executed by electronic signature, which shall be considered as an original signature for all purposes and shall have the same force and effect as an original signature. The Parties agree that the electronic signatures appearing on this Agreement are the same as handwritten signatures for the purposes of validity, enforceability and admissibility. Without limitation, "electronic signature" shall include faxed versions of an original signature or electronically scanned and transmitted versions (e.g., via pdf) of an original signature.

THE PARTIES HEREBY ACKNOWLEDGE that they have read and understand this Agreement and that the signatories below have affixed their signatures and affirmed that they are authorized to execute this Agreement, for the purpose of binding their respective Parties.

**SUBURBAN MOBILITY AUTHORITY
FOR REGIONAL TRANSPORTATION**

CITY of TROY

Signature

TIFFANY GUNTER

Printed Name

General Manager/COO

Title

Date

Signature

ETHAN BAKER

Printed Name

Mayor

Title

Date

Signature

M. AILEEN DICKSON

Printed Name

City Clerk

Title

Date

Suburban Mobility Authority For Regional Transportation

EEO COMPLIANCE REPORT A

FY22 COMMUNITY PARTNERSHIP FORM

Agency/Community Information		
Program Type: Community Partnership Program (CPP) <input checked="" type="checkbox"/> Specialized Service <input type="checkbox"/> New Freedom <input type="checkbox"/> JARC <input type="checkbox"/> 5310 <input type="checkbox"/>		
Name of Agency/Community: City of Troy, Troy R.Y.D.E		
Address: 4693 Rochester Road		
City: Troy	State: MI	Zip: 48085
Agency/Community Data		
1) Has your agency/community completed in excess of \$1,000,000 in DOT federally-funded contracts from SMART in the past year? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
2) Does your agency/community employ over fifty (50) transit related employees? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
If the answers to the previous two questions were both "Yes", forward your agency's/community's Affirmative Action plan to the address below: Buhl Building 535 Griswold Street, Suite 600 Detroit, MI 48226 Attn: EEO Coordinator		
Have all subcontractors been informed of their responsibility to file an EEO Compliance Report A form? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>		
Testing Program Requirements		
Does your agency/community have a DOT Drug and Alcohol testing program for Safety-sensitive employees? (Vehicle operators, dispatchers, mechanics and armed security) Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>		
Name of your testing program manager? Human Resources		Contact Number: 248.680.7296

Certification	
How was this information obtained? Visual Survey: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Employment Records: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	
Name of Authorizing Official: Ashely Tebedo	Title: Administrative Services Manager
Signature:	Date: March 17, 2022
Contact Person for report: Ashely Tebedo	Title: Administrative Services Manager
Telephone: 248.524.1754 Ext:	Email: Ashely.Tebedo@troymi.gov

Suburban Mobility Authority For Regional Transportation

EEO COMPLIANCE REPORT A

FY22 COMMUNITY PARTNERSHIP FORM

Employment Data																				
Report all Transit related permanent, temporary, or part-time employees including apprentices and on-the-job trainees. Enter the appropriate figures in the boxes below relating to an employee's race and gender.																				
Job Classification	Total				Race															
					Non Minority		Minority													
	White		African American		Hispanic		Asian		Pacific Islander		American Indian		Multi Race							
	Employees	Male	Female	Minority	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female		
Officials/Manager	2	1	1		1	1														
Professionals																				
Technicians																				
Sales Workers																				
Office and Clerical Staff	2		2			2														
Craftsmen (Skilled)																				
Operators (Semi-Skilled)	13	2	11		7	2	2												2	
Laborers (Unskilled)																				
Service Workers																				
Journey Workers																				
Apprentices																				
Total	17																			



500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Date: February 14, 2023

To: Mark F. Miller, City Manager

From: Robert J. Bruner, Assistant City Manager
M. Aileen Dickson, City Clerk

Subject: Request for Recognition as a Nonprofit Organization from REACH Homeschool

History

Attached is a request from REACH Homeschool seeking recognition as a nonprofit organization for the purpose of obtaining a charitable gaming license for fundraising purposes.

Financial

There are no financial considerations associated with this item.

Recommendation

It has been City Management's practice to support the approval of such requests.

REACH Homeschool

2023 JAN - 8 AM 10:56

January 26, 2023

Mayor Ethan Baker and City Council
City of Troy
500 West Big Beaver
Troy, MI 48084

Dear Mayor Baker and Honorable Council Members,

REACH Homeschool, a registered 501(c)3 organization, is requesting your assistance in obtaining multiple licenses for fundraising. REACH Homeschool is a program that provides opportunities to homeschooled youth of all ages to participate in organized theatrical productions. REACH is a volunteer led organization, and we have recently moved our productions to the Flagstar Strand Theatre in Pontiac. This has significantly increased our need for fundraising.

We are planning several fundraisers, and we need three different licenses.

1. Charitable Gaming License from the Charitable Gaming Division for basket raffles and 50/50 raffles - this requires a local governing body resolution (form enclosed)
2. Charitable Gaming License from the Michigan Gaming Control Board for Millionaire Parties - this requires a local governing body resolution (form enclosed)
3. City of Troy Solicitor's License for the time span of March 3, 2023 - May 31, 2023 (forms enclosed)

We appreciate your assistance in these matters.

Sincerely yours,



Robin LaRoy

REACH Board Member



CITY OF TROY

SOLICITATION – FUND RAISING

Date Received: _____

File the following information with the City Clerk's Office at least 21 days prior to the time when the permit is desired. TIME SPAN FOR PERMIT IS NOT TO EXCEED NINETY (90) DAYS.

Name of Organization:

REACH Homeschool

Phone: _____

Local Address:

1700 W Big Beaver, Ste 220

City/Zip:

Troy / 48084

Home Address (if different): _____

City/Zip: _____

Name of Parent Organization: _____

Address: _____

Local Representative/Officers:

Name	Title	Phone
<u>Gwen Adomaitis</u>	<u>Board Member</u>	_____
<u>Robin LaRoy</u>	<u>Board Member</u>	_____

Person in Charge of Solicitations: Gwen Adomaitis

How are funds solicited: in person, social media, electronic communication

Locations/Dates/Times:

Locations	Dates	Times
<u>Flagstar Strand Theatre, Pontiac</u>	<u>March 3 - May 31, 2023</u>	
<u>St. Philip's Episcopal, Rochester</u>	<u>March 3 - May 31, 2023</u>	

To what purpose will you put these funds: theatre production

What is the requested amount for contribution: \$10 - \$25



Charitable Gaming Division
 Box 30023, Lansing, MI 48909
 OVERNIGHT DELIVERY:
 101 E. Hillsdale, Lansing MI 48933
 (517) 335-5780
 www.michigan.gov/cg

LOCAL GOVERNING BODY RESOLUTION FOR CHARITABLE GAMING LICENSES
 (Required by MCL.432.103(K)(ii))

At a _____ meeting of the _____
REGULAR OR SPECIAL TOWNSHIP, CITY, OR VILLAGE COUNCIL/BOARD

called to order by _____ on _____
DATE

at _____ a.m./p.m. the following resolution was offered:
TIME

Moved by _____ and supported by _____

that the request from _____ of _____,
NAME OF ORGANIZATION CITY

county of _____, asking that they be recognized as a
COUNTY NAME

nonprofit organization operating in the community for the purpose of obtaining charitable

gaming licenses, be considered for _____.
APPROVAL/DISAPPROVAL

APPROVAL

DISAPPROVAL

Yeas: _____

Yeas: _____

Nays: _____

Nays: _____

Absent: _____

Absent: _____

I hereby certify that the foregoing is a true and complete copy of a resolution offered and

adopted by the _____ at a _____
TOWNSHIP, CITY, OR VILLAGE COUNCIL/BOARD REGULAR OR SPECIAL

meeting held on _____
DATE

SIGNED: _____
TOWNSHIP, CITY, OR VILLAGE CLERK

PRINTED NAME AND TITLE

ADDRESS

COMPLETION: Required.
 PENALTY: Possible denial of application.



State of Michigan
 Michigan Gaming Control Board
 Millionaire Party Licensing
 3062 W. Grand Blvd, Suite L-700
 Detroit, MI 48202-6062
 Phone: (313) 456-4940
 Fax: (313) 456-3405
 Email: Millionaireparty@michigan.gov
 www.michigan.gov/mgcb

LOCAL GOVERNING BODY RESOLUTION FOR CHARITABLE GAMING LICENSES
 (Required by MCL.432.103(k)(ii))

At a _____ meeting of the _____
REGULAR OR SPECIAL TOWNSHIP, CITY, OR VILLAGE COUNCIL/BOARD

called to order by _____ on _____
DATE

at _____ a.m./p.m. the following resolution was offered:
TIME

Moved by _____ and supported by _____

that the request from _____ of _____,
NAME OF ORGANIZATION CITY

county of _____, asking that they be recognized as a nonprofit
COUNTY

organization operating in the community, for the purpose of obtaining charitable gaming licenses, be
 considered for _____
APPROVAL/DISAPPROVAL

<u>APPROVAL:</u>	Yeas: _____	<u>DISAPPROVAL:</u>	Yeas: _____
	Nays: _____		Nays: _____
	Absent: _____		Absent: _____

I hereby certify that the foregoing is a true and complete copy of a resolution offered and adopted
 by the _____ at a _____
TOWNSHIP, CITY, OR VILLAGE COUNCIL/BOARD REGULAR OR SPECIAL
 meeting held on _____
DATE

SIGNED: _____
TOWNSHIP, CITY, OR VILLAGE CLERK

PRINTED NAME AND TITLE

ADDRESS

Organization Information: _____
ORGANIZATION'S MAILING ADDRESS, STREET, CITY, ZIP
 _____ () _____
ORGANIZATION'S PRINCIPAL OFFICER NAME AND TITLE PHONE NUMBER

INTERNAL REVENUE SERVICE
P. O. BOX 2508
CINCINNATI, OH 45201

DEPARTMENT OF THE TREASURY

Date: **NOV 17 2016**

REACH HOMESCHOOL
40700 WOODWARD STE 302
BLOOMFIELD HILLS, MI 48304-0000

Employer Identification Number:
20-2500048
DLN:
26053707001606
Contact Person:
CUSTOMER SERVICE ID# 31954
Contact Telephone Number:
(877) 829-5500
Accounting Period Ending:
July 31
Public Charity Status:
509(a)(2)
Form 990/990-EZ/990-N Required:
Yes
Effective Date of Exemption:
December 15, 2010
Contribution Deductibility:
Yes
Addendum Applies:
Yes

Dear Applicant:

We're pleased to tell you we determined you're exempt from federal income tax under Internal Revenue Code (IRC) Section 501(c)(3). Donors can deduct contributions they make to you under IRC Section 170. You're also qualified to receive tax deductible bequests, devises, transfers or gifts under Section 2055, 2106, or 2522. This letter could help resolve questions on your exempt status. Please keep it for your records.

Organizations exempt under IRC Section 501(c)(3) are further classified as either public charities or private foundations. We determined you're a public charity under the IRC Section listed at the top of this letter.

Based on the information you submitted on your application, we approved your request for retroactive reinstatement under Section 4 of Revenue Procedure 2014-11. Your effective date of exemption, as listed at the top of this letter, is retroactive to your date of revocation.

If we indicated at the top of this letter that you're required to file Form 990/990-EZ/990-N, our records show you're required to file an annual information return (Form 990 or Form 990-EZ) or electronic notice (Form 990-N, the e-Postcard). If you don't file a required return or notice for three consecutive years, your exempt status will be automatically revoked.

If we indicated at the top of this letter that an addendum applies, the enclosed addendum is an integral part of this letter.

For important information about your responsibilities as a tax-exempt organization, go to www.irs.gov/charities. Enter "4221-PC" in the search bar

Letter 5436

REACH HOMESCHOOL

to view Publication 4221-PC, Compliance Guide for 501(c)(3) Public Charities, which describes your recordkeeping, reporting, and disclosure requirements.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeffrey I. Cooper". The signature is stylized and cursive.

Jeffrey I. Cooper
Director, Exempt Organizations
Rulings and Agreements

Enclosure:
Addendum

REACH HOMESCHOOL

ADDENDUM

If you have been in existence for at least three years and you have not filed a Form 990 return or notice for three consecutive years, you may soon receive a letter (Notice CP120A) that we automatically revoked your exempt status, as required by law, for failure to file a return or notice for three consecutive years. This letter will serve to reinstate your exempt status, so you will not need to re-apply. However, you may need to file the appropriate delinquent Forms 990 for all years you have operated as a tax-exempt organization.

Rege 1-26-23

REACH Homeschool By-Laws

Article 1 – Name, Purpose, Location

Section 1 – The name of this organization shall be REACH Homeschool.

Section 2 – REACH Homeschool is organized exclusively for educational purposes under section 501(c)(3) of the Internal Revenue Code. The mission of REACH Homeschool is to provide educational opportunities and community for homeschoolers and their families, inclusive of all educational philosophies.

Section 3 – The principle office location of REACH Homeschool shall be located in Oakland County in the State of MI. The organization may have any number of offices at such places as the Board may determine.

Article 2 - Membership

Section 1 – The qualification for membership in this organization are: 1 member per family, 18 years or older, -and payment of any fee established by the Board.

Section 2 - Membership to the organization is fee-based, requiring dues

Section 3 – Members of the organization shall have the right to one vote on matters submitted to a vote at the discretion of the Board of Directors. Timely payment as set by Board is necessary to having voting privileges. Voting privileges will be suspended for 1 semester and until payments are current if not compliant.

Article 3 – Meetings

Section 1 – The date of the regular annual meeting shall be determined by the Board of Directors who will also set the time and place.

Section 2 – Special meetings may be called by any Board member.

Section 3 – Notice of all meetings of which a membership vote has been called for by the Board shall be provided to each voting member, posted electronically, at least 1 week prior to the meeting.

Article 4 – Board of Directors

Section 1 – The business of the organization shall be managed by a Board of directors comprised of at least 3 and no more than 7 Board members at the discretion of the Board. The Board is responsible for maintaining the overall policy and direction of the organization. The Board shall delegate responsibility of day-to-day operations to the Executive Director and appropriate committees. Board members shall receive no compensation (other than reasonable expenses) for their service on the Board.

Section 2 – The Board shall meet at least 2 times per year at an agreed upon time and location. Board members shall not miss more than 1 meeting(s) per year unless previously excused by the majority of the Board.

Section 3 – All Board members shall serve for 2 year terms (staggered terms are optional) and can be eligible for re-election indefinitely.

Section 4 – Any Board member may be removed from office without assigning any cause by the vote of the board at any meeting of the Board. However, removal of any Board member must be approved by a majority of the Board.

Section 5 – Any Board member may resign at any time by giving notice to the organization.

Section 6 – In the event of a vacancy on the Board (including situations where the number of Board members has been deemed necessary to increase), the Board members shall fill the vacancy.

Section 7 – A quorum must be attended by at least 51 percent of the Board members before business can be transacted or motions made or passed.

Article 5 – Officers

Section 1 – The officers of the organization shall be President, Secretary, and Treasure. The Board of Directors shall appoint each of these officers. The Board may also appoint other officers it deems necessary.

Section 2 – The Board of Directors shall appoint officers for a term established by the Board.

Section 3 – Any officer may be removed from office without assigning any cause by the vote of the board at any meeting of the board by a majority of the Board.

Section 4 – Officers of the Board will not be compensated via salary for their service as an officer of the Board.

Section 5 – President

The President shall convene regularly scheduled Board meetings and shall preside or arrange for another Board member to preside at each meeting. The Board appoints Committee Chairs.

Section 6 – Secretary

The Secretary shall be responsible for keeping records of Board actions, including overseeing the taking of minutes at all Board meetings, sending out meeting announcements, distributing copies of minutes and the agenda to each Board member, and assuring that corporate records are maintained, or arrange for another director to fulfill these obligations.

Section 7 – Treasurer

The Treasurer shall make a report at each Board meeting as necessary. The Treasurer shall assist in the preparation of the budget, help develop fundraising plans, and make financial information available to Board members and the public as required by law or arrange for another director to fulfill these obligations.

Article 6 – Committees

Section 1 – The Board may create committees as needed, including, but not limited to, fundraising, public relations, and program committees. The Board shall appoint all committee chairs.

Article 7 - IRC 501(c)3 Tax Exemption Provisions

- a. Upon the dissolution of REACH Homeschool, assets shall be distributed for one or more exempt purposes within the meaning of section 501(c)(3) of the Internal Revenue Code, or corresponding section of any future federal tax code, or shall be distributed to the federal government, or to a state or local government, for public purpose. Personal property with a diminutive value may be distributed at the discretion of the Board.
- b. REACH Homeschool is organized exclusively for charitable, religious, educational, and/or scientific purposes under section 501(c)(3) of the Internal Revenue Code. No part of the net earnings of REACH Homeschool shall inure to the benefit of, or be distributable to its members, trustees, officers, or other private persons, except that the organization shall be authorized and empowered to pay reasonable compensation for services rendered and to make payments and distributions in furtherance of the purposes set forth in the purpose clause hereof.
- c. No substantial part of the activities of REACH Homeschool shall be the carrying on of propaganda, or otherwise attempting to influence legislation, and the organization shall not participate in, or intervene in (including the publishing or distribution of statements) any political campaign on behalf of any candidate for public office.
- d. Notwithstanding any other provision of this document, the organization shall not carry on any other activities not permitted to be carried on (a) by an organization exempt from federal income tax under section 501(c)(3) of the Internal Revenue Code, or corresponding section of any future federal tax code, or (b) by an organization, contributions to which are deductible under section 170(c)(2) of the Internal Revenue Code, or corresponding section of any future federal tax code.

Article 8 – Amendments

Section 1 – These by-laws may be amended when deemed necessary by a 2/3 majority vote of the Board of Directors. Proposed amendments must be submitted to Secretary and sent along with regular Board meeting notices.



500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

Date: February 20, 2023

To: Mark F. Miller, City Manager

From: Robert J. Bruner, Assistant City Manager
R. Brent Savidant, Community Development Director

Subject: ANNOUNCEMENT OF PUBLIC HEARING (March 13, 2023) – LONG LAKE AND CROOKS PLANNED UNIT DEVELOPMENT (File Number PUD2020-0018) – Revised Concept Development Plan, Northwest corner of Long Lake and Crooks, Section 8, Currently Zoned O Office.

The applicant Gensler submitted a Concept Development Plan (CDP) application for a Planned Unit Development (PUD) for the subject property. The site is currently vacant and is 24.88 acres in size. The applicant proposes a mixed-use project comprised of residential, office, lodging, restaurants, parking deck, and a range of outdoor amenities.

A PUD is a development option that provides flexibility in the design and use of mixed-use projects. It is a multi-step process. The first step in the process is the CDP. For this step, the applicant seeks the following: (1) Approval of the overall concept; (2) Approval of the PUD Agreement; and, (3) Rezoning of the parcel to PUD. The next step in the process will be the Preliminary Development Plan (PDP). During the PDP step, detailed site plans are submitted for each phase of the project. For this project, we can expect numerous PDP's to be submitted over several years. The Planning Commission is a recommending body for PUD's; City Council is responsible for approving the CDP and PDP.

The Planning Commission considered this application at numerous meetings and the concept has evolved based on discussion and feedback. A comparison of the original concept and revised concepts is summarized in the attached report.

The Planning Commission considered this application at a public meeting on January 24, 2023 and recommended approval of the PUD by a 9-0 vote. A City Council public hearing has been scheduled for March 13, 2023.

Legal Review

This item was submitted to the City Attorney for review pursuant to City Charter Section 3.17.



500 West Big Beaver
Troy, MI 48084
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CITY COUNCIL AGENDA ITEM

Attachments:

1. Maps.
2. Report prepared by Carlisle/Wortman Associates, Inc.
3. Concept Development Plan with attachments.
4. PUD Agreement (draft).
5. Minutes from January 12, 2021 Planning Commission Regular meeting (excerpt).
6. Minutes from February 8, 2022 Planning Commission Regular meeting (excerpt).
7. Minutes from August 9, 2022 Planning Commission Regular meeting (excerpt).
8. Minutes from September 27, 2022 Planning Commission Regular meeting (excerpt).
9. Minutes from January 24, 2023 Planning Commission Regular meeting (excerpt).
10. Public comment.

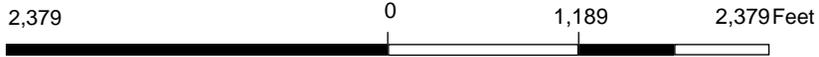
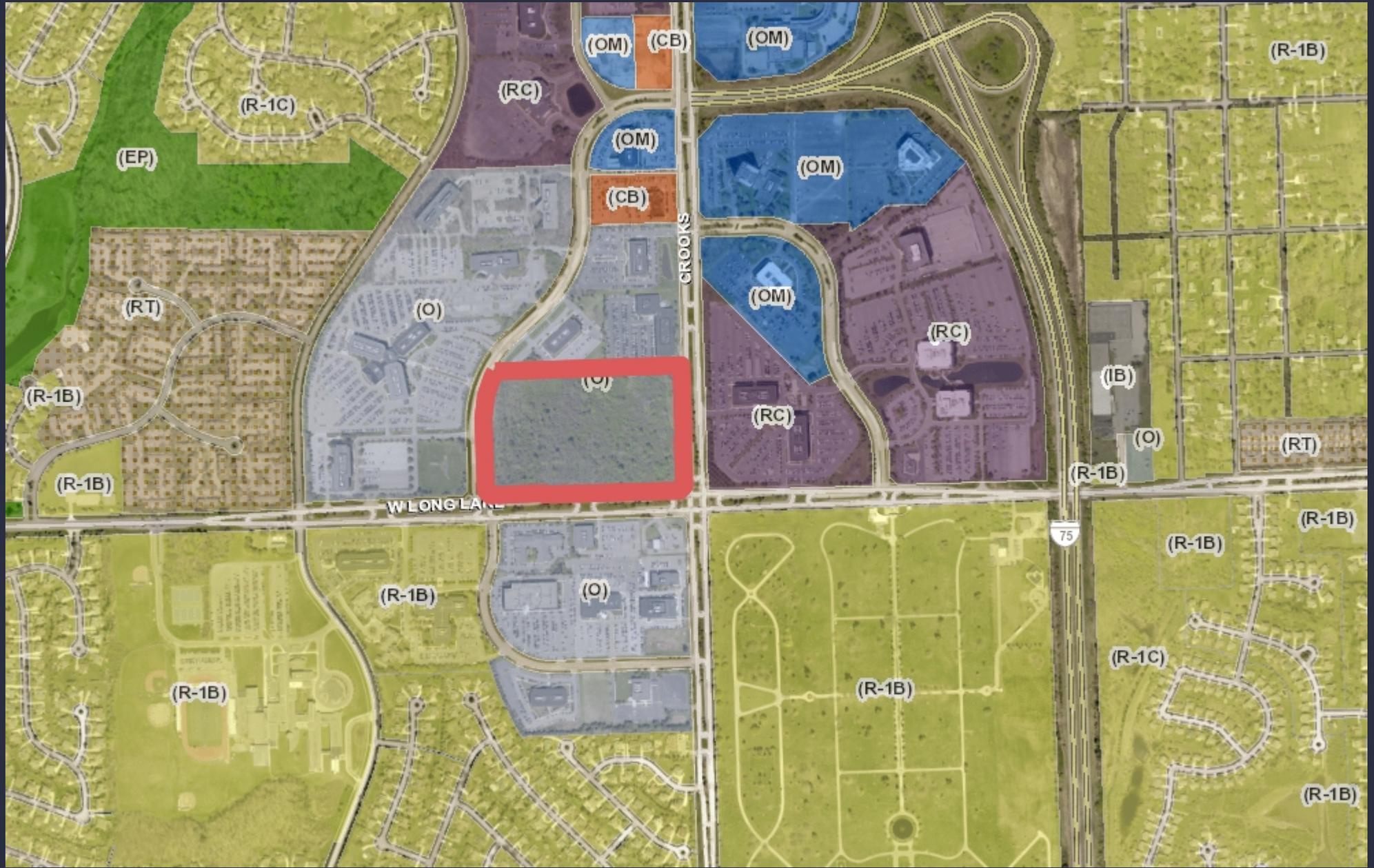
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Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.



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Carlisle | Wortman

ASSOCIATES, INC.

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

Date: January 16, 2023

Planned Unit Development Concept Review For City of Troy, Michigan

Project Name:	Long Lake and Crooks Planned Unit Development
Plan Date:	November 2022
Location:	Northwest Corner of Long Lake and Crooks
Current Zoning:	O, Office
Proposed Zoning:	Planned Unit Development (PUD)
Action Requested:	Planned Unit Development (PUD) Concept Plan Approval

PROJECT AND SITE DESCRIPTION

A Planned Unit Development (PUD) application has been submitted to the City for the development of a mixed-use development at the northwest corner of Long Lake Road and Crooks Road. The 24-acre site is currently vacant with significant tree cover and wetlands.

Proposed Development

Though conceptual and subject to change, the applicant is proposing the following mix of uses:

1. Four to ten-story office complexes in two buildings
2. Parking – surface and deck
3. Three to seven-story residential apartment building
4. Three to seven-story hotel/residential building
5. Three restaurant/retail buildings

6. Wetland preservation
7. Site amenities: Outdoor activity areas, pedestrian amenities, natural feature preservation, and programed outdoor space



Location of Subject Property:

Northwest Corner of Long Lake and Crooks

Proposed Use of Subject Parcel:

Mixed Use Development

Current Zoning:

O, Office

Proposed Zoning:

Planned Unit Development (PUD)

Surrounding Property Details

Direction	Zoning	Use
North	O, Office	Office
South	O, Office	Office/Commercial
East	RC, Research Center	Office
West	O, Office	Office

PUD PROCESS

A Planned Unit Development project is viewed as an integrated development concept. To that end, the provisions of this Article are not intended to be used as a device for avoiding the zoning requirements that would otherwise apply, but rather to allow flexibility and mixture of uses, and to improve the design, character and quality of new development. The use of a Planned Unit Development to permit variations from other requirements of this Ordinance shall only be approved when such approval results in improvements to the public health, safety and welfare in the area affected, and in accordance with the intent of this Article.

The approval of a Planned Unit Development (PUD) is a three-step process:

Step 1-Concept Plan: *The first step shall be application for and approval of a Concept Development Plan, which requires a legislative enactment amending the zoning district map so as to reclassify the property as a Planned Unit Development. A proposed Development Agreement shall be included and incorporated with the Concept Development Plan, to be agreed upon and approved coincident with said Plan. The Concept Development Plan and Development Agreement shall be approved by the City Council following the recommendation of the Planning Commission. Such action, if and when approved, shall confer upon the applicant approval of the Concept Development Plan and shall rezone the property to PUD in accordance with the terms and conditions of the Concept Development Plan approval.*

Step 2- Preliminary Development Plan Approval: *The second step of the review and approval process shall be the application for and approval of a Preliminary Development Plan (preliminary site plan) for the entire project, or for any one or more phases of the project. City Council shall have the final authority to approve and grant Preliminary Development Plan approvals, following a recommendation by the Planning Commission.*

Step 3- Final Development Plan Approval: *The third step of the review and approval process shall be the review and approval of a Final Development Plan (final site plan) for the entire project, or for any one or more phases of the project, and the issuance of building permits. Final Development Plans for Planned Unit Developments shall be submitted to the Zoning Administrator for administrative review, and the Zoning Administrator, with the recommendation of other appropriate City Departments, shall have final authority for approval of such Final Development Plans.*

The applicant is seeking a recommendation of approval for their Concept Plan.

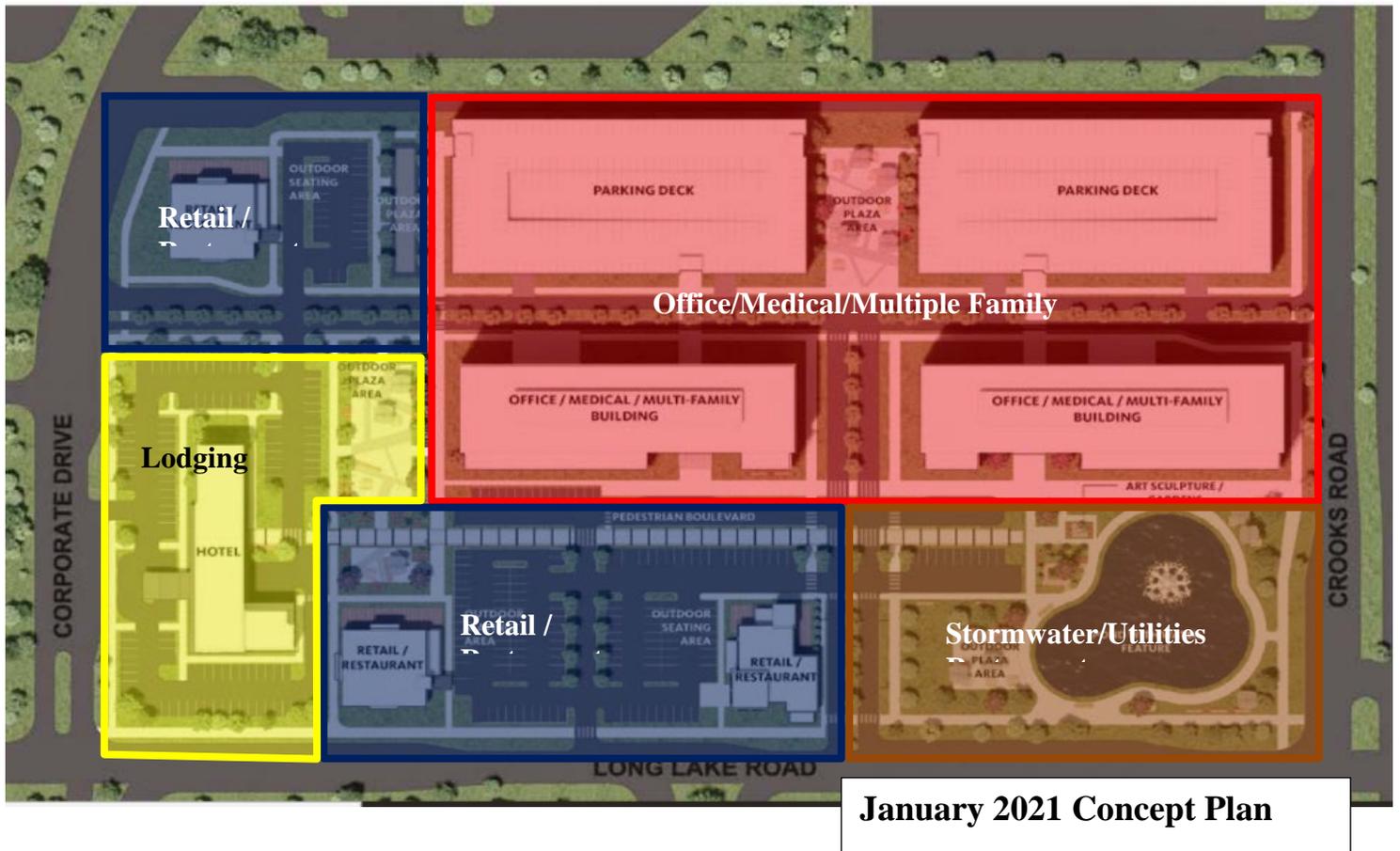
PUD INTENT

As set forth in Section 11.01, the intent of the Planned Unit Development option is to permit flexibility in the design and use of residential and non-residential land which, through the implementation of an overall development plan, when applicable to the site, will:

1. Encourage developments that will result in a long-term contribution to social, environmental and economic sustainability in the City of Troy.
2. Permit development patterns that respond to changing public and private needs.
3. Encourage flexibility in design and use that will result in a higher quality of development and a better overall project than would be accomplished under conventional zoning, and which can be accommodated without sacrificing established community values.
4. Provide for the long-term protection and/or preservation of natural resources, natural features, and/or historic and cultural resources.
5. Promote the efficient use and conservation of energy.
6. Encourage the use, redevelopment and improvement of existing sites where current ordinances do not provide adequate protection and safeguards for the site or its surrounding areas, or where current ordinances do not provide the flexibility to consider redevelopment, replacement, or adaptive re-use of existing structures and sites.
7. Provide for enhanced housing, employment, recreation, and shopping opportunities for the citizens of Troy.
8. Ensure the compatibility of design and use between various components within the PUD and with neighboring properties and uses.
9. Ensure development that is consistent with the intent of the Master Plan.

PREVIOUS CONCEPT PLANS

The design concept has evolved from January 2021 to January 2023.



At the January 2021 meeting, the Planning Commission discussed the following:

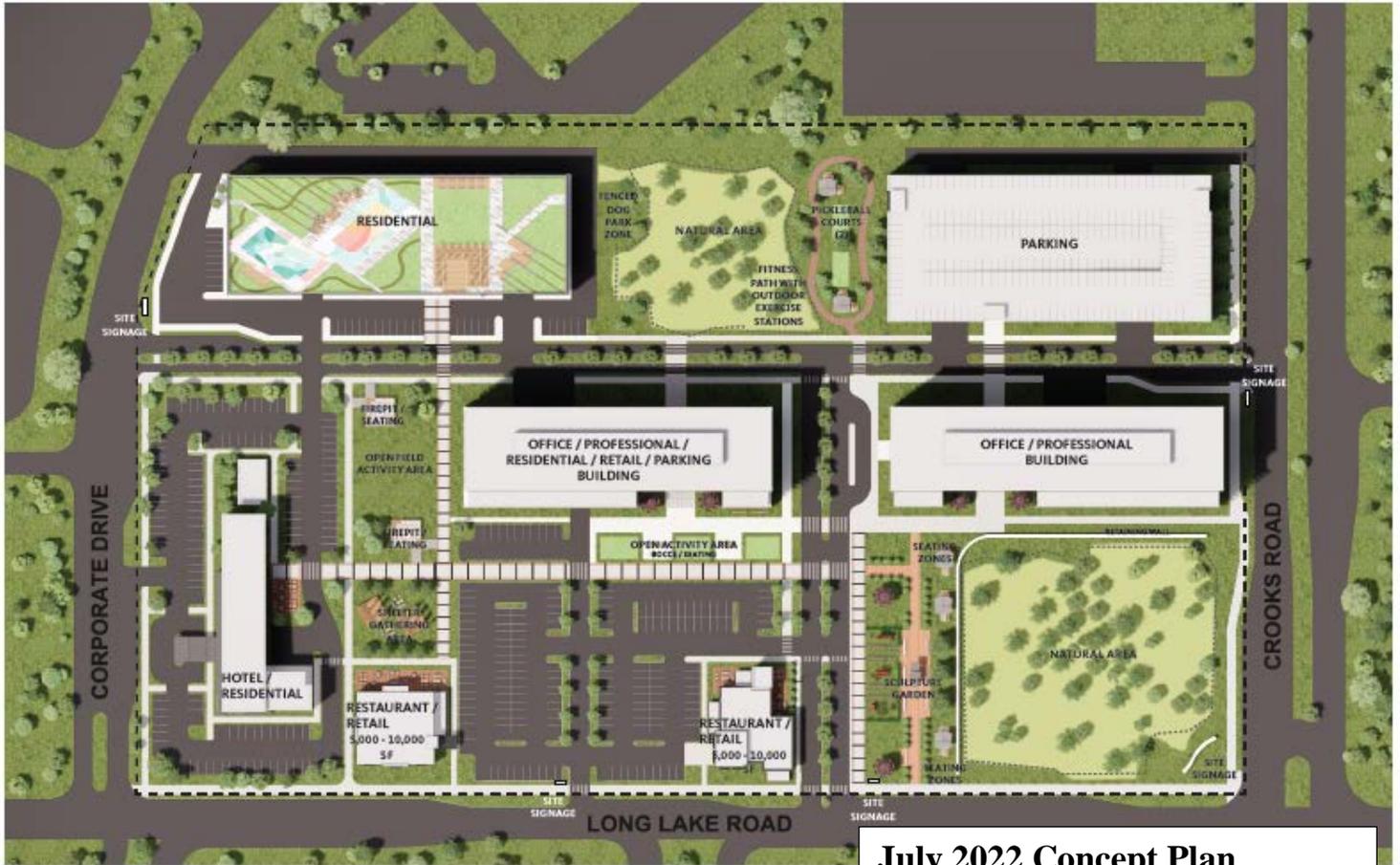
- More integration of mix of uses
- More activation of uses along Long Lake Road
- Water feature; location, focal point, community attraction.
- Residential key component; multi-family, live/work
- Density and massing of project; building height
- Preservation of existing green space
- Applicant request for flexibility as relates to market demand and City vision
- Viability of office space and hotel
- Outdoor activities and attractions to engage residents and community
- Destination point for family and community gatherings
- Parking; expand parking structure, reduce surface parking, charging stations for electric vehicles
- Limited available land in City for development of this size
- Potential to attract large office headquarters



February 2022 Concept Plan

At the February 2022 meeting, the Planning Commission discussed the following:

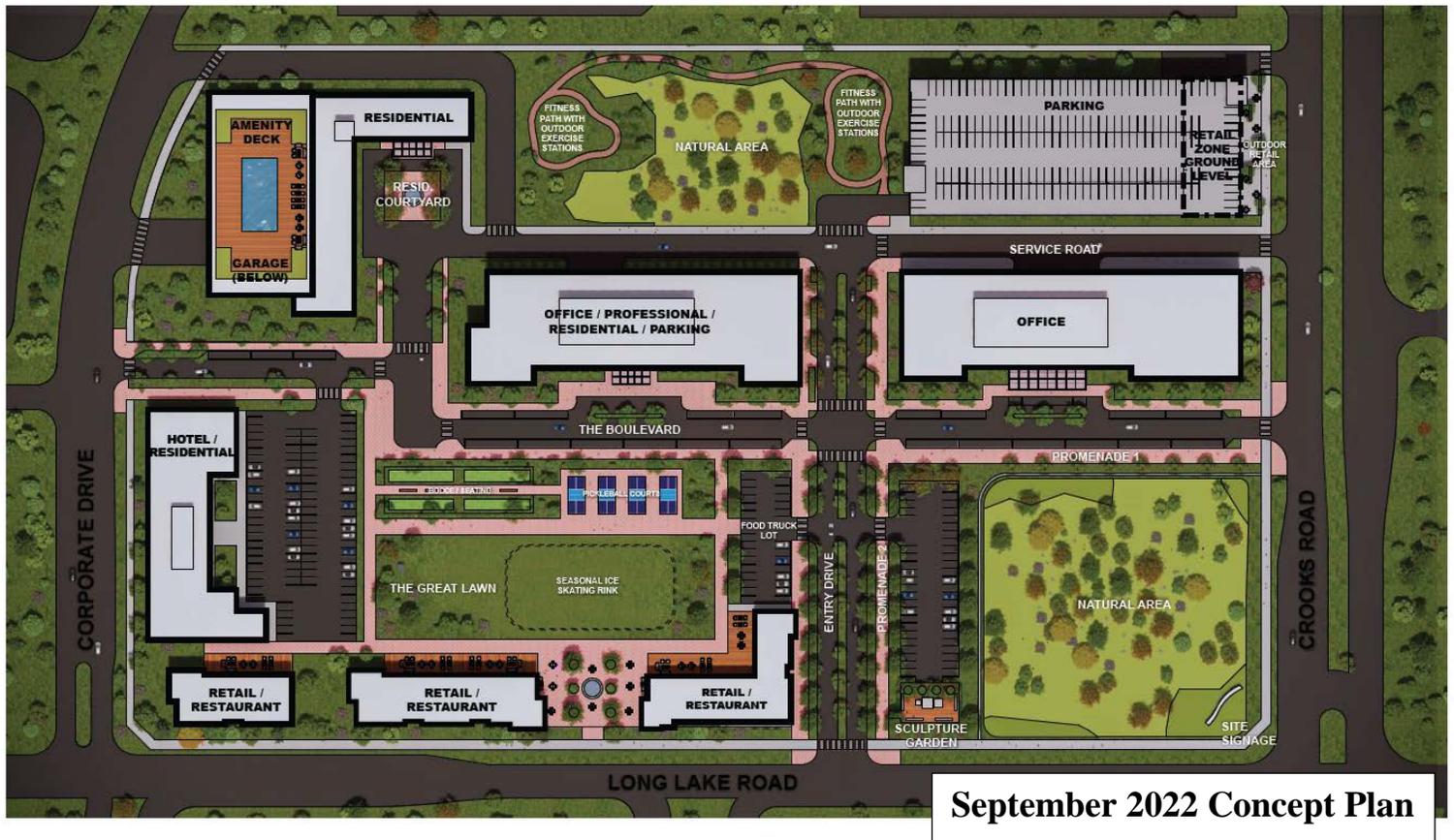
- Create a destination point to attract people from within the complex and throughout the City
- Integrate a plaza, pedestrian path, promenade, village-like characteristics
- Reduce surface parking
- Provide more walkability
- Centrally relocate parking deck
- Reconfigure placement of buildings to connect to public amenity space
- Expand and centrally relocate public amenity space
- Be bold and creative with expanse of property
- Provide a visual illustration of project, such as a three-dimensional model



July 2022 Concept Plan

At the July 2022 meeting, the Planning Commission discussed the following:

- Flexibility in terms of what gets built, timing and location as proposed by applicant
- Significance in determining appropriate uses and building heights
- Gateway to North Troy and wayfinding signage
- PUD Development Agreement
- Urban Residential (UR) zoning district; high density residential district in line with Master Plan
- Preservation of State-regulated wetlands
- Tree survey and mitigation; determined at each development phase, must meet site plan requirements
- Green space/open space must be generally consistent with approved concept plan; what, where, size, whether for public use determined at each development phase and must meet site plan requirements
- Housing types must be generally consistent with approved concept plan and must meet site plan requirements



At the September 2022 meeting, the Planning Commission discussed the following:

- Prepare a brochure/pamphlet to illustrate the community gathering space
- Food trucks; parking, competition with on-site restaurants
- Seasonal gathering space; functionality
- Add gardens, play structure
- Location of pickleball courts and outdoor exercise stations
- Parking
 - Applicant advised boulevard offers on-street parallel parking.
 - Parking deck and office tower; levels of parking.
 - Shared parking.
 - Review of parking at each development phase.
- Retail/restaurant buildings; facilitation of loading/unloading and waste management.
- Provide a 'grand' and 'eye-catching' entrance to development
- Hub for public transportation

CONCEPT PLAN- JANUARY 2023



January 2023 Concept Plan

After the September 2022 Planning Commission review, the applicant resubmitted a revised concept plan. Major changes since last Planning Commission review:

- Added trees to the “Great Lawn”
- Added internal pedestrian cross walks
- Added food truck staging area in “promenade”
- Converted “fitness center” in north natural area to “dog park”
- Added pedestrian area around retail/restaurant area that fronts on Long Lake Road
- Reconfigured parking around retail/restaurant area
- Removed parking from natural area that is located at southeast corner of site

DEVELOPMENT AREAS, and AMENITY AREAS

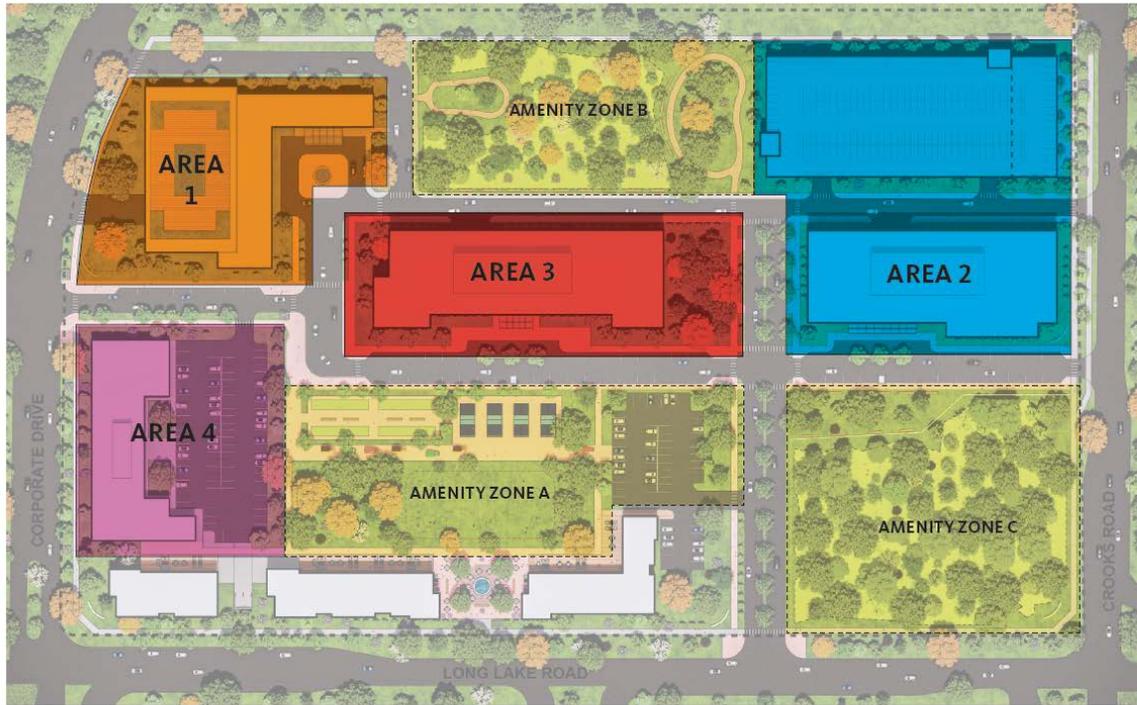
The applicant is proposing four (4) separate development areas and associated amenities areas. The numbering of the development areas is not reflective of the phasing as the applicant seeks flexibility on phasing based on market conditions.

Development Areas

The applicant has outlined the use parameters of the development areas in Section 2.2 (page 3) of the PUD Agreement:

- *Development Area 1: Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the UR – Urban Residential District and all associated surface parking.*
- *Development Area 2: Office uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the OM - Office Mixed Use District, the O – Office District, or the GB-General Business District, as referenced in the Zoning Ordinance, and a multistory parking structure and surface parking features.*
- *Development Area 3: Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent such uses in the UR – Urban Residential District as referenced in the Zoning Ordinance and all associated surface parking; Office uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the OM – Office Mixed Use District, the O - Office District, or the GB-General Business District, as referenced in the Zoning Ordinance; "Restaurant" and/or "Retail Business or Retail Sales" uses as defined by the Zoning Ordinance; Conference, meeting, and banquet facility uses permitted as of right or requiring special approval, and their accessory uses consistent with such uses the GB – General Business District in the Zoning Ordinance; and, all associated surface parking.*
- *Development Area 4: Lodging or extended stay facility uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the GB – General Business District identified in the Zoning Ordinance; and, Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent such uses in the UR – Urban Residential District as referenced in the Zoning Ordinance and all associated surface parking.*
- *Restaurant/Retail Areas: "Restaurant" and/ or "Retail Business or Retail Sales" uses as defined by the Zoning Ordinance, and their accessory uses, and all associated surface parking. At the discretion of the Developer, any or all of the Restaurant/Retail Areas) may be: (i) constructed at any time without being part of any Phase after the Developer has commenced construction of the first Phase; or, (ii) constructed at any time as part of any Phase.*

CONCEPT DEVELOPMENT PLAN - DEVELOPMENT AREAS



Long Lake & Crooks Concept Development Plan

November 28, 2022 A-6

Amenity Areas

The applicant has outlined the use parameters of the amenity areas in Section 2.2 (page 3) of the PUD Agreement:

- Amenity Zone A - "Open Space" as defined by the Zoning Ordinance for use as an open field activity area, including bocce ball court, pickleball courts, seasonal ice-skating rink, and associated surface parking.
- Amenity Zone B - "Open Space" as defined by the Zoning Ordinance for use as a fitness path with outdoor exercise stations. A portion of Amenity Zone B is a regulated wetland area, will be restricted from development, and will remain in an "Undeveloped State" as defined in the Zoning Ordinance.
- Amenity Zone C – Is a regulated wetland area, will be restricted from development, and shall remain in an "Undeveloped State" as defined in the Zoning Ordinance.

Amenity Zone A shall be developed as part of the first Phase. Amenity Zone B shall be developed as part of the second Phase, except for the regulated wetland area within Amenity Zone B which shall remain undeveloped. Amenity Zone C shall not be developed because it is a regulated wetland area.

DEVELOPMENT PLAN - AMENITY ZONES



DEVELOPMENT GUIDELINES

The applicant proposes the following development parameters:

District	General Uses	Max Square Footage	Min # Floors	Min Building Height	Max # Floors	Max Building Height
Development Area 1	Residential	350,000 s.f	3	40'	7	90'
Development Area 2	Office / Parking Structure	500,000 s.f	4	60'	10	150'
Development Area 3	Office / residential / retail / parking structures	350,000 s.f	4	60'	10	150'
Development Area 4	Hotel/residential	105,000 s.f	3	40'	7	90'
Retail / Restaurant Areas	Retail/restaurant	18,000 per building	1	17.5'	2	35'

Minimum setbacks:

District	Front Setback	Side Setbacks	Rear Setbacks
Development Area 1	10'	20'	30'
Development Area 2	10'	20'	30'
Development Area 3	10'	20'	30'
Development Area 4	10'	20'	30'
Retail / Restaurant Areas	10'	20'	30'

CONCEPT DEVELOPMENT PLAN - MASSING



BUILDING TYPOLOGY	MAX. SQUARE FOOTAGE	MIN. # OF FLOORS	MIN. BUILDING HEIGHT	MAX. # OF FLOORS	MAX. BUILDING HEIGHT
DEVELOPMENT AREA 1					
RESIDENTIAL					
BUILDING 1	350,000	3	40 FT	7	90 FT
RETAIL / RESTAURANT					
BUILDING 1	18,000	1	17.5 FT	2	35 FT
BUILDING 2	18,000	1	17.5 FT	2	35 FT
BUILDING 3	18,000	1	17.5 FT	2	35 FT
DEVELOPMENT AREA 2					
OFFICE / PROFESSIONAL					
BUILDING 1	500,000	4	60 FT	10	150 FT
DEVELOPMENT AREA 3					
OFFICE / PROFESSIONAL / RESIDENTIAL					
BUILDING 1	350,000	4	60 FT	10	150 FT
DEVELOPMENT AREA 4					
HOTEL / RESIDENTIAL					
BUILDING 1	105,000	3	40 FT	7	90 FT

Illustration is a representation of a potential future maximum buildout based on buildout of each Development Area.

USES

The applicant notes the allowance for all uses (permitted and special) in the OM - Office Mixed Use District, the O – Office District, or the GB-General Business District. There are uses in those districts which the Planning Commission should consider if they are appropriate. Permitted or special uses listed in the OM, O, and GB districts that the Planning Commission may want to discuss:

- *Primary and secondary schools*
- *Convalescent center*
- *Post-secondary school*
- *Bus/transit passenger dispatching center*
- *Hospital*
- *Day Care and preschool*
- *Golf course*
- *Swimming pool club*
- *Fast food restaurant*
- *Restaurant drive-in*
- *Drive-through*
- *Retail, large format*
- *Shopping center*
- *Building and lumber supply*
- *Garden centers/nursery*
- *Commercial greenhouse*
- *Outdoor commercial recreation*
- *Dry cleaners/laundry*
- *Open air business, as a principal use*
- *Private clubs, fraternal organization, and lodge halls*
- *Commercial kennels*
- *Adult use business*
- *Mortuary/funeral home*
- *Prototype or experimental product design*
- *Basic research, design, pilot or experimental product development*
- *Laboratory*
- *Mini warehouse and self-storage*
- *Vehicle, recreational vehicles sales*
- *Vehicle repair station*
- *Vehicle fueling/multiuse station*
- *Oil change facility*
- *Vehicle washes*
- *Vehicle auctions*
- *Antique and classic vehicle sales*
- *Ambulance facilities*
- *Vehicle rental*
- *Commercial wind energy conversion system*
- *Wireless communication facility (Tower)*

Based on the adopted City Master Plan goals and intent of the area and the applicant’s vision for the site, there are uses in the OM, O, and GB districts that are not consistent with the intent of the area and not appropriate for future development of the site.

Items to be Addressed: *Planning Commission should consider if certain listed uses are not appropriate.*

PHASING

The applicant seeks flexibility in phasing, however, Section 2.3 (page 5) of the PUD Agreement notes a Phasing Plan. The applicant should clarify if they are proposing a set phasing schedule, for example Development Area 1 is the first phase, or if they seek greater phasing flexibility.

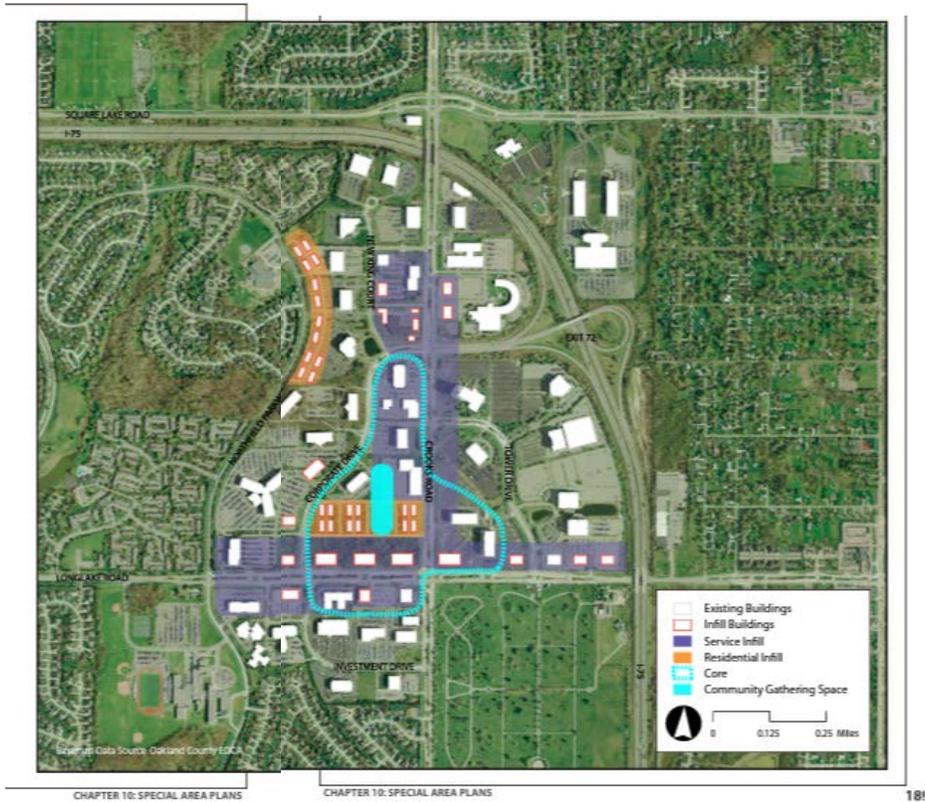
Items to be Addressed: *Applicant shall clarify phasing and Planning Commission should consider proposed phasing.*

TRAFFIC IMPACT STUDY

The applicant has submitted Traffic Impact Study, which will be reviewed by the OHM, the Road Commission, and MDOT. The traffic study identifies significant traffic impacts as a result of the development and identifies roadway improvements based on full build out. The applicant has provided a table of proposed associated roadway improvements.

MASTER PLAN

This site is located in the North Troy Special Area Plan. Located at the intersection of two main arterial roads with a direct access ramp to I-75, North Troy is strategically located to serve as a major employment hub for Oakland County. North Troy currently is home to over 5,000 primarily daytime employees; in addition, there are over 2,000 households within one mile of the area. However, the area is dominated by single-use office buildings with limited interconnections, and few amenities for these workers and nearby residents.



Preparing North Troy for the next generation of growth will require a broader and more creative real estate strategy that will tap into regional trends and market opportunities in order to create a more vibrant, attractive, and flexible work environment. A compatible and vibrant mix of uses will create a life and vibrancy, provide interconnections and a relationship with the adjacent neighborhoods, reduce automobile trips, and enhance walkability by providing destinations.

Priority 1 of the Special Area Plan was to provide a compatible and vibrant mix of uses. Applicable strategies to fulfill this priority includes:

- Promote service infill through property repurposing;
- Promote residential infill through property repurposing;

- Develop and strengthen the core; and
- Create a community gathering space.

Priority 2 is to improve multi-modal circulation and safety. Applicable strategies to fulfill this priority includes:

- Introduce pedestrian mid-block crossing; and
- Establish consistent landscape buffer and setbacks.

Priority 3 is to implement tactical placemaking. Applicable strategies to fulfill this priority includes:

- Create an identity through gateways and wayfinding;
- Facilitate health and wellness initiatives; and
- Encourage creative programming.

This specific site was identified in the Master Plan as an opportunity to define North Troy:

Building off the surrounding employment base and the highly trafficked Northfield Point Marketplace, the vacant parcel on the northwest corner of Long Lake and Crooks Road offers an opportunity to establish a core for North Troy. This core will provide a compatible mix of uses and should be the starting place of other strategies in the Plan, including pedestrian circulation improvements, landscaping, wayfinding, and creative programming. At the heart of the core is the community gathering space. -Page 192

Specifically for this site, the Master Plan identified residential infill, service infill, and a community gathering space. A vibrant mix of uses is supported by the Master Plan. However, there are some elements that the applicant should consider strengthening consistency with the Master Plan:

1. Work with City to establish midblock crossing across Crooks and Corporate Drive.
2. Clarify if central gathering areas are open for public activities and use.
3. Develop pilot gateway features and wayfinding signage to be implemented in rest of North Troy.

PUD AGREEMENT

The applicant has submitted a PUD Agreement, which is being reviewed by the City Attorneys office.

STANDARDS

When reviewing the PUD, the Planning Commission shall consider the following standards as set forth in Section 11.03:

1. *A mixture of land uses that would otherwise not be permitted without the use of the PUD provided that other objectives of this Article are also met.*

2. *A public improvement or public facility (e.g. recreational, transportation, safety and security) which will enhance, add to or replace those provided by public entities, thereby furthering the public health, safety and welfare.*
3. *A recognizable and material benefit to the ultimate users of the project and to the community, where such benefit would otherwise be infeasible or unlikely to be achieved absent these regulations.*
4. *Long-term protection and preservation of natural resources, natural features, and historic and cultural resources, of a significant quantity and/or quality in need of protection or preservation, and which would otherwise be unfeasible or unlikely to be achieved absent these regulations.*
5. *A compatible mixture of open space, landscaped areas, and/or pedestrian amenities.*
6. *Appropriate land use transitions between the PUD and surrounding properties.*
7. *Design features and techniques, such as green building and low impact design, which will promote and encourage energy conservation and sustainable development.*
8. *Innovative and creative site and building designs, solutions and materials.*
9. *The desirable qualities of a dynamic urban environment that is compact, designed to human scale, and exhibits contextual integration of buildings and city spaces.*
10. *The PUD will reasonably mitigate impacts to the transportation system and enhance non-motorized facilities and amenities.*
11. *For the appropriate assembly, use, redevelopment, replacement and/ or improvement of existing sites that are occupied by obsolete uses and/or structures.*
12. *A complementary variety of housing types that is in harmony with adjacent uses.*
13. *A reduction of the impact of a non-conformity or removal of an obsolete building or structure.*
14. *A development consistent with and meeting the intent of this Article, which will promote the intent of the Master Plan or the intent of any applicable corridor or sub-area plans. If conditions have changed since the Plan, or any applicable corridor or sub-area plans were adopted, the uses shall be consistent with recent development trends in the area.*
15. *Includes all necessary information and specifications with respect to structures, heights, setbacks, density, parking, circulation, landscaping, amenities and other design and layout features, exhibiting a due regard for the relationship of the development to the surrounding properties and uses thereon, as well as to the relationship between the various elements within the proposed Planned Unit Development. In determining whether these relationships have been appropriately addressed, consideration shall be given to the following:*
 - i. *The bulk, placement, and materials of construction of the proposed structures and other site improvements.*
 - ii. *The location and screening of vehicular circulation and parking areas in relation to surrounding properties and the other elements of the development.*
 - iii. *The location and screening of outdoor storage, loading areas, outdoor activity or work areas, and mechanical equipment.*
 - iv. *The hours of operation of the proposed uses.*
 - v. *The location, amount, type and intensity of landscaping, and other site amenities.*
16. *Parking shall be provided in order to properly serve the total range of uses within the Planned Unit Development. The sharing of parking among the various uses within a Planned Unit Development may be permitted. The applicant shall provide justification to the satisfaction of the City that the shared parking proposed is sufficient for the development and will not impair the functioning of the development, and will not have a negative effect on traffic flow within the development and/or on properties adjacent to the development.*
17. *Innovative methods of stormwater management that enhance water quality shall be considered in the design of the stormwater system.*

18. *The proposed Planned Unit Development shall be in compliance with all applicable Federal, State and local laws and ordinances, and shall coordinate with existing public facilities.*

The Planning Commission should review the application considering the standards.

BENEFITS

The applicant has noted the following benefits:

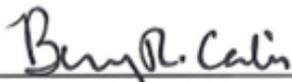
- Horizontal mixed-use development consisted with Master Plan
- Development of an undeveloped and prominent site
- Outdoor plazas
- Outdoor dining areas
- Pedestrian circulation paths and activities around site
- Public art

The Planning Commission should consider the noted benefits.

SUMMARY

The Planning Commission should deliberate:

1. The proposed development guidelines (height/setbacks, etc);
2. The proposed allowable and special uses;
3. The proposed phasing;
4. If the proposed benefits are commensurate with the requested relief/development flexibility; and
5. If the PUD standards have been met.



CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, LEED AP, AICP

City of Troy
Planned Unit Development
Concept Development Plan (CDP) Application
And Application To Amend The Zoning District Map

Long Lake and Crooks Masterplan Development
Re-Issuance: 11.28.22

**CITY OF TROY
 PLANNED UNIT DEVELOPMENT
 CONCEPT DEVELOPMENT PLAN (CDP) APPLICATION
 AND APPLICATION TO AMEND THE ZONING DISTRICT MAP**

**CITY OF TROY PLANNING DEPARTMENT
 500 W. BIG BEAVER
 TROY, MICHIGAN 48084
 PHONE: 248-524-3364
 E-MAIL: planning@troymi.gov**



**CONCEPT DEVELOPMENT PLAN FEE
 \$3,000.00**

**ESCROW FEE
 \$5,000.00**

PRIOR TO THE SUBMISSION OF AN APPLICATION FOR APPROVAL OF A PLANNED UNIT DEVELOPMENT, THE APPLICANT SHALL HOLD A PRE-APPLICATION MEETING WITH THE PLANNING DEPARTMENT OF THE CITY AND ANY CITY STAFF AND OUTSIDE CONSULTANTS AS DEEMED APPROPRIATE BY THE CITY.

DATE OF PRE-APPLICATION MEETING: September 25, 2020

REGULAR MEETINGS OF THE CITY PLANNING COMMISSION ARE HELD ON THE SECOND AND FOURTH TUESDAYS OF EACH MONTH AT 7:00 P.M. AT CITY HALL.

1. NAME OF THE PROPOSED DEVELOPMENT: Long Lake & Crooks Masterplan Development

2. LOCATION OF THE SUBJECT PROPERTY: Northwest corner - Long Lake & Crooks

3. ZONING CLASSIFICATION(S) OF THE SUBJECT PROPERTY: Current Zoning - Office

4. TAX IDENTIFICATION NUMBER(S) OF SUBJECT PROPERTY: _____

5. APPLICANT:	PROPERTY OWNER:
NAME <u>Chris Beck</u>	NAME <u>Tony Antone</u>
COMPANY <u>Gensler</u>	COMPANY <u>Long Lake Crooks Development Associates</u>
ADDRESS <u>150 West Jefferson, Suite 1700</u>	ADDRESS <u>39400 Woodward Ave, Suite 250</u>
CITY <u>Detroit</u> STATE <u>MI</u> ZIP <u>48226</u>	CITY <u>Bloomfield Hills</u> STATE <u>MI</u> ZIP <u>48304</u>
TELEPHONE <u>313.496.8966</u>	TELEPHONE <u>248.644.7600</u>
E-MAIL <u>chris_beck@gensler.com</u>	E-MAIL <u>tantone@Kojaian.com</u>

6. THE APPLICANT BEARS THE FOLLOWING RELATIONSHIP TO THE OWNER OF THE SUBJECT PROPERTY:
Owner's Architect

7. ATTACHED HERETO IS A SIGNED STATEMENT BY THE APPLICANT INDICATING THE APPLICANT HAS THE AUTHORITY TO EXECUTE A BINDING AGREEMENT COVERING ALL PARCELS IN THE PROPOSED P.U.D.

8. SIGNATURE OF APPLICANT DATE 11.18.20

9. SIGNATURE OF PROPERTY OWNER DATE 11/17/2020

BY THIS SIGNATURE, THE PROPERTY OWNER AUTHORIZES PLACEMENT OF A SIGN ON THE PROPERTY TO INFORM THE PUBLIC AS TO THIS REQUEST FOR PLANNED UNIT DEVELOPMENT.

PLANNED UNIT DEVELOPMENT CONCEPT DEVELOPMENT PLAN (CDP) PRE-APPLICATION MEETING CHECKLIST

THE APPLICANT SHALL PROVIDE A MINIMUM OF THREE (3) COPIES OF THE FOLLOWING ITEMS, PLUS ONE (1) CD CONTAINING AN ELECTRONIC VERSION OF THE APPLICATION, TO THE PLANNING DEPARTMENT AT OR BEFORE THE PRE-APPLICATION MEETING. SEE SECTION 11.06(A).

- A SKETCH PLAN OF THE PROPOSED PLANNED UNIT DEVELOPMENT
- LEGAL DESCRIPTION OF THE PROPERTY, SCALE DRAWING AND THE TOTAL NUMBER OF ACRES IN THE PROJECT
- TOPOGRAPHICAL MAP OF THE PROJECT SITE
- A STATEMENT OF ALL PROPOSED USES IN THE PROJECT
- THE KNOWN DEVIATIONS SOUGHT FROM THE ORDINANCE REGULATIONS OTHERWISE APPLICABLE
- THE NUMBER OF ACRES TO BE PRESERVED AS OPEN OR RECREATIONAL SPACE AND THE INTENDED USES OF SUCH SPACE
- ALL KNOWN NATURAL RESOURCES, NATURAL FEATURES, HISTORIC RESOURCES AND HISTORIC FEATURES; WHICH ARE TO BE PRESERVED
- A LISTING AND SPECIFICATION OF ALL SITE DEVELOPMENT CONSTRAINTS

PLANNED UNIT DEVELOPMENT CONCEPT DEVELOPMENT PLAN (CDP) CHECKLIST

THE FOLLOWING INFORMATION AND MATERIALS ARE NECESSARY FOR SUBMISSION. FOR A DETAILED DESCRIPTION OF REQUIRED ITEMS, SEE SECTION 11.06(C) OF THE ZONING ORDINANCE.

- REQUIRED FEE
- ONE (1) CD CONTAINING AN ELECTRONIC VERSION OF THE APPLICATION AND ONE (1) COPY OF THE DRAFT DEVELOPMENT AGREEMENT (PDF Format)

The application shall include TWO (2) hard copies of the following information and materials, which shall be in a plan format together with a narrative explanation.

- Date(s) and location of all meetings with representatives of adjoining neighborhoods, minutes and attendance record(s) of such meeting(s).
- Certified boundary survey including legal description of the property, scale drawing and the total number of acres in the project.
- *Development concept:* A summary explanation of the development concept shall describe the project and explain how the project will meet the intent of the PUD option as set forth in Section 11.01 and the criteria for consideration as a PUD as set forth in Section 11.03 hereof, as those sections reasonably apply to the site.
- *Density:* The maximum density of the overall project and the maximum density for each proposed use and phase.
- *Road system:* A general description of the road system and circulation pattern; the location of roads, entrances, exits and pedestrian walkways; a statement whether roads are intended to be public or private. Efforts shall be made to ensure that multiple transportation modes are safely and effectively accommodated in an effort to provide alternate modes of access and alleviate vehicle traffic congestion particularly as it pertains to the improvements along major roads.
- *Utilities:* A general description and location of both on-site and off-site utilities including proposed water, sanitary sewer, storm sewer systems and utility lines; a general indication of the size and location of stormwater detention and retention ponds, and a map and text showing off-site utilities, existing and proposed, which will provide services to the project.
- *Open space/common areas:* A general description of proposed open space and common areas; the total area of open space; the total area of open space in each proposed phase; the proposed uses of open space and common areas.
- *Uses:* A list of all proposed uses; the location, type and land area to be devoted to each use, both overall and in each phase; a demonstration that all of the proposed uses are permitted under this Article.
- *Development guidelines:* A plan of the site organization, including typical setback and lot dimensions; the minimum lot sizes for each use; typical minimum and maximum building height and size; massing models; conceptual building design; and the general character and arrangement of parking; fencing; lighting; berming; and building materials.
- *Parking and Traffic:* A study of the parking requirements and needs; a traffic impact study and analysis.
- *Landscaping:* A general landscaping plan; a landscape plan for entrances; a landscape plan for overall property perimeters; any theme/streetscape design; any proposed irrigation.
- *Natural resources and features:* Floodway/floodplain locations and elevations; wetlands and watercourses; woodlands; location and description of other natural resources and natural features.

**PLANNED UNIT DEVELOPMENT
CONCEPT DEVELOPMENT PLAN (CDP) CHECKLIST
(page 2)**

- *Phasing information:* The approximate location, area and boundaries of each phase; the proposed sequence of development, including phasing areas and improvements; and the projected timing for commencement and completion of each phase.
- *Public services and facilities:* A description of the anticipated demand to be generated by the development for public sewer, water, off-site roads, schools, solid waste disposal, off-site drainage, police and fire; a description of the sufficiency of each service and facility to accommodate such demands; the anticipated means by which any insufficient services and facilities will be addressed and provided.
- *Historical resources and structures:* Their location, description and proposed preservation plan.
- *Site topography.*
- *Signage:* General character and location of entrance and internal road system signage; project identification signage; and temporary or permanent signage proposed for any other locations.
- *Amenities.*
- *Zoning classification:* Existing zoning classifications on and surrounding the site.
- *Specification of deviations:* A specification of all deviations proposed from the regulations which would otherwise be applicable to the underlying zoning and to the proposed uses, which are proposed and sought for any phase or component of the Planned Unit Development; the safeguards, features and/or planning mechanisms proposed to achieve the objectives intended to be accomplished by any regulation from which a deviation is being sought.
- *Community impact statement:* A community impact statement, which shall provide an assessment of the developmental, ecological, social, economic and physical impacts of the project on the natural environmental and physical improvements on and surrounding the development site. Information required for compliance with other ordinance provisions need not be duplicated in the community impact statement.

**ALL HARD COPY DRAWINGS SHALL BE FOLDED, STAPLED, SEALED AND SIGNED
BY A STATE OF MICHIGAN PROFESSIONAL ENGINEER, REGISTERED ARCHITECT,
REGISTERED LANDSCAPE ARCHITECT, OR PROFESSIONAL COMMUNITY PLANNER**

PLANNING COMMISSION AGENDAS ARE ELECTRONIC

PLANNED UNIT DEVELOPMENT CONCEPT DEVELOPMENT PLAN (CDP) CHECKLIST

Neighborhood meeting:

Communication to immediate neighbors of the property was issued March 11, 2021 to solicit neighborhood comments regarding the proposed masterplan. The communication offered neighbors the opportunity to participate in either a virtual zoom meeting, or comment individually via written response. Neighbors included those to the west, along Corporate Drive, to the south, along Long Lake, and to the east, across Crooks. The developer of this proposed property owns the immediate property to the north. The masterplan graphic, along with contact information for responses to be submitted were included in the mailed communication to each of the neighbors.

No responses were received from any of the neighbors and as such no virtual meeting occurred.

See following page for copy of letter submitted.



03.11.21

Dear Mr. Dugan:

Re: 1175 W. Long Lake Rd
Troy, Michigan

You are being sent this letter as the owner of the above referenced property based on a review of publicly available information. Long Lake Crooks Development Associates, L.L.C. (the "Developer") intends to develop the vacant 24.08 property located at the northwest corner of the intersection of Crooks Road and Long Lake Road. It is planned to be a mixed-use development.

The Developer is required to notify nearby landowners of the proposed development and ask for comments. A proposed concept masterplan is enclosed for your reference. If you wish to verbally comment, please email Chris Beck no later than March 29th, 2021. A virtual Zoom meeting will be set up for you to provide verbal comments. Alternatively, you may also provide written comments to the undersigned no later than April 5th, 2021 by sending an email to chris_beck@gensler.com.

Before this development will occur, it must be thoroughly reviewed and approved by the City of Troy. The City will likely be in contact with you to advise you of the time and place of any public hearing that may be required for this development.

Thank you.

A handwritten signature in black ink, appearing to read "C. Beck", is positioned above the typed name.

Chris Beck, AIA, LEED-AP BD&C
Senior Associate
Gensler

Attachment: Crooks & Long Lake Masterplan
C: Brent Savidant (via email)

CROOKS & LONG LAKE // MASTER PLAN



LONG LAKE & CROOKS

CONCEPT DEVELOPMENT PLAN

KOJAIAN + GENSLER + PEA GROUP + FLEIS & VANDENBRINK | NOVEMBER 28, 2022 | CDP

Planned Unit Development – Concept Development (CDP) Submittal

Project: Long Lake & Crooks Masterplan Development

Original Submission Date: April 22, 2022

Revised Submission Date: November 28, 2022

City of Troy, Planning Department

City of Troy, 500 W. Big Beaver Rd., Troy, MI 48084



Kojaian
Long Lake Crooks Development Associates, LLC
tantone@kojaian.com
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Bloomfield Hills, MI 48304
(248) 644-7600
Contact: Anthony G. Antone, Vice President

Gensler

Gensler
150 West Jefferson, Suite 1700
Detroit, MI 48226
(313) 496-8966
Contact: Chris Beck, Project Manager



Fleis & Vandenbrink
27725 Stansbury Blvd., Suite 195
Farmington Hills, MI 48334
(248) 342-5786
Contact: Julie Kroll, PE, PTOE



PEA Group
2430 Rochester Court, Suite 100
Troy, MI 48083
(248) 528-7369
Contact: James Butler, PE



Dawda, Mann, Mulcahy, & Sadler
39533 Woodward, Suite 200
Bloomfield Hills, MI 48304
(248) 642-4248
Contact: Tyler D. Tennent

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A. Certified Boundary Survey – Refer to Appendix: Sheet C-1

Legal Description of Property

A parcel of land in a part of the southeast quarter of Section 8, T.02N., R.11 E., City of Troy, County of Oakland, State of Michigan described as follows:

Commencing at the Southeast corner of Section 8, T.02N., R.11 E., City of Troy, County of Oakland, State of Michigan, thence South 87 degrees 15 minutes 31 seconds West 130.00 feet; thence North 02 degrees 37 minutes 54 seconds West 100.00 feet to the north line of Long Lake Road (width varies) and the POINT OF BEGINNING; thence along the said north line the following three (3) courses and distances 1) South 87 degrees 15 minutes 31 seconds West 894. 70 feet; 2) North 02 degrees 30 minutes 26 seconds West 10.00 feet; 3) South 87 degrees 15 minutes 31 seconds West 364.00 feet; thence North 47 degrees 37 minutes 28 Seconds West 42.26 feet to the easterly line of Corporate Drive (120' wide); thence North 02 degrees 30 minutes 26 seconds West 424.81 feet to a point of curvature; thence 353.35 feet along a curve to right, said curve having a radius 710.00 feet, a central angle of 28 degrees 30 minutes 52 seconds, and a chord that bears North 11 degrees 45 minutes 00 seconds East 349.71 feet; thence North 87 degrees 15 minutes 31 seconds East 1240. 77 feet to the west line of Crooks Road (width varies); thence along said west line the following three (3) courses and distances: 1) South 02 degrees 37 minutes 54 seconds East 463.36 feet; 2) South 87 degrees 22 minutes 06 seconds West 10.00 feet; 3) South 02 degrees 37 minutes 54 seconds East 310.00 feet; thence South 42 degrees 18 minutes 48 seconds West 42.47 feet to the POINT OF BEGINNING.

Parcel 20-08-477-001 Vacant Land

B. Development Concept:

Long Lake Crooks Development Associates, L.L.C. (the "Developer") proposes a mixed-use development within the approximate 24.08-acre site bound by Long Lake Road to the south, Crooks Road to the east and Corporate Drive to the west (the "Site"). In concept, this development is envisioned to offer various needed services to the Long Lake corridor and surrounding community and create a development of mixed horizontal and vertical forms. The Site has the potential to be comprised of workplace / medical office space, retail, commercial, residential, and hospitality uses, with the desired overall potential of maximizing the developmental area and providing interconnectivity for vehicles and pedestrians.

The overall phasing of the development will be dependent on the market and the Developer's success and cadence in acquiring prospective users. Final Site configurations will be contingent on such cadence and specific user requirements, both of which will influence final building massing, location, and overall Site character. Final development solutions for each use will be individually issued for approval as part of the preliminary and final development approval process during future timeframes.

The basis of the documentation included within this Concept Development Plan and the PUD application is to demonstrate the desired intent of the overall Site development over a period of time. It is conceptual in nature, however, demonstrates a thoughtful and desired solution to the Site for which a planned unit development zoning status is needed. The descriptions and illustrations within this application form the basis of the development concept.

Development Areas:

The Concept Development Plan envisions several Site components identified as development areas (refer to appendix sheet A-6). Although sequentially numbered, these development areas are not intended to reflect a specific order of cadence, but to identify separate areas within the overall Site that will be developed through a phased approach.

Development Area 1: A residential component is intended for the northwest corner of the Site that will foster a permanent population and enhance further development of the remaining development areas. This residential component will support the increasing demands of the City's housing needs and satisfy a key component in the intended live / work / play environment the Site is focused to achieve.

Development Area 2: The largest development area of the Site is proposed for workplace / medical office and is generally intended to be the anchor development within the overall Site. This development area will support the functional needs of prospective users of the Site and/or nearby residents, bringing significant growth opportunities for the City and further energizing the area. If developed for either single anchor or multi-tenant configurations, the buildings in this development area will support the flexible workplace environment tenants seek within Class-A office/flex-tech space.

Development Area 3: This development area reflects an additional opportunity for added workplace, office, retail, and residential use. Centered within the Site, this development area can act as either a standalone anchor development or as an expansion of use based on the success of either Development Areas 1 & 2. Supporting parking will be included within the development footprint.

Development Area 4: The development area is for lodging with an intended inclusion of an anchor hotel. The building will be designed so that it is easily convertible to residential, (apartment or condominium), use if desired in the future. Currently located on the southwestern corner of the Site, the final location of the hotel may adjust along Corporate Drive dependent on the final retail / restaurant configuration in other areas of the Site. As with the retail and residential components, the hotel is deemed as an asset to both the immediate Site as well as the broader community.

The remaining areas along Long Lake, as illustrated on the Concept Development Plan, offer retail / restaurant opportunities. These intended areas provide destinations for the surrounding community while also supporting other developments on the Site. They are smaller in scale and are intended to energize the Long Lake and Corporate Drive frontage for both vehicular and pedestrian foot traffic by becoming favorite 'go-to' locations. They are not considered a separate development area, but intended to be built either as part of any phase of the development or separately after 50% completion of the first phase.

A combination of surface and structured parking will support the development of the Site based on the expected development uses. Surface parking will support the needs of the short-term visitors of office, retail, and hotel uses, while structured parking, situated away from the high visibility of Long Lake and Crooks will support the daily occupants of the larger office and mixed-use buildings. Each development area will meet all parking requirements as mandated for its use within the City guidelines.

The Developer requests the flexibility to choose the locations of each permitted use within a development area, the sequence of development, and the specific features and boundaries of

each area depicted in the Concept Development Plan. Market forces and user requirements are constantly changing. As a result, the PUD zoning concept, together with an appropriate Development Agreement, will facilitate this flexibility and encourage development without adversely impacting the preliminary and final development plan approval processes required by the City under the Zoning Ordinance.

All development areas shall be integrated through design elements including but not limited to architecture, materials, landscaping, pedestrian connectivity, street connectivity, and shared parking and in accordance to all City requirements.

Landscaping shall meet or exceed required landscaping for similar projects as per Chapter 39, Section 13.02.

Temporary undeveloped portions of the Site shall be appropriately maintained including grass cutting, snow removal, keeping the Site free of refuse, etc.

Amenity Areas:

Various amenities will be required as part of the development areas as shown in the Concept Development Plan – Amenity Zones (refer to appendix sheet A-7). The overall configuration of amenity areas is flexible however they have been purposefully located and sized based on proximity and use of each development area as well as connectivity and access to each other and the local community. Overall, amenity areas account for approximately 135,000 SF, (3 acres), of the total Site area, or 12%.

The amenity areas as illustrated include the following:

Amenity Area 1A: Open green spaces for flexible use, community seating areas / built shelters and fire pits.

Amenity Area 1B: Dog park, walking path.

Amenity Area 2A: Landscape / public art - sculpture garden, walking paths and seating.

Amenity Area 2B: Fitness path, pickle ball courts.

Amenity Area 3: Open green space, bocce ball, food truck staging area.

Overall: Connecting pathways/sidewalks allow both internal and public pedestrian access and engagement across all amenity areas. Continuity of landscape, vegetation and site furnishings will provide a cohesive and connected aesthetic across all parts of the Site.

Natural Areas:

Approximately 3.6 acres of natural wetland will be preserved on the Site, located within two distinct areas, Natural Area 1 and Natural Area 2, as illustrated in the Concept Development Plan (refer to appendix sheet A-7). No development will occur within the natural areas. Viewed as part of the overall Site amenities, the wetlands further enhance the natural landscape and create buffers between development areas that support a more open site environment and will help to minimize the appearance of overall densification. Vegetation within these areas will remain

untouched, except as may be required by the permitting authorities or to facilitate opportunities to clear low lying scrub vegetation for visual access as well as physical approach along the wetland boundaries.

Amenity areas have strategically been placed adjacent to these natural wetlands to further increase the openness and outdoor offerings to users of the Site and public alike.

C. Location Map – Refer to Appendix: Sheet C-0

D. Land Use Map – Refer to Appendix: Sheet A-1

Properties adjacent to site are: Office, Retail/Restaurant and Cemetery

E. Certified Boundary Survey – Refer to Appendix: Sheet C-1 Topographic Survey

F. Density Analysis:

	Zoning	Proposed
District	Max. % of Building Coverage	
OM – Office Mixed Use	40%	37%
UR – Urban Residential	50%	N/A
GB – General Business	N/A	10%
Overall Site	N/A	27%

G. Road/Circulation System

- Private Roads within Site
- Entrances
 - Crooks Road Boulevard
 - Main Entry with deceleration lane / Exit
 - Long Lake Road Boulevard
 - Main Entry with deceleration lane / Exit
 - Retail / Restaurant entry with deceleration lane / Exit
 - Corporate Drive Boulevard
 - Main Entry with deceleration lane / Exit
 - Hotel entry with deceleration lane / Exit
- Circulation Pattern
 - Main routes are East to West from Crooks Road to Corporate Drive
 - Intersecting route from Long Lake Road
- Pedestrian walkways throughout the Site to provide walkability and easy access to amenities

H. Utilities – Refer to Appendix: Sheet C-3 Conceptual Utility Plan

- Gas – Connect to existing from Crooks Road
- Electric - Connect to existing from Long Lake Road
- Water / Fire
 - Connect to existing watermain from Corporate Drive
 - Connect to existing watermain from Crooks Road
- Sanitary Sewer – Connect to existing from Long Lake Road
- Communications – Connect to existing from Long Lake Road
- Storm
 - Connect to the existing structure at the corner of Crooks Road and Long Lake
 - Underground detention area in parking lot near Detention Pond
 - Detention Area will feature a natural pond with walking path and landscaping

I. Open Space/Common Areas:

The Site is currently vacant and not accessible to the public. The Concept Development Plan envisions that a portion of the Site will provide a park like setting and access to the pedestrian boulevards and retail/restaurants, which can be used at the leisure of residents and visitors. This interconnectivity to the Site features and outdoor amenities is a recognizable public benefit.

Open space is incorporated to the greatest extent possible while balancing building, parking and circulation needs within the boundaries of the Site. Open, vegetated areas are located to minimize large scale hardscape zones. Public access is focused primarily to the southern end of the Site, along the Long Lake corridor.

Continuous paved walking paths wrap the development area, connecting open spaces, as well as the incorporation of a potential natural pathways and seating areas.

Native, high quality, vegetation replaces the current low value tree stock and is intended to be incorporated throughout the development areas within open/common spaces, softening the more formal approach of the buildings and balancing human scale to surrounding built environment.

Refer to Appendix: Sheet C-2.0 and Sheet A-7 for Conceptual Site Plan, natural area, and site amenity diagramming.

J. Uses: Refer to Appendix: Sheet A-6, A-8, A-9, A-10, A-11

- Lodging / Residential
- Retail / Restaurant
- Office / Medical / Residential
- Parking – Surface / Deck

The proposed uses are to be a mixture of commercial, retail, residential, and office, (live / work / play) with both structured and surface parking. All uses are subject to Preliminary Development Plan Approval and described as follows:

Development Area 1: Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the UR – Urban Residential District and all associated surface parking.

Development Area 2: Office uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the OM - Office Mixed Use District, the O - Office District, or the GB-General Business District, as referenced in the Zoning Ordinance, and a multi-story parking structure and surface parking features.

Development Area 3: Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent such uses in the UR – Urban Residential District as referenced in the Zoning Ordinance and all associated surface parking; Office uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the OM - Office Mixed Use District, the O - Office District, or the GB-General Business District, as referenced in the Zoning Ordinance; "Restaurant" and/ or "Retail Business or Retail Sales" uses as defined by the Zoning Ordinance; Conference, meeting, and banquet facility uses permitted as of right or requiring special approval, and their accessory uses consistent with such uses the GB - General Business District in the Zoning Ordinance; and, all associated surface parking.

Development Area 4: Lodging or extended stay facility uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the GB – General Business District identified in the Zoning Ordinance; and, Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent such uses in the UR – Urban Residential District as referenced in the Zoning Ordinance and all associated surface parking.

Restaurant/Retail Areas: "Restaurant" and/ or "Retail Business or Retail Sales" uses as defined by the Zoning Ordinance, and their accessory uses, and all associated surface parking.

Amenity Area 1A: "Open Space" as defined by the Zoning Ordinance for use as an open field activity area.

Amenity Area 1B: "Open Space" as defined by the Zoning Ordinance for use as a dog park.

Amenity Area 2A: "Open Space" as defined by the Zoning Ordinance for use as a public art or sculpture garden.

Amenity Area 2B: "Open Space" as defined by the Zoning Ordinance for use as a fitness trail and pickle ball courts.

Amenity Area 3: "Open Space" as defined by the Zoning Ordinance for use as a bocce ball court and outdoor seating.

Natural Areas A and B: Restricted from development and shall remain in an "Undeveloped State" as defined in the Zoning Ordinance.

K. Development Guidelines:

DISTRICT	MAX SQUARE FOOTAGE	MIN # FLOORS	MIN BUILDING HEIGHT	MAX # FLOORS	MAX BUILDING HEIGHT
DEVELOPMENT AREA 1	350,000 sf	3	40'	7	90'
DEVELOPMENT AREA 2	500,000 sf	4	60'	10	150'
DEVELOPMENT AREA 3	350,000 sf	4	60'	10	150'
DEVELOPMENT AREA 4	105,000 sf	3	40'	7	90'
RETAIL/RESTAURANT AREAS	18,000 per building	1	17.5'	2	35'

See Sheet A-12 for massing

MINIMUM SETBACKS (measured from perimeter property lines or public rights of way)

DISTRICT	FRONT SETBACK	SIDE SETBACK	REAR SETBACK
DEVELOPMENT AREA 1	10'	20'	30'
DEVELOPMENT AREA 2	10'	20'	30'
DEVELOPMENT AREA 3	10'	20'	30'
DEVELOPMENT AREA 4	10'	20'	30'
RETAIL/RESTAURANT AREAS	10'	20'	30'

L. Traffic Impact Study:

Refer to Appendix: Sheet TR-1 - Traffic Impact Study and Shared Parking Study.

Executive Summary

This report presents the results of a Traffic Impact Study (TIS) for the proposed master plan development located generally in the northeast quadrant of the Long Lake Road and Corporate Drive intersection adjacent to the west side of Crooks Road in Troy, Michigan.

This analysis is based on the conceptual development plan included with the application. This study includes an evaluation of the highest trip generation for the potential uses of the Site, thereby providing a conservative analysis. The land uses included herein were assumed for analysis purposes and do not necessarily reflect the actual proposed land uses on this Site.

The proposed conceptual plan evaluated in this study includes the development of the approximately 24-acre parcel with office, hotel, and retail/restaurant land uses. Parking for the Site was assumed to be provided through a combination of parking structures and surface parking. The Site access will be finalized at the site plan phase of the project, however for this analysis access was assumed via seven (7) site driveways; two (2) on SB Crooks Road, two (2) on Long Lake Road, and three (3) on Corporate Drive. Long Lake Road and Crooks Road are under the jurisdiction of the Road Commission for Oakland County (RCOC), whereas Corporate Drive is under the jurisdiction of the City of Troy.

The scope of this study was developed based on Fleis & VandenBrink’s (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practice and information published by the Institute of Transportation Engineers (ITE), and pursuant to the requirements of the City of Troy and the RCOC. Additionally, F&V solicited input regarding the scope of work from the City of Troy’s engineering consultant (OHM Advisors).

Background Data

Due to the impacts of COVID-19 and the subsequent closures of businesses and schools, current traffic volume data is not representative of “typical” operations. In addition, the on-going construction on I-75 has significant impacts on the traffic volumes throughout the study network. Therefore, the traffic volume data necessary for this study were obtained from multiple sources:

- SCATS volume data was obtained from RCOC at the signalized study intersections within the network for use in this study. The SCATS data utilized for this study was obtained for September 13, 2018, prior to COVID-19 and the I-75 construction impacts.
- F&V subconsultant Traffic Data Collection, Inc. (TDC) performed weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hour turning movement counts on Wednesday, October 6, 2020 at the unsignalized intersections.

A 0.5% annual background growth rate was applied to the 2018 signalized traffic volumes to calculate the baseline ‘existing’ 2020 traffic volumes. COVID-19 adjustment factors were applied at the unsignalized intersections to calculate the baseline ‘existing’ 2020 traffic volumes. The traffic volumes were then balanced upwards through the study network. ‘Dummy nodes’ were added at locations to account for sink and source volumes between intersections.

Trip Generation

The number of weekday peak hour (AM and PM) and daily vehicle trips that would be generated by the proposed development was forecast based on data published by ITE in the *Trip Generation Manual, 10th Edition*. The site trip generation forecast is summarized in **Table 1**. The proposed trip generation included in this analysis was reviewed with the City Traffic Consultant (OHM) prior to use in the study. *Note: Internal trip capture and pass-by trip reductions were not included in this study to provide a conservative analysis.*

Table E1: Trip Generation Summary

Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
					In	Out	Total	In	Out	Total
High Turnover (Sit-down) Restaurant	932	54,000	SF	6,058	295	242	537	327	201	528
Hotel	310	308	Rooms	3,050	88	61	149	105	100	205
Medical-Dental Office Building	720	1,000,000	GFA SF	38,332	1,353	381	1,734	950	2,442	3,392
Total Trips				47,440	1,736	684	2,420	1,382	2,743	4,125

Site Trip Distribution

The site access for this analysis was assumed via seven (7) driveways: three (3) on Corporate Drive, two (2) on Long Lake Road, and two (2) on SB Crooks Road. The vehicular trips that would be generated by the proposed development were assigned to the study roads based on the proposed site access plan, the existing peak hour traffic patterns on the adjacent roadway network, and the methodologies published by ITE. The adjacent street traffic volumes were used to develop the trip distribution. In order to determine the projected site traffic distribution, it was assumed that the existing adjacent street traffic volumes in the AM are home-to-work based trips,

and in the PM are work-to-home based trips. Therefore, the trip distribution assumes trips are coming into the study network and entering the development for work in the AM peak hour, then leaving work and exiting the network towards home in the PM peak hour. The ITE trip distribution methodology assumes that new trips will return to their direction of origin. The site trip distribution used in the analysis is summarized in **Table E2**.

Table E2: Site Trip Distribution

From/To	Via	AM	PM
North	Crooks Road	28%	30%
South	Crooks Road	14%	19%
East	Long Lake Road	18%	17%
East	I-75 Ramp	28%	18%
West	Long Lake Road	12%	16%
Total		100%	100%

Conclusions

The conclusions of this TIS are as follows:

Masterplan Development Assumptions

- This analysis is based on the Conceptual Development Plan included with the application. This study includes an evaluation of the highest trip generation associated with the potential uses for this Site. Therefore, the traffic analysis included herein provides a conservative analysis for this development. The land uses included herein were assumed for analysis purposes and do not necessarily reflect the actual proposed land uses on this Site.
 - The proposed conceptual plan evaluated in this study includes the development of the approximately 24-acre parcel with office, hotel, and retail/restaurant land uses.
 - Parking for the Site was assumed to be provided through a combination of parking structures and surface parking.
 - The site access will be finalized at the site plan phase of the project, however for this analysis access was assumed via seven (7) site driveways; two (2) on SB Crooks Road, two (2) on Long Lake Road, and three (3) on Corporate Drive.

Trip Generation Comparison

- A trip generation comparison analysis was performed to show the potential trip generation associated with development permitted under the existing Office (O) zoning. The results of the analysis indicate that the proposed development plan will generate more trips throughout the day and during both peak hours, as compared to a potential development currently permitted by right under the existing zoning.

Existing Conditions

- All approaches and movements at the study intersections currently operate acceptably, at LOS D or better during both peak periods, with the exception of the following:
 - The overall intersection of Crooks Road & Corporate Drive/I-75 Ramp is currently operating at LOS E during the AM peak period with multiple approaches and movements operating at LOS E and LOS F during both AM and PM peak periods.

- The southbound left-turn movement at the intersection of Corporate Drive & New King Drive is currently operating at LOS E during the AM peak period.
- The southbound approach at the intersection of EB Long Lake Road and Investment Drive is currently operating at LOS E during the AM peak hour and LOS F during the PM peak hour.
- The westbound right turn movement at the intersection of WB Long Lake Road & Corporate Drive is currently operating at LOS E during the AM peak hour.
- Review of SimTraffic network simulations indicates long vehicles queues at the signalized intersection of Crooks Road & Corporate Drive/I-75 Ramp during both peak periods. Microsimulations indicate acceptable operations at all other study intersections.

Background Conditions (*without the proposed development*)

- A conservative annual growth rate of 0.5% per year was applied to the 2020 traffic volumes in order to determine the background 2025 traffic volumes.
- The results of the background conditions analysis show that the study intersections will continue to operate in a similar manner to existing conditions, with some increases in the delay.

Future Conditions (*with the proposed development*)

- The results of the future conditions analysis show that, with the addition of the site-generated traffic, all study intersection approaches and movements will operate in a manner similar to existing and background conditions, with the exception of the following:
 - The intersection of Crooks Road & Corporate Drive/I-75 Ramp is expected to operate at LOS F during both AM and PM peak periods with significant increases in delay for the westbound approach during the AM peak hour and the eastbound approach during the PM peak hour.
 - The southbound left-turn on Crooks Road at Tower Drive exceeds the available storage length and impacts the upstream operation at the intersection of Crooks Road & Corporate Drive/I-75 Ramp.
 - The northbound left turn movement at NB to SB Crooks Road crossover north of Long Lake Road is expected to operate at LOS E during both AM and PM peak hours.
 - The southbound left turn movement at the SB to NB Crooks Road crossover north of Long Lake Road is expected to operate at LOS F during PM peak hour.
 - The southbound left turn movement at SB to NB Crooks Road crossover south of Long Lake Road is expected to operate at LOS F during the PM peak hour.
 - The eastbound right turn movement on the E. Site Drive at Crooks Road is expected to operate at LOS F during the PM peak hour.
 - The southbound right turn movement at WB Long Lake Road and S.E. Site Dr. is expected to operate at LOS F during the PM peak hour.
 - The westbound left turn movement at the N. Site Drive at the Corporate Drive is expected to operate at LOS E during the PM peak hour.

- The westbound left turn movement at the N.E. Site Drive & SB Crooks Road intersection is expected to operate at LOS F during the PM peak hour.
- The westbound left turn movement at the N.W. Site Drive & Corporate Drive intersection is expected to operate at LOS E and LOS F during the AM and PM peak hour, respectively.
- Review of SimTraffic network simulations indicates long vehicles queues at the signalized intersection of Crooks Road & Corporate Drive/I-75 Ramp during both peak periods. Additionally, long vehicle queues exceeding the available storage length were observed at the Tower Drive Crossover, the SB-to-NB Crossover located north and south of Long Lake Road. Microsimulations indicate acceptable operations at all other study intersections.

Access Management

- The results of the analysis indicate that right-turn deceleration tapers are recommended at the site driveways on Corporate Drive and full-width right-turn lanes are recommended at the proposed site driveway locations on Crooks Road and Long Lake Road.
- There are no site access driveways proposed at this time with this PUD. Therefore, the site access driveways will be further reviewed for access management and auxiliary lanes during the development of site plan(s) for this PUD.

Parking Study

- The proposed PUD includes the addition both surface parking spaces and one or more parking structures.
- A minimum of 4,580 parking spaces is recommended for this Site.

Project Phasing

- There is no identifiable phasing plan at this juncture of the proposed development. The overall development is assumed to be phased over time, based on tenant opportunities and economic viability. As various areas are developed, a phasing plan will be formulated in a manner where all parking and building requirements are met throughout each phase.

Recommendations

The recommendations of this TIS are as follows:

Recommended Intersection Improvement (Future 2025)
10 Crooks Road & Corporate Drive / I-75 Ramp
<i>Eliminate the EB and WB left-turn movements and the split phasing</i>
<ul style="list-style-type: none"> • Operate as median U-turn on east and west approaches. • Construct new SB to NB crossover south of Corporate Drive. • Construct additional westbound right-turn lane • Extend the southbound left-turn storage length (~200 feet)
30 NB Crooks Road & Tower Drive
<i>Eliminate direct left turns and operate intersection with indirect left-turns.</i>
<ul style="list-style-type: none"> • Close existing crossover at intersection • Construct new NB to SB crossover north of Tower Drive
40 NB to SB Crooks Road X/O north of Long Lake Road
<ul style="list-style-type: none"> • Provide signalization
50 SB to NB Crooks Road X/O north of Long Lake Road
<ul style="list-style-type: none"> • Provide dual lane crossover
130 WB to EB Long Lake Road X/O west of Investment Drive
<ul style="list-style-type: none"> • Provide signalization
#140 SB to NB Crooks Road X/O south of Long Lake Road
<ul style="list-style-type: none"> • Provide dual lane crossover • Provide signalization
160 SB Crooks Road & E. Site Drive
<ul style="list-style-type: none"> • Provide dual right-turn egress • Provide a right-turn deceleration lane on Crooks Road
170 Corporate Drive & N. Site Drive
<ul style="list-style-type: none"> • Provide a two-lane egress approach • Provide a right-turn deceleration lane on Corporate Drive
180 Corporate Drive & W. Site Drive
<ul style="list-style-type: none"> • Provide a right-turn deceleration lane on Corporate Drive
190 WB Long Lake Road & SW. Site Drive
<ul style="list-style-type: none"> • Provide a right-turn deceleration lane on Long Lake Road
200 WB Long Lake Road & SE. Site Drive
<ul style="list-style-type: none"> • Provide a two-lane egress approach • Provide a right-turn deceleration lane on Corporate Drive
210 NB to SB Crooks Road XO north of Corporate Drive
<ul style="list-style-type: none"> • Provide dual lane crossover • Provide signalization

220 SB to NB Crooks Road X/O south of Tower Drive (NEW)
<ul style="list-style-type: none"> • Provide dual lane crossover • Provide signalization
230 NB to SB Crooks Road X/O north of Tower Drive
<ul style="list-style-type: none"> • Relocate crossover further south to accommodate a NB to SB X/O south of Corporate Drive
240 SB to NB Crooks Road X/O south of Tower Drive
<ul style="list-style-type: none"> • Provide dual lane crossover • Provide signalization
250 SB Crooks Road & NE. Site Drive
<ul style="list-style-type: none"> • Provide dual right-turn egress • Provide a right-turn deceleration lane on Crooks Road
260 Corporate Drive & NW. Site Drive
<ul style="list-style-type: none"> • Provide a two-lane egress approach

M. Landscaping: Refer to Appendix: Sheets: L-1, T-1, T-2 and T-3

- Landscaping will be designed per Article 13 of the City of Troy Zoning Ordinance.
- Tree Survey Originally completed May 15, 2019
 - 1179 trees 6" DBH or greater were identified and tagged (18 on adjacent property)
 - One (1) tree on the property is in Good condition (Silver Maple)
 - Remaining trees are noted as Fair, Poor or Very Poor

N. Natural Resources/Features:

The Site topography is gently sloping from the west to the east (elevation 800 to 774). Most of the Site drains to the southeast property corner and outlets into an existing culvert. Several areas of the property were shown to be disturbed with mounding, digging and evidence of earthwork/contour changes. No buildings or roads exist on the Site.

Wetlands – Refer to Appendix: Sheet A-2, C-1

Based upon the wetland delineation in March 2019, four (4) wetlands were found on the property. Two (2) wetlands were determined to be regulated by the Michigan Department of Environment, Energy & Great Lakes (EGLE). Wetland A and Wetland D is regulated by the City of Troy and EGLE and will need use permits for any impacts. Wetland A is dominantly scrub shrub with a dominance of common buckthorn (*Rhamnus cathartica*), riverbank grape (*Vitis riparia*) and silver maple (*Acer saccharinum*). Wetland D is primarily a scrub shrub wetland with a dominance of glossy buckthorn. The parcel did get processed through the State of Michigan's Wetland Assessment in June 2019. As determined by EGLE, a small stream was identified within the southern edge of Wetland A and drains directly into the existing storm end section. The on-site water travels within the storm pipe along Long Lake and discharges into the Sturgis Drain. It was this relationship to Sturgis Drain that EGLE determined the on-site water feature a stream and thus regulating Wetland A and D. Refer to Wetland Map below and review the included wetland report. Therefore, the City of Troy* and EGLE will require a use permit for Wetland A.

Refer to Wetlands Summary Report dated April 2, 2019 and Wetlands Identification Report from EGLE dated July 29, 2019

Woodlands – Refer to Appendix: Sheet A-4, T-1, T-2, T-3

Approximately, eighty-three percent (83%) of the 24-acre parcel is wooded. The woodland is split between upland and wetland. The table below provides a break-down of tree species counts and overall tree health condition. Based upon the 2019 tree survey, one thousand one hundred-eighty (1,180) trees were tagged based upon the City’s tree ordinance of 6-inch diameter at breast height. Twenty-five (25) different tree species were identified on the parcel with 98.9% being deciduous and 1.1% being evergreen. A majority of the tagged trees showed signs of stress which lead to a poor to very poor overall health (82.8% trees were considered poor to very poor). Factors that contribute to a poor to very poor health condition include trunk rot, trunk alignment, pests/ disease, excessive vine coverings, lack of crown, major limb damage and limited twig growth. The higher quality trees which consists primarily of hardwoods are shown in the chart with bold text. They represent only approximately 20% of the woodland. Most of these trees were located within an old utility corridor in the western portion of the property. In addition, scrub shrub habitat was dominant on the parcel consisting mostly of common buckthorn (*Rhamnus cathartica*). Based upon the statistical data, the woodland represents a low-quality woodlot with a dominance of prohibited trees species as listed by the City (box elder, cottonwood, white and green ash, black locust, silver maple, white poplar, etc.). Tree replacements should focus on high-quality hardwood native and/or cultivars of native trees for re-establishment.

Table 1.0 – 2019 Tree Survey Health & Diversity Chart

Tree Type	Total Count	Poor/VP	Percentage of Total
American Beech	1	0	0.08%
American Elm	130	105	11.02%
Austrian Pine	5	5	0.42%
Basswood	60	38	5.08%
Black Locust	425	416	36.02%
Black Walnut	126	75	10.68%
Black Willow	1	1	0.08%
Blue Spruce	6	0	0.51%
Box elder	127	121	10.76%
Cottonwood	30	20	2.54%
Domestic Apple	8	8	0.68%
Green Ash	78	72	6.61%
Norway Maple	12	1	1.02%
Paper Birch	1	1	0.08%
Pear	1	1	0.08%
Red Maple	2	0	0.17%
Scotch Pine	2	2	0.17%
Shagbark Hickory	1	1	0.08%
Silver Maple	96	50	8.14%
Sugar Maple	8	2	0.68%
Thornapple/Hawthorne	25	25	2.12%
White Ash	1	1	0.08%
White Poplar	1	1	0.08%

Wild Black Cherry	23	22	1.95%
Yellow Birch	10	9	0.85%
TOTALS	1180	977 (82.80%)	100.00%

High Quality Tree Species	239	139 (58.16%)	20.25%
Deciduous Trees	1.10%		
Evergreen Trees	98.90%		

O. Parking Counts:

Refer to Appendix: Sheet TR-1 - Traffic Impact Study and Shared Parking Study, Section 10

P. Project Phasing:

There is no identifiable phasing plan at this juncture of the proposed development. The overall development is assumed to be phased over time, based on end-user opportunities and economic viability. As various areas are developed, a phasing plan will be formulated in a manner where all parking and building requirements are met throughout each phase.

Q. Public Services/Facilities:

Anticipated demand will be dependent upon the type of development and their uses. City of Troy has sufficient infrastructure to sufficiently support a development of this size and variety.

Much of the stormwater generated from the development will be collected and conveyed via an enclosed storm sewer network to an underground stormwater detention system. The underground detention system provides management of the stormwater rate and quality prior to its discharge into the Sturgis Drain.

R. Historical Resources and Structures:

Based upon available online resources and field observations, no known historic architecture, buildings, foundations and/or archeological features exist on the subject property. Historic aerial imagery suggests that the property was used primarily as agricultural property since 1940 to 1980.

From 1980, the site use changed to fallow field and developed into the wetlands and woodlands you see today. In 1963 – 1964, Interstate 75 was constructed, and Crooks Road entrance/ exit ramp was established. The introduction of the highway system energized the immediate surrounding area to develop into commercial and office/ mixed-use zoning.

Around 1999, the northern portion of the property was disturbed due to construction activity for the development of the office and mixed-use buildings and parking areas. In addition, the National Parks Services has only two sites listed on the historic register. The two listings are as follows:

- Brooks Farm: 3521 Big Beaver Road
- Caswell House: 60 West Wattles Road

Both historic sites are over 2.0 miles from the subject property. The proposed development will not adversely affect the listed historic parcels. The following figures show the progression of the subject parcel from 1940 through 1999. In summary, the parcel was heavily farmed for at least forty years with the last forty years being left to naturalized based upon its surroundings. Through

that time period, one house and accessory buildings have been shown to exist for approximately ten years.

Figure 4: 1940 B&W Aerial, Source: Oakland County Property Gateway. Property is utilized as agricultural.



Figure 5: 1963 B&W Aerial, Source: Oakland County Property Gateway. Introduction of Interstate 75, house located in the southeast corner of property; overall property is utilized as agricultural.



Figure 6: 1963 – Detail of house located at the southeast corner. House appears to be removed by 1974.



Figure 7: 1974 B&W Aerial, Source: Oakland County Property Gateway. Parcel continues as agricultural use



Figure 8: 1980 B&W Aerial, Source: Oakland County Property Gateway. It appears the parcel is not being farmed.



Figure 9: 1990 B&W Aerial, Source: Oakland County Property Gateway. Significant development surrounding the subject property with office and mix-use. From 1980 to 1990, Corporate Drive is constructed and Long Lake and Crooks Road becomes wider as a boulevard to address future traffic and growth.



Figure 10: 1999 B&W Aerial, Source - Google Earth. Parcel has developed wetlands and woodland area since approximately 1980 due to inactivity on the property (i.e. no farming, maintenance, etc.) Northern portion of the Site receives impacts from the construction activity to the north.



In summary, the Long Lake and Crooks Road 24-acre shares a similar history as most surrounding properties in Troy, Michigan. Once historically farmed, the Site was abandoned from farming and set aside for the future growth and development of the Detroit Metropolitan Area. As shown, this is one of the last large-scale pieces of property within the office and mixed-use zoning in the City of Troy. The resources on the Site are of poor quality due to the lack of land management or planning. As the surrounding properties were developed, this parcel received secondary impacts and disturbance which promotes pioneer plant and tree species to dominant.

S. Site Topography: Refer to Appendix: Sheet C-1

The Site topography is gently sloping from the west to the east (elevation 800 to 774). Most of the Site drains to the southeast property corner and outlets into an existing culvert. Several areas of the property were shown to be disturbed with mounding, digging and evidence of earthwork/contour changes. No buildings or roads were observed on the subject property.

T. Signage: Refer to Appendix: Sheet C-2

Final signage, based on individual area developments, will adhere to all city requirements / regulations as identified in City ordinances. In general, the following signage opportunities are assumed:

- Monument Signs – Four (4) monument signs will be provided
 - Main Entrances on Crooks Road, Long Lake Road and Corporate Drive with tenant signage
 - Corner of Long Lake and Crooks with development signage
- Building Signs – Signage will be provided for each of the structures within the property

- Directional Signs – Signage will be provided within the property related to parking, fire lanes, one-way traffic, etc.

U. Amenities:

Refer to Appendix: A-7 for locations and opportunities.

- Outdoor plazas to encourage interaction and engagement outside of the workplace.
- Outdoor dining areas opportunities within Retail / Entertainment locations as well as along ‘pedestrian boulevard’ where daily retail pop-ups can be incorporated.
- Pedestrian circulation paths and activity areas throughout the property for walkability, relaxation and encouragement of a healthy environment.
- Walking paths and activity areas for public and internal use.
- Public artwork

V. Existing Zoning Classification:

O - Office Building District Zoning

Development to support office uses and limited related retail and service uses which support an office environment.

Not supportive of prominent retail or other commercial components

Maximum height – 3 stories/ 36’

Density restrictions

Restaurants – not permitted

Hotel/Lodging – not permitted

Parking Decks – special approval only

W. Specification of Deviations:

The proposed re-zoning will shift from the current Site zoning of ‘O’ to the desired ‘PUD’, including variances of development use, maximum height and GSF.

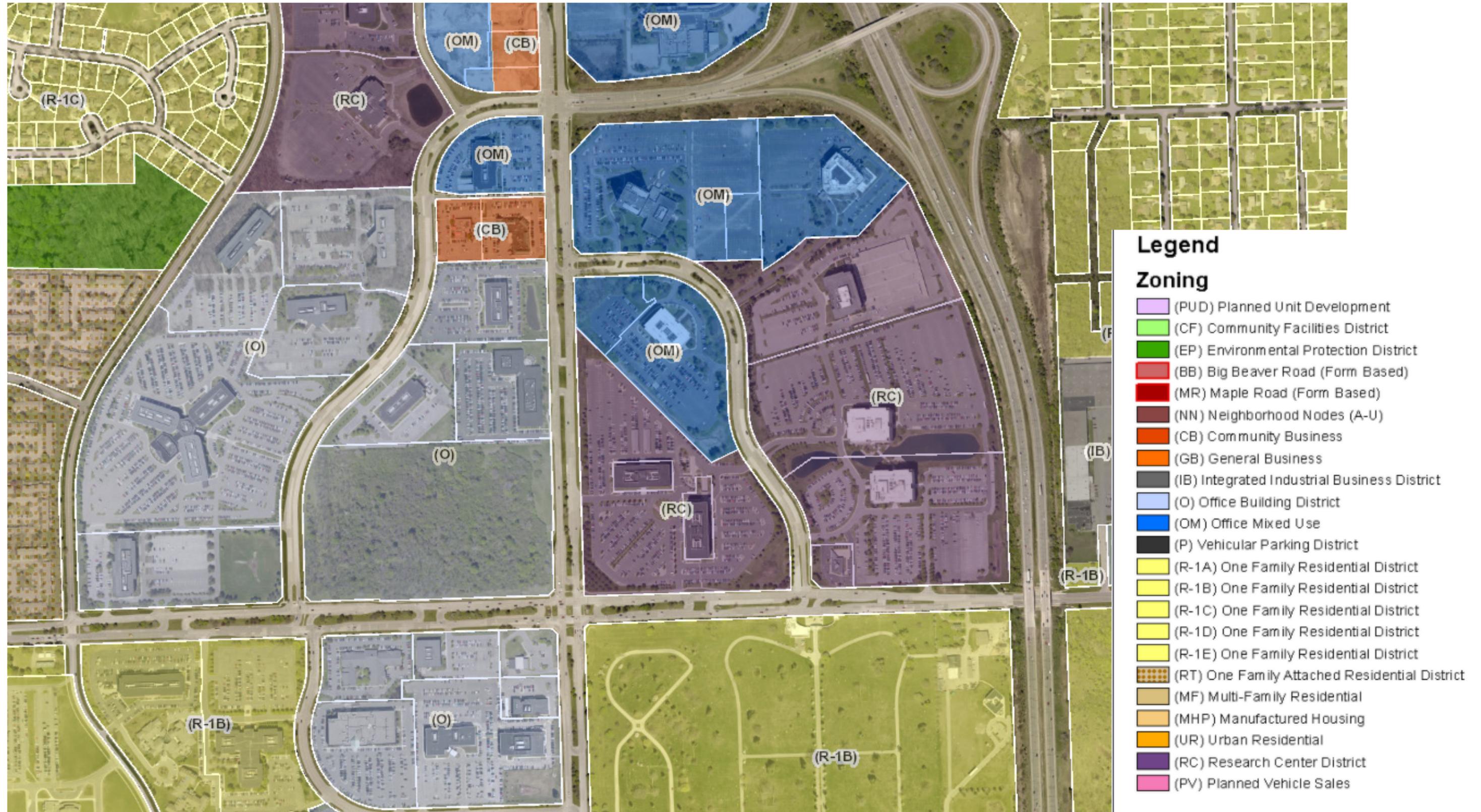
X. Community Impact Statement:

As part of the North Troy Master Plan, the integration of mixed-use developments will help encourage the public to remain in the area outside of the typical 9 to 5 office hours, which in turn will grow and strengthen the local economy and develop a larger presence for the Northfield district. Given the location of the Site, this development is intended to act as a gateway into the district, spearheading North Troy’s positioning within the larger city context. It is hoped that the development of this vacant site will encourage further strategic redevelopment of properties within the surrounding area as the next generation of growth.

The development will be pedestrian-friendly and readily accessible, encouraging users to move from building to building in a campus / park-like setting. By enhancing site walkability and creating desirable public and private destinations, this gateway corner will be rejuvenated with new life and vibrancy that the district has currently been void of.

APPENDIX

ZONING MAP

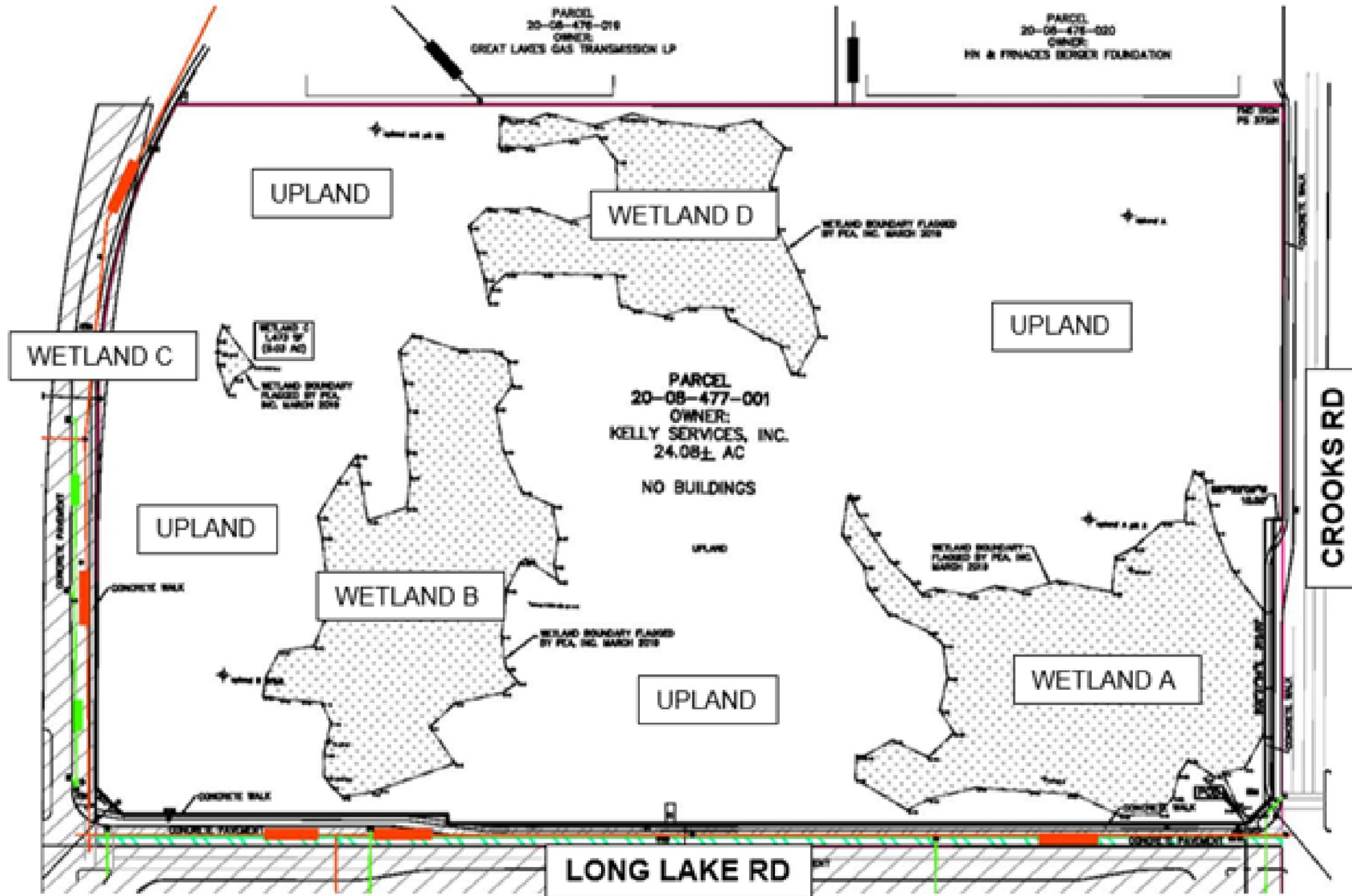


WETLANDS



FIGURE 1: SOURCE - OAKLAND COUNTY PROPERTY GATEWAY

WETLAND MAP



*City of Troy wetlands ordinance only regulates those wetlands regulated by the State of Michigan.

WOODLANDS



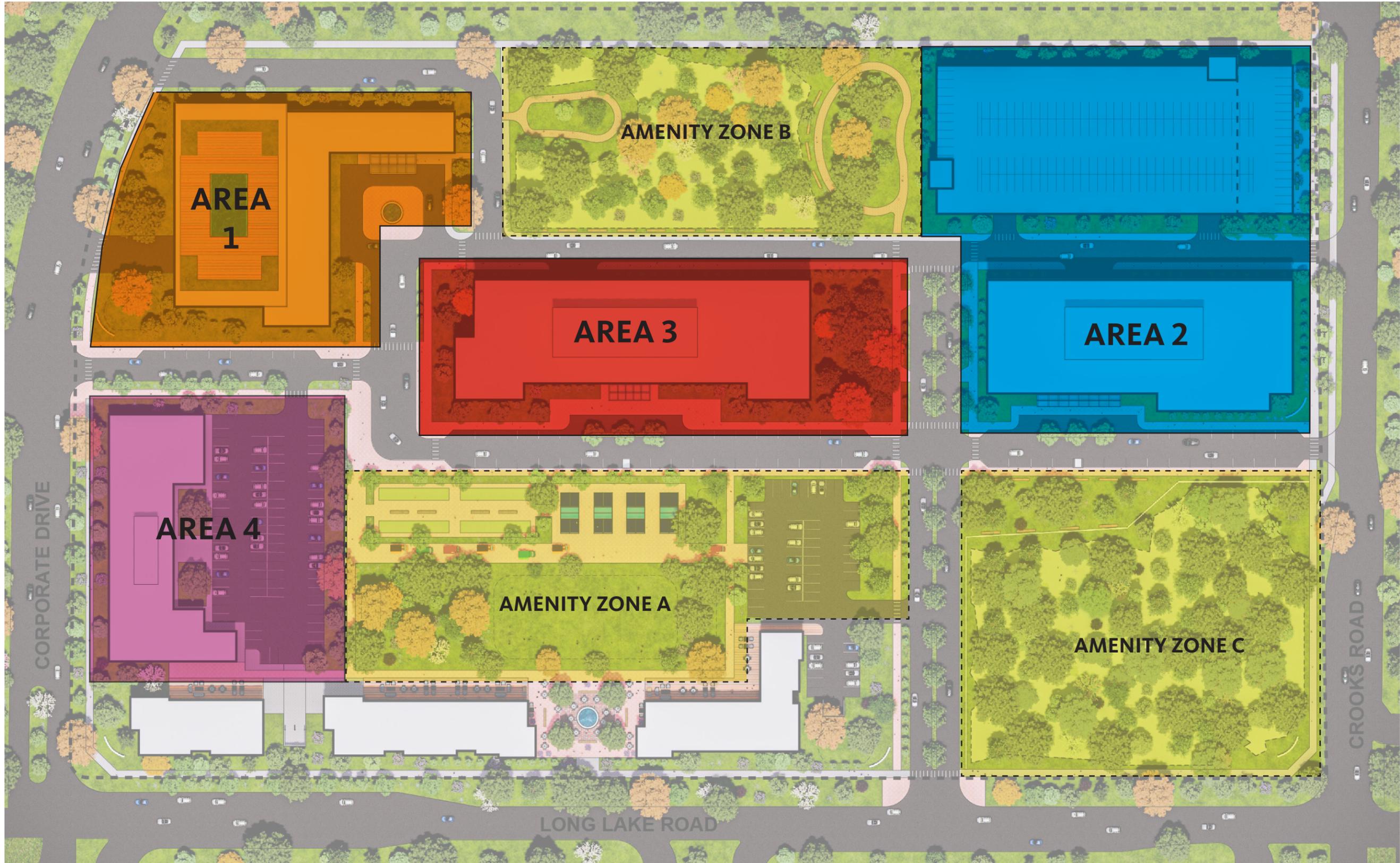
FIGURE 3: SOURCE - GOOGLE EARTH

CONCEPT DEVELOPMENT PLAN - OVERALL

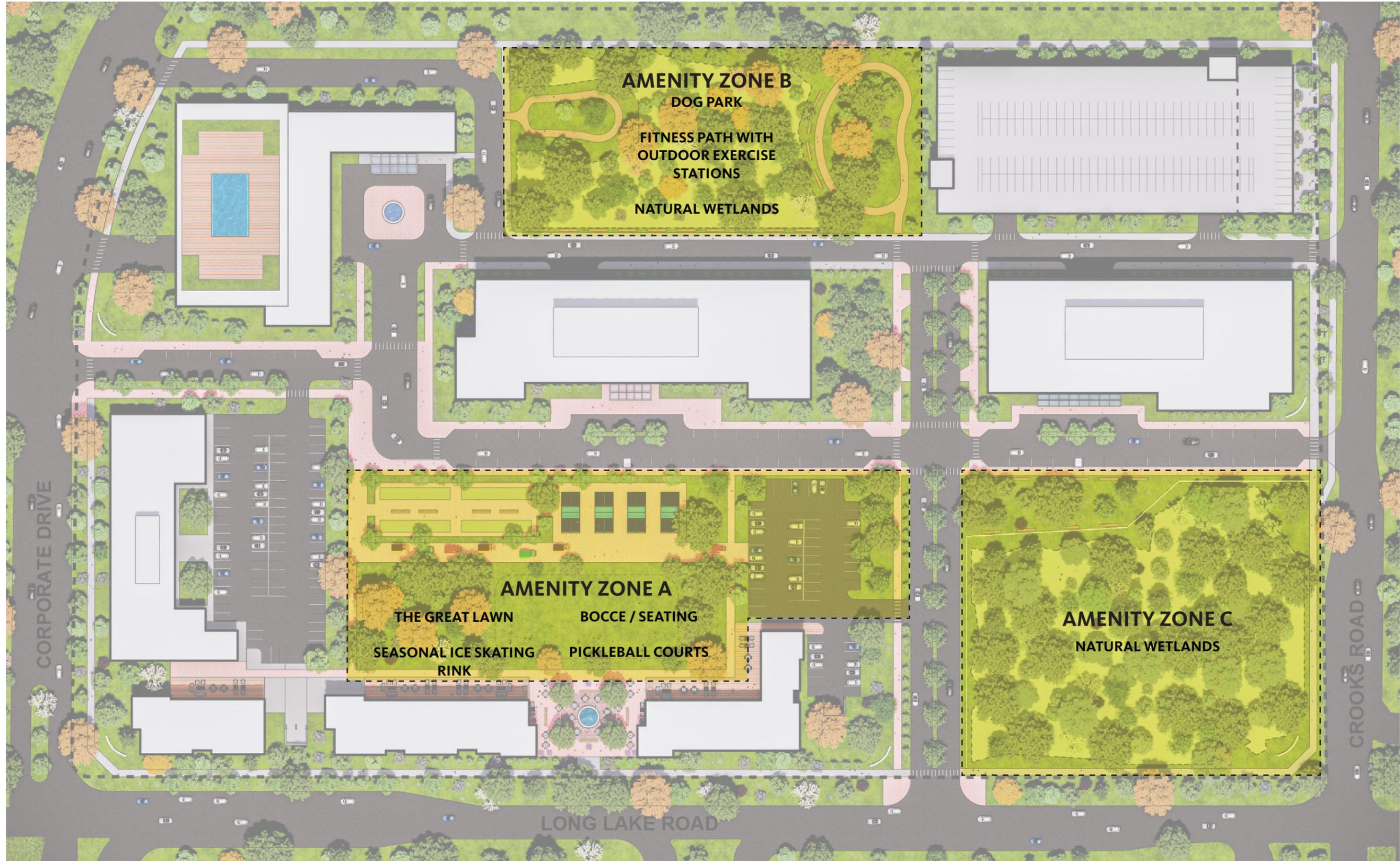


Illustration is a representation of a potential future maximum buildout based on buildout of each Development Area.

CONCEPT DEVELOPMENT PLAN - DEVELOPMENT AREAS



DEVELOPMENT PLAN - AMENITY ZONES



DEVELOPMENT AREA 1 - RESIDENTIAL



Illustration is a representation of a potential area buildout.



DEVELOPMENT AREA 2 - OFFICE / PROFESSIONAL

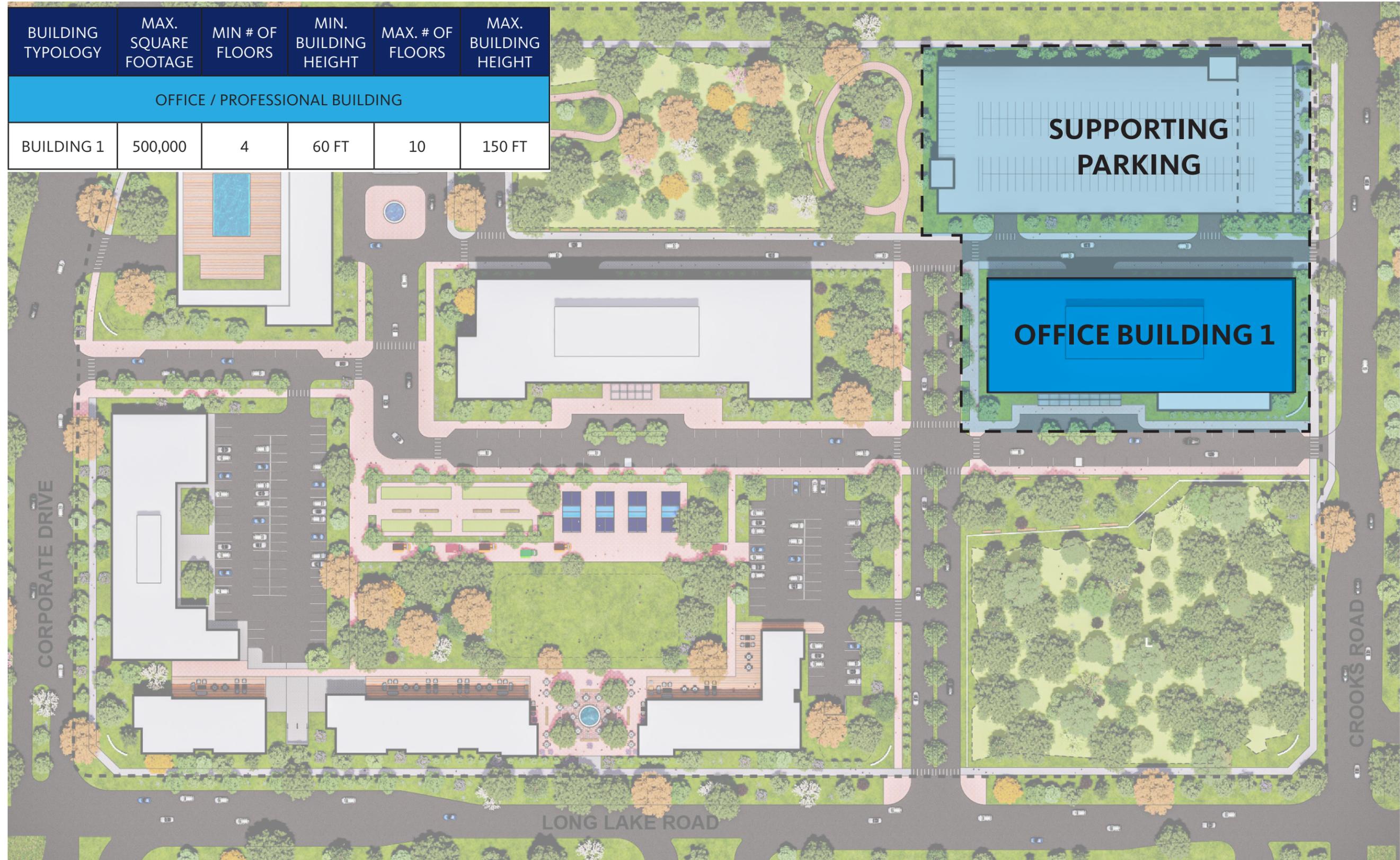


Illustration is a representation of a potential area buildout.

DEVELOPMENT AREA 3 - OFFICE / PROFESSIONAL / RESIDENTIAL

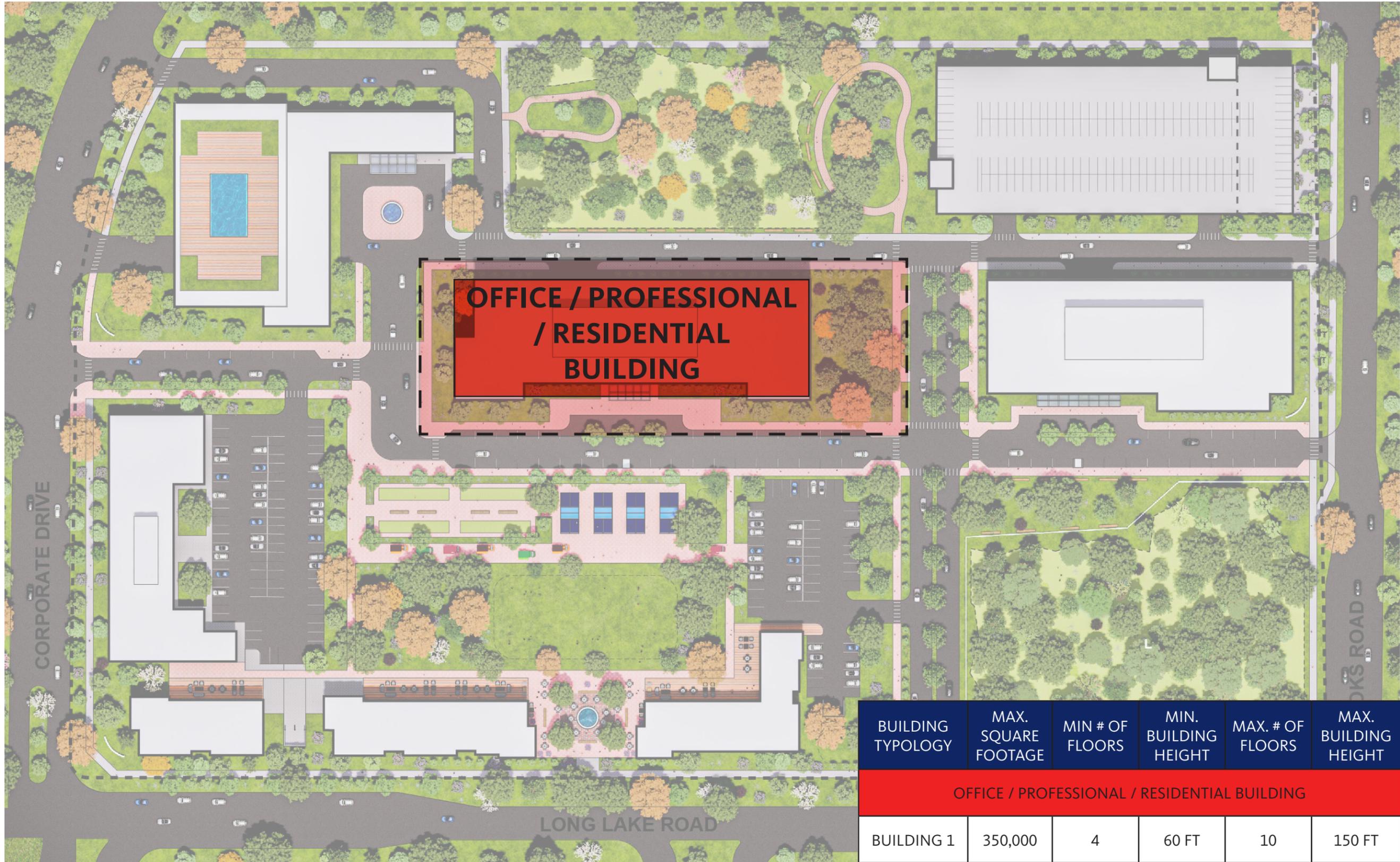


Illustration is a representation of a potential area buildout.



DEVELOPMENT AREA 4 - HOTEL / RESIDENTIAL

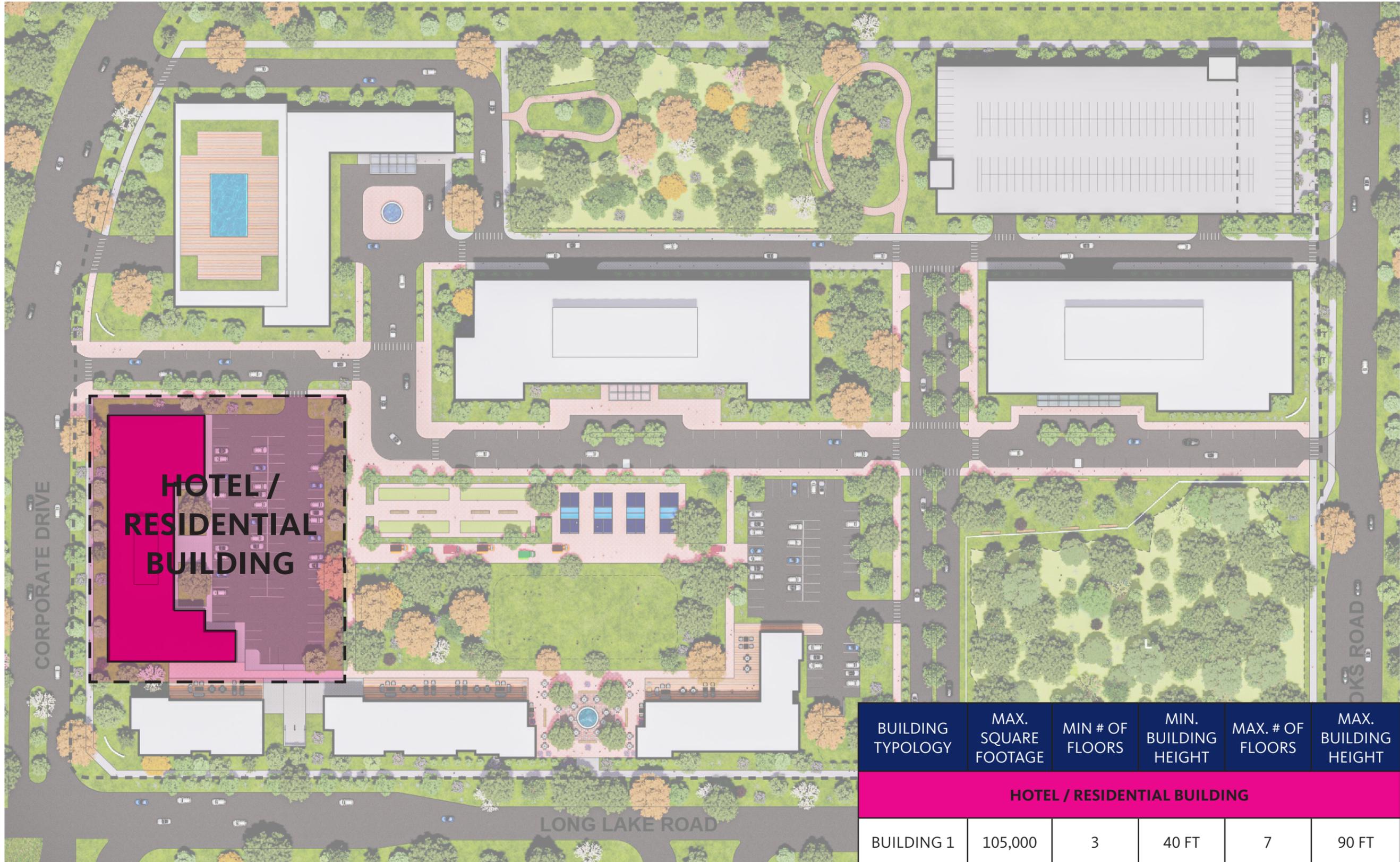
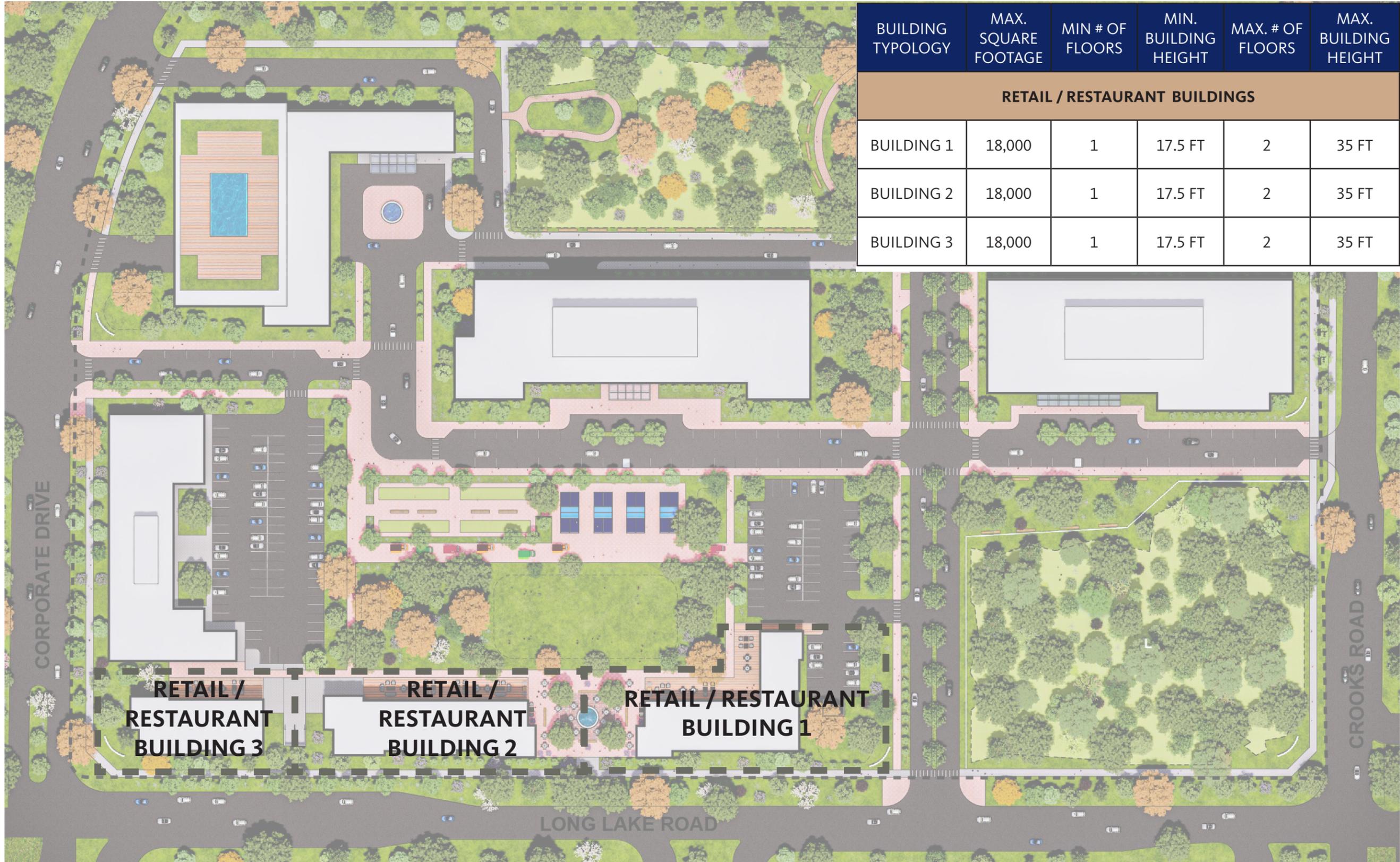


Illustration is a representation of a potential area buildout.



RETAIL / RESTAURANT



CONCEPT DEVELOPMENT PLAN - MASSING



BUILDING TYPOLOGY	MAX. SQUARE FOOTAGE	MIN. # OF FLOORS	MIN. BUILDING HEIGHT	MAX. # OF FLOORS	MAX. BUILDING HEIGHT
DEVELOPMENT AREA 1					
RESIDENTIAL					
BUILDING 1	350,000	3	40 FT	7	90 FT
RETAIL / RESTAURANT					
BUILDING 1	18,000	1	17.5 FT	2	35 FT
BUILDING 2	18,000	1	17.5 FT	2	35 FT
BUILDING 3	18,000	1	17.5 FT	2	35 FT
DEVELOPMENT AREA 2					
OFFICE / PROFESSIONAL					
BUILDING 1	500,000	4	60 FT	10	150 FT
DEVELOPMENT AREA 3					
OFFICE / PROFESSIONAL / RESIDENTIAL					
BUILDING 1	350,000	4	60 FT	10	150 FT
DEVELOPMENT AREA 4					
HOTEL / RESIDENTIAL					
BUILDING 1	105,000	3	40 FT	7	90 FT

Illustration is a representation of a potential future maximum buildout based on buildout of each Development Area.





CROOKS & LONG LAKE // MASTERPLAN // CONCEPTUAL OUTDOOR COMMUNITY SPACE





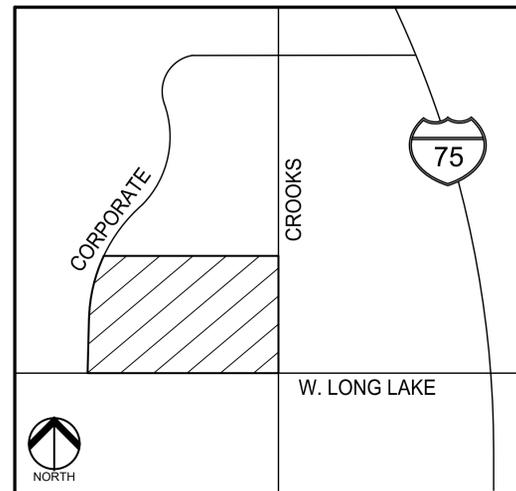
PRELIMINARY SITE PLANS

LONG LAKE & CROOKS

MASTERPLAN DEVELOPMENT

LONG LAKE AND CROOKS ROAD
CITY OF TROY, OAKLAND COUNTY, MICHIGAN

INDEX OF DRAWINGS	
NUMBER	TITLE
	COVER SHEET
C-1.0	TOPOGRAPHIC SURVEY
C-3.0	PRELIMINARY SITE PLAN
C-5.0	PRELIMINARY UTILITY PLAN
L-1.0	PRELIMINARY LANDSCAPE PLAN



LOCATION MAP
NO SCALE

DESIGN TEAM

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<p>ARCHITECT</p> <p>GENSLER 150 W JEFFERSON, STE. 1700 DETROIT, MI 48226 CONTACT: CHRIS BECK PHONE: 313.496.8966 EMAIL: CHRIS_BECK@GENSLER.COM</p>	<p>LANDSCAPE ARCHITECT</p> <p>PEA GROUP 7927 NEMCO WAY, STE. 115 BRIGHTON, MI 48116 CONTACT: JANET EVANS PHONE: 844.813.2949 EMAIL: JEVANS@PEAGROUP.COM</p>



REVISIONS	
DESCRIPTION	DATE
ORIGINAL ISSUE DATE	11/16/2022



LEGAL DESCRIPTION
 (Per Seaver Title Agency Commitment File No. 63-15403143-SCM, Revision 6, Commitment Date May 06, 2019.)
 A parcel of land in a part of the southeast quarter of Section 8, T.02N., R.11E., City of Troy, County of Oakland, State of Michigan described as follows:
 Commencing at the Southeast corner of Section 8, T.02N., R.11E., City of Troy, County of Oakland, State of Michigan, thence South 87 degrees 15 minutes 31 seconds West 130.00 feet; thence North 02 degrees 37 minutes 54 seconds West 100.00 feet to the north line of Long Lake Road (width varies) and the POINT OF BEGINNING; thence along said north line the following three (3) courses and distances: 1) South 87 degrees 15 minutes 31 seconds West 894.70 feet; 2) North 02 degrees 30 minutes 26 seconds West 10.00 feet; 3) South 87 degrees 15 minutes 31 seconds West 364.00 feet; thence North 47 degrees 37 minutes 28 seconds West 42.26 feet to the easterly line of Corporate Drive (120' wide); thence North 02 degrees 30 minutes 26 seconds West 424.81 feet to a point of curvature; thence 353.35 feet along a curve to the right, said curve having a radius 710.00 feet, a central angle of 28 degrees 30 minutes 52 seconds, and a chord that bears North 11 degrees 45 minutes 00 seconds East 349.71 feet; thence North 87 degrees 15 minutes 31 seconds East 1240.77 feet to the west line of Crooks Road (width varies); thence along said west line the following three (3) courses and distances: 1) South 02 degrees 37 minutes 54 seconds East 463.36 feet; 2) South 87 degrees 22 minutes 06 seconds West 10.00 feet; 3) South 02 degrees 37 minutes 54 seconds East 310.00 feet; thence South 42 degrees 18 minutes 48 seconds West 42.47 feet to the POINT OF BEGINNING and containing 24.08 Acres.

LEGEND

- IRON FOUND
- MONUMENT FOUND
- NAIL FOUND
- NAIL & CAP SET
- BRASS PLUG SET
- MONUMENT FOUND
- NAIL & CAP SET
- SEC. CORNER FOUND
- R RECORDED
- M MEASURED
- C CALCULATED

EXISTING

- OH-ELEC-WW
- UG-CATV
- UG-PHONE
- UG-ELEC
- GAS MARK, VALVE & GAS LINE MARKER
- WATER MAIN, HYD. GATE VALVE, TAPPING SLEEVE & VALVE
- SANITARY SEWER, CLEANOUT & MANHOLE
- STORM SEWER, CLEANOUT & MANHOLE
- COMBINED SEWER & MANHOLE
- SQUARE, ROUND & BEEHIVE CATCH BASIN, YARD DRAIN
- POST INDICATOR VALVE
- WATER VALVE BODY/HYDRANT VALVE BOX, SERVICE SHUTOFF
- MAILBOX, TRANSFORMER, IRRIGATION CONTROL VALVE
- UNIDENTIFIED STRUCTURE
- SPOT ELEVATION
- CONTOUR LINE
- FENCE
- GUARDRAIL
- STREET LIGHT
- SIGN
- CONC. CONCRETE
- ASPH. ASPHALT
- GRAVEL GRAVEL SHOULDER
- WETLAND

REFERENCE DRAWINGS

- ALTAIRSP LAND TITLE SURVEY, PEA JOB NO. 2019-006, DATED APRIL 9, 2019, REVISED 5/17/2019
- WATER MAIN CITY OF TROY GIS MAP
- SANITARY SEWER CITY OF TROY GIS MAP
- STORM SEWER CITY OF TROY GIS MAP

FLOODPLAIN NOTE:
 BY GRAPHICAL PLOTTING, SITE IS WITHIN ZONE 'X', AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN PER FLOOD INSURANCE RATE MAP NUMBER 2812500531F, DATED SEPTEMBER 29, 2006.

BENCHMARKS
 (GPS DERIVED - NAVD88)

- BM #300 PUNCH AN ARROW ON A HYDRANT LOCATED ON THE WEST SIDE OF CROOKS ROAD, AT THE SOUTH ENTRANCE TO 5225 CROOKS RD. ELEV. - 786.94
- BM #301 PUNCH AN ARROW ON A HYDRANT LOCATED IN AN ISLAND IN W. LONG LAKE ROAD, JUST WEST OF CROOKS ROAD. ELEV. - 776.93
- BM #302 PUNCH AN ARROW ON A HYDRANT LOCATED IN AN ISLAND IN W. LONG LAKE ROAD, APPROX. 650'± WEST OF CROOKS ROAD. ELEV. - 784.32
- BM #303 PUNCH AN ARROW ON A HYDRANT LOCATED IN AN ISLAND IN W. LONG LAKE ROAD, APPROX. 350'± EAST OF CORPORATE DRIVE. ELEV. - 795.26
- BM #304 PUNCH AN ARROW ON A HYDRANT LOCATED ON THE WEST SIDE OF CORPORATE DRIVE, APPROX. 290'± SOUTHWEST FROM THE SOUTH ENTRANCE TO 5250 CORPORATE DRIVE. ELEV. - 85.42

PEA GROUP
 t: 844.813.2949
 www.peagroup.com

STATE OF MICHIGAN
 JAMES J. PEASE
 LICENSE NO. 039805
 PROFESSIONAL ENGINEER

NORTH

0 30 60 120
 SCALE: 1" = 60'

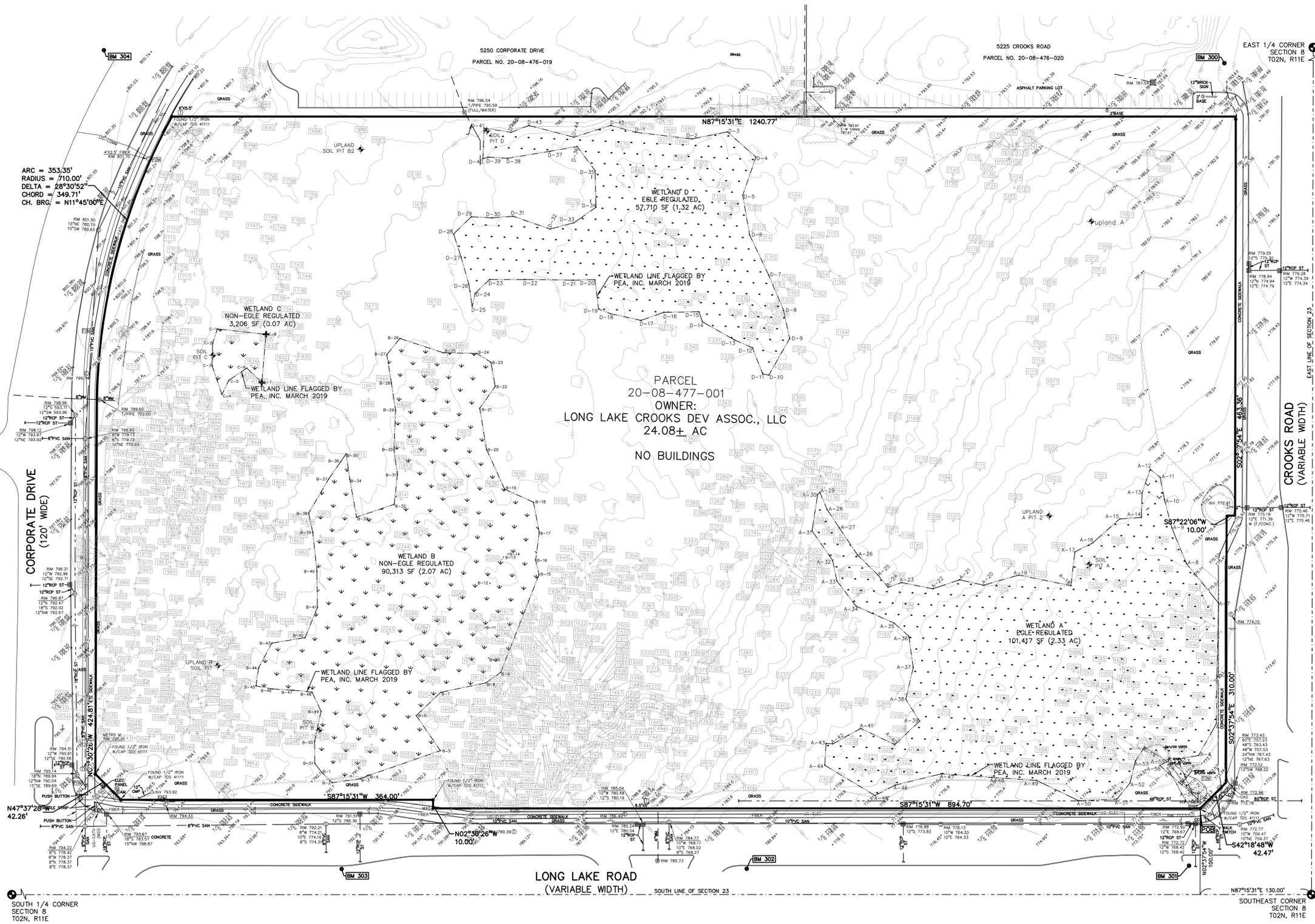
811 Know what's below. Call before you dig.

CAUTION!
 THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY AS SHOWN TO THE BEST OF OUR KNOWLEDGE AND BELIEF. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

LOCATION MAP

CLIENT
GENSLER
 150 W JEFFERSON, SUITE 1700
 DETROIT, MI 48226

PROJECT TITLE
LONG LAKE & CROOKS MASTERPLAN DEVELOPMENT
 LONG LAKE AND CROOKS ROAD
 CITY OF TROY, OAKLAND COUNTY, MICHIGAN



REVISIONS

NO.	DATE	DESCRIPTION

ORIGINAL ISSUE DATE:
 APRIL 11, 2022

DRAWING TITLE
TOPOGRAPHIC SURVEY

PEA JOB NO. 2020-0320
P.M. LAA
DN. BLA
DES. SS

DRAWING NUMBER:
C-1.0

NOT FOR CONSTRUCTION

TAG NO.	CODE	DBH	COMMON NAME	LATIN NAME	COND	COMMENTS
1001	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1002	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1003	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Very Poor	
1004	CT	28	Cottonwood	<i>Populus deltoides</i>	Fair	
1005	BL	16	Black Locust	<i>Robinia pseudoacacia</i>	Very Poor	dead
1006	BL	16	Black Locust	<i>Robinia pseudoacacia</i>	Poor	x2
1007	BL	15	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1008	SM	20	Silver Maple	<i>Acer saccharinum</i>	Very Poor	x1
1009	SM	17	Silver Maple	<i>Acer saccharinum</i>	Poor	
1010	CT	37	Cottonwood	<i>Populus deltoides</i>	Fair	
1011	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1012	BX	21	Box elder	<i>Acer negundo</i>	Poor	
1013	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1014	CT	17	Cottonwood	<i>Populus deltoides</i>	Fair	
1015	CT	18	Cottonwood	<i>Populus deltoides</i>	Poor	x1
1016	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1017	BX	36	Box elder	<i>Acer negundo</i>	Poor	
1018	SM	15	Silver Maple	<i>Acer saccharinum</i>	Poor	
1019	BX	17	Box elder	<i>Acer negundo</i>	Poor	
1020	BX	10	Box elder	<i>Acer negundo</i>	Poor	
1021	SM	38	Silver Maple	<i>Acer saccharinum</i>	Poor	
1022	SM	23	Silver Maple	<i>Acer saccharinum</i>	Fair	
1023	GA	9	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1024	BX	14	Box elder	<i>Acer negundo</i>	Poor	
1025	SM	27	Silver Maple	<i>Acer saccharinum</i>	Fair	
1026	SM	29	Silver Maple	<i>Acer saccharinum</i>	Fair	
1027	SM	9	Silver Maple	<i>Acer saccharinum</i>	Poor	
1028	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1029	BX	17	Box elder	<i>Acer negundo</i>	Very Poor	
1030	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1031	SM	24	Silver Maple	<i>Acer saccharinum</i>	Poor	x1
1032	GA	12	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1033	SM	21	Silver Maple	<i>Acer saccharinum</i>	Fair	
1034	GA	7	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1035	E	6	American Elm	<i>Ulmus americana</i>	Poor	x1
1036	SM	34	Silver Maple	<i>Acer saccharinum</i>	Fair	
1037	SM	14	Silver Maple	<i>Acer saccharinum</i>	Poor	
1038	E	12	American Elm	<i>Ulmus americana</i>	Poor	
1039	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1040	BX	9	Box elder	<i>Acer negundo</i>	Very Poor	
1041	CT	33	Cottonwood	<i>Populus deltoides</i>	Poor	
1042	CT	18	Cottonwood	<i>Populus deltoides</i>	Poor	
1043	CT	28	Cottonwood	<i>Populus deltoides</i>	Poor	
1044	CT	23	Cottonwood	<i>Populus deltoides</i>	Poor	
1045	E	13	American Elm	<i>Ulmus americana</i>	Poor	
1046	CT	17	Cottonwood	<i>Populus deltoides</i>	Poor	
1047	E	7	American Elm	<i>Ulmus americana</i>	Poor	
1048	E	8	American Elm	<i>Ulmus americana</i>	Fair	
1049	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1050	SM	13	Silver Maple	<i>Acer saccharinum</i>	Fair	
1051	SM	17	Silver Maple	<i>Acer saccharinum</i>	Poor	
1052	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1053	E	14	American Elm	<i>Ulmus americana</i>	Poor	
1054	CT	15	Cottonwood	<i>Populus deltoides</i>	Poor	
1055	CT	13	Cottonwood	<i>Populus deltoides</i>	Poor	
1056	SM	9	Silver Maple	<i>Acer saccharinum</i>	Poor	
1057	CT	31	Cottonwood	<i>Populus deltoides</i>	Poor	
1058	E	12	American Elm	<i>Ulmus americana</i>	Poor	
1059	CT	29	Cottonwood	<i>Populus deltoides</i>	Poor	
1060	E	9	American Elm	<i>Ulmus americana</i>	Very Poor	
1061	CT	27	Cottonwood	<i>Populus deltoides</i>	Fair	
1062	SM	9	Silver Maple	<i>Acer saccharinum</i>	Very Poor	
1063	SM	8	Silver Maple	<i>Acer saccharinum</i>	Poor	
1064	E	6	American Elm	<i>Ulmus americana</i>	Poor	
1065	SM	13	Silver Maple	<i>Acer saccharinum</i>	Poor	
1066	E	6	American Elm	<i>Ulmus americana</i>	Poor	
1067	SM	6	Silver Maple	<i>Acer saccharinum</i>	Poor	x1
1068	SM	17	Silver Maple	<i>Acer saccharinum</i>	Poor	
1069	BWW	25	Black Willow	<i>Salix nigra</i>	Very Poor	
1070	CT	7	Cottonwood	<i>Populus deltoides</i>	Poor	
1071	CT	8	Cottonwood	<i>Populus deltoides</i>	Fair	
1072	CT	12	Cottonwood	<i>Populus deltoides</i>	Poor	x1
1073	CT	6	Cottonwood	<i>Populus deltoides</i>	Fair	
1074	CT	10	Cottonwood	<i>Populus deltoides</i>	Poor	
1075	CT	14	Cottonwood	<i>Populus deltoides</i>	Poor	
1076	CT	16	Cottonwood	<i>Populus deltoides</i>	Fair	
1077	CT	10	Cottonwood	<i>Populus deltoides</i>	Fair	
1078	E	10	American Elm	<i>Ulmus americana</i>	Fair	
1079	GA	6	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1080	E	7	American Elm	<i>Ulmus americana</i>	Fair	
1081	SM	16	Silver Maple	<i>Acer saccharinum</i>	Fair	
1082	SM	27	Silver Maple	<i>Acer saccharinum</i>	Poor	
1083	SM	14	Silver Maple	<i>Acer saccharinum</i>	Poor	
1084	SM	8	Silver Maple	<i>Acer saccharinum</i>	Poor	
1085	SM	13	Silver Maple	<i>Acer saccharinum</i>	Fair	
1086	GA	6	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1087	E	10	American Elm	<i>Ulmus americana</i>	Poor	
1088	SM	15	Silver Maple	<i>Acer saccharinum</i>	Poor	
1089	SM	19	Silver Maple	<i>Acer saccharinum</i>	Poor	
1090	SM	18	Silver Maple	<i>Acer saccharinum</i>	Poor	
1091	E	6	American Elm	<i>Ulmus americana</i>	Poor	
1092	SM	20	Silver Maple	<i>Acer saccharinum</i>	Poor	
1093	SM	17	Silver Maple	<i>Acer saccharinum</i>	Poor	
1094	E	12	American Elm	<i>Ulmus americana</i>	Poor	
1095	SM	13	Silver Maple	<i>Acer saccharinum</i>	Poor	
1096	SM	7	Silver Maple	<i>Acer saccharinum</i>	Poor	
1097	TH	7	Thornapple/Hawthorne	<i>Cragaeus spp.</i>	Poor	
1098	E	6	American Elm	<i>Ulmus americana</i>	Poor	
1099	SM	17	Silver Maple	<i>Acer saccharinum</i>	Fair	x1
1100	E	12	American Elm	<i>Ulmus americana</i>	Fair	
1101	GA	10	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1102	E	9	American Elm	<i>Ulmus americana</i>	Poor	
1103	AP	9	Domestic Apple	<i>Malus sylvestris</i>	Poor	x4
1104	SM	24	Silver Maple	<i>Acer saccharinum</i>	Poor	
1105	BC	9	Wild Black Cherry	<i>Prunus serotina</i>	Poor	
1106	GA	12	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	

1107	SM	13	Silver Maple	<i>Acer saccharinum</i>	Fair	
1108	GA	7	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1109	SM	14	Silver Maple	<i>Acer saccharinum</i>	Fair	
1110	GA	13	Green Ash	<i>Fraxinus pennsylvanica</i>	Fair	
1111	SM	23	Silver Maple	<i>Acer saccharinum</i>	Poor	
1112	SM	13	Silver Maple	<i>Acer saccharinum</i>	Poor	
1113	RM	10	Red Maple	<i>Acer rubrum</i>	Fair	
1114	BX	12	Box elder	<i>Acer negundo</i>	Poor	
1115	SM	24	Silver Maple	<i>Acer saccharinum</i>	Fair	x2
1116	SM	28	Silver Maple	<i>Acer saccharinum</i>	Fair	
1117	RM	8	Red Maple	<i>Acer rubrum</i>	Fair	
1118	GA	6	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1119	BX	21	Box elder	<i>Acer negundo</i>	Poor	x1
1120	BX	28	Box elder	<i>Acer negundo</i>	Poor	
1121	BX	9	Box elder	<i>Acer negundo</i>	Poor	
1122	BC	18	Wild Black Cherry	<i>Prunus serotina</i>	Poor	
1123	BX	10	Box elder	<i>Acer negundo</i>	Poor	
1124	BX	21	Box elder	<i>Acer negundo</i>	Poor	
1125	BX	7	Box elder	<i>Acer negundo</i>	Poor	
1126	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1127	BX	8	Box elder	<i>Acer negundo</i>	Poor	x3
1128	BX	7	Box elder	<i>Acer negundo</i>	Poor	2
1129	BX	9	Box elder	<i>Acer negundo</i>	Poor	x2
1130	BX	9	Box elder	<i>Acer negundo</i>	Poor	
1131	BX	10	Box elder	<i>Acer negundo</i>	Poor	
1132	BX	7	Box elder	<i>Acer negundo</i>	Poor	
1133	BX	9	Box elder	<i>Acer negundo</i>	Poor	x1
1134	AP	10	Domestic Apple	<i>Malus sylvestris</i>	Poor	
1135	AP	7	Domestic Apple	<i>Malus sylvestris</i>	Poor	
1136	AP	7	Domestic Apple	<i>Malus sylvestris</i>	Poor	
1137	AP	9	Domestic Apple	<i>Malus sylvestris</i>	Poor	
1138	AP	6	Domestic Apple	<i>Malus sylvestris</i>	Poor	
1139	AP	6	Domestic Apple	<i>Malus sylvestris</i>	Poor	x1
1140	AP	7	Domestic Apple	<i>Malus sylvestris</i>	Poor	x1
1141	BC	21	Wild Black Cherry	<i>Prunus serotina</i>	Poor	
1142	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1143	E	7	American Elm	<i>Ulmus americana</i>	Fair	
1144	BX	23	Box elder	<i>Acer negundo</i>	Poor	
1145	SU	12	Sugar Maple	<i>Acer saccharum</i>	Fair	
1146	BX	6	Box elder	<i>Acer negundo</i>	Fair	
1147	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1148	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1149	BX	10	Box elder	<i>Acer negundo</i>	Poor	
1150	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1151	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1152	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1153	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1154	BX	9	Box elder	<i>Acer negundo</i>	Poor	
1155	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1156	BX	7	Box elder	<i>Acer negundo</i>	Poor	
1157	E	22	American Elm	<i>Ulmus americana</i>	Poor	
1158	BC	24	Wild Black Cherry	<i>Prunus serotina</i>	Very Poor	x1
1159	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1160	BX	10	Box elder	<i>Acer negundo</i>	Poor	
1161	BX	7	Box elder	<i>Acer negundo</i>	Poor	
1162	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1163	BX	8	Box elder	<i>Acer negundo</i>	Poor	
1164	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1165	BX	9	Box elder	<i>Acer negundo</i>	Poor	
1166	BX	12	Box elder	<i>Acer negundo</i>	Poor	x2
1167	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1168	BX	18	Box elder	<i>Acer negundo</i>	Poor	
1169	GA	12	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1170	GA	6	Green Ash	<i>Fraxinus pennsylvanica</i>	Very Poor	
1171	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1172	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1173	TH	14	Thornapple/Hawthorne	<i>Cragaeus spp.</i>	Poor	x3
1174	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	x1
1175	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1176	BX	10	Box elder	<i>Acer negundo</i>	Poor	
1177	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1178	BX	12	Box elder	<i>Acer negundo</i>	Poor	
1179	BX	10	Box elder	<i>Acer negundo</i>	Poor	
1180	BX	13	Box elder	<i>Acer negundo</i>	Poor	
1181	BL	17	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1182	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1183	BX	14	Box elder	<i>Acer negundo</i>	Poor	
1184	GA	6	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1185	SM	13	Silver Maple	<i>Acer saccharinum</i>	Fair	x1
1186	BX	12	Box elder	<i>Acer negundo</i>	Fair	
1187	BX	12	Box elder	<i>Acer negundo</i>	Poor	
1188	TH	7	Thornapple/Hawthorne	<i>Cragaeus spp.</i>	Poor	
1189	SM	15	Silver Maple	<i>Acer saccharinum</i>	Fair	
1190	CT	21	Cottonwood	<i>Populus deltoides</i>	Fair	
1191	E	10	American Elm	<i>Ulmus americana</i>	Very Poor	
1192	E	14	American Elm	<i>Ulmus americana</i>	Fair	
1193	GA	12	Green Ash	<i>Fraxinus pennsylvanica</i>	Very Poor	
1194	BC	17	Wild Black Cherry	<i>Prunus serotina</i>	Fair	
1195	SM	20	Silver Maple	<i>Acer saccharinum</i>	Poor	
1196	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1197	SM	14	Silver Maple	<i>Acer saccharinum</i>	Poor	
1198	SM	16	Silver Maple	<i>Acer saccharinum</i>	Poor	
1199	E	14	American Elm	<i>Ulmus americana</i>	Poor	
1200	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1201	GA	10	Green Ash	<i>Fraxinus pennsylvanica</i>	Very Poor	
1202	E	6	American Elm	<i>Ulmus americana</i>	Fair	
1203	SU	27	Sugar Maple	<i>Acer saccharum</i>	Fair	x3
1204	GA	8	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1205	GA	7	Green Ash	<i>Fraxinus pennsylvanica</i>	Poor	
1206	GA	7	Green Ash	<i>Fraxinus pennsylvanica</i>	Fair	
1207	BC	17	Wild Black Cherry	<i>Prunus serotina</i>	Poor	
1208	E	13	American Elm	<i>Ulmus americana</i>	Poor	
1209	E	10	American Elm	<i>Ulmus americana</i>	Fair	
1210	SM	8	Silver Maple	<i>Acer saccharinum</i>	Fair	
1211	E	14	American Elm	<i>Ulmus americana</i>	Fair	
1212	E	10	American Elm	<i>Ulmus americana</i>	Poor	



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LOCATION MAP

CLIENT
GENSLER
150 W JEFFERSON, SUITE 1700
DETROIT, MI 48226

PROJECT TITLE
LONG LAKE & CROOKS MASTERPLAN DEVELOPMENT
LONG LAKE AND CROOKS ROAD
CITY OF TROY, OKLAHOMA COUNTY, MICHIGAN

REVISIONS

ORIGINAL ISSUE DATE:
OCTOBER 20, 2020

DRAWING TITLE
TREE LIST - SHEET 2

PEA JOB NO. 2020-0320
P.M. LAA
DN. KR D
DES. GMB
DRAWING NUMBER:

1430	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1431	CT	30	Cottonwood	<i>Populus deltoides</i>	Poor	
1432	CT	39	Cottonwood	<i>Populus deltoides</i>	Fair	
1433	CT	23	Cottonwood	<i>Populus deltoides</i>	Poor	
1434	CT	23	Cottonwood	<i>Populus deltoides</i>	Poor	
1435	BC	8	Wild Black Cherry	<i>Prunus serotina</i>	Poor	
1436	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1437	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1438	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1439	BX	9	Box elder	<i>Acer negundo</i>	Poor	
1440	BW	9	Black Walnut	<i>Juglans nigra</i>	Poor	
1441	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1442	BW	18	Black Walnut	<i>Juglans nigra</i>	Fair	
1443	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1444	TH	7	Thornapple/Hawthorne	<i>Crataegus spp.</i>	Poor	
1445	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1446	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1447	BL	16	Black Locust	<i>Robinia pseudoacacia</i>	Very Poor	
1448	E	9	American Elm	<i>Ulmus americana</i>	Poor	
1449	E	16	American Elm	<i>Ulmus americana</i>	Poor	no tag in h20, move E 1ft
1450	E	9	American Elm	<i>Ulmus americana</i>	Poor	
1451	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	x1
1452	BC	6	Wild Black Cherry	<i>Prunus serotina</i>	Poor	
1453	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1454	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1455	B	8	Basswood	<i>Tilia americana</i>	Poor	
1456	BW	22	Black Walnut	<i>Juglans nigra</i>	Fair	
1457	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1458	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1459	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	x1
1460	B	7	Basswood	<i>Tilia americana</i>	Poor	
1461	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1462	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1463	B	8	Basswood	<i>Tilia americana</i>	Fair	
1464	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1465	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1466	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1467	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1468	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1469	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1470	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1471	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1472	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1473	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1474	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1475	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1476	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1477	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1478	BL	15	Black Locust	<i>Robinia pseudoacacia</i>	Fair	
1479	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1480	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1481	BL	14	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1482	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1483	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1484	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1485	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	x1
1486	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1487	BL	15	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1488	BC	8	Wild Black Cherry	<i>Prunus serotina</i>	Poor	
1489	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1490	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1491	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1492	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1493	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1494	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1495	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1496	YB	10	Yellow Birch	<i>Betula alleghaniensis</i>	Fair	
1497	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1498	BL	15	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1499	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1500	B	12	Basswood	<i>Tilia americana</i>	Poor	
1501	BC	15	Wild Black Cherry	<i>Prunus serotina</i>	Poor	
1502	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1503	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1504	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1505	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1506	BL	16	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1507	BL	14	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1508	BL	14	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1509	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1510	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1511	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1512	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1513	BL	14	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1514	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1515	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Very Poor	
1516	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1517	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1518	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1519	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1520	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1521	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1522	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1523	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1524	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1525	E	13	American Elm	<i>Ulmus americana</i>	Poor	
1526	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1527	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1528	BL	15	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1529	BX	7	Box elder	<i>Acer negundo</i>	Poor	
1530	BL	17	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1531	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1532	E	9	American Elm	<i>Ulmus americana</i>	Fair	
1533	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1534	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1535	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1536	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1537	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1538	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1539	E	13	American Elm	<i>Ulmus americana</i>	Poor	
1540	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1541	BL	16	Black Locust	<i>Robinia pseudoacacia</i>	Poor	x1
1542	BL	18	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1543	BL	14	Black Locust	<i>Robinia pseudoacacia</i>	Very Poor	
1544	BL	17	Black Locust	<i>Robinia pseudoacacia</i>	Poor	

1545	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1546	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1547	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1548	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1549	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1550	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1551	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1552	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1553	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	x2
1554	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1555	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1556	E	13	American Elm	<i>Ulmus americana</i>	Poor	
1557	BL	14	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1558	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1559	BL	15	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1560	BL	17	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1561	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1562	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1563	BL	19	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1564	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1565	BL	17	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1566	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1567	BL	16	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1568	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1569	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1570	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1571	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1572	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1573	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1574	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1575	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1576	BL	14	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1577	BX	12	Box elder	<i>Acer negundo</i>	Poor	
1578	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1579	SM	7	Silver Maple	<i>Acer saccharinum</i>	Fair	
1580	BL	14	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1581	BL	15	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1582	BL	12	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1583	BL	7	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1584	BW	16	Black Walnut	<i>Juglans nigra</i>	Fair	
1585	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1586	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1587	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1588	BL	13	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1589	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1590	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1591	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1592	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1593	BL	10	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1594	E	8	American Elm	<i>Ulmus americana</i>	Poor	
1595	SM	14	Silver Maple	<i>Acer saccharinum</i>	Fair	
1596	E	16	American Elm	<i>Ulmus americana</i>	Very Poor	
1597	BL	16	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1598	E	21	American Elm	<i>Ulmus americana</i>	Poor	
1599	BX	10	Box elder	<i>Acer negundo</i>	Poor	x1
1600	BW	7	Black Walnut	<i>Juglans nigra</i>	Poor	
1601	BW	10	Black Walnut	<i>Juglans nigra</i>	Fair	
1602	SM	12	Silver Maple	<i>Acer saccharinum</i>	Poor	
1603	E	15	American Elm	<i>Ulmus americana</i>	Fair	
1604	BL	17	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1605	BL	16	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1606	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Very Poor	
1607	BL	9	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1608	BL	8	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1609	E	16	American Elm	<i>Ulmus americana</i>	Poor	
1610	SM	16	Silver Maple	<i>Acer saccharinum</i>	Fair	
1611	BL	6	Black Locust	<i>Robinia pseudoacacia</i>	Poor	
1612	SM	16	Silver Maple	<i>Acer saccharinum</i>	Fair	
1613	BX	6	Box elder	<i>Acer negundo</i>	Poor	
1614	SM	16	Silver Maple	<i>Acer saccharinum</i>	Fair	
1615	SM	6	Silver Maple	<i>Acer saccharinum</i>	Fair	
1616	TH	10	Thornapple/Hawthorne	<i>Crataegus spp.</i>	Poor	
1617	TH	8	Thornapple/Hawthorne	<i>Crataegus spp.</i>	Poor	x7
1618	BW	21	Black Walnut	<i>Juglans nigra</i>	Fair	
1619	BW	18	Black Walnut	<i>Juglans nigra</i>	Fair	
1620	BW	22	Black Walnut	<i>Juglans nigra</i>	Fair	
1621	E	16	American Elm	<i>Ulmus americana</i>	Fair	
1622	BW	22	Black Walnut	<i>Juglans nigra</i>	Fair	
1623	BW	19	Black Walnut	<i>Juglans nigra</i>	Fair	
1624	BW	19	Black Walnut	<i>Juglans nigra</i>	Fair	
1625	BW	9	Black Walnut	<i>Juglans nigra</i>	Fair	
1626	BW	18	Black Walnut	<i>Juglans nigra</i>	Fair	
1627	BW	15	Black Walnut	<i>Juglans nigra</i>	Fair	
1628	BW	9	Black Walnut	<i>Juglans nigra</i>	Poor	
1629	BW	26	Black Walnut	<i>Juglans nigra</i>	Poor	
1630						

LONG LAKE & CROOKS MASTERPLAN DEVELOPMENT

STATE OF MICHIGAN

COUNTY OF OAKLAND

CITY OF TROY

DEVELOPMENT AGREEMENT FOR
"LONG LAKE & CROOKS MASTERPLAN DEVELOPMENT"
PLANNED UNIT DEVELOPMENT

This Development Agreement ("Agreement") dated _____, 2023, is entered into by and between LONG LAKE CROOKS DEVELOPMENT ASSOCIATES, L.L.C., a Michigan limited liability company, the address of which is 39400 Woodward Avenue, Suite 250, Bloomfield Hills, Michigan 48304, referred to herein as the "Developer", and the CITY OF TROY, a Michigan municipal corporation, having its principal offices at 500 West Big Beaver Road, Troy, Michigan 48084 (the "City").

RECITALS

A. Developer is the owner of certain real property located at the northwest corner of Long Lake and Crooks Roads in the City of Troy, Oakland County, Michigan, consisting of one (1) parcel and containing approximately 24.08 acres, as more particularly described on attached **Exhibit A** (the "Property").

B. Developer has petitioned for an Amendment to Chapter 39 of the Troy City Code (the "Zoning Ordinance") for the rezoning of the Property to Planned Unit Development ("PUD"), pursuant to Article 11 of the Zoning Ordinance, for the development to be known as "Long Lake & Crooks Masterplan Development", sometimes also referred to herein as the "Development" or the "Planned Unit Development".

C. Developer has demonstrated the need for the zoning of the Property as PUD consistent with the intent of Section 11.03 of the Zoning Ordinance because, among other features, the Developer proposes: (i) a mixture of land uses that would otherwise not be permitted without the use of the PUD; (ii) to provide a recognizable and material benefit to the ultimate users of the

project and to the community, where such benefit would otherwise be infeasible or unlikely to be achieved absent the PUD designation; (iii) to encourage compatible mixture of open space, landscaped areas, and pedestrian amenities; (iv) to use appropriate land use transitions between the PUD and surrounding properties; (v) to use innovative and creative site and building designs, solutions and materials; (vi) to provide the desirable qualities of a dynamic urban environment that is compact, designed to human scale, and exhibits contextual integration of buildings and city spaces; (vii) to encourage uses for the appropriate assembly, use, redevelopment, replacement, and improvement of an existing vacant site; (viii) to promote the intent of the City's Master Plan and the intent of any applicable corridor or sub-area plans and consistent with recent development trends in the area; and, (ix) to include all necessary information and specifications with respect to structures, heights, setbacks, density, parking, circulation, landscaping, amenities, and other design and layout features, exhibiting a due regard for the relationship of the Development to the surrounding properties and uses thereon, as well as to the relationship between the various elements within the proposed Development.

D. Developer has received, and the City has approved, the Concept Development Plan, a copy of which is attached as **Exhibit B** ("Concept Development Plan"), pursuant to Section 11.06 of the Zoning Ordinance subject to the terms of this Agreement.

NOW, THEREFORE, as an integral part of the grant of rezoning of the Property to PUD known as the " Long Lake & Crooks Masterplan Development" and its development, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

ARTICLE I

GENERAL TERMS

1.1 Binding Effect. This Agreement incorporates all PUD Documents, as defined below, and shall run with the land. References in this Agreement or in any PUD Documents to "Developer" shall include Developer's successors and assigns. It is the intent of the City and Developer to put all future owners of the Property, and parties in interest, on notice of the rights, obligations, and restrictions contained herein, by recording this Agreement and its attached Exhibits with the Oakland County Register of Deeds. The terms and conditions of this Agreement shall be considered "Deed Restrictions" binding upon all developers and any successors or assigns of the Property.

1.2 PUD Documents. The Property shall be developed and improved in accordance with the following, which shall be referred to collectively as the "PUD Documents":

- A. Article 11 of the Zoning Ordinance, and amendments, if any, as of the Effective Date;
- B. This Agreement;
- C. The PUD Application received by the City of Troy Planning Department on _____, 2022;

D. The following documents:

General Description of Document	Date of Document	Drafter or Preparer

- E. The Resolution and the official minutes of the meeting at which the City Council approved the PUD, including any and all conditions of the approval contained therein, an Affidavit of Property Ownership to be recorded with the Oakland County Register of Deeds prior to commencement of construction and prior to the sale, lease, rental, or occupancy by tenants of any portion of the Property, contain the legal description of the entire Property, specifying the date of the Concept Development Plan approval, and rezoning of the Property to PUD by the City Council, and declaring that all future development of the Property has been authorized, restricted, and required to be carried out in accordance with this Agreement, and the amendment to the Zoning Ordinance granting rezoning to PUD;
- F. All Preliminary Development Plans, as defined in Section 11.07 of the Zoning Ordinance, approved by City Council; and,
- G. All Final Development Plans, as defined in Section 11.08 of the Zoning Ordinance, approved by the Zoning Administrator or by the Community Development Director of the City.

1.3 Amendment to Zoning Ordinance. Troy City Council Resolution # _____ (the "Resolution") and this Agreement shall be considered an amendment to the Zoning Ordinance and the Zoning Map, reclassifying the zoning of the Property, which was not previously rezoned to PUD, and the Resolution constitutes the land authorization for the Property in accordance with the Zoning Ordinance. All uses and improvements completed on the Property shall be in substantial conformity with Article 11 of the Zoning Ordinance and the PUD Documents.

ARTICLE II

DEVELOPER'S RIGHTS, OBLIGATIONS, AND PROPERTY RESTRICTIONS

2.1 Development Rights. Developer shall have the right to develop and use the Property, and make improvements and modifications to the Property, in accordance with the PUD Documents. Any changes to the Development shall be approved in accordance with the PUD Documents in effect at the time of the proposed changes.

2.2 Permitted Uses. The City acknowledges and approves that the Development shall consist of separate areas within which there will be separate permitted uses, but which together will relate to each other in an acceptable and cohesive development. The separate areas are depicted on the Concept Development Plan as development areas, amenity zones, retail/restaurant

areas, and natural areas and are more fully defined in this Agreement. The permitted uses of the Development described below are consistent with the intent of the City's Master Plan or the intent of any applicable corridor or sub-area plans, and otherwise consistent with Section 11.02 of the Zoning Ordinance, and are to be a mixture of commercial, retail, residential, and office uses, and identified as follows:

- A. Development Area 1 - Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the UR – Urban Residential District, and all associated surface parking.
- B. Development Area 2 - Office uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the OM - Office Mixed Use District, the O - Office District, or the GB-General Business District as referenced in the Zoning Ordinance, a multi-story parking structure, "Restaurant" and/ or "Retail Business or Retail Sales" uses and their accessory uses as defined by the Zoning Ordinance, and all associated surface parking.
- C. Development Area 3 - Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the UR – Urban Residential District as referenced in the Zoning Ordinance and all associated surface parking; Office uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the OM - Office Mixed Use District, the O - Office District, or the GB-General Business District, as referenced in the Zoning Ordinance; "Restaurant" and/ or "Retail Business or Retail Sales" uses as defined by the Zoning Ordinance; Conference, meeting, and banquet facility uses permitted as of right or requiring special approval, and their accessory uses consistent with such uses the GB - General Business District in the Zoning Ordinance; and all associated surface parking.
- D. Development Area 4 – Lodging or extended stay facility uses permitted as of right or requiring special approval, and their accessory uses, consistent with such uses in the GB – General Business District identified in the Zoning Ordinance; and, Residential uses permitted as of right or requiring special approval, and their accessory uses, consistent such uses in the UR – Urban Residential District as referenced in the Zoning Ordinance and all associated surface parking.
- E. Restaurant/Retail Areas – "Restaurant" and/ or "Retail Business or Retail Sales" uses as defined by the Zoning Ordinance, and their accessory uses, and all associated surface parking.
- F. Amenity Zone A - "Open Space" as defined by the Zoning Ordinance for use as an open field activity area, including bocce ball court, pickleball courts, seasonal ice-skating rink, and associated surface parking.

- G. Amenity Zone B - "Open Space" as defined by the Zoning Ordinance for use as a fitness path with outdoor exercise stations. A portion of Amenity Zone B is a regulated wetland area, will be restricted from development, and will remain in an "Undeveloped State" as defined in the Zoning Ordinance.
- H. Amenity Zone C – Is a regulated wetland area, will be restricted from development, and shall remain in an "Undeveloped State" as defined in the Zoning Ordinance.

The City recognizes that the permitted uses identified above within each of the above areas merely provide the range of actual uses available for selection by the Developer. Such permitted uses within each of the above areas shall be selected by the Developer, in its sole discretion, recognizing the uses are subject to market demand, end-user requirements, development patterns, and other factors outside of the control of the Developer. Developer shall be provided with flexibility in selecting such permitted uses, and any combination of the permitted uses, to provide Developer the opportunity to construct and use a higher quality development and a better overall project than would be accomplished under conventional zoning, and which will be accommodated without sacrificing established community values. It is also recognized that Developer shall be provided with flexibility in altering the uses within the Amenity Zones referenced above so long as such uses are consistent with the "Open Space" definition in the Zoning Ordinance.

2.3 Sequencing and Phasing of Development. Due to the unique nature and scale of the Development, the City recognizes that the Developer shall be afforded maximum flexibility in the sequencing and phasing of the Development to attract investment and end users consistent with the Phasing Plan, as described below. Any phase described below shall be generally referenced alone as a "Phase" and together as "Phases" for purposes of this Agreement. Developer shall be permitted to apply for all approvals, including Preliminary Development Plan approval and Final Development Plan approval, for any portion of the Development, including the Phases or Restaurant/Retail Areas, at any time consistent with the Phasing Plan, within the sole discretion of the Developer, and the City shall be obligated to review and promptly process such requests for approval as provided for under the Zoning Ordinance. Developer shall be permitted, but not required, to commence construction and development of any Phase or Restaurant/Retail Area at any time consistent with the Phasing Plan, within the sole discretion of the Developer, and the City shall be obligated to review and process such requests for construction and development approvals as provided for under the Zoning Ordinance; provided, however, that once construction is commenced in any Phase or Restaurant/Retail Area, the Developer shall complete the development and construction of such Phase or Restaurant/Retail Area. Undeveloped Phases or Restaurant/Retail Areas shall be appropriately maintained by Developer, including grass cutting and refuse removal. Developer shall not clear-cut trees within any unapproved and undeveloped Phase or Restaurant/Retail Area without the approval of the Community Development Director.

The Development is planned as a multiple phase development, each of which shall include the associated infrastructure improvements within and necessary to serve such Phase or Restaurant/Retail Area. The Phases of the Development (the "Phasing Plan") are set forth below.

RESIDENTIAL MID-RISE PHASE: The Residential Mid-Rise Phase is depicted on the Concept Development Plan as **Development Area 1**. This Phase includes a residential mid-rise building not to exceed seven (7) stories with associated parking, driveways, and sidewalks.

OFFICE/PROFESSIONAL PHASE: The Office/Professional Phase is depicted on the Concept Development Plan as **Development Area 2** and includes an office/professional building not to exceed ten (10) stories, a parking deck, with associated surface parking, driveways, and sidewalks.

OFFICE/PROFESSIONAL/RESIDENTIAL/RETAIL/PARKING PHASE: The Office/Professional/Residential/Retail/Parking Phase is depicted on the Concept Development Plan as **Development Area 3** and includes the office/professional/residential/retail/parking building not to exceed ten (10) stories, an associated parking deck within the building and with associated surface parking, driveways, and sidewalks.

LODGING/EXTENDED STAY/RESIDENTIAL PHASE: The Lodging/Extended Stay/ Residential Phase is depicted on the Concept Development Plan as **Development Area 4** and includes a not to exceed seven (7) story lodging, extended stay facility, or residential (apartment or condominium) building with associated surface parking, driveways, and sidewalks.

Amenity Zone A shall be developed as part of the first Phase. Amenity Zone B shall be developed as part of the second Phase, except for the regulated wetland area within Amenity Zone B which shall remain undeveloped. Amenity Zone C shall not be developed because it is a regulated wetland area.

At the discretion of the Developer, any or all of the Restaurant/Retail Areas (depicted as Restaurant/Retail Building #1, Restaurant/Retail Building #2, and Restaurant/Retail Building #3 on the Concept Development Plan) may be: (i) constructed at any time without being part of any Phase after the Developer has commenced construction of the first Phase; or, (ii) constructed at any time as part of any Phase.

Upon commencement of the first Phase, all regulated wetland areas shall be restricted from any development and shall remain in an "Undeveloped State" as defined in the Zoning Ordinance.

2.4 Duration. The Concept Development Plan shall remain in full force and effect so long as Developer requests Preliminary Development Plan approval for the first Phase within five (5) years from the Effective Date. Developer may commence construction of the first Phase within two (2) years of Final Development Plan approval of the first Phase and shall thereafter, in its sole discretion, commence construction of any other Phase or Restaurant/Retail Area no later than twenty (20) years from the commencement of construction of the first Phase. Developer has a right to request an extension for good cause from the City not less than 90 days prior to the expiration date of any deadlines.

2.5 Relationship of Phases and Areas. Each Phase or Restaurant/Retail Area developed shall be capable of standing on its own in terms of the presence of Improvements, as defined below, to serve such Phase or Restaurant/Retail Area. Developer shall not be required to construct

Improvements outside of a particular Phase or Restaurant/Retail Area and shall not be required to connect any such Improvements between any non-contiguous Phase or Restaurant/Retail Area, until the last of the Phases and Restaurant/Retail Areas described above is completed.

2.6 Vesting. To the extent construction has commenced on a particular Phase or Restaurant/Retail Area, Developer shall be deemed to have obtained vested rights with respect to that Phase or Restaurant/Retail Area and shall be permitted to complete that Phase or Restaurant/Retail Area in accordance with applicable approvals.

2.7 Preliminary Development Plan Submittal. Preliminary Development Plans for each Phase, Amenity Zone, or Restaurant/Retail Area shall be consistent with the Concept Development Plans and this Agreement, and each Preliminary Development Plan shall be submitted for approval to the City with corresponding traffic and parking studies to be reviewed and approved administratively by the City Engineer, the Road Commission for Oakland County, and the Michigan Department of Transportation as may be required by applicable law. The scope of the traffic and parking studies shall be approved by the City Engineer consistent with the Zoning Ordinance and this Agreement.

2.8 Statement of Conditions. As part of the PUD and as a condition of said approval and to satisfy the PUD zoning standards, Developer's obligations shall include the following, plus any other requirements set forth in the PUD Documents, this Agreement and Exhibits, attached hereto and made a part hereof, which are designated as the obligations of the Developer:

- A. The Development will facilitate the interconnectivity of vehicular and pedestrian access through a network of sidewalks and internal roads.
- B. The Developer will preserve in perpetuity certain natural wetland areas on the Property.
- C. The Development will include amenity zones with bocce ball courts pickleball courts, seasonal ice skating rink, fitness path with outdoor exercise stations, outdoor activity areas, and a pedestrian loop and boulevard throughout the Property, each accessible to the public and as shown on the Concept Development Plan.
- D. The Development will provide large open spaces and landscaped areas which exceed the requirements of the City in a workable integrated design.

The City acknowledges that the Development will have numerous community benefits and, among them, the Development will: (a) eliminate existing under-development of the Property as well as encourage the assemblage and division of parcels within the Property to create a consistent development that provides a logical transition with the surrounding properties; (b) promote and be consistent with the redevelopment goals of the City's Master Plan; (c) incorporate and implement numerous goals and strategies of the City's Master Plan; and, (d) provide a higher quality of development than could be achieved under conventional zoning.

2.9 Development Standards. The Property shall be developed, if at all, consistent with the City of Troy development standards, the Zoning Ordinance, and other City ordinances, or any amendments thereto, and consistent with the PUD Documents (the "Approved Standards"), without the need for any additional approvals from the City for such standards, because the City has determined that the Approved Standards are a reasonable approach for the PUD as listed in Article 11 of the Zoning Ordinance for the Development including but not limited to the following purposes:

- A. To encourage developments that will result in a long-term contribution to social, environmental, and economic sustainability in the City;
- B. To permit development patterns that respond to changing public and private needs;
- C. To encourage flexibility in design and use that will result in a higher quality of development and a better overall project than would be accomplished under conventional zoning, and which can be accommodated without sacrificing established community values;
- D. To encourage the use, redevelopment, and improvement of existing sites where current ordinances do not provide the flexibility to consider redevelopment of sites;
- E. To ensure the compatibility of design and use among various components within the PUD and with neighboring properties and uses;
- F. To ensure development that is consistent with the intent of the City's Master Plan; and,
- G. To encourage an integrated development.

The Approved Standards, as well as other approved features of the Development contained in this Agreement, are not intended to avoid the zoning requirements that would otherwise apply, but rather to allow flexibility and mixture of uses, and to improve the design, character, and quality of Development and any variations from the requirements of the Zoning Ordinance, because they are improvements to the public health, safety, and welfare in the area affected and in accordance with the intent of Article 11 of the Zoning Ordinance.

The City recognizes that the boundaries of each of the Phases, Amenity Zones, and Restaurant/Retail Areas shown on the Concept Development Plan may need to change in light of market demand, end-user requirements, development patterns, and other factors outside of the control of the Developer. Therefore, to provide Developer with flexibility in design and use that will result in a higher quality of development and a better overall project than would be accomplished under conventional zoning, and which will be accommodated without sacrificing established community values, the boundaries of such Phases, Amenity Zones, or Restaurant/Retail Areas shown on the Concept Development Plan may be enlarged or reduced, at the sole discretion of the Developer, so long as the Developer complies with the Approved Standards as specified herein.

Modifications regarding the density, mix of types of buildings, number of units per building, and location of buildings shall be permitted under this Agreement to allow the Developer flexibility and as may be reasonably necessary to comply with applicable laws or regulations, subject to this Section. Developer shall have the right, in its sole discretion, to modify interior floor plans subject to compliance with all other City ordinances. Minor modifications to the PUD Documents resulting from engineering considerations, site conditions, or other governmental requirements may be administratively approved by the Zoning Administrator or Community Development Director.

Landscaping shall meet or exceed required landscaping for similar projects pursuant to Chapter 39, Section 13.02 of the Zoning Ordinance.

2.10 General Maintenance. Developer shall maintain all common areas, storm water drainage and retention facilities, landscaped areas, parking areas, and sidewalks in good working order and appearance. Developer may establish an Association or Associations to assume the maintenance obligations set forth in this Agreement in which event the Association or Associations shall succeed to the Developer's obligations for those portions of the Property defined in the instrument establishing each Association, and Developer shall be relieved of all obligations and liability with respect thereto.

2.11 Conveyance by Developer. In the event Developer conveys all or any portion of the Property, it shall establish easements over and across the Property providing that all portions of the Property shall have full egress and ingress for both vehicular and pedestrian use and for egress and ingress to a public road, and access over, under, and across portions of the common areas necessary for installation, construction, repair, and maintenance of utilities affecting and placed upon the Property, which may provide for shared participation in the cost of maintenance and repair. Developer may, however, designate specific parking areas for use by specific areas of the Development.

2.12 Construction Trailers. Developer shall comply with the City Code and Ordinances, make any necessary application for permits, and obtain any necessary permits for the use of construction trailers, and for rental, occupancy, and advertising signs.

ARTICLE III

PUBLIC IMPROVEMENTS

3.1 Water and Sanitary Sewer Systems. Developer shall, at its sole expense, construct and install improvements and/or connections tying into the municipal water and sanitary sewer systems, including any required fire hydrant, consistent with the Phasing Plan. Such improvements shall be designed and constructed in accordance with any Final Development Plan approved under Section 11.08 of the Zoning Ordinance, approved engineering construction plans, and all applicable City, County, and State standards, codes, regulations, ordinances, and laws. Such water and sanitary sewer service facilities, including any on-site and off-site facilities, extensions, and easements to reach the area to be served, shall be completed, approved, and dedicated to the City to the extent necessary to fully service all proposed and existing facilities, structures, and uses for such Phase or Restaurant/Retail Area. Consistent with the Phasing Plan, all water and sanitary

system improvements required shall be completed before construction of the buildings to be erected in the applicable Phase or Restaurant/Retail Areas and shall be completed, approved and dedicated to and accepted by the City, if required, to the extent necessary to fully service all proposed and existing facilities, structures and uses, within such Phase or Restaurant/Retail Area to be served thereby, prior to issuance of any building permits within such Phase or Restaurant/Retail Area. The water and sanitary sewer improvements within each Phase or Restaurant/Retail Area must be completed such that, upon completion and any dedication of such improvements, they are fully sufficient to provide the required capacity for water and sewer services to such buildings to be erected within such Phase or Restaurant/Retail Area according to the applicable laws, ordinances, codes, regulations, and standards at the time of construction of buildings to be erected within such Phase or Restaurant/Retail Area. The Developer shall post security in the form of cash or check or certificate of deposit, irrevocable letter of credit, or a performance bond (the "Security"), as specified in a separate agreement approved by the City for any water and sanitary sewer systems undergoing construction. The Security shall be in an amount equal to the estimated cost of installation, or a performance bond in an amount equal to the cost of construction plus ten percent (10%), as specified in a bona fide contract for installation of such improvements approved by the City Engineer. The agreement shall also authorize the City, at its option, to complete these improvements as required by the City Engineer, if Developer fails to complete the water and sanitary sewer improvements in a timely fashion, once construction has commenced. All performance bonds shall be issued by institutions licensed and admitted to do business in the State of Michigan. Building permits for the buildings to be erected on the Property within the Development to be served by the water and sanitary sewer improvements in question shall be issued upon the posting of such Security and execution of such agreement, which shall be approved by the City Attorney in the exercise of reasonable discretion.

3.2 Storm Water Drainage. Developer shall, at its sole expense, construct and install storm water and retention and/or detention systems consistent with the Phasing Plan. Such improvements shall be designed and constructed in accordance with any Final Development Plan approved under Section 11.08 of the Zoning Ordinance, approved engineering construction plans, and all applicable City, County and State standards, codes, regulations, ordinances, and laws. All storm water and retention and/or detention system improvements required shall be completed before construction of the buildings to be erected within a Phase or Restaurant/Retail Area and shall be completed and approved to the extent necessary to fully service all proposed and existing facilities, structures and uses, within such Phase or Restaurant/Retail Area, prior to issuance of any building permits. The Developer shall post Security, as specified in a separate agreement approved by the City, for any storm water and retention and/or detention system systems undergoing construction. The Security shall be in an amount equal to the estimated cost of installation, or a performance bond in an amount equal to the cost of construction plus ten percent (10%), as specified in a bona fide contract for installation of such improvements approved by the City Engineer. The agreement shall also authorize the City, at its option, to complete these improvements as required by the City Engineer, if Developer fails to complete the storm water and retention and/or detention system improvements in a timely fashion, once construction has commenced. All performance bonds shall be issued by institutions licensed and admitted to do business in the State of Michigan. Building permits for the buildings to be erected within the Development to be served by the storm water and retention and/or detention system improvements in question shall be issued upon the posting of such Security and execution of such agreement, which shall be approved by the City Attorney in the exercise of reasonable discretion. During the

development of the Property, the Developer or its successors or assigns shall be obligated to maintain the storm water and retention and/or detention system and facilities for such applicable Phase or Restaurant/Retail Area in a fully operational condition.

3.3 Streets, Boulevards, Sidewalks, Non-Motorized Paths, Drives, Entryways and Parking Areas. Developer shall, at its sole expense, construct and install streets, boulevards, sidewalks, non-motorized paths, drives, entryways, and parking areas consistent with the Phasing Plan. All internal streets, boulevards, sidewalks, non-motorized paths, drives, entryways, and parking areas will be private. Such improvements shall be designed and constructed in accordance with any Final Development Plan approved under Section 11.08 of the Zoning Ordinance, approved engineering construction plans, and all applicable City, County, and State standards, codes, regulations, ordinances, and laws. The Developer shall post Security, as specified in a separate agreement approved by the City, for any streets, boulevards, sidewalks, non-motorized paths, drives, entryways, and parking areas undergoing construction. The Security shall be in an amount equal to the estimated cost of installation, or a performance bond in an amount equal to the cost of construction plus ten percent (10%), as specified in a bona fide contract for installation of such improvements approved by the City Engineer. The agreement shall also authorize the City, at its option, to complete these improvements as required by the City Engineer, if Developer fails to complete the streets, boulevards, sidewalks, non-motorized paths, drives, entryways, and parking areas in a timely fashion, once construction has commenced. All performance bonds shall be issued by institutions licensed and admitted to do business in the State of Michigan. Building permits for the buildings to be erected within the Development to be served by the streets, boulevards, sidewalks, non-motorized paths, drives, entryways, and parking areas in question shall be issued upon the posting of such Security and execution of such agreement, which shall be approved by the City Attorney in the exercise of reasonable discretion. At all times, during and after completion of construction, Developer, its successor and assigns, shall cause all internal streets, boulevards, sidewalks, non-motorized paths, drives, entryways, and parking areas to be maintained, repaired and kept in an unimpeded, unobstructed, safe and passable condition at all times to allow for the free flow and circulation of traffic throughout the Development when completed, and within each Phase Restaurant/Retail Area prior to completion of the Development, except for temporary closures or obstruction due to repairs or snow. Developer shall install and maintain an adequate gravel surface base as determined by the City Engineer for all entrance ways and internal drive areas to provide for access for construction traffic, City personnel, emergency and firefighting equipment for such specific site and prior to construction of a final base course. The aforementioned agreement for completion shall provide that the paving of all areas referenced in this Section within an applicable Phase or Restaurant/Retail Area shall be completed and approved (including topcoat and parking lot striping) prior to the issuance of more than ninety-five percent (95%) of any certificates of occupancy for buildings within a Phase or Restaurant/Retail Area, but in any event such paving shall be completed within two (2) years of issuance of the first building permit for a building within such Phase or Restaurant/Retail Area.

3.4 Improvements. The City acknowledges that any Phase or Restaurant/Retail Area as may be shown on the Concept Development Plan may be constructed, and operated, at different times consistent with the Phasing Plan, at the discretion of the Developer, depending on market forces and the feasibility of doing so, and that the Developer should be afforded flexibility in its approach to develop the Property in a reasonable and efficient manner. Therefore, notwithstanding anything to the contrary contained in Sections 3.1, 3.2, and 3.3 above: (a) the City shall permit the

Developer to construct and operate upon any Phase or Restaurant/Retail Area so long as the improvements referenced in Sections 3.1, 3.2, and 3.3 above (the "Improvements") adequately service all proposed and existing facilities, structures, and uses within such Phase or Restaurant/Retail Area and shall issue all permits, approvals, and consents accordingly; (b) it shall not be a condition of this Agreement that Developer must complete all of the Improvements on the entire Property before any Phase or Restaurant/Retail Area on the Concept Development Plan is commenced or completed, including the streets, boulevards, sidewalks, non-motorized paths, drives, entryways, and parking areas; and, (c) the City shall not withhold certificates of occupancy, or any other approval, for any buildings in a specific Phase or Restaurant/Retail Area shown on the Concept Development Plan solely because Improvements are not completed within other Phases or Restaurant/Retail Areas.

3.5 Assignment of Maintenance Obligations. Developer shall have the right to assign its maintenance obligations under this Agreement to an Association or Associations and to any successors and assigns including any successor developer or owner of a portion of the Development. Upon the assignment to and assumption by an Association or any successor developer or owner of any of Developer's maintenance obligations, as set out in this Agreement and otherwise, Developer shall have no further obligations or liability with respect thereto. All successors and assigns of Developer shall agree to be bound by the obligations for common area maintenance contained in this Agreement.

3.6 Regular Inspections. For purposes of maintenance obligations set forth in this Article, the term "maintenance," "maintain" and "maintained" shall mean and include regular inspections.

3.7 Reduction of Security. At the Developer's request, but not more frequently than once a month, the Security may be reduced by the same percentage as the percentage of completion of each component of the Improvements as determined by the City's engineer in the exercise of reasonable discretion. The balance of any Security shall be returned to Developer within thirty (30) days following the determination of the City that any particular portion of the Improvements have been completed consistent with the approved engineering plans. A minimum of ten percent (10%) of the Security shall be maintained by the City until such time as final approval has been issued for all Improvements commenced.

ARTICLE IV

THE CITY'S RIGHTS AND OBLIGATIONS

4.1 Notice of Deficiencies and Cure Period. The City, in each instance, shall provide by written thirty (30) days' notice to Developer documentation of any and all deficiencies and shall provide Developer with an adequate time period in which to cure any deficiencies under this Agreement, which shall be enough time for Developer, its successors, or assigns, to cure the deficiency, taking into consideration applicable weather and related conditions. Subject to Force Majeure, as defined below, if following the expiration of the period set forth to cure any deficiencies, such deficiencies have not been cured, the City shall thereupon have the power and authority, but not the obligation, to take any of the following actions, in addition to any actions authorized under City ordinance and/or State law:

(a) Demand that the non-performance, deficiency, or obligation be fulfilled, performed, or completed before Developer assigns its obligations to another owner of the Property and set a specific date to complete the performance, fulfill the obligation, or correct the deficiency. If Developer has not completed the performance, fulfilled the obligation, or corrected the deficiency by the date specified, the Developer shall not assign its obligations to a subsequent owner of the applicable portion of the Property to which the non-performance, deficiency, or obligation pertains and the City may proceed under Section 4.1(b).

(b) Enter upon the Property or cause its agents or contractors to enter upon the Property and perform such obligation or take such corrective measures as reasonably found by the City Administration to be appropriate. In addition to any financial assurance given to ensure completion of the improvements, the additional costs and expense of making and financing such action by the City, including without limitation notices by the City, upon written documentation of such additional costs and expenses, and reasonable legal fees incurred by the City, plus an administrative fee in the amount of ten percent (10%) of the total of all such costs and expenses incurred, shall be paid by Developer within thirty (30) days of City's invoicing to Developer.

(c) The City may initiate legal action for the enforcement of any of the provisions, requirements, and obligations set forth in the PUD Documents.

(d) The City may issue a stop work order as to any or all aspects of then uncompleted portions of the Development to which the non-performance, deficiency, or obligation pertains detailing in writing the uncompleted portions of the Development, may deny the issuance of any requested building permit or certificate of occupancy within any part or all of the Development, regardless of whether the Developer is the named applicant for such permit or certificate of occupancy, and may suspend further inspections of any or all aspects of the Development until such issues have been satisfactorily resolved.

(e) The City may, until as such non-performance, deficiency, or obligation has been cured: (i) initiate proceedings to rezone any part of the undeveloped portions of the Property in control of the Developer for which such non-performance, deficiency, or obligation pertains to its former zoning designation, or (ii) in the event that such non-performance, deficiency, or obligation is a material default of this Agreement by such Developer, terminate this Agreement with respect to the portion of the Property to which the deficiency pertains, which termination shall only be effective if the deficiency remains uncured for a period of sixty (60) days from receipt by Developer of the notice of termination.

4.2 Right of Entry. At any time throughout the period of development and construction of any part of the Development, the City, its contractors, representatives, consultants, and agents, shall be permitted and are hereby granted authority to enter upon such portion of the Property being developed or constructed for the purpose of inspecting and/or completing the respective improvements, and for the purposes of inspecting for compliance with and enforcement of the PUD Documents.

4.3 Deviations Permitted. To the extent the PUD Documents deviate from or conflict with the City of Troy development standards, the Zoning Ordinance, or other City ordinances, or any amendments thereto, the PUD Documents shall control, and the City shall not require any

additional approvals, waivers, or variances with respect to such deviations. All improvements constructed in accordance with the PUD Documents shall be deemed to be conforming under the Zoning Ordinance and in compliance with all ordinances of the City.

4.4 Permits and Approvals. Other than provided for in this Agreement or as required by Article 11 of the Zoning Ordinance, the City shall not require any additional land use related permits or approvals for the Development such as site plan approval under Article 8 of the Zoning Ordinance, special land use approval under Article 9 of the Zoning Ordinance, and variances under Article 15 of the Zoning Ordinance.

ARTICLE V

MISCELLANEOUS PROVISIONS

5.1 Amendments. This Agreement may not be modified, replaced, amended, or terminated without the prior written consent of the parties to this Agreement. Developer shall have the right to delegate its rights and obligations under this Agreement to a successor owner of all of the Property or to one or more successor owners of portions of the Property in accordance with this Agreement. Until the rights and responsibilities under this Agreement are transferred to a third party under this Agreement, Developer and the City shall be entitled to modify, replace, amend, or terminate this Agreement, without requiring the consent of any other person or entity whatsoever, regardless of whether such person has any interest in the Property, including mortgagees and others.

5.2 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Michigan.

5.3 Interpretation in the Event of Conflict. If there is a conflict among the terms of any of the PUD Documents, such documents shall control in the following order: (a) this Agreement and the attached Exhibits which are made a part hereof; (b) Article 11 of the Zoning Ordinance and amendments, if any; (c) Final Development Plans, and (d) the Concept Development or Preliminary Development Plans. Where there is a question with regard to applicable regulations for a particular aspect of the Development, or with regard to clarification, interpretation, or definition of terms or regulations, and there are no apparent express provisions of the PUD Documents which apply, the City in the reasonable exercise of its discretion shall determine the regulations of the City's Ordinances that are applicable, provided such determination is not inconsistent with the nature and intent of the PUD Documents or in violation of applicable Federal or Michigan law; and, provided that Developer, its successors or assigns, shall have the right to challenge or contest the determination of the City in any court having jurisdiction.

5.4 General Interpretation and Findings. The terms of the PUD Documents, including this Agreement, have been negotiated by the undersigned parties and such documentation represents the product of the joint efforts and agreement of the Developer and the City. Developer and the City fully accept and agree to the final terms, conditions, requirements, and obligations of the PUD Documents, and shall not be permitted in the future to claim that the effect of these PUD Documents results in an unreasonable limitation upon uses of all or a portion of the Property or claim that enforcement of any of the PUD Documents causes an inverse condemnation or taking

of all or a portion of the Property. Furthermore, it is agreed that the improvements and undertakings set forth in the PUD Documents are necessary and roughly proportional to the burden imposed in order to ensure that services and facilities affected by the Development will be capable of accommodating increased services and facility loads, traffic, and storm water drainage caused by the development thereof, to protect the natural environment and conserve natural resources, to ensure compatibility with adjacent uses of land, to promote use of the Property in a socially and economically desirable manner, and to achieve other legitimate objectives authorized under the Michigan Zoning Enabling Act, MCL 125.3101, *et seq.* It is further agreed and acknowledged hereby that all of such improvements are substantially related to the burdens to be created by the Development contemplated hereby, and all such improvements and the requirements and regulations of the Development under the PUD Documents and the Zoning Ordinance, without exception, are clearly and substantially related to the legitimate interests in protecting the public health, safety and general welfare. All Exhibits attached to this Agreement are made a part hereof and are incorporated herein by reference.

5.5 Counterparts. This Agreement may be executed in multiple counterparts, each of which shall be deemed an original and all of which together shall constitute one and the same agreement. The signature of any party to any counterpart shall be deemed to be a signature to, and may be appended to, any other counterpart.

5.6 Successors and Assigns. This Agreement shall be binding on and shall inure to the benefit of the parties and their respective successors and assigns, as more particularly provided herein.

5.7 Force Majeure. Provided that the Developer is proceeding in good faith and with reasonable diligence to develop the Development in light of existing economic conditions, and is otherwise in compliance with this Agreement, the City will not unreasonably refuse to extend any time periods under this Agreement for a reasonable time to enable the Developer to complete the Development or any portion of it. Any delay or failure of Developer to perform its obligations in this Agreement shall be excused to the extent that it is caused by an unforeseen, unpreventable event or occurrence beyond its reasonable control such as, by way of example and not by way of limitation, an order of the State of Michigan, United States of America or local governmental body, an outbreak and/or the spread of an epidemic, pandemic (including, without limitation, COVID-19), or other disease causing local, regional, or national emergency, acts of God, actions by governmental authority (whether valid or invalid), fires, floods, riot, natural disasters, wars, economic downturn, loss of funding, diminished funding, terroristic threat or action, or sabotage (collectively, a "Force Majeure"); provided the Developer promptly notifies the City of the event of a Force Majeure, the anticipated duration of the event of Force Majeure, and the steps taken to remedy the failure; and provided further that commercially reasonable efforts shall be used to minimize the extent and effect of the Force Majeure event.

5.8 Effective Date. For the purpose of confirming the rights, obligations, and restrictions in connection with the Development to be undertaken on the Property, once the City Council has enacted an Amendment to the Zoning Ordinance rezoning the Property to PUD as approved this Agreement, the effective date of the rezoning and this Agreement shall be the date on which City Council approves this Agreement (the "Effective Date"). After this Agreement granting rezoning is effective, the Planning Director of the City shall take what actions are

necessary to correct the Zoning Map to show the rezoning of the Property, and this Agreement shall be binding upon the City and the Developer.

[Signatures appear on the following page]

DEVELOPER:

**LONG LAKE CROOKS DEVELOPMENT
ASSOCIATES, L.L.C.,**

a Michigan limited liability company

By: Long Lake Crooks Development-MM, Inc.,
a Michigan corporation
Its: Manager

By: _____
Anthony G. Antone
Its: Vice-President

STATE OF MICHIGAN)
) SS.
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this ____ day of _____, 2023,
by Anthony G. Antone, the Vice-President of Long Lake Crooks Development-MM, Inc., a
Michigan corporation, the Manager of Long Lake Crooks Development Associates, L.L.C., a
Michigan limited liability company, on behalf of the Company.

_____, Notary Public
_____ County, Michigan
My Commission Expires: _____
Acting in the County of _____

CITY:

CITY OF TROY,
a Michigan municipal corporation

By: _____
Ethan Baker
Its: Mayor

By: _____
Aileen Dickson
Its: City Clerk

STATE OF MICHIGAN)
) SS.
COUNTY OF OAKLAND)

The foregoing instrument was acknowledged before me this ____ day of _____, 2023,
by Ethan Baker, Mayor and Aileen Dickson, City Clerk of the City of Troy, a Michigan municipal
corporation, on behalf of the Corporation.

_____, Notary Public
_____ County, Michigan
My Commission Expires: _____
Acting in the County of _____

COOPERATIVELY DRAFTED BY:

Tyler D. Tennent
Dawda Mann, PLC
Dawda Mann Building
39533 Woodward Avenue, Suite 200
Bloomfield Hills, Michigan 48304
AND
Julie Q. Dufrane
Assistant City Attorney
City of Troy
500 W. Big Beaver Road
Troy, Michigan 48084

WHEN RECORDED RETURN TO:

Aileen Dickson
City Clerk
City of Troy
500 W. Big Beaver Road
Troy, MI 48084

INDEX OF EXHIBITS

EXHIBIT A - LEGAL DESCRIPTION OF PROPERTY

EXHIBIT B - CONCEPT DEVELOPMENT PLAN

EXHIBIT A

LEGAL DESCRIPTION OF PROPERTY

Land situated in the City of Troy, County of Oakland, and State of Michigan, being more particularly described as follows:

Part of the Southeast 1/4, Section 8, Town 2 North, Range 11 East, City of Troy, Oakland County, Michigan, beginning at point distant South 87 degrees 15 minutes 31 seconds West 90.00 feet and North 02 degrees 37 minutes 54 seconds West 75.00 feet from Southeast Section corner; thence South 87 degrees 15 minutes 31 seconds West 1328.70 feet along Northerly right of way line of Long Lake Road; thence North 02 degrees 30 minutes 26 seconds West 489.76 feet; thence along curve to right, radius 710.00 feet, chord bears North 11 degrees 45 minutes 00 seconds East 349.71 feet, distance of 353.35 feet; thence North 87 degrees 15 minutes 31 seconds East 1240.77 feet; thence South 02 degrees 37 minutes 54 seconds East 828.33 feet along Westerly right of way line of Crooks Road to beginning, EXCEPT that part lying Southerly and Southwesterly of line described as beginning at point distant South 87 degrees 15 minutes 31 seconds West 90 feet and North 02 degrees 37 minutes 54 seconds West 100 feet from Southeast Section corner; thence South 87 degrees 15 minutes 31 seconds West 934.70 feet; thence North 02 degrees 30 minutes 26 seconds West 10 feet; thence South 87 degrees 15 minutes 31 seconds West 364 feet; thence North 47 degrees 37 minutes 28 seconds West 43 feet to point of ending, also EXCEPT that part lying Easterly and Southeasterly of line described as beginning at point distant South 87 degrees 15 minutes 31 seconds West 130 feet and North 02 degrees 37 minutes 54 seconds West 100 feet from Southeast Section corner; thence North 42 degrees 18 minutes 48 seconds East 42.47 feet; thence North 02 degrees 37 minutes 54 seconds West 310 feet to the point of ending.

Tax Parcel No.: 20-08-477-001

EXHIBIT B

CONCEPT DEVELOPMENT PLAN

7. PLANNED UNIT DEVELOPMENT (File Number PUD2020-0018) – Proposed Concept Development Plan (CDP) for Long Lake and Crooks Masterplan Development, Southwest corner of Long Lake and Crooks, Section 8, Currently Zoned O (Office) District

Mr. Savidant announced project architect Chris Beck of Gensler, Anthony Antone of Kojaian Properties and traffic consultant Julie Kroll of Fleis & Vandenbrink were present.

Mr. Antone gave a brief introduction of Kojaian Properties. He said the proposed development would serve as a gateway to North Troy.

Mr. Savidant presented a PowerPoint explanation of a Planned Unit Development (PUD) application.

Mr. Carlisle gave a brief introduction of the Conceptual Development Plan and how the application relates to the Master Plan for North Troy. He addressed additional elements for the applicant to consider and questions for the Planning Commission to consider, as identified in his report dated December 29, 2020. Mr. Carlisle reported the applicant is seeking flexibility in phases, uses and design features.

There was discussion on:

- Water feature; location, focal point, community attraction.
- Residential key component; multi-family, live/work.
- Density and massing of project; building height.
- Preservation of existing green space.
- Applicant request for flexibility as relates to market demand and City vision.
- Viability of office space and hotel in relation to existing office vacancy and number of hotels currently in City.
- Outdoor activities and attractions to engage residents and community; walkability, vehicular-free plaza area.
- Destination point for family and community gatherings.
- Parking; expand parking structure, reduce surface parking, charging stations for electric vehicles.
- Limited available land in City for development of this size.
- Potential to attract large office headquarters.
- Affirmation of worldwide renown architectural firm Gensler.

Mr. Beck addressed greenspace as relates to existing tree quality and species, parking options, water feature, stormwater detention and intent to be flexible based on potential future uses and evolution of project.

Mr. Antone addressed a residential component, density, potential to attract large office headquarters and flexibility in development long-term.

PLANNED UNIT DEVELOPMENT

5. **PLANNED UNIT DEVELOPMENT (File Number PUD 2020-0018)** – Proposed Concept Development Plan (CDP) for Long Lake and Crooks Masterplan Development, Northwest Corner of Long Lake and Crooks, Section 8, Currently Zoned O (Office) District

Mr. Savidant explained the approval process of a Planned Unit Development (PUD) application. A brief question and answer session followed.

Present were Anthony Antone and Chris Kojaian of Kojaian Properties and project architect Chris Beck of Gensler.

Mr. Antone gave a brief introduction of Kojaian Properties and noted some of their prominent projects in Troy. Mr. Antone referenced the proposed development as the gateway to North Troy. He stated the revised concept plan before the Board this evening incorporates the preservation of natural features identified by the Department of Environment, Great Lakes and Energy (EGLE). He noted the wetlands are regulated and must be preserved and remain untouched.

Mr. Antone addressed how the development team is using the site's natural features as its focal point. He said they would like the Board's feedback on the revised concept plan prior to their submission of a formal application. Mr. Antone said the development team believes it has incorporated most of the items discussed at the January 12, 2021 Planning Commission meeting.

There was lengthy dialogue among Board members and the applicant. Board members shared their personal visions of the proposed project.

Board comments related to:

- Create a destination point to attract people from within the complex and throughout the City.
- Integrate a plaza, pedestrian path, promenade, village-like characteristics.
- Reduce surface parking.
- Provide more walkability.
- Centrally relocate parking deck.
- Reconfigure placement of buildings to connect to public amenity space.
- Expand and centrally relocate public amenity space.
- Be bold and creative with expanse of property.
- Provide a visual illustration of project, such as a three-dimensional model.

Some members expressed the revised concept plan offers no significant changes from the concept plan presented in January 2021.

Mr. Antone addressed the “block” conceptual plan and detailed their vision of a live/work/play development. He said the development team has had conversations with high-end, luxury developers for all components of the project; residential, restaurant and retail, anchor hotel and anchor office headquarters. He addressed how the project is market-driven and site configurations must be effectual for various clients.

Mr. Antone said building heights would be:

- Office professional building, up to 10 stories.
- Centrally located building, 6 to 8 stories.
- Residential, 6 to 7 stories.
- Hotel, up to 5 or 6 stories.
- Restaurant/retail, up to 2 stories.
- Parking deck, 10 levels.

Mr. Antone thanked the Board for their comments and visions and said they look forward to coming back in front of the Board.

PLANNED UNIT DEVELOPMENT

5. **PUBLIC HEARING – PLANNED UNIT DEVELOPMENT (File Number PUD 2020-0018)**
– Proposed Concept Development Plan for Long Lake and Crooks Masterplan Development, Northwest Corner of Long Lake and Crooks, Section 8, Currently Zoned O (Office) Zoning District

Mr. Carlisle said the Planned Unit Development (PUD) application before the Board this evening is a formal submittal. He said the Planning Commission discussed two draft concept plans presented by the applicant at their January 12, 2021 and February 8, 2022 meetings.

Mr. Carlisle explained the three-step PUD application process and addressed the intent of a PUD application. He addressed highlights of the concept plan, proposed mix of uses, the changes since last reviewed, the four separate development areas proposed and associated amenities within those areas. Mr. Carlisle reviewed the applicant's proposed development parameters, relating to maximum square footage, minimum and maximum number of floors, minimum and maximum building height, and dimensional setbacks.

Mr. Carlisle said the applicant seeks flexibility to build any development area in any sequence, with one restriction that development area 4 (hotel/residential) and retail/restaurant pads can be built as part of any phase except they cannot be the first development built on site. He said the applicant seeks flexibility of all permitted and special uses in Office Mixed (OM), Office (O), or General Business (GB) zoning districts.

In summary, Mr. Carlisle asked the Board to consider public comments at the Public Hearing, and as part of their deliberation, to consider 1) the proposed development guidelines relating to building height and setbacks; 2) the proposed permitted and special uses; 3) if the PUD Standards in Section 11.03 of the Zoning Ordinance are met; and 4) if the proposed benefits are commensurate with the requested relief/development flexibility.

Mr. Savidant clarified a modification/correction to the development guidelines proposed by the applicant. Development area 1 (hotel/residential) should read 350,000 square feet, not 105,000 square feet.

Discussion among administration and Planning Commission:

- Flexibility in terms of what gets built, timing and location as proposed by applicant.
- Significance in determining appropriate uses and building heights.
- Gateway to North Troy and wayfinding signage.
- PUD Development Agreement.
 - Ms. Dufrane stated agreement is essentially standard agreement language except for unique aspects relating to development phases and development areas.
- Urban Residential (UR) zoning district; high density residential district in line with Master Plan.
- Preservation of State-regulated wetlands.
- Tree survey and mitigation; determined at each development phase, must meet site plan requirements.
- Green space/open space must be generally consistent with approved concept plan; what, where, size, whether for public use determined at each development phase and must meet site plan requirements.
- Housing types must be generally consistent with approved concept plan and must meet site plan requirements.

Anthony Antone of Kojolian introduced the project team present in the audience; Project Architect Chris Beck of Gensler, Attorney Tyler Tennent of Dawda Mann PLC, Environmental Engineer Leslie Accardo of PEA, and CEO of Hunter Pasteur Homes Randy Wertheimer.

Mr. Antone stated the residential component (development area 1) would be the first phase of development. He said the proposed uses for the overall project are residential, office and retail and are defined in the PUD Development Agreement. Mr. Antone said the development configuration is based on the market and potential clients. He noted configuration might change during the development process. Mr. Antone said the State-regulated wetlands (1.9 acres) will remain as is. He addressed proposed development areas, phases and amenities. He indicated adjacent businesses were notified of the proposed project.

Mr. Rahman asked if the center building could be moved to the street and the parking structure moved to an internal location. At the request of Mr. Rahman, an image was displayed on the wall monitor depicting a large green courtyard surrounded by building(s).

Mr. Antone stated moving the center building to the street would not be sensible from an architectural or marketing standpoint.

Mr. Wertheimer said placing residential the furthest point from a heavily trafficked and noisy street is essential for success. He noted the sequence of development phases would be residential, amenities, office, restaurant and hotel. Mr. Wertheimer said development area 3 would be flexible on what the market determines.

Ms. Perakis expressed dissatisfaction in what she views as no changes in the concept plan since last presented to the Board even though the Board offered specific suggestions. She said there is nothing unique about the proposed *Gateway to North Troy* development. Ms. Perakis recommended suggestions for the creation of a destination for residents to live, work and play: 1) phase 1 should be a pedestrian boulevard along with paths and natural features; 2) the parking structure with retail on the first floor should be the anchor building in the center of the PUD; 3) the pedestrian boulevard should run parallel to Long Lake with retail along Long Lake that fronts the pedestrian boulevard; 4) access to the pedestrian boulevard should be off Crooks and Corporate Drive. At the request of Ms. Perakis, images were displayed on the wall monitor that depicted existing parking structures located in Ann Arbor, East Lansing and Detroit. Ms. Perakis referenced page 192 of the Master Plan, “Strategy: Create a community gathering space” and addressed the application’s relationship to the PUD Standards.

Mr. Wertheimer stated details of the concept plan would come forth with each phase and at site plan submittal. He said the team’s focus is on the first step of approval of a concept plan and they look forward to providing specific details with individual site plan submittals. Mr. Wertheimer said the project team is asking for a consensus on the uses, building sizes and building heights at this time. He stated that 25% of the site is open green space. Mr. Wertheimer apologized if he is misinterpreting the PUD process and addressed the importance of landscape and architectural designs that would be presented at site plan review and approval.

Ms. Malalahalli said the concept plan appears industrial, like four rectangular Lego blocks with too much parking. She encouraged a concept plan that would *wow* the Board, to incorporate a promenade or plaza area, a connected pathway and a community stage to engage a public destination.

Mr. Tagle said it appears the development team has not *sold* the Planning Commission on its concept plan and encouraged the team to share a presentation inclusive of ideas, graphics and words that would get the Board excited about the project. He asked the applicant to address the product the team envisions for development area 1.

Mr. Wertheimer said the product would be a five to seven story luxury residential building similar to what one sees in Birmingham, West Bloomfield and Corktown. He identified some amenities as a rooftop pool, an expansive workout facility, a work-from-home office setting, state-of-the-art technology and concierge services.

Mr. Krent referenced a proposed development project at the former K-Mart Headquarters that *wowed* the Planning Commission with its pavilion style development.

Chair Lambert suggested a connected hub for public transportation.

Mr. Antone addressed the change in the configuration of office buildings since the pandemic. He said offices are becoming highly amenitized to bring employees back to what was the standard office building. Mr. Antone noted proposed parking is less than two acres of the overall project.

PUBLIC HEARING OPENED

- Laury Shah, 1448 Brentwood Drive, Troy; addressed personal visions of developing property; native grasses, lush vegetation, botanical garden, minimum height of buildings, noise buffer.
- Wei Cao, 6816 Vernmoor, Troy; shared concurrence with Planning Commission comments on the parking structure and amenities, encouraged a gathering destination and pedestrian boulevard.

PUBLIC HEARING CLOSED

Chair Lambert announced the Planning Department received 10 to 15 email messages, copies of which were placed in front of Board members prior to tonight’s meeting. Chair Lambert shared the messages expressed concerns with the destruction of green space and building heights.

Mr. Hutson said he would like to see the PUD Development Agreement be modified to include: 1) reduce the three buildings to a maximum height of eight (8) stories; 2) that no development phase should commence until the first development phase is complete; and 3) that the permitted and special uses are specifically identified. Mr. Hutson said he agrees with comments expressed by Ms. Perakis.

Ms. Dufrane stated the Planning Commission as a recommending body to City Council is responsible to forward either an affirmative or negative recommendation to City Council. In response to the Board’s query if it is appropriate to postpone the item, she responded it would be reasonable to postpone the application one time should the Board desire.

Resolution # PC-2022-08-045

Moved by: Lambert
 Support by: Buechner

RESOLVED, To postpone action on the PUD application to give the applicant an opportunity to consider input from the Commissioners on the overall concept plan and to give the Board a feel for what the entire project will look like.

Discussion on the motion on the floor.

Ms. Perakis addressed specific language she would like to incorporate in the Resolution as relates to parking structure location, pedestrian pathway, promenade/boulevard, relationship to Master Plan vision, uniqueness and creation of a destination point.

Mr. Antone and Mr. Wertheimer asked the Board to realistically consider the traffic impact and accessibility to the site as relates to the placement of the buildings.

Mr. Faison suggested design specifics should not be attached to the Resolution.

Mr. Hutson suggested to postpone the item with no specificity attached to the Resolution.

Ms. Dufrane said the attorney's office would collaborate with the applicant's attorney to tighten up the language on permitted and special uses.

Vote on the motion on the floor.

Yes: All present (9)

MOTION CARRIED

Ms. Perakis addressed existing traffic problems in the area and cautioned the applicant to not come back with an excuse that the traffic impact would prevent a pedestrian boulevard.

PLANNED UNIT DEVELOPMENT

5. PLANNED UNIT DEVELOPMENT (File Number PUD 2020-0018) – Revised Concept Development Plan for Long Lake and Crooks Masterplan Development, Northwest Corner of Long Lake and Crooks, Section 8, Currently Zoned O (Office) District

Mr. Carlisle gave a brief background of the proposed Planned Unit Development (PUD) application and identified some of the changes since last reviewed at the August 9, 2022 Planning Commission Regular meeting.

- Reconfigured residential building at northwest corner, moved building parallel to Corporate Drive.
- Reconfigured hotel/restaurant building at southwest corner, moved building parallel to Corporate Drive, located parking in rear.
- Added another retail/restaurant building, moved retail/restaurant buildings to front on Long Lake, parking in rear.
- Reconfigured internal pedestrian grid system and outdoor seating plaza area between two main retail/restaurant buildings on Long Lake.
- Significant addition to the central gathering space, dedicated green space and functional usable open space.
- Added green “street” and “boulevard” that bisects site north/south, east/west.
- Added pedestrian amenities and grid system to connect with pedestrian amenities.
- Reduced size of sculpture garden located next to wetland, added parking.
- Expanded open space and natural features area on the north end of site.
- Added small retail zone on ground level of parking deck.

Anthony Antone of Kojoian introduced project team members in the audience; Randy Wertheimer of Hunter Pasteur Homes, Chris Beck of Gensler, Chris Kojoian of Kojoian and Tyler Tennent of Dawda Mann PLC.

Mr. Antone said the team wants to make sure they are on the right track and is asking for the Board’s feedback again before coming forward with the Concept Development Plan. He said “The Great Lawn” area would be an all-season gathering place with diverse amenities, identifying at this time an ice-skating rink, pickleball courts and bocce ball.

Board members complimented the team on the plan revisions and expressed overall satisfaction of the plan.

Some items Board members asked the project team to consider:

- Prepare a brochure/pamphlet to illustrate the community gathering space.
- Food trucks; parking, competition with on-site restaurants.
- Seasonal gathering space; functionality.
- Add gardens, play structure.
- Location of pickleball courts and outdoor exercise stations.
- Parking.
 - Applicant advised boulevard offers on-street parallel parking.
 - Parking deck and office tower; levels of parking.

- Shared parking.
- Review of parking at each development phase.
- Retail/restaurant buildings; facilitation of loading/unloading and waste management.
- Provide a ‘grand’ and ‘eye-catching’ entrance to development.
- Hub for public transportation.

Mr. Savidant reviewed the PUD approval process.

Ms. Dufrane stated the elements of the PUD agreement encompass details relating to development phasing and open space.

Chair Lambert opened the floor for public comment.

Wei Cao, 6816 Vernmoor; addressed retail/restaurant portion of development, suggested smaller storefront retail/restaurants.

Chair Lambert closed the floor for public comment.

Mr. Antone said the market would drive tenancy of the project. He said a combination of larger and smaller retail/restaurant store fronts would be appealing.

PLANNED UNIT DEVELOPMENT

5. **PLANNED UNIT DEVELOPMENT (File Number PUD2020-0018)** – Proposed Concept Development Plan for Long Lake and Crooks Masterplan Development, Northwest corner of Long Lake and Crooks, Section 8, Currently Zoned O Office

Mr. Savidant explained the Planned Unit Development (PUD) three-step approval process. He briefly addressed discussion items during review of the application in previous meetings.

Mr. Savidant addressed revisions to the application since its last review, proposed amenities in Zones A, B and C, buildout of development phases and displayed several generic renderings that capture the flavor of the application.

Mr. Savidant said the applicant noted benefits of the application as follows:

- Horizontal mixed-use development consistent with the Master Plan.
- Development of an undeveloped and prominent site.
- Outdoor plazas.
- Outdoor dining areas.
- Pedestrian circulation paths and activities around the site.
- Public art.
- Wetland preservation.

Mr. Savidant asked the Planning Commission to consider the following in its deliberation:

- The proposed development guidelines (height/setbacks, etc.)
- The proposed allowable and special uses.
- The proposed phasing.
- If proposed benefits are commensurate with the requested relief/development flexibility.
- If the PUD Standards have been met.

Discussion among administration and Planning Commission:

- Public transportation drop-off area.
- Height of Flagstar bank; 14 stories.
- Intent of Urban Residential zoning district.
- Sustainability, renewable energy, environmental impact.
- Traffic study recommendations, responsibility to apply.
- Potential uses.

Anthony Antone of Kojaian was present. Project members in the audience were Randy Wertheimer of Hunter Pasteur Homes, Chris Beck of Gensler and Tyler Tennent of Dawda Mann PLC.

Mr. Antone addressed the revisions to the application and amenities and said they are committed to the uses as presented this evening in their presentation.

There was discussion, some comments related to:

- Public transportation drop-off; possible location south side of Crooks service drive; applicant working with SMART.
- Amenities open to public; more details with site plan application.
- Development phases; 1st phase multi-family residential, 2nd phase amenities.
- Public art; one-time installation.
- Sustainability, energy conservation, charging stations.
- Natural wetland area; seating around periphery; applicant working with Environment, Great Lakes & Energy (EGLE) on other possible functions.
- Great Lawn Area; applicant working with outside source to promote various activities.
- Correction to Site Plan to show only one entrance on Long Lake.
- Food truck staging; on promenade, malleable locations.
- Traffic improvements; applicant to work with Engineering and County.
- Green space; 76% open space.
- Office space (Area 2); objective to remain as office use until tenant is secured.
- Goal to create a live, play, work environment.
- Public comment received expressing concern with destruction of trees, office space vacancies and building height.
- Applicant encouraged to include renderings from various perspectives of surrounding areas at City Council presentation.
- Project timetable.
- Recycling resources.

Chair Lambert opened the floor for public comment. Acknowledging there was no one present who wished to speak, Chair Lambert closed the floor for public comment.

There was discussion on the PUD Agreement, some comments related to:

- Limitation on uses; reference to email communication from Attorney Tyler Tennent confirming commitment of uses identified in application.
- Site Plan to show only one entrance on Long Lake.
- Traffic circulation as relates to recommendations of traffic consultants and County regulations.
- Project timetable; up to 20 years to complete construction.
- Development phases.

Resolution # PC-2023-01-008

Moved by: Krent
Seconded by: Buechner

WHEREAS, The applicant Gensler submitted a Conceptual Development Plan application for a Planned Unit Development, located on the northwest corner of Long Lake and Crooks, in Section 8, approximately 24.88 acres in area; and

WHEREAS, The Concept Development Plan proposes multiple phases for a mixed-use development including office, residential, lodging, restaurant, retail and open space with public amenities; and

WHEREAS, The Concept Development Plan will be implemented through submittal of Preliminary Development Plans for each phase of development; and

WHEREAS, Each Preliminary Development Plan will require a Planning Commission public hearing and City Council public hearing prior to approval; and

WHEREAS, The proposed Concept Development Plan meets the Standards for Approval set forth in Section 11.03.

THEREFORE BE IT RESOLVED, That the Planning Commission recommends to City Council that Concept Development Plan Approval for the proposed Long Lake and Crooks Masterplan Development be granted, subject to the following:

1. The concept plan indicates extensive landscape and trees, and the Planning Commission approves that type of concept.

Yes: All present (9)

MOTION CARRIED

From: [RICHARD KILLEWALD](#)
To: [Planning](#)
Subject: Long Lake/Crooks Development
Date: Sunday, March 7, 2021 10:29:27 PM

Planning Commissioners,

My name is Rick Killewald. I am a 30+ year resident of north Troy. I am writing you with a concern after reading the Troy Times article regarding the proposed development at Long lake and Crooks roads.

North Troy has an enormous amount of building vacancies along the north Crooks road areas. It also has an unsightly demolition site, the old Northfield Hilton vacant land, to add to the glut of "for lease" signs; along with other newly constructed buildings seeking tenants. Have you drove by this area, (Crooks Road from Long Lake to Square Lake), lately? The vacant/for lease signs are staggering. Additionally, behind the newly constructed Panera building, Crooks and I75 exit, sit two large vacant office buildings. And now you want to put another hotel/office/retail development on the corner of Long Lake and Crooks. Are you serious? How many more vacant buildings do you want in this area? And a hotel? In this area of Troy? Last I checked, Double Tree Hotel is never over booked. Don't you have enough hotels at Big Beaver that you feel compelled to stick another one at the proposed sight? Why? Is the demand really there? Don't think so.

Planning Commissioners Jerry Rauch and Michael Hutson said it right in the Troy Times article. They are concerned about the glut of vacancies in the area. YES!! Will you other commissioners pay attention! Look for yourselves! We north Troy residents have to look at these "eye-sores" everyday.

Furthermore, is there a need to destroy this wooded parcel of land on the cited corner. Is it necessary to destroy every wooded parcel of land in Troy for more concrete vacant buildings ? You are responsible to the City of Troy residents to do the right thing even if it means saying NO at this time to a developer.

Please recognize your responsibility to the city, and reconsider this proposed development!

Thank you,
Rick

From: lintroy2015@gmail.com
To: [Planning](#)
Subject: Long Lake /Crooks Development
Date: Tuesday, August 9, 2022 10:22:34 PM

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

After streaming tonight's meeting, I want to express my thanks and appreciation to the Planning Board, and especially to Ms Malalahalli & Ms Perakis. And to all who realized the developers did not hear the board. Please continue to protect Troy's last oasis from short sighted development.

Why would a developer think Troy residents want another boring, overcrowded Big Beaver/Crooks corner? Or a KMart headquarters corner? Troy's office parking lots still show lack of work force returning.

Are ten-story buildings necessary in that development?

Troy needs green spaces. It's difficult to maintain trees and plants in areas covered in concrete and asphalt. It's great that so many new trees were planted along Northfield Parkway this year.

The board's job is not easy. Thank you for the hours spent at meetings and in preparations. Each board member's words and actions leave their mark on our city.

Thank you.
Ellen Schmidt
1745 Brentwood Dr

Sent from my iPhone

From: steveandlisabarnett@yahoo.com
To: [Planning](#)
Subject: The Long Lake & Crooks PUD: Planned Unit Developments-PUD-030
Date: Friday, August 5, 2022 8:58:20 AM

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Board members,

RE: The Long Lake & Crooks PUD: Planned Unit Developments-PUD-030

I sincerely hope that you will not consider this property for commercial development. We have to preserve the remaining green spaces in this beautiful City of Troy. This area is a natural habitat for our wildlife and greatly enhances our neighborhood with its natural beauty. It is also a very popular area to walk and exercise. My wife and I love to walk our dog past the woods, enjoying nature.

We feel that there is already an abundance of newer vacant commercial properties in Troy, why do we need to build more? I urge you to please preserve this beautiful and natural habitat that our neighborhood loves so much and enjoys.

Sincerely,

Stephen Barnett
4344 Bender Court
Troy, MI 48098
248-641-8098

From: [crystal geiser](#)
To: [Planning](#)
Subject: Planning commission meeting 8.9.22
Date: Monday, August 8, 2022 3:53:55 PM

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

To Whom It May Concern,

I am a lifelong resident of Troy and have heard about the request that has been made to re-zone a parcel of land at Long Lake and Crooks to allow for more development and a 10 story building. **I would like my voice to be heard in this matter that I am firmly against allowing this.** Our city is currently full of unused office spaces with "for lease" signs everywhere. Creating more space for this purpose would be irresponsible. Additionally, the idea of overwhelming our city with a 10 story building would not do anything more than create an eye-sore. Troy has been a city where everyone wants to live. We have the perfect combination of enough businesses to be convenient and offer jobs while still having green spaces and a feeling of calm. Adding unnecessary huge buildings sets the precedent for others to start wanting to do that as well and turn our safe, family city into nothing but unused skyscrapers. This piece of land was zoned specifically and purchased knowing what it was zoned for. There is no reason to change it and negatively impact all the residents of Troy to appease a big business who has no vested interest in the wellbeing of the residents here.

Thank you for your consideration in this matter.

Crystal Geiser
5207 Cardinal Dr.
Troy, MI

From: [Karen Liska](#)
To: [Planning](#)
Subject: Long Lake & Crooks PUD
Date: Friday, August 5, 2022 12:36:00 PM

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Members of the Planning Commission:

My husband and I just purchased a new home in Troy in July at Long Lake and Rochester Roads. We are looking forward to moving into our new neighborhood and watching our children grow and thrive in our new community. One of the draws for us to the area was the abundance of nature, both in the specific segments set aside (such as the Stage Nature Center) and in the naturally-occurring wooded landscapes around the city. Therefore, it was with great concern that I learned about the proposed re-zoning of one of the few remaining large parcels of wooded land. Specifically the Long Lake & Crooks PUD, which seeks re-zoning from "O" to "PUD" along with variances of development use, maximum height and gross square footage. I urge the Commission to consider the safety, health and welfare risks inherent to this request.

While the current zoning is "O" and we understand office development in that area could also impact the wildlife and health of the area, the demands on the land placed by the proposed development do far more to tax the natural resources and impact the experience of residents. There are also concerns about traffic safety and density, and of course increased carbon emissions and health risks, from such a large proposed development. The proposed shifts (such as allowing 10 story buildings on that land) would also alter the character of that neighborhood away from the residential character we specifically sought out and that other neighbors enjoy for their families. The domino effects of granting this proposal also matter: will other building owners bordering residential areas seek to increase their building sizes?

We chose Troy for its nature, and for a place where we and our children can bike in residential neighborhoods and explore with freedom. We enjoy visiting the businesses on Big Beaver Road, and are grateful for the contributions of industry and government buildings in other sections of the city designed for those uses. To take a parcel that is 80% wooded and allow a development that is wholly out of character for the neighborhood in which it sits will have an outsize impact on the experience of living in the city from the perspectives of the environment, safety, and resident welfare. I would urge the Commission to reach a decision in this matter that preserves the natural resources and character of the neighborhood. There are many examples around the world of developments that allow nature and industrial progress and residential use to co-exist, and I am certain a city like Troy that is known for its innovation and ingenuity as much as it is known as a place where families can grow and thrive can facilitate such a plan. As Tony Antone said himself in an interview with *Crain's Detroit Business*, <https://www.crainsdetroit.com/voices-kirk-pinho/real-estate-insider-weighing-fate-gateway-north-troy>, "there's just so few parcels left like this." If this *is* to become the "Gateway to North Troy," let's make sure it's a gateway that residents want to stay within and not exit from.

Thank you,

Karen Liska

1152 Mayberry

From: [Brent Savidant](#)
To: [Jackie Ferencz](#)
Subject: FW: Please Preserve Our Green Spaces!
Date: Monday, March 1, 2021 4:13:06 PM

Please save in Public Input folder in Long Lake PUD folder.

-----Original Message-----

From: Jackie Ferencz On Behalf Of Planning
Sent: Monday, March 1, 2021 8:54 AM
To: Brent Savidant <SavidantB@troymi.gov>
Subject: FW: Please Preserve Our Green Spaces!

Jackie Ferencz

Administrative Assistant | City of Troy Planning Dept

O: 248.524.3364

-----Original Message-----

From: C Angell <charangell1@gmail.com>
Sent: Saturday, February 27, 2021 5:36 PM
To: Planning <planning@troymi.gov>
Subject: Please Preserve Our Green Spaces!

Hello,

Now, I see in the Troy Times that the proposed development on Crooks and Long Lake, which is in the area where I live, is being proposed as a "maximum flexibility" site.

I no longer see the Troy "City of Tree" signs - I suppose because we no longer are. Which is very sad.

We are losing all our green spaces, which made Troy a beautiful city, reduced noise and pollution.

I agree that we DO NOT NEED MORE BUILDINGS / PLAZA'S in our city.

We need to ensure that IF a site is developed, that developers set aside a green space and leave an area of trees in tact - otherwise, what will happen is Troy will have more ugly office buildings and plaza's with huge For Lease signs, that seem a permanent fixture, on the property. A fountain is not on par with green spaces / trees.

Please take a stand on protecting our green spaces and help protect our environment and beautiful city.

Charlene Angell
6660 Tree Knoll Dr
Troy, MI 48098

From: [Lisa](#)
To: [Planning](#)
Subject: Long lake and Crooks rezoning
Date: Friday, August 5, 2022 9:05:43 AM

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Attn: Planning Commission

Re: Long lake and Crooks rezoning

I am a Troy resident and like to voice my opinion on this matter.

We already have so much vacant office space available in Troy. There is not enough demand for this project.

Also, as a resident of this near by proposed project, this is another example of the greenery being taken away. We purchased our home for this reason. We thought Troy would be thoughtful in planning.

Low rise is in place and it should stay that way.

Traffic is already going to be an issue with the Wellington Apartments a mile away.

It is understandable if there is a need. But with so many existing vacancies, it doesn't make sense to disturb 28 acres.

Please do not rezone this land!

Lisa Paglino
248 225-1442
1061 Redding Drive
Troy, MI 48098

Date: August 4, 2022
To: Planning Department
From: Laury Shah
1448 Brentwood Drive
Troy, MI 48098
Re: Long Lake & Crooks PUD- PUD-030

Dear Planning Department and City Council Members,

As a resident in Northfield Hills, my home sits on Northfield Parkway. I am very concerned about the maximum height variance the applicant seeks in this design proposal. The Flagstar Bank building that is on Corporate Drive, directly across from the 24- acre parcel in question, is a low-rise 4 story building. This building is hidden from my residential view due to trees that have grown tall over the years. So, I do not feel that the Flagstar bank is oppressive to me from my residence. If you travel west bound on Long Lake Road from Adams, you cannot visually see the top of the Flagstar bank buildings (starting at 1450 W Long Lake Rd) upon approach. Approaching west on Long Lake to Corporate Drive, I know that seeing tops of green trees and blue sky and clouds is so much more inviting to me in comparison to the oppressive feeling I would feel possibly with a 10-story building. Most of the surroundings from the parcel are residential neighborhoods. Therefore, I think the variance should not be approved and that the number of stories should not exceed 6 stories.

I respectfully want to ask, was the PEA tree reported impartially completed? I know PEA was hired by Kojaian and are working with the city of Troy with respect to allowable tree species, but I really would like to see more trees saved to cover the circumference of the parcel. I would request a thicker density of trees in the circumference of the area. I would like the tops of the trees to be higher than the buildings. This would provide a more peaceful and green space visually.

I understand the newer concept of mixed-use development with the possibility of having a positive effect on our social lives and better usage of space, but with this parcel's very close proximity to I-75, it is going to be loud in that parcel. Especially, with the added proximity directly on a busy intersection (Crooks and Long Lake). From my home, just about 3000 (south) to 4000 feet (west) from the I-75 freeway, it can be very loud and it has gotten louder surprisingly from the newer "sound barriers" built along I-75.

Also, if we allow the variance of maximum building height, will the other many buildings on Corporate Drive and New King Street (currently very many listed for lease with open parking lots) be removed and rezoned for maximum height as well? I would not be in favor of that.

Lastly, I would like to request that a thorough written report of all valuable native plants be listed for public viewing and that the developer allows access to a responsible party to carefully retrieve these

native plants from this parcel before building commences. I know for a fact that a valuable native plant, Joe Pye weed (a valuable pollinator plant) and wild bergamot are on this parcel.

Thank you, Laury Shah

From: [Deanna Vetrone](#)
To: [Planning](#)
Subject: Parcel at Long Lake and Crooks
Date: Friday, August 5, 2022 12:48:38 PM

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Planning Commission Members,

I am writing to implore you to do everything you can to save the 24 wooded acres at the corner of Long Lake and Crooks. I still do not understand how land can be clear cut when scientist after scientist continues to warn us about the loss of trees and natural habitats and global warming. Troy should have established a land preserve years ago so this land could have been purchased and preserved. We do not need more offices in a city where offices lay empty and the future of office work is more remote than in person. I moved to Troy when I was a little girl in 1977 and the loss of farms and woods has been devastating to the quality of life in this city. Those woods support so many animals and plants and help to make living in the city healthier and more tolerable. Please, if you cannot stop the development, then please only allow minimal development with the largest amount of preserved trees.

Sincerely,

Deanna Vetrone
5798 Faircastle Drive
Troy 48098

From: [Amanda Winters](#)
To: [Planning](#)
Subject: Long lake and crooks
Date: Tuesday, August 9, 2022 10:19:53 PM

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

This parcel of land needs to be left as a green space. Troy needs more green space. Not condos, not more business, not more housing! Just stop building out every last inch of Troy!

Amanda Winters
Troy resident for 42 years.
2971 Quail Run Drive
Troy, Mi 48098

Sent from my iPhone

Salim Huerta Jr

PARCEL 8820-08-477-001

From: Monika <moonbirdm@gmail.com>
Sent: Sunday, August 21, 2022 4:52 PM
To: Planning
Subject: PUD2020-0018 Northwest corner of Long Lake and Crooks

CAUTION: This email did not originate from within the City of Troy. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Dear Commissioners,

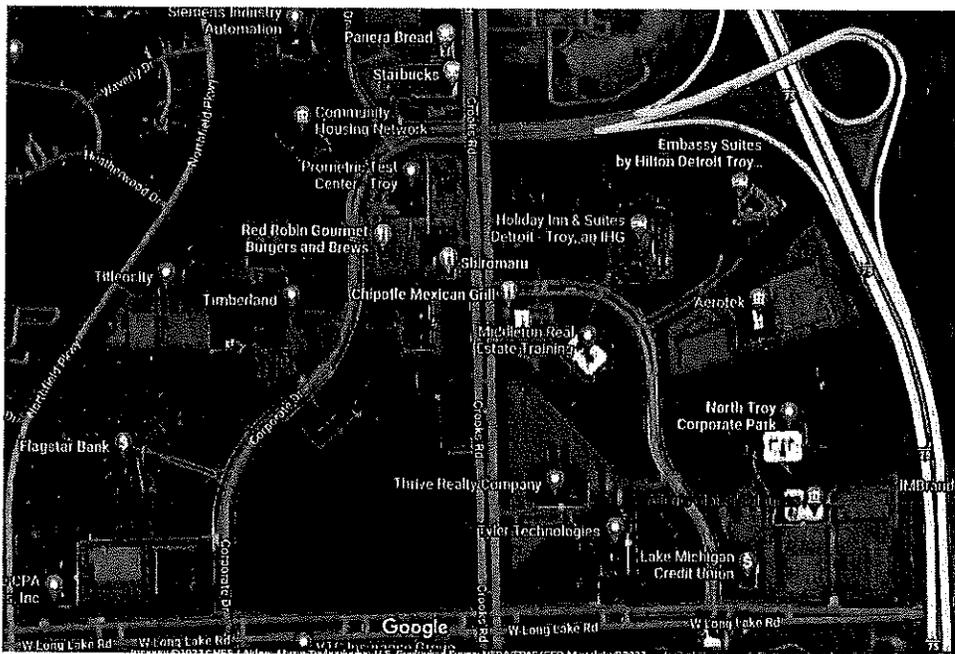
This is regarding tearing down the little bit of forest that Troy has left to offer. There are so many office buildings that glut this area already. Why add more buildings that will end up being mostly empty? There have been low vacancy rates even prior to COVID-19 in office buildings. I've worked in the area for 15 years and have seen the empty buildings and parking lots over those 15 years.

Tearing down trees that provide health benefits to Troy residents appears uncaring.
"Spending time around trees and looking at trees reduces stress, lowers blood pressure and improves mood. Numerous studies show that both exercising in forests and simply sitting looking at trees reduce blood pressure as well as the stress-related hormones cortisol and adrenaline." [Immerse Yourself in a Forest for Better Health - NYS Dept. of Environmental Conservation](#)

Building more parking lots and even adding a parking structure is disturbing. Just take a drive on Corporate Drive and look at all the empty parking lots and all the For Lease signs that clutter this road. Adding non-permeable parking lots and more concrete to the area will exacerbate the issues with the storm water system. These trees and shrubs manage rainwater runoff.

"Trees are increasingly recognized for their importance in managing runoff. Their leaf canopies help reduce erosion caused by falling rain. They also provide surface area where rain water lands and evaporates. Roots take up water and help create conditions in the soil that promote infiltration."
[Soak Up the Rain: Trees Help Reduce Runoff | US EPA](#)

I'm including a snippet of the area which shows how much this area has been over developed already and hasn't met expectations:



Thank you for your time.

Monika Sipe

Additional benefits of having trees in a city:

[Building greener cities: nine benefits of urban trees \(fao.org\)](#)

Urban trees can help to mitigate some of the negative impacts and social consequences of urbanization, and thus make cities more resilient to these changes. Here are nine ways in which urban trees and forests contribute to making cities socio-economically and environmentally more sustainable:

1. Trees can contribute to the increase of local **food and nutrition security**, providing food such as fruits, nuts and leaves for both human consumption and fodder. Their wood, in turn, can be used for cooking and heating.
2. Trees play an important role in **increasing urban biodiversity**, providing plants and animals with a favourable habitat, food and protection.
3. A mature tree can absorb up to 150 kg of CO₂ per year. As a result, trees play an important role in **climate change mitigation**. Especially in cities with high levels of pollution, trees can improve air quality, making cities healthier places to live in.
4. Strategic placement of trees in cities can help to **cool the air** between 2 and 8 degrees Celsius, thus reducing the urban "heat island" effect, and helping urban communities to adapt to the effects of climate change.
5. Large trees are excellent **filters for urban pollutants** and fine particulates. They absorb pollutant gases (such as carbon monoxide, nitrogen oxides, ozone and sulfur oxides) and filter fine particulates such as dust, dirt or smoke out of the air by trapping them on leaves and bark.
6. Research shows that living in close proximity of urban green spaces and having access to them, can **improve physical and mental health**, for example by decreasing high blood pressure and stress. This, in turn, contributes to the well-being of urban communities.
7. Mature trees **regulate water flow** and play a key role in preventing floods and reducing the risk of natural disasters. A mature evergreen tree, for instance, can intercept more than 15 000 liters of water per year.

8. Trees also help to **reduce carbon emissions** by helping to conserve energy. For example, the correct placement of trees around buildings can reduce the need for air conditioning by 30 percent, and reduce winter heating bills by 20-50 percent.
9. Planning urban landscapes with trees can **increase property value**, by up to 20 percent, and attract tourism and business.

From: [Cindy D](#)
To: [Planning](#)
Subject: PUD Project
Date: Tuesday, January 12, 2021 8:27:15 PM

Good Evening,

I love what Ms. Perakis proposed. I remember telling you back in 2016 that I like being able to walk to Starbucks from Northfield Pkwy. Our kids use to ride their bikes to get frozen yogurt. Make it a place to go for the already occupied offices and for the local neighborhoods.

When I saw their proposal I hated it. My neighbor disliked it. This is an opportunity to create something special and lasting.

Thank you,

Cindy Desmon
Troy Resident



500 West Big Beaver
Troy, MI 48084
troymi.gov

K-01b

CITY COUNCIL AGENDA ITEM

Date: February 20, 2023

To: Mark F. Miller, City Manager

From: Robert J. Bruner, Assistant City Manager
R. Brent Savidant, Community Development Director

Subject: ANNOUNCEMENT OF PUBLIC HEARING (March 13, 2023) – ZONING ORDINANCE TEXT AMENDMENT (File Number ZOTA 257) – Places of Worship

The attached draft zoning ordinance text amendment is related to the regulation of places of worship in the City of Troy. The attached memo explains the proposed revisions.

The City of Troy is obligated to comply with the Stipulation and Order to Resolve Motion for Additional Relief (see attached). This Order relates to settlement of the Adam case (Civil Action No. 19-cv-12736).

Specifically, the Order required the City to take the following actions:

- “Within seven (7) days of the signature date on this Order, Troy shall annotate its Zoning Ordinance so that it states the following in bold and capitalized font in the margin next to § 4.21: **“ON 3/18/2022 A FEDERAL COURT RULED THAT PLACES OF WORSHIP ARE PERMITTED AS OF RIGHT IN THE CF DISTRICT”**”. This requirement was met (see attached).
- “Within seven (7) days of the signature date on this Order, Troy shall annotate its Zoning Ordinance so that it states the following in bold and capitalized font in the margin next to §§ 6.21(E)-(F): **“ON 3/18/2022 A FEDERAL COURT RULED THAT §§ 6.21(E)-(F) ARE UNENFORCEABLE”**”. This requirement was met (see attached).
- “Within seven (7) days of the signature date on this Order, Troy shall prominently place the following statement on its website: “On 3/18/2022, a federal court ruled that Zoning Ordinance §§ 6.21(E)-(F) are unenforceable against any religious assembly or institution and ruled that Zoning Ordinance § 4.21 permits places of worship as of right in the Community Facilities district. The City must abide by the Court’s order.”” This requirement was met (see attached).
- “Troy’s administrative officials shall recommend that the Troy Planning Commission and the Troy City Council approve a text amendment to the Zoning Ordinance that shall repeal the provisions of §§ 6.21(E)-(F) that impose 50-foot setbacks for all yards for places of worship and prohibit parking within those yards and which shall amend § 4.21 to allow places of worship as a permitted use in the CF zoning district. Within two (2) weeks of the signature date on this Order, Troy shall initiate the process to enact said amendment in accordance with the Michigan”. The attached draft provisions comply with these requirements.



500 West Big Beaver
Troy, MI 48084
troymi.gov

CITY COUNCIL AGENDA ITEM

A draft text amendment was prepared by Carlisle/Wortman Associates, Inc. with input provided by the City Attorney and Community Development Director. The Planning Commission held a public hearing for this item on January 10, 2023 and recommended approval by a vote of 8-1.

A public hearing is scheduled for March 13, 2023.

Legal Review

This item was submitted to the City Attorney for review pursuant to City Charter Section 3.17.

Attachments:

1. Stipulation and Order to Resolve Motion for Additional Relief.
2. Verbiage added to Section 4.21 and 6.21 of Chapter 39 Zoning Ordinance.
3. Verbiage added to City website.
4. Memo prepared by Carlisle Wortman Associates, Inc.
5. Minutes from January 10, 2023 Planning Commission Regular meeting.
6. City Council Public Hearing Draft ZOTA 257.

**UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION**

UNITED STATES OF AMERICA,)	
)	
Plaintiff,)	Civil Action No. 19-cv-12736
)	Hon. Nancy G. Edmunds
v.)	Mag. Judge David R. Grand
)	
)	
CITY OF TROY, MICHIGAN)	
)	
Defendant.)	

**STIPULATION AND ORDER TO RESOLVE
MOTION FOR ADDITIONAL RELIEF**

The United States and the City of Troy (“Troy”) (together, the “Parties”), through this Stipulation and Proposed Order, agree to the following:

1. The United States’ Motion for Additional Relief Under Federal Rule of Civil Procedure 59(e) – ECF No. 57 – is withdrawn without prejudice.

2. Troy’s administrative officials shall recommend that the Troy Planning Commission and the Troy City Council approve a text amendment to the Zoning Ordinance that shall repeal the provisions of §§ 6.21(E)-(F) that impose 50-foot setbacks for all yards for places of worship and prohibit parking within those yards and which shall amend § 4.21 to allow places of worship as a permitted use in the CF zoning district. Within two (2) weeks of the signature date on this Order, Troy shall initiate the process to enact said amendment in accordance with the Michigan

Zoning Enabling Act, MCL 125.3101, *et seq.*, and Article 16 of the Troy Zoning Ordinance and shall make every effort to ensure that there are no delays in the process.

3. Within seven (7) days of the signature date on this Order, Troy shall annotate its Zoning Ordinance so that it states the following in bold and capitalized font in the margin next to §§ 6.21(E)-(F): **“ON 3/18/2022 A FEDERAL COURT RULED THAT §§ 6.21(E)-(F) ARE UNENFORCEABLE”**.

4. Within seven (7) days of the signature date on this Order, Troy shall annotate its Zoning Ordinance so that it states the following in bold and capitalized font in the margin next to § 4.21: **“ON 3/18/2022 A FEDERAL COURT RULED THAT PLACES OF WORSHIP ARE PERMITTED AS OF RIGHT IN THE CF DISTRICT”**.

5. Within seven (7) days of the signature date on this Order, Troy shall replace any public facing version of Troy’s Zoning Ordinance (on its website or otherwise) with the annotated copies.

6. Within seven (7) days of the signature date on this Order, Troy shall prominently place the following statement on its website (https://troymi.gov/departments/city_attorney/code_table_of_contents.php#outer-79): “On 3/18/2022, a federal court ruled that Zoning Ordinance §§ 6.21(E)-(F) are unenforceable against any religious assembly or institution and ruled that Zoning

Ordinance § 4.21 permits places of worship as of right in the Community Facilities district. The City must abide by the Court's order.”

7. Troy shall maintain its Zoning Ordinance and website consistent with Paragraphs 3-6 unless and until it approves and enacts the zoning amendment or a similar amendment with the same substantive provisions as described in Paragraph 2.

8. If Troy fails to approve and enact the aforesaid zoning amendment or a similar amendment with the same substantive provisions as described in Paragraph 2 within five (5) months of the signature date on this Order, the United States may renew its Motion for Additional Relief Under Federal Rule of Civil Procedure 59(e) or move the Court to impose any remedy authorized by law or equity, including, but not limited to, findings of contempt, an order requiring specific performance, or an award of any damages, costs, and reasonable attorneys' fees that may have been occasioned by Troy's failure to perform. Troy agrees to waive all affirmative defenses, including the statute of limitations, when responding to any such motion. The Parties also agree that venue in this Court is appropriate.

SO ORDERED.

Dated: November 23, 2022

s/ Nancy G. Edmunds
NANCY G. EDMUNDS
UNITED STATES DISTRICT JUDGE

Respectfully Submitted,

For Plaintiff the United States:

DAWN N. ISON
United States Attorney
Eastern District of Michigan

KRISTEN CLARKE
Assistant Attorney General
Civil Rights Division

SAMEENA SHINA MAJEED
Chief

/s/ Shannon Ackenhausen
SHANNON M. ACKENHAUSEN
(P83190)
Assistant United States Attorney
Acting Chief, Civil Rights Unit
United States Attorney's Office
Eastern District of Michigan
211 W. Fort Street, Suite 2001
Detroit, Michigan 48226
Phone: (313) 226-9730
Facsimile: (313) 226-3271
Shannon.Ackenhausen@usdoj.gov

/s/ Abigail Marshak
TIMOTHY J. MORAN
Deputy Chief
ABIGAIL B. MARSHAK
(NY 5350053)
KATHERINE A. RAIMONDO
(DC 985157)
Trial Attorneys
Housing and Civil Enforcement Section
Civil Rights Division
United States Department of Justice
4 Constitution Square / 150 M Street NE
Washington, DC 20530
Phone: (202) 514-1968
Facsimile: (202) 514-1116
Abigail.Marshak@usdoj.gov

Dated: November 23, 2022

For Defendant City of Troy:

/s/ with consent of Allan Motzny
Lori Grigg Bluhm (P46908)
Allan T. Motzny (P 37580)
City of Troy City Attorney's Office
500 W. Big Beaver Rd.
Troy, MI 48084
(248) 524-3320
MotznyAT@troymi.gov

Dated: November 23, 2022

SECTION 4.21 SCHEDULE OF USE REGULATIONS

- A. In all Districts, no **building** or land shall be used and no building shall be erected except for one (1) or more of the following specified uses, unless otherwise provided in this Article.
- B. The Schedule of Use Regulations identifies uses as follows:
 1. "P" identifies uses permitted as of right.
 2. "S" identifies uses requiring special approval.
 3. "A" identifies accessory uses.
 4. "NP" identifies uses not permitted.

ON 3/18/2022 A FEDERAL COURT RULED THAT PLACES OF WORSHIP ARE PERMITTED AS OF RIGHT IN THE CF DISTRICT

Uses	Districts															
	R-1A through R-1E	RT	MF	UR	MHP	CF	EP	CB	GB	IB	O	OM	RC	PV	P	
Residential																
One-family dwellings	P	P	P	P	P	P	NP									
Two-family dwellings	NP	P	P	P	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
One-family attached dwellings	NP	P	P	P	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
Home occupations	A	A	A	A	A	A	NP	A	A	A	NP	A	NP	NP	NP	NP
Multiple-family dwellings (2-8 stories)	NP	NP	P	P	NP	NP	NP	NP	NP	P	NP	NP	NP	NP	NP	NP
Multiple-family dwellings (9+ stories)	NP	NP	NP	P	NP	NP	NP	NP	NP	P	NP	NP	NP	NP	NP	NP
Multiple-family dwellings (on upper floors only in a mixed-use building)	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	P	NP	NP	NP	NP
Senior assisted/independent living	S	S	P	P	NP	S	NP	P	P	P	NP	P	NP	NP	NP	NP
Live/work units	NP	NP	P	P	NP	NP	NP	P	P	P	NP	P	NP	NP	NP	NP
Bed and breakfast	S	S	S	S	S	NP										
Recreation																
Publicly owned and operated parks, parkways, and recreational facilities	P	P	P	P	P	P	NP	P	P	P	P	P	P	NP	NP	NP
Golf courses	S	S	S	S	S	S	NP	S	S	S	NP	NP	NP	NP	NP	NP
Swimming pool clubs	S	S	S	S	S	S	NP	S	S	S	NP	NP	NP	NP	NP	NP
Institutional																
Primary/secondary schools	S	S	S	S	S	P	NP	P	P	P	P	P	P	NP	NP	NP
Places of worship	S	S	S	S	S	S	NP	P	P	P	P	P	P	NP	NP	NP
Publicly owned/operated office and service facilities	S	S	S	S	S	P	NP	P	P	P	P	P	P	P	P	P
Convalescent centers	NP	NP	S	S	NP	P	NP	P	P	P	P	P	NP	NP	NP	NP
Fine and performing arts facilities	NP	NP	NP	NP	NP	P	NP	P	P	P	NP	S	NP	NP	NP	NP

- C. The site shall have frontage on and primary access to a [major](#) or [minor arterial](#).
- D. Buildings of greater than the maximum height allowed in the District in which a [place of worship](#) is located, may be allowed provided that the [front](#), [side](#) and [rear yards](#) are increased one (1) foot for each foot of building height which exceeds the maximum height allowed.
- E. [Front](#), [side](#) and [rear yard](#) setbacks shall be a minimum of fifty (50) feet.
- F. Parking shall not be permitted in the required [yards](#) adjacent to any public [street](#) or adjacent to any land zoned for residential purposes, other than that which is developed or committed for uses other than the construction of residential dwellings. Such yards shall be maintained as landscaped [open space](#).
- G. Traffic from events, including church worship services and other large assemblies, shall be controlled so as not to create congestion or unreasonable delays on the public [street](#).

ON 3/18/2022, A FEDERAL COURT RULED THAT §§ 6.21(E)-(F) ARE UNENFORCEABLE

SECTION 6.22 POST-SECONDARY SCHOOLS

- A. All ingress and egress from said site shall be directly on to a [major arterial](#).
- B. No [building](#) shall be closer than eighty (80) feet to any property line that is residentially zoned or used. In all other cases, front, side, and rear setbacks shall be a minimum of forty (40) feet.
- C. Off-street parking areas shall be located at least fifty (50) feet from any residential property line.
- D. Those [buildings](#) to be used for servicing or maintenance, such as heating plants, garages, and storage structures shall be screened from view of residentially zoned or used property, in accordance with the standards set forth in [Section 13.02.B](#).

SECTION 6.23 PRIMARY/SECONDARY SCHOOLS

- A. All outdoor play areas shall be located in the rear or side yards only and shall be enclosed with a durable fence six (6) feet in height, or four (4) feet in height if adjoining a right-of-way.
- B. All required state and local licenses, charters, permits and similar approvals shall be issued prior to occupancy for any educational purposes and shall be maintained in good standing.

Code Table of Contents

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**Lori Grigg
Bluhm**

P: 248.524.3320

E: [Email Us](#)

City Attorney

[Code & Charter](#)

[Forms, Applications,
and Permits](#)

[Frequently Asked Questions](#)

On 3/18/2022, a federal court ruled that Zoning Ordinance Sections 6.21(E)-(F) are unenforceable against any religious assembly or institution and ruled that Zoning Ordinance Section 4.21 permits places of worship as of right in the Community Facilities district. The City must abide by the Court's order.

Search for file name:

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TITLE I - ADMINISTRATION CHAPTER ▾

16 documents

TITLE II - UTILITIES AND SERVICES ▾

8 documents

TITLE III - PARKS AND PUBLIC GROUNDS ▾

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TITLE IV - STREETS AND SIDEWALKS ▾

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TITLE VII - BUSINESS AND TRADES ▾

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TITLE IX - POLICE REGULATIONS ▾

19 documents

TITLE X - TRAFFIC ▾

1 document



SHARE





Carlisle | Wortman
ASSOCIATES, INC.

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

To: Troy Planning Commission
Brent Savidant, AICP

From: Ben Carlisle, AICP

Date: December 27, 2022

RE: Places of Worship

The City has recently resolved the remaining issues with the Department of Justice and settled its case with ADAM Community Center that involved the Religious Land Use and Institutionalized Persons Act (RLUIPA). RLUIPA protects individuals, houses of worship, and other religious institutions from discrimination in zoning and land regulations. RLUIPA prohibits zoning and land regulations that substantially burden the religious exercise of churches or other religious assemblies or institutions absent the least restrictive means of furthering a compelling governmental interest. RLUIPA is not a blanket exemption from zoning laws. However, RLUIPA prohibits a local government from applying zoning laws or regulations in a way that:

- a. Substantially burdens religious exercise without a compelling justification pursued through the least restrictive means;
- b. Treats religious uses less favorably than nonreligious assemblies and institutions;
- c. Discriminates based on religion or religious denomination; or
- d. Totally or unreasonably restricts religious uses in the local jurisdiction.

With regards to land use regulations, the most common RLUIPA violation is placing land use regulations on religious institutions that do not apply to similar nonreligious places of assembly and institutions. Nonreligious assemblies and institutions in the City Zoning Ordinance include libraries, theaters, assembly halls, concert halls, halls for private clubs, recreational clubs and centers, fraternal order halls, lodge halls, civic organizations, unions and membership halls, schools, and government buildings.

We took a comprehensive view of the Zoning Ordinance and recommend specific zoning amendments. For this memo, each proposed amendment has three parts: A) the ordinance section number, page number, and existing ordinance language; B) details outlining the proposed text amendment and explanation as to why the amendment is warranted; and C) proposed amended language. Removed text is ~~struck through~~ and proposed new text is **red** and underlined

Amendments:

1. **A. Section 4.21: Schedule of Use Regulations:** Currently, the Schedule of Use table requires that places of worship are a Special Use in the Community Facility District. Similar nonreligious assembly uses such as primary / secondary schools, fine and performing arts Facilities, post-secondary schools are permitted uses.

B. Issue: Treating religious uses less favorably than nonreligious assemblies and institutions by requiring them to obtain a Special Use could be subject to challenge under RLUIPA. By making places of worship a permitted use in the Community Facility District treats the use in a similar manner to other assembly uses.

C. Proposed Amendment:

Make places of worship a “permitted use” in the Community Facility District.

Uses	R-1	RT	MF	UR	MHP	CF	EP	CB	GB	IB	O	OM	RC	PV	P
Places of Worship	S	S	S	S	S	S P	NP	P	P	P	P	P	P	NP	NP
Primary / Secondary Schools	S	S	S	S	S	P	NP	P	P	P	P	P	P	NP	NP
Fine and Performing Arts Facilities	NP	NP	NP	NP	NP	P	NP	P	P	P	NP	S	NP	NP	NP
Post Secondary Schools	NP	NP	NP	NP	NP	P	NP	P	P	P	P	P	P	NP	NP
Health Fitness Center	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	A	NP	NP	NP
Indoor Commercial Recreation	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	NP	NP	NP	NP
Private Clubs, Fraternal Organization, and Lodge Halls	NP	NP	NP	NP	NP	S	NP	S	S	P	S	S	NP	NP	NP
Theaters and Places of Assembly	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	S	S	NP	NP

2. **A. Section 6.21: Places of Worship:** Section 6.21 establish specific use standards for Places of Worship. Standards include access, setback, and parking location requirements.

B. Issue: There are specific use standards that are applied to places of worship that are not applied to similar assembly uses.

- Specific use standards for a place of worship require that *facilities incidental to the main religious sanctuary must be used for church, worship, or religious education purposes, in a manner which is consistent with residential zoning and compatible with adjacent residential property.* This requirement does not apply to other similar assembly uses. Furthermore, the requirement that the

incidental facilities are used in a manner “which is consistent with residential zoning and compatible with adjacent residential property” may be deemed subjective and difficult to quantify.

- A place of worship is required to meet a 50-foot setback along all property lines. This requirement does not apply to other similar assembly uses. Furthermore, people today are worshiping in different ways and in different locations than previously. Traditional places of worship were often large free-standing buildings on larger lots, where the 50-foot setback was easy to meet. Modern places of worship are done in smaller spaces, in office parks, commercial strip centers, and other retrofit locations. The 50-foot setback provision severely restricts these non-traditional worship locations and reuse and retrofitting of existing buildings cannot often meet the 50-foot setback.
- Parking is not allowed between a place of worship building and a street, and in any yard adjacent to residential. Again, this requirement does not apply to other similar assembly uses. Furthermore, these parking restrictions for places of worship severely restrict non-traditional worship locations. We suggest replacing this language by allowing parking in front, side, and rear yards with a required 20-foot landscaped setback. This language is consistent with parking requirements for similar uses.
- A place of worship must have frontage and access to a major or minor arterial. This standard is consistent with similar assembly uses such as schools. However, there may be instances where a place of worship is able to locate on a non-arterial street and such use can mitigate negative impacts such as traffic, noise, and hours of operation. We suggest adding language that allows the Planning Commission the ability waive this requirement as part of the site plan review process.

Outlined below are proposed amendments to ensure consistency of regulations with other like assembly uses.

C. Proposed Amendment:

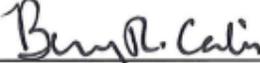
SECTION 6.21 PLACES OF WORSHIP

- A. All religious activities shall take place in a fully enclosed building except as may be approved by the City.
- B. ~~Facilities incidental to the main religious sanctuary must be used for church, worship, or religious education purposes, in a manner which is consistent with residential zoning and compatible with adjacent residential property.~~ Associated uses on the site such as recreation centers, retreat facilities, conference centers, schools, convents, and others shall meet all requirements of this Ordinance for such uses.
- C. The site shall have frontage on and primary access to a major or minor arterial. In residential districts, this requirement may be waived by the Planning Commission if the applicant is able to demonstrate that impacts such as but not

limited to traffic, parking, noise, and hours of operations, do not negatively impact adjacent properties.

1. Parking is permitted in front, side, and rear yards provided there is compliance with the landscape requirements of Section 13.02.
 2. Traffic from events, including church worship services and other large assemblies, shall be controlled so as not to create congestion or unreasonable delays on the public street.
- D. Buildings of greater than the maximum height allowed in the District in which a place of worship is located, may be allowed provided that the front, side and rear yards are increased one (1) foot for each foot of building height which exceeds the maximum height allowed.
- E. ~~Front, side and rear yard setbacks shall be a minimum of fifty (50) feet.~~
- F. ~~Parking shall not be permitted in the required yards adjacent to any public street or adjacent to any land zoned for residential purposes, other than that which is developed or committed for uses other than the construction of residential dwellings.~~

I look forward to discussing this memo at your upcoming meeting.



CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, LEED AP, AICP

ZONING ORDINANCE TEXT AMENDMENT

5. **PUBLIC HEARING – ZONING ORDINANCE TEXT AMENDMENT (File Number ZOTA 257)**
 – Places of Worship

Ms. Dufrane introduced proposed revisions to the Zoning Ordinance relating to places of worship because of a Zoning Board of Appeals litigation decision. She stated a Federal District Court Judge made known that portions of Sections 4.21 and 6.21 of the Zoning Ordinance are not enforceable as written. Ms. Dufrane emphasized the proposed revised text is not a directive from the Court but that the proposed revisions were drafted by the administration after a comprehensive review.

There was discussion, some comments related to:

- Proposed revisions as relates to the protection of residentially zoned properties; i.e., parking, setbacks, frontage and access to major or minor arterial roads.
- Zoning Ordinance definition of places of worship.
- Charge of the Zoning Administrator to interpret the Zoning Ordinance.
- Intent is to apply similar treatment to both religious institutions and nonreligious places of assembly and institutions.

Ms. Perakis stated she is not personally prepared this evening to recommend the text revisions as proposed.

PUBLIC HEARING OPENED

There was no one present who wished to speak.

PUBLIC HEARING CLOSED

Resolution # PC-2023-01-003

Moved by: Faison

Seconded by: Tagle

RESOLVED, That the Planning Commission hereby recommends to the City Council that Articles 4 and 6 of Chapter 39 of the Code of the City of Troy, which includes provisions related to places of worship, be amended as printed on the proposed Zoning Ordinance Text Amendment.

Discussion on the motion on the floor.

Chair Lambert said he is happy the City came forth with language that both eliminates some of the discriminatory language in the City’s Zoning Ordinance and at the same time protects the residential areas that might be impacted.

Vote on the motion on the floor.

Yes: Buechner, Faison, Fox, Hutson, Krent, Lambert, Malalahalli, Tagle
No: Perakis

MOTION CARRIED

CITY COUNCIL PUBLIC HEARING DRAFT
CITY OF TROY
AN ORDINANCE TO AMEND
CHAPTER 39 OF THE CODE
OF THE CITY OF TROY

The City of Troy ordains:

Section 1. Short Title

This Ordinance shall be known and may be cited as an amendment to Chapter 39, Zoning Ordinance, of the Code of the City of Troy.

Section 2. Amendments

Chapter 39 of the Code of the City of Troy is amended as follows:

Amend Section 4.21 Schedule of Regulations to read as follows: (Underlining and Strikeout Denotes Changes)

Uses	R-1	RT	MF	UR	MHP	CF	EP	CB	GB	IB	O	OM	RC	PV	P
Places of Worship	S	S	S	S	S	<u>S</u> P	NP	P	P	P	P	P	P	NP	NP
Primary / Secondary Schools	S	S	S	S	S	P	NP	P	P	P	P	P	P	NP	NP
Fine and Performing Arts Facilities	NP	NP	NP	NP	NP	P	NP	P	P	P	NP	S	NP	NP	NP
Post Secondary Schools	NP	NP	NP	NP	NP	P	NP	P	P	P	P	P	P	NP	NP
Health Fitness Center	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	A	NP	NP	NP
Indoor Commercial Recreation	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	NP	NP	NP	NP
Private Clubs, Fraternal Organization, and Lodge Halls	NP	NP	NP	NP	NP	S	NP	S	S	P	S	S	NP	NP	NP
Theaters and Places of Assembly	NP	NP	NP	NP	NP	NP	NP	P	P	P	NP	S	S	NP	NP

Amend Section 6.21 to read as follows: (Underlining and Strikeout Denotes Changes)

SECTION 6.21 PLACES OF WORSHIP

- A. All religious activities shall take place in a fully enclosed building except as may be approved by the City.
- B. ~~Facilities incidental to the main religious sanctuary must be used for church, worship, or religious education purposes, in a manner which is consistent with residential zoning~~

~~and compatible with adjacent residential property.~~ Associated uses on the site such as recreation centers, retreat facilities, conference centers, schools, convents, and others shall meet all requirements of this Ordinance for such uses.

- C. The site shall have frontage on and primary access to a major or minor arterial. In residential districts, this requirement may be waived by the Planning Commission if the applicant is able to demonstrate that impacts such as but not limited to traffic, parking, noise, and hours of operations, do not negatively impact adjacent properties.
1. Parking is permitted in front, side, and rear yards provided there is compliance with the landscape requirements of Section 13.02.
 2. Traffic from events, including church worship services and other large assemblies, shall be controlled so as not to create congestion or unreasonable delays on the public street.
- D. Buildings of greater than the maximum height allowed in the District in which a place of worship is located, may be allowed provided that the front, side and rear yards are increased one (1) foot for each foot of building height which exceeds the maximum height allowed.
- E. ~~Front, side and rear yard setbacks shall be a minimum of fifty (50) feet.~~
- F. ~~Parking shall not be permitted in the required yards adjacent to any public street or adjacent to any land zoned for residential purposes, other than that which is developed or committed for uses other than the construction of residential dwellings.~~

Section 3. Repeal

All ordinances or parts of ordinances in conflict herewith are hereby repealed only to the extent necessary to give this ordinance full force and effect.

Section 4. Savings

All proceedings pending, and all rights and liabilities existing, acquired or incurred, at the time this Ordinance takes effect, are hereby saved. Such proceedings may be consummated under and according to the ordinance in force at the time such proceedings were commenced. This ordinance shall not be construed to alter, affect, or abate any pending prosecution, or prevent prosecution hereafter instituted under any ordinance specifically or impliedly repealed or amended by this ordinance adopting this penal regulation, for offenses committed prior to the effective date of this ordinance; and new prosecutions may be instituted and all prosecutions pending at the effective date of this ordinance may be continued, for offenses committed prior to the effective date of this ordinance, under and in accordance with the provisions of any ordinance in force at the time of the commission of such offense.

Section 5. Severability Clause

Should any word, phrase, sentence, paragraph or section of this Ordinance be held invalid or unconstitutional, the remaining provisions of this ordinance shall remain in full force and effect, and any such ruling shall not affect any other provisions of this Ordinance not specifically included in such ruling.

Section 6. Effective Date

This Ordinance shall become effective ten (10) days from the date hereof or upon publication, whichever shall later occur.

This Ordinance is enacted by the Council of the City of Troy, Oakland County, Michigan, at a Regular Meeting of the City Council held at City Hall, 500 W. Big Beaver, Troy, MI, on the _____ day of _____, 2023.

Ethan Baker, Mayor

M. Aileen Dickson, CMC, City Clerk

CITY COUNCIL REPORT

Date: February 22, 2023

To: Honorable Mayor and City Council Members

From: Mark F. Miller, City Manager
Lori Grigg Bluhm, City Attorney

Subject: Requested Revisions to Troy Historic Society and Troy Nature Society Agreements

The Troy Historic Society (THS) and the Troy Nature Society (TNS) request the ability to allow persons renting facilities at the historic village and nature center to bring in their own alcoholic beverages to these City owned properties. According to information provided to the Recreation Department, these non-profit groups speculate that they are losing potential renters who host small events, who are unable or unwilling to hire a caterer or chose a caterer that does not have a Michigan liquor license.

At a minimum, the current agreements between the City and these non-profits would need to be amended. The current ten- year agreement between the City and TNS doesn't expire until June 30, 2027. The THS Agreement expires June 30, 2026. In both of these agreements, a valid Michigan liquor license is required when alcohol is consumed in the City buildings. These contract provisions are consistent with Troy's ordinance, Chapter 98, Section 10.02, which provides:

Consume Alcohol in Public. No alcoholic liquor shall be consumed in a public place, unless the public place possesses a Michigan Liquor Control Commission license for the premises. A person who violates this section is guilty of a misdemeanor punishable by imprisonment in the County Jail for not more than 90 days or by a fine on not more than \$500 or both.

This is a long-standing Troy ordinance provision, authorized by the language in the State's liquor law statute (MCL 436.1915). Several neighboring communities that have similar ordinance provisions, including but not limited to Berkley, Birmingham, Bloomfield Hills, Clawson, Farmington, Farmington Hills, Hazel Park, Oak Park, Royal Oak and Southfield.

Municipalities have several responsibilities under the Michigan liquor law, including enforcement. It could be awkward if there are liquor law violations at a municipally owned facility, and this is one reason why many municipalities require a liquor licensee as a layer of protection against this situation and against dram shop lawsuits (someone injured by a patron who was served alcohol).

Michigan law has only very limited instances where liquor licenses are not required for the consumption of liquor in a public place. MCL 436.1913 prohibits any person or entity from furnishing a facility that is not licensed under the Michigan Liquor Control Act, where persons may engage in the drinking of alcoholic liquor for consideration. Additionally, a commercial establishment that sells food cannot allow persons to consume alcohol in its facility unless licensed under the Act. Because of these provisions, the City, in consultation with the Michigan

Liquor Control Commission, has previously prohibited businesses such as Painting with a Twist, where alcohol is brought in by patrons who pay consideration for the painting.

There are many caterers who possess valid liquor licenses, and these licenses allow a business to provide food and beverage service at multiple City owned facilities. Additionally, the Michigan Liquor Control also has a special non-profit liquor license, allowing for alcoholic beverages to be served at indoor and outdoor fundraising and special events. The cost for these special licenses is \$25 per day for established non-profits.

The City has adopted one exception to its general rule requiring liquor licenses, which is found in Chapter 26- the Parks Ordinance. This exception dates back to February 1989, when City Management adopted a park shelter policy allowing persons reserving park shelters to bring beer. In 2014, this long- standing policy was codified in Chapter 26, Section 11, creating an official exception to the prohibition in Chapter 98, Section 10.02. Persons reserving park shelters, with approval from the Recreation Director, can now bring in beer and wine, subject to certain rules and restrictions.

Based on this provision, TNS requested and received a revision to its current agreement to expressly allow for persons reserving the 20 x 30 outdoor shelter/ tent to permit its renters to bring in beer or wine, consistent with what is allowed for park shelters in Chapter 26, Section 11 of the City of Troy Ordinances. However, this exception is only applicable for liquor served within a park shelter.

If there is consensus to amend the agreements and also the City ordinances to allow for THS and TNS to allow persons to bring in alcohol to City facilities, City Administration will prepare proposed amendments for City Council review.