



## NOVAPLEX JZ19-37

### **NOVAPLEX JZ19-37 WITH REZONING 18.733**

Public hearing at the request of BC Novaplex, LLC for Planning Commission's recommendation to City Council for a Zoning Map amendment from Office Service Technology (OST) to High-Density Multiple Family (RM-2) with a Planned Rezoning Overlay. The subject property is approximately 22 acres and is located on the west side of Haggerty Road, north of Twelve Mile Road (Section 12). The applicant is proposing to develop a 270 unit multiple-family residential development.

### **REQUIRED ACTION**

Recommendation to City Council for approval or denial, or postpone the recommendation, of the rezoning request from Office Service Technology (OST) to High-Density Multiple Family (RM-2) with a Planned Rezoning Overlay.

REVIEW	RESULT	DATE	COMMENTS
Planning	<b>Approval not recommended</b>	3-9-20	<ul style="list-style-type: none"> <li>• <b>Deviation for exceeding maximum building length</b> <i>(Supported)</i></li> <li>• <b>Deviation for building orientation</b> <i>(Supported)</i></li> <li>• <b>Deviation for exceeding distance from bicycle parking to building entrance</b> <i>(Supported)</i></li> <li>• <b>Deviation for not meeting minimum path width requirement to bicycle parking</b> <i>(Supported)</i></li> <li>• <b>Deviation for lack of covered bicycle parking areas</b> <i>(Not supported)</i></li> <li>• <b>Deviation for not meeting open space requirement</b> <u>(Applicant indicates this deviation is not required as requirement will be met)</u></li> <li>• <b>Deviation for 30% reduction in minimum parking standard</b> <u>(Applicant indicates 92% of required spaces will be provided)</u></li> <li>• <b>Deviation for not meeting lighting and photometric requirements</b> <u>(Applicant indicates this deviation is not required as requirements will be met)</u></li> <li>• <b>Deviation for exceeding maximum percentage of one-bedroom units</b> <i>(Supported)</i></li> <li>• <b>Deviation for exceeding the allowable number of rooms for the development</b> <i>(Supported)</i></li> </ul>

			<ul style="list-style-type: none"> <li>• <b>Deviation for exceeding maximum percentage of parking, drive lanes and loading area in the side yard</b> <i>(Supported)</i></li> <li>• Items to be addressed on the Site Plan submittal</li> </ul>
Engineering	Approval recommended	2-25-20	<ul style="list-style-type: none"> <li>• Items to be addressed on the Site Plan submittal</li> </ul>
Landscaping	Conditional Approval recommended	2-24-20	<ul style="list-style-type: none"> <li>• <b>Deviation for lack of screening berms to adjacent properties</b> <i>(Supported)</i></li> <li>• <b>Lack of street trees on Haggerty Road</b> <i>(Supported due to overhead electrical lines)</i></li> <li>• <b>Deviation to use subcanopy trees for up to 25% of multifamily unit trees</b> <i>(Supported due to mix)</i></li> <li>• <b>Deviation for deficiency in perimeter canopy trees along west</b> <i>(Not supported – Applicant indicates this area will be widened to accommodate more trees provided greater woodland impacts would not result)</i></li> <li>• Items to be addressed on the Site Plan submittal</li> </ul>
Wetlands	<b>Approval not recommended</b>	2-18-20	<ul style="list-style-type: none"> <li>• <b>Wetland Permit</b></li> <li>• <b>Wetland Mitigation</b></li> <li>• <b>Wetland Buffer Authorization</b></li> <li>• <b>Wetland Conservation Easement for on-site mitigation areas</b></li> <li>• Items to be addressed on the Site Plan submittal</li> </ul>
Woodlands	Approval recommended	2-18-20	<ul style="list-style-type: none"> <li>• <b>Woodland permit required</b></li> <li>• <b>Woodland Conservation Easement</b></li> <li>• Items to be addressed on the Site Plan submittal</li> </ul>
Traffic	<b>Approval not recommended</b>	2-26-20	<ul style="list-style-type: none"> <li>• <b>Deviation for required parking spaces</b></li> <li>• <b>Deviation for major drive width</b></li> <li>• <b>Deviation for parking along a major drive</b></li> <li>• <b>Deviation for island length exceeding standard length</b> <i>(Applicant indicates this will not be needed as a break in the island will be provided)</i></li> <li>• <b>Deviation for exceeding the maximum distance from bicycle parking to building entrances</b></li> <li>• <b>Deviation if all bicycle parking facilities are not made accessible via 6' paved route</b></li> <li>• Items to be addressed on the Site</li> </ul>

			Plan submittal
TIS Review	Approval recommended	8-29-19	<ul style="list-style-type: none"> <li>• Updates should be provided to city</li> </ul>
Façade	Approval recommended	2-24-20	<ul style="list-style-type: none"> <li>• <b>Section 9 waiver for carport canopies</b> (<i>Not supported</i>)</li> <li>• Residential buildings in full compliance with Façade Ordinance</li> </ul>
Fire	Conditional Approval recommended	2-6-20	<ul style="list-style-type: none"> <li>• Items to be addressed on the Site Plan submittal</li> </ul>

## **MOTION SHEET**

### **Postpone Recommendation**

In the matter of Novaplex, JZ19-37, with Zoning Map Amendment 18.733, motion to **postpone** making a recommendation to the City Council to rezone the subject property from Office Service Technology (OST) to High-Density Multiple Family (RM-2) with a Planned Rezoning Overlay Concept Plan. This motion is made for the following reasons:

1. To allow the applicant time to provide a revised submittal which reflects the changes described in their response letters dated 3-9-2020 and 3-16-2020;
2. To allow the applicant time to develop a list of conditions to be imposed on the development in line with the PRO Concept Plan proposed;
3. To allow the applicant time to address the comments in the wetland and traffic review letters;
4. To allow staff time to review the additional information provided by the applicant in their response letter dated 3-16-2020, such as wetland mitigation, traffic calming measures, and carport details;
5. To allow staff to review the revisions to the plans to identify any additional deviations and conditions that would be needed in the PRO Agreement, and evaluate any new information provided;
6. To allow the applicant to work with staff to reduce the number of deviations requested;
7. To allow additional time for the applicant to submit additional evidence/information in support of the public benefits to be achieved through this development and to justify the proposed ordinance deviations and the intent of the section 7.13.2.D.ii that the proposed PRO rezoning would be in the public interest and the benefits to public of the proposed PRO rezoning would clearly outweigh the detriments.
8. The applicant shall have the opportunity to clarify through a modified submittal if any PRO conditions are being offered under the PRO provisions of the Zoning Ordinance;
9. *(Additional reasons here if any).*

**-OR-**

### **Approval**

In the matter of Novaplex, JZ19-37, with Zoning Map Amendment 18.733, motion to **recommend approval** to City Council to rezone the subject property from Office Service Technology (OST) to High-Density Multiple Family (RM-2) with a Planned Rezoning Overlay Concept Plan.

**PART 1:** The recommendation includes the following ordinance deviations for consideration by the City Council:

1. Planning deviation from section 3.8.2.C. for exceeding the maximum allowable length of buildings (180 feet, maximum allowed, a range of 185 feet to 295 feet proposed) *as the buildings meet the qualifying criteria for City Council's approval for this deviation per section 3.8.2.C.*
2. Planning Deviation from section 3.8.2.D for not meeting the minimum orientation for all buildings along an outer perimeter property line (45 degrees required, 0 degrees proposed), *as all buildings are abutting non-residential districts and orientation is compatible to existing office development.*

3. Planning Deviation from section 5.16. for exceeding the maximum distance from the bike parking to entrance being served (120 ft. maximum required, varied distance greater than 120 ft. are proposed), *as the bike parking locations are suitably placed throughout the development.*
4. Planning Deviation from section 5.16. for not meeting the minimum width requirements for the access path to bike parking (six feet required, 5 feet proposed), *as the plan maintains a consistent five foot width for all internal sidewalks and because it is a residential development.*
5. Landscape deviation from Sec. 5.5.3.B.ii and iii for lack of berms between the site and the properties on the north, south and west, *as the existing woodlands and proposed landscaping provides sufficient screening.*
6. Landscape deviation from 5.5.3.F.ii 5.5.3.B.ii and iii for lack of required street trees along Haggerty Road, *due to conflict with the existing overhead electrical lines and an underground gas line along Haggerty Road which make planting street trees impossible.*
7. Landscape deviation from 5.5.3.F.ii to allow the usage of sub-canopy trees for up to 25% of the required multifamily unit trees, *as the mix of trees proposed is acceptable.*
8. Planning Deviation from section 5.16. for lack of covered bike parking areas (25% of parking, 14 spaces should be covered when proposed parking exceeds 20, 0 spaces are covered), *as the applicant has indicated some bike storage will be designed into building common areas at the time of preliminary site plan submittal;*
9. Planning deviation from Section 5.2.12.A & B for a 30 percent reduction in the minimum requirements for parking. A minimum of 619 spaces required, 450 proposed. The current plan proposes a total of 450 spread across the site, including attached/detached garages and surface parking. Following comments are provided in this regard:
  - a. An additional 120 apron spaces in front of attached garages will be provided to count towards the minimum required. Apron spaces may provide additional guest parking for certain units with access to garage parking, but not necessarily required parking for others. Apron spaces are currently not counted towards minimum required parking. The apron spaces are reserved for people renting the garage, as will be stated in the lease agreement. The applicant indicates this will be enforced by towing vehicles that are parked illegally and/or in someone's assigned spaces.
  - b. Traffic review noted that approximately 9 spaces along the curve on the southwest corner of the site should be removed. This will further reduce the proposed parking.
  - c. The applicant has provided existing parking demand calculations from similar development in nearby cities.
10. Traffic deviation from section 5.10 for not meeting the minimum width requirements for a major road (minimum of 28 feet required, 24 feet proposed), *as stop signs and pedestrian crossings will be provided at key points in the major drive loops to encourage slower speeds.*

11. Traffic deviation from section 5.10 for allowing angled and perpendicular parking on a major drive, *as stop signs and pedestrian crossings will be provided at key points in the major drive loops to encourage slower speeds.*
12. Traffic deviation from section 5.10 for not meeting the minimum requirements for major drive centerline radius, *as stop signs and pedestrian crossings will be provided at key points in the major drive loops to encourage slower speeds.*
13. Planning deviation from section 4.19.1.J for exceeding the maximum number of accessory buildings for properties more than 21,780 square feet (*a maximum of two are permitted; six garages and 20 carports are proposed*). **[This would be supported if the elevations comply with the Ordinance requirements or acceptable alternatives are proposed, however the carport details provided by the applicant do not comply with the Façade Ordinance.]**
14. a) A section 9 waiver for not meeting the minimum requirement of 30 percent brick for the carports (0 percent brick proposed). **[Applicant requested]**

**OR**

- b) The carports shall be designed to comply with the requirement for 30 percent minimum brick required. **[Staff preferred]**
15. Landscape deviation from 5.5.3.F.ii for deficiency in perimeter canopy trees along west sides of parking lots A and E. **This is not supported by Staff. (The applicant is indicating their response letter that they “will widen the area as much as possible and add the recommended trees, provided it can be done without causing encroachments to the westerly woodland.” It is unclear at this time whether this deviation is needed or a lesser deviation will be needed.)**
16. Traffic deviation from figure IX.3 of the City's Code of Ordinances for not meeting the design standards for the entrance boulevard island, *as the applicant will add a crossover point in the boulevard to more closely conform to meet City standards at the time of Preliminary Site Plan approval.*
17. Planning deviation from section 3.8.1.A.ii.b for exceeding the maximum percentage of one bedroom units (maximum of 20% is allowed, 36% is proposed), *as the mix of units fits the target renters who would be young professionals, as shown in the market study provided by the applicant.*
18. Planning deviation from section 3.8.2.E for exceeding the maximum percentage of off-street parking, maneuvering lanes, service drives or loading areas within the side yards (maximum of 30% allowed, 41% proposed).
19. Planning deviation from section 3.8.1.B for exceeding the maximum allowable number of rooms for this development (maximum of 458 rooms is allowed, 734 rooms are proposed) *because the overall room count is still below the total number permitted in the RM-2 District.*

**PART 2:** If the City Council approves the rezoning, the Planning Commission recommends the following conditions be made part of the PRO Agreement, as suggested by staff based on the PRO Concept Plan and applicant submittal:

1. The applicant offers to fill two off-site sidewalk gaps totaling 600 feet as a benefit to the public. This completes the sidewalk loop between Lewis Drive, Cabot Drive Twelve Mile Road and Haggerty Road. The applicant indicated that they would be responsible for design and construction. Right-of-way acquisition is also required for these locations. **(Staff notes that the applicant conditions this public benefit in their response letter: "We will make the sidewalk connections in Haggerty Road prior to requesting occupancy for any of the proposed buildings, provided the property owners at each connection point are willing to provide the required easements. If not, an 'in kind' donation shall be made to the City to allow for pedestrian improvements elsewhere in the City.")**
2. The applicant will meet or exceed the Open Space requirement for the RM-2 District. A minimum of 54,400 square feet is required.
3. The applicant will provide Wetland conservation easement over any areas of proposed on-site wetland mitigation;
4. The applicant will provide a Woodland Conservation Easement over any woodland replacement trees or shrubs planted on-site;
5. The height of the buildings shall not exceed four stories, as shown in the PRO Concept Plan submittal;
6. The architectural design of the buildings, including material selections, shall be as shown in the PRO Concept Plan submittal;
7. The number of dwelling units shall not exceed 272 units;
8. The number of one-bedroom units shall not exceed 36% of the unit count;
9. The overall density of the development shall not exceed 12.8 dwelling units per acre;

**PART 3:** This motion is made because the proposed the High-Density Residential (RM-2) zoning district is a reasonable alternative to the Master Plan for Land Use, and because, as stated by the applicant:

1. Designing the new residential use next to existing OST uses allows for a unified appearance and implementation of proper safeguards between the neighboring uses:
  - a. Building styles will be compatible
  - b. Apartment residents will move in with the full knowledge of the neighboring Use.
  - c. The residential site is higher than much of the surrounding area
  - d. Wooded areas on this site and adjacent sites provide a great buffer.
  - e. Setback plus proposed landscaping will be used to enhance buffering
2. The project is consistent with the Master Plan goal to enhance Novi's reputation as an attractive community in which to live
3. The project is consistent with the Master Plan goal to protect Novi's remaining woodlands and wetlands;
4. The project is consistent with the Master Plan goal to maintain adequate infrastructure in an environment of limited federal and state funding;
5. The project is consistent with the Master Plan goal to promote interconnectivity between neighborhoods to reduce vehicle trips on main roads;
6. The project is consistent with the Master Plan goal to promote active living and healthy lifestyles in the City of Novi
7. The project is consistent with the Master Plan goal to ensure that Novi continues to be a desirable place for business investment;
8. *[Insert any other reasons]*

**-OR-**

**Denial**

In the matter of Novaplex, JZ19-37, with Zoning Map Amendment 18.733, motion to **recommend denial** to City Council to rezone the subject property from Office Service Technology (OST) to High-Density Multiple Family (RM-2) with a Planned Rezoning Overlay Concept Plan... *because [insert any reasons]*

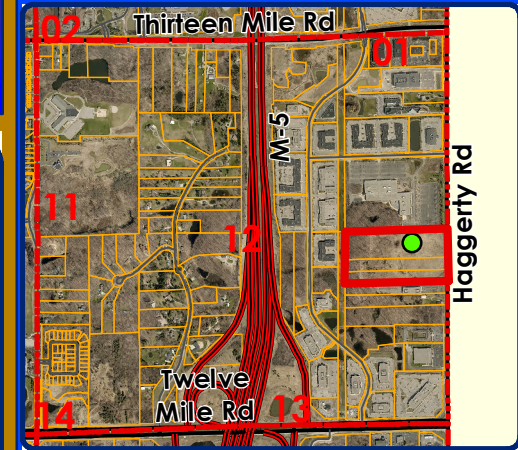


MAPS  
Location  
Zoning  
Future Land Use  
Natural Features

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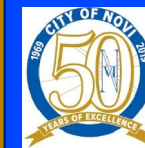
# JZ 19-37 NOVAPLEX

Location



## LEGEND

 Sections



## City of Novi

Dept. of Community Development  
City Hall / Civic Center  
45175 W Ten Mile Rd  
Novi, MI 48375  
[cityofnovi.org](http://cityofnovi.org)

Map Author: Sri Komaragiri  
Date: 08/23/19  
Version #: 1



1 inch = 287 feet

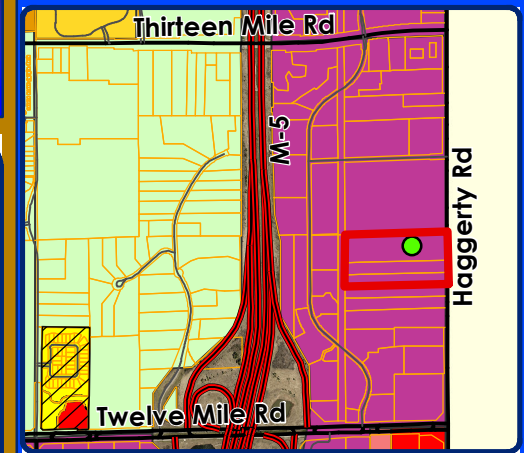
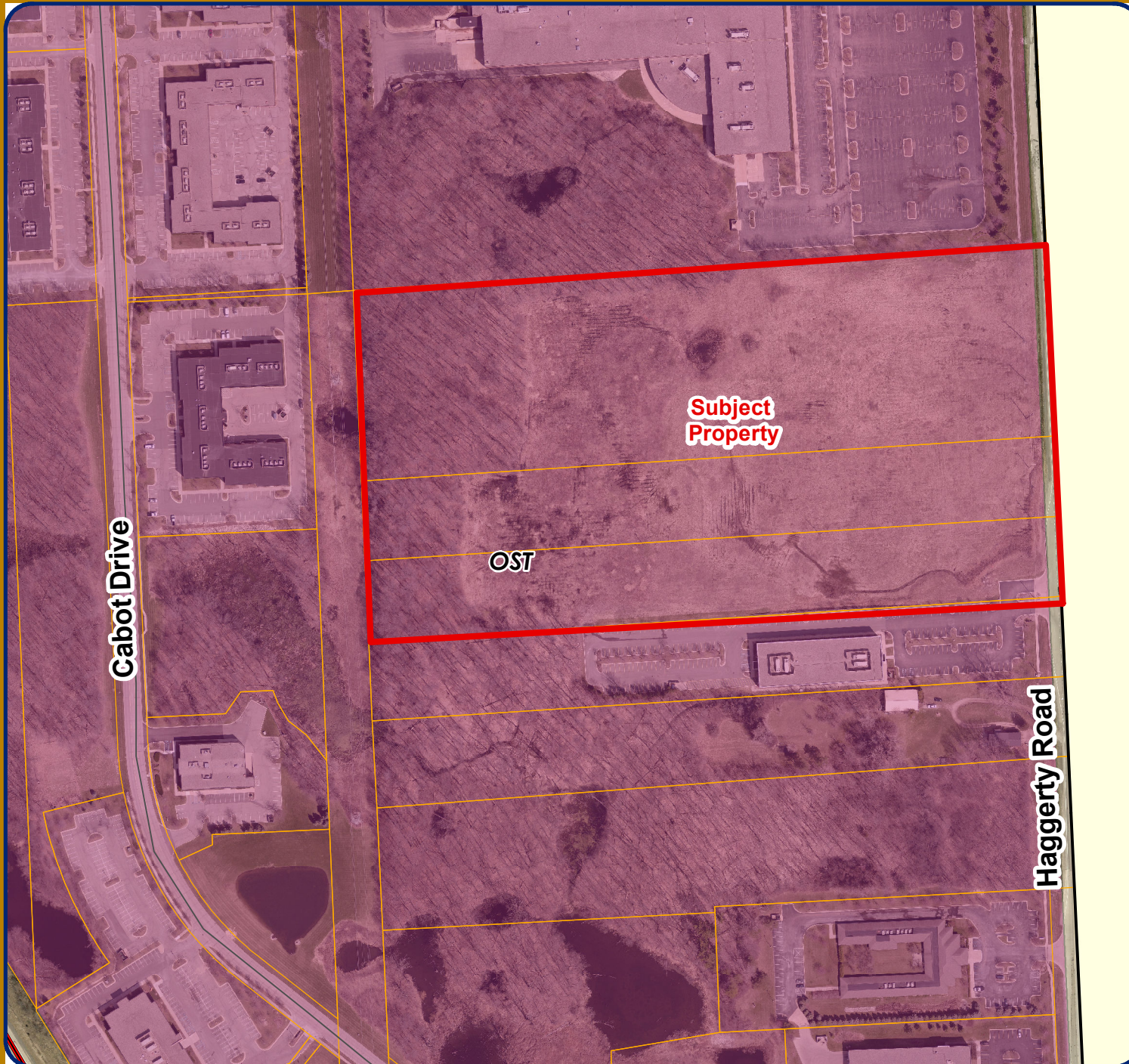


### MAP INTERPRETATION NOTICE

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# JZ 19-37 NOVAPLEX









## Zoning

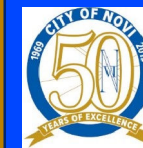


### LEGEND

#### Zoning Overlay

##### Overlay Name

-  Planned Rezoning (PRO)
-  R-A: Residential Acreage
-  R-4: One-Family Residential District
-  RM-1: Low-Density Multiple Family
-  MH: Mobile Home District
-  B-2: Community Business District
-  B-3: General Business District
-  OST: Office Service Technology



### City of Novi

Dept. of Community Development  
City Hall / Civic Center  
45175 W Ten Mile Rd  
Novi, MI 48375  
cityofnovi.org

Map Author: Sri Komaragiri  
Date: 08/23/19  
Version #: 1



1 inch = 287 feet

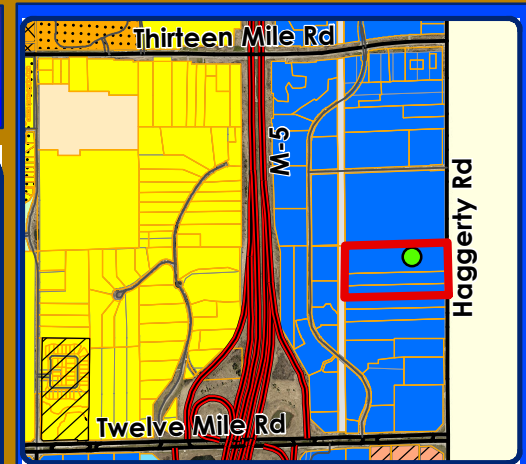
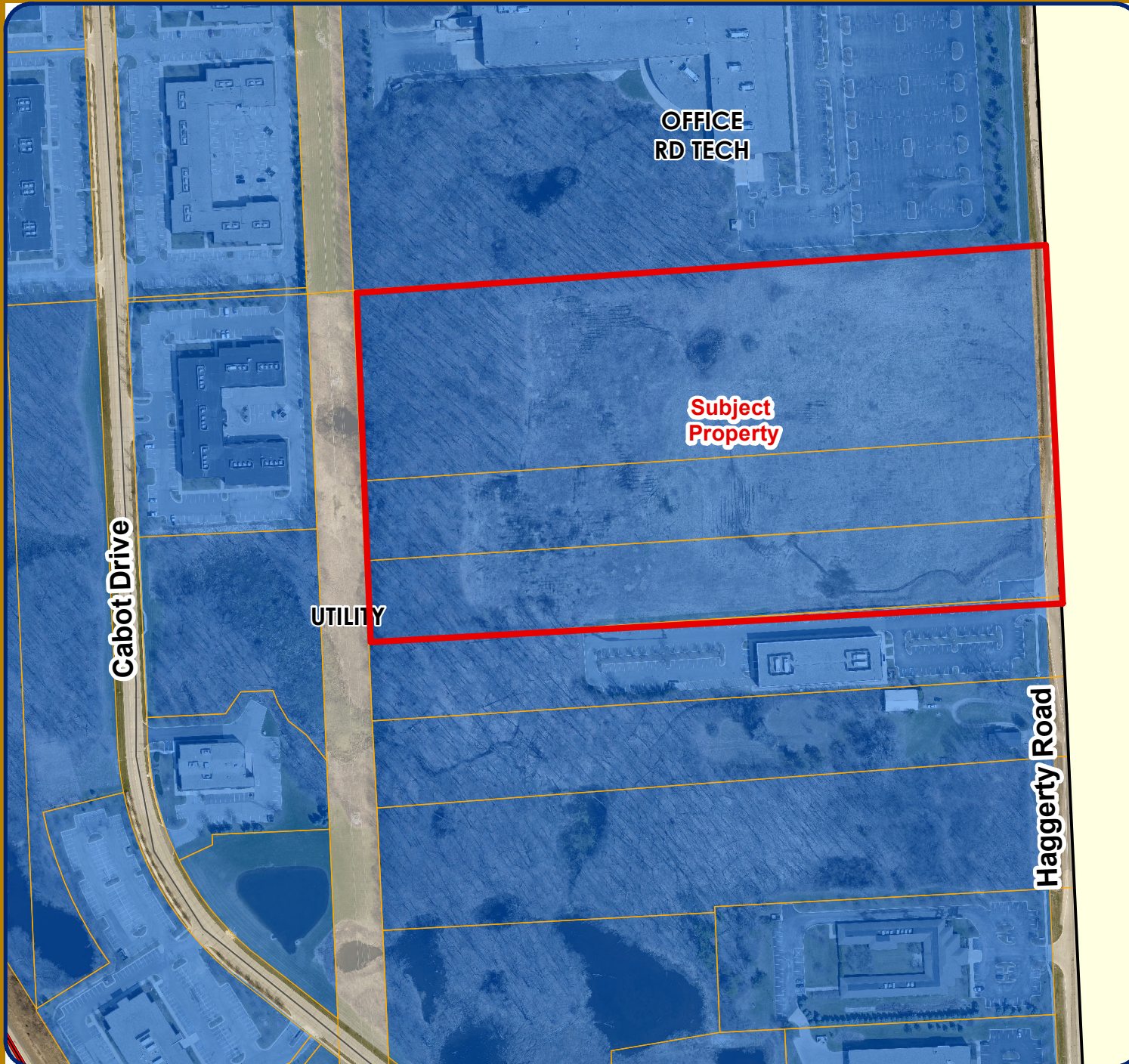


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# JZ 19-37 NOVAPLEX

Future Land Use













### LEGEND

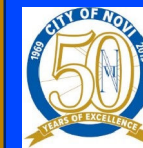
#### Zoning Overlay

##### Overlay Name

 Planned Rezoning (PRO)

#### FUTURE LAND USE

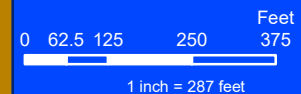
-  Single Family
-  PUD
-  PD1
-  Mobile Home Park
-  Office RD Tech
-  Community Commercial
-  Educational Facility
-  Public
-  Private Park
-  Utility



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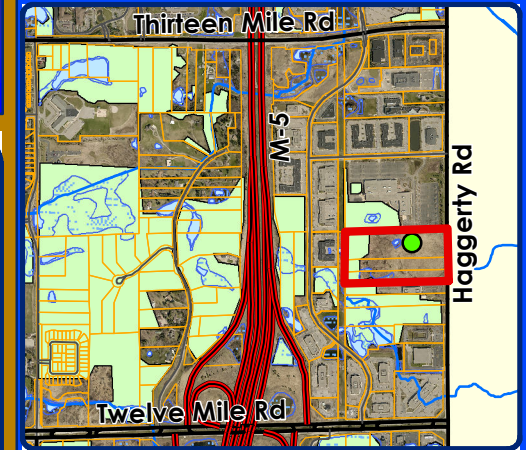


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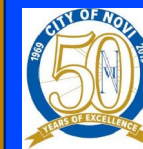
# JZ 19-37 NOVAPLEX

## Natural Features



### LEGEND

-  WETLANDS
-  WOODLANDS



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1 inch = 287 feet

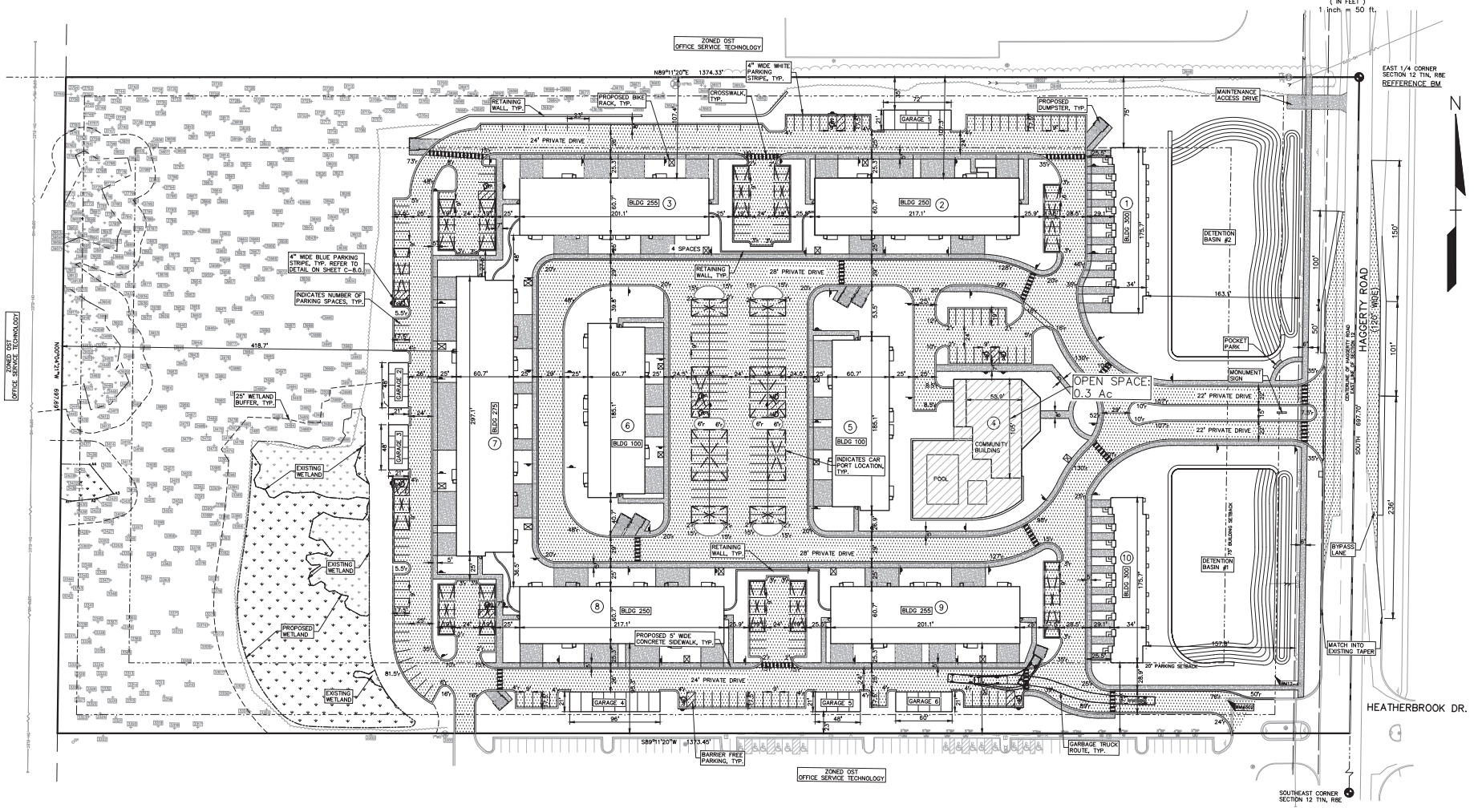
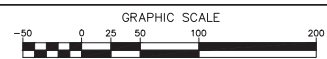


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PRO CONCEPT PLAN  
JANUARY 31, 2020

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ZONED O3T  
OFFICE SERVICE TECHNOLOGY

**REVISIONS**

NO.	DATE	DESCRIPTION
1	07.26.2019	ISSUED FOR PERMITS
2	07.26.2019	REVISIONS TO PERMIT REQUIREMENTS
3	07.26.2019	REVISIONS TO PERMIT REQUIREMENTS
4	07.26.2019	REVISIONS TO PERMIT REQUIREMENTS
5	07.26.2019	REVISIONS TO PERMIT REQUIREMENTS
6	07.26.2019	REVISIONS TO PERMIT REQUIREMENTS
7	07.26.2019	REVISIONS TO PERMIT REQUIREMENTS
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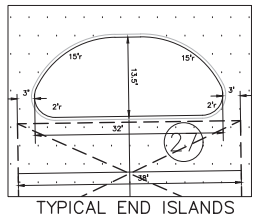
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**BEZAK COMPANIES**  
3105 PARKWAY DRIVE, SUITE 200  
PARKINGTON HILLS, MI 48364  
**PRELIMINARY SITE PLAN**  
**NOVAPLEX**  
PART OF THE SE 1/4 OF SECTION 12, T 0 N., R 6 E.,  
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN  
BY: [Signature] DATE: 07.26.2019  
SCALE: 1" = 50'

ORIGINAL ISSUE DATE: JULY 26, 2019  
PEA JOB NO. 2015-296  
SCALE: 1" = 50'  
DRAWING NUMBER: C-2.0



**GENERAL NOTES:**  
THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. ON-SITE ROADS WILL BE PRIVATE.
3. HAGGERTY ROAD IS UNDER THE JURISDICTION OF ROAD COMMISSION OF OAKLAND COUNTY AND A ROAD PERMIT WILL BE SECURED FOR ANY WORK WITHIN THE RIGHT-OF-WAY.
4. ALL PAVING WITHIN THE HAGGERTY ROAD R.O.W. SHALL BE COORDINATED WITH ROCO.
5. ALL SIDEWALKS SHALL COMPLY WITH BARRIER FREE DESIGN STANDARDS. REFER TO CONSTRUCTION PLANS FOR ON-SITE SIDEWALK RAMP DETAILS.
6. NO PARKING-FIRE LANE SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100 FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.

7. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF NOVI CURRENT STANDARDS AND REGULATIONS.
8. ANY WORK WITHIN THE STREET OR HIGHWAY RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
9. PROVIDE 4" BLUE STRIPING FOR BARRIER FREE PARKING SPACES AND WHITE FOR BARRIER FREE PARKING STIPES. NOTE THAT WHITE BARRIER FREE PARKING SPACE ABUTS A NON-BARRIER FREE SPACE, THE TWO SPACES SHALL BE SEPARATED BY ABUTTING BLUE AND WHITE STRIPES.
10. ALL ROOF TOP EQUIPMENT MUST BE SCREENED AND ALL WALL MOUNTED UTILITY EQUIPMENT MUST BE ENCLOSED AND INTEGRATED INTO THE DESIGN AND COLOR OF THE BUILDING.
11. OUT DOOR STORAGE OF GOODS AND MATERIALS SHALL BE PROHIBITED.

**REFERENCE BENCHMARKS**  
CITY OF NOVI BM #12-41  
4" X 4" OF NORTH RM. OF SANITARY MH  
ELEV. = 915.00 (RECORDED), ELEV. 914.76 (MEASURED)  
CITY OF NOVI BM #12-14  
NORTH RM. OF SCOURIERLY MON. BOX  
ELEV. = 905.13  
BM#202  
PENCIL MARK IN ARROW ON A HYDRANT LOCATED ON THE WEST SIDE OF HAGGERTY RD., OPPOSITE OF HEATHERBROOK DR.  
ELEV. = 916.05

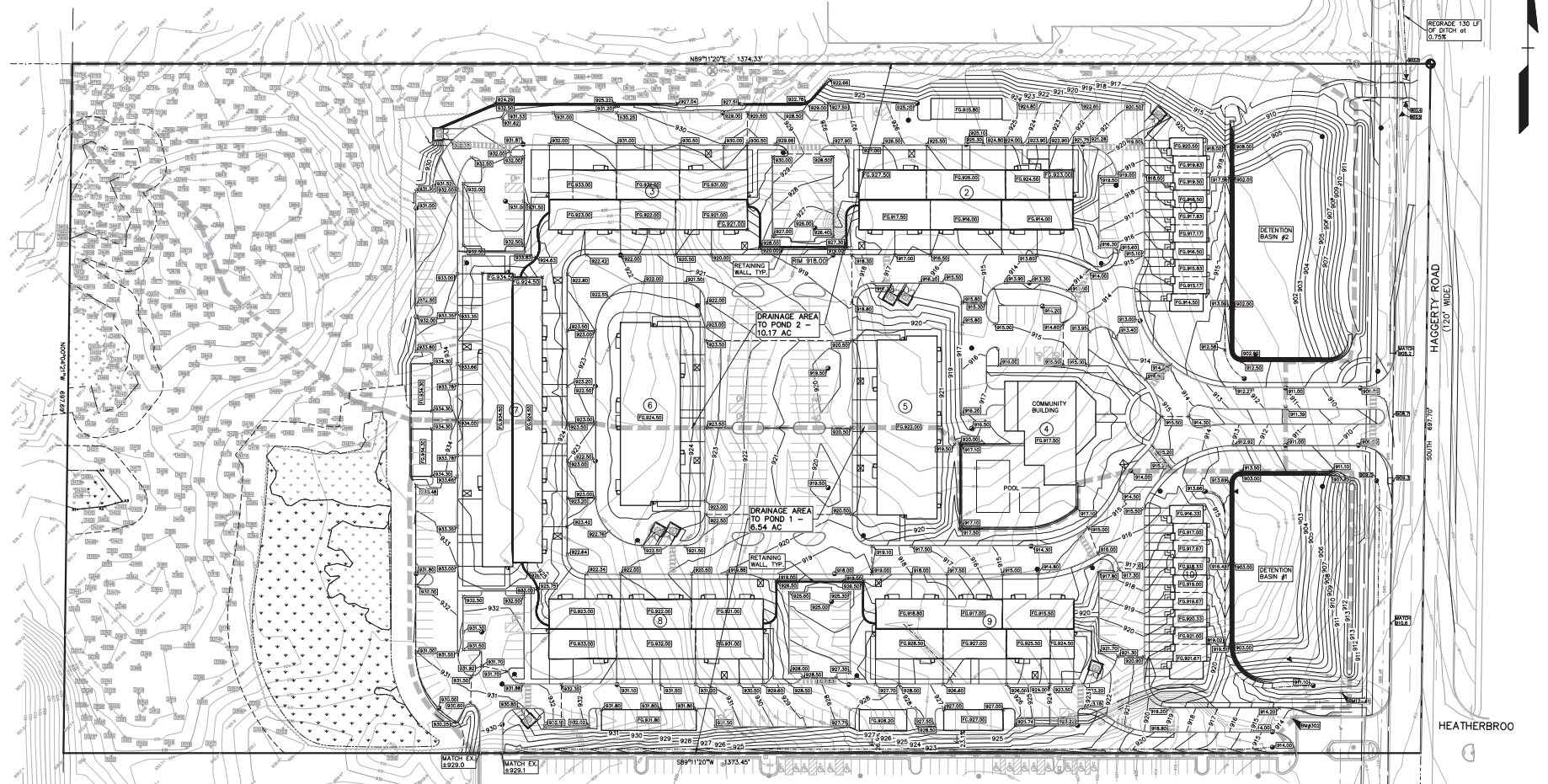
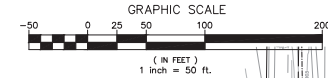
**LEGEND**

● IRON FOUND	○ BRASS PLUG SET	○ SEC. CORNER FOUND
■ WALL FOUND	■ MONUMENT FOUND	● RECORDED
■ NAIL & CAP SET	■ MONUMENT SET	■ RECALCULATED
○ CALCULATED		

—○— ELEC-WA—○	ELEC. PHONE OR CABLE IN DUK LINC. PIPE & SIX WIRE	—○— ELEC-2	2" CONC. CURB
—○— CATV—○	UNDERGROUND CATV IN CONCRETE	—○— CONC-3	3" CONC. CURB
—○— PHOS-CO	TELEPHONE IS-60 CABLE PASSING A MANHOLE	—○— CONC-4	4" CONC. CURB
—○— ELEC-1	ELECTRICAL CABLE MANHOLE WITH A MANHOLE	—○— CONC-5	5" CONC. CURB
—○—	SEE MAN. IN USE (SEE SHEET)	—○— CONC-6	6" CONC. CURB
—○—	MANHOLE, INS. GATE VALVE, W/PIPE ELITE & VALVE	—○— CONC-7	7" CONC. CURB
—○—	SANITARY MANHOLE, CLEANOUT & MANHOLE	—○— CONC-8	8" CONC. CURB
—○—	STONE BENCH, CLEANOUT & MANHOLE	—○— CONC-9	9" CONC. CURB
—○—	COVERED MANHOLE & MANHOLE	—○— CONC-10	10" CONC. CURB
—○—	UNDER PAVEMENT & INSIDE CATCH BASIN, W/NO SIGN	—○— CONC-11	11" CONC. CURB
—○—	POST HEIGHT 6' 0"	—○— CONC-12	12" CONC. CURB
—○—	SEE IN USE (RECORDED) SEE SEC. CORNER DETAIL	—○— CONC-13	13" CONC. CURB
—○—	MANHOLE, TRANSFORMER, RESEARCH CONTROL VALVE	—○— CONC-14	14" CONC. CURB
—○—	INDICATED PRECISE	—○— CONC-15	15" CONC. CURB
—○—	NOT SEVERED	—○— CONC-16	16" CONC. CURB
—○—	CENTER LINE	—○— CONC-17	17" CONC. CURB
—○—	FINIC	—○— CONC-18	18" CONC. CURB
—○—	GRADE NAIL	—○— CONC-19	19" CONC. CURB
—○—	STREET LIGHT	—○— CONC-20	20" CONC. CURB
—○—	508	—○— CONC-21	21" CONC. CURB

**NOT FOR CONSTRUCTION**



REGRADE 1.50' OF DITCH at 0.75%

HAGGERTY ROAD (120' WIDE)

HEATHERBROO

**GENERAL GRADING AND EARTHWORK NOTES:**  
 THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

- CONTRACTOR TO FIELD VERIFY ALL EXISTING TREES AND BRUSH AND REMOVE ALL THAT ARE NECESSARY TO GRADE SITE.
- ALL GRADES ARE TO TOP OF PAVEMENT OR GUTTER UNLESS OTHERWISE NOTED.
- THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE BOUNDARIES SHALL BE AT THE SOLE RESPONSIBILITY AND RISK OF THE CONTRACTOR.
- ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF THE CITY OF NOV. AN EROSION CONTROL PLAN MUST BE SECURED FROM THE CITY PRIOR TO CONSTRUCTION.
- ALL EARTHWORK AND GRADING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS INVESTIGATION AND REPORT TO BE PREPARED PRIOR TO CONSTRUCTION.
- REFER TO CONSTRUCTION PLANS FOR ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND NOTES.
- SIDE SLOPES EXCEEDING 1:6 MUST BE STABILIZED BY SODDING OR BY PLACING A MULCH BLANKET PEGGED IN PLACE OVER SEED.
- ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SOODED IN ACCORDANCE WITH THE LANDSCAPE PLANS. PROVIDE A MINIMUM OF 3" OF TOPSOIL IN THESE AREAS UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE OR UNSUITABLE BACKFILL MATERIAL IN THE OPINION OF THE GEOTECHNICAL ENGINEER, THAT ARE TO BE WITHIN THE ZONE OF INFLUENCE OF PROPOSED BUILDINGS OR PAVEMENT SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.

**SYMBOLS: GRADING**

PROPOSED SPOT GRADE ELEVATION. ALL GRADES INDICATED ARE TO TOP OF PAVEMENT OR GUTTER (IF LOCATED IN CURB LINE) UNLESS OTHERWISE NOTED. ADD 0.33' FOR 4" CURB OR 0.50' FOR 6" CURB) TO CUTTER GRADE TO OBTAIN TOP OF CURB ELEVATION.

PROPOSED CONTOUR LINE — 930 —

**REFERENCE BENCHMARKS**  
 CITY OF NOV BM #23-41  
 7' OF NORTH RIM OF SANITARY MH  
 ELEV. = 915.00 (MEASURED)  
 CITY OF NOV BM #23-14  
 NORTH RIM OF SOUTHERLY MON. BOX  
 ELEV. = 905.13

**BENCHMARK**  
 BENCHMARK IN ARROW ON A HYDRANT LOCATED ON THE WEST SIDE OF HAGGERTY RD., OPPOSITE OF HEATHERBROOK DR.  
 ELEV. = 916.00

**EARTHWORK BALANCING NOTE:**  
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

**LEGEND**

- IRON FOUND
- WOOD SET
- MAIL FOUND
- BRASS PLUG SET
- MOMENTUM FOUND
- MOVEMENT SET
- SEC. CORNER FOUND
- RECORDED
- MEASURED
- CALCULATED

**UTILITIES**

- 0-0 ELEC-MISC
- 0-0 CATV
- 0-0 ELEC-02
- 0-0 ELEC-03
- 0-0 ELEC-04
- 0-0 ELEC-05
- 0-0 ELEC-06
- 0-0 ELEC-07
- 0-0 ELEC-08
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**NOT FOR CONSTRUCTION**

REVISIONS	
NO.	DATE
1	10/13/2015
2	10/13/2015
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49	10/13/2015
50	10/13/2015

**CAUTION!**  
 THIS IS A PRELIMINARY GRADING PLAN. IT IS NOT TO BE USED FOR CONSTRUCTION. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES AND CONDITIONS PRIOR TO CONSTRUCTION. ANY CHANGES TO THIS PLAN SHALL BE MADE BY THE ENGINEER.

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 248-863-1000

**PRELIMINARY GRADING PLAN  
 NOVAPLEX**  
 PART OF THE 144 OF SECTION 12, T. 0 N., R. 0 E.,  
 CITY OF NOV, OAKLAND COUNTY, MICHIGAN

ORIGINAL ISSUE DATE:  
 JULY 26, 2019  
 PEA JOB NO. 2015-296  
 SCALE: 1" = 50'  
 DRAWING NUMBER:  
**C-4.0**



**TREE PLANT LIST**

QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
22	AR3	Red Maple	<i>Acer rubrum</i>	2" Cal.	B&B	Native	No	4%	2%
8	AS3	Sugar Maple	<i>Acer saccharum</i>	2" Cal.	B&B	Native	No	2%	7%
13	BA4	Yellow Birch	<i>Betula alleghaniensis</i>	8-12" H.	B&B	Native	No	2%	4%
29	CB3	Columnar Hornbeam	<i>Cornus alternifolia</i>	2" Cal.	B&B	Non-Native	No	6%	8%
5	FO3	American Beach	<i>Fagus grandifolia</i>	2" Cal.	B&B	Native	No	1%	2%
13	F03	Red Chinquapin	<i>Fagus sylvatica</i>	2" Cal.	B&B	Native	No	2%	4%
19	GB3	Garage	<i>Georgina sp.</i>	2" Cal.	B&B	Non-Native	No	2%	2%
49	OT3	Skyline Honeylocust	<i>Gleditsia triacanthos</i>	2" Cal.	B&B	Native	No	8%	8%
18	LS3	Slender Silhouette Sweetgum	<i>Liquidambar styraciflua</i>	2" Cal.	B&B	Native	No	4%	4%
17	LT3	Tulip Tree	<i>Liriodendron tulipifera</i>	2" Cal.	B&B	Native	No	3%	3%
15	MO3	Tapelo	<i>Nyssa sylvatica</i>	2" Cal.	B&B	Native	No	2%	2%
14	PO3	American Sycamore	<i>Platanus occidentalis</i>	2" Cal.	B&B	Native	No	2%	4%
36	QR3	Red Oak	<i>Quercus rubra</i>	2" Cal.	B&B	Native	No	7%	7%
15	SO3	Scarlet Oak	<i>Quercus scarlet</i>	2" Cal.	B&B	Native	No	2%	2%
7	SO3	Swamp White Oak	<i>Quercus bicolor</i>	2" Cal.	B&B	Native	No	1%	13%
41	TB3	American Basswood	<i>Tilia americana</i>	2" Cal.	B&B	Native	No	8%	8%
28	US3	American Elm	<i>Ulmus americana</i>	2" Cal.	B&B	Native	No	8%	8%

**EVERGREEN PLANT LIST**

QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
25	PG3	White Spruce	<i>Picea glauca</i>	2" Cal.	B&B	Native	No	2%	2%
14	PH3	Blue Spruce	<i>Picea mariana</i>	2" Cal.	B&B	Native	No	2%	2%
14	PG3	Eastern White Pine	<i>Pinus strobus</i>	2" Cal.	B&B	Native	No	2%	2%
19	TC3	Canada Hemlock	<i>Tsuga canadensis</i>	2" Cal.	B&B	Native	No	2%	2%

**SHRUB PLANT LIST**

QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
7	AM3	Black Chokeberry	<i>Arnica montana</i>	36" H.	Cont.	Native	No	2%	2%
53	CB3	Red Twig Dogwood	<i>Cornus sericea</i>	36" H.	Cont.	Native	No	2%	2%
48	IV3	Vertical Wintergreen	<i>Hemmilela versata</i>	36" H.	Cont.	Native	No	2%	2%
58	SV3	Common Lilac	<i>Syringa vulgaris</i>	36" H.	Cont.	Native	No	2%	2%
7	PO3	Winterkat	<i>Physocarpus opulifolius</i>	36" H.	Cont.	Native	No	2%	2%
18	RA3	Fragment Bush	<i>Rosa carolina</i>	36" H.	Cont.	Native	No	2%	2%
41	VB3	American Viburnum	<i>Viburnum dentatum</i>	36" H.	Cont.	Native	No	2%	2%

**NOTES**

SEE SHEET L-1.1 FOR LANDSCAPE CALCULATIONS AND LANDSCAPE CALCULATION AREA PLAN.

PLANT MATERIAL SHALL BE PLANTED A MINIMUM OF 4' OFF OF PROPERTY LINES.

ALL TREES ARE TO BE A MINIMUM OF 10' FROM HYDRANTS AND UTILITY STRUCTURES.

8400 CREDIT WILL BE PAID INTO THE TREE FUND FOR EACH TREE CREDIT THAT CANNOT BE REPLACED ON SITE.

WETLAND CONSERVATION EASEMENT NOTES: REPLACEMENT TREES GUARANTEED TO BE PLANTED WITHIN CONSERVATION EASEMENT OF LANDSCAPE EASEMENT TO BE GRANTED TO THE CITY.

REPLACEMENT MATERIAL SHOULD NOT BE WITHIN 10' OF BUILT STRUCTURES OR UTILITY EASEMENTS AND OVER UNDERGROUND STRUCTURES/UTILITY EASEMENTS.

**WAIVERS REQUESTED**

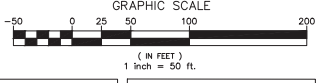
1. 16" GAS MAIN BETWEEN SIDEWALK AND CURB, NO TREE PLANTINGS WITHIN 20' REQUESTING WAIVER TO OMIT REQUIRED ROW TREES BETWEEN SIDEWALK AND CURB.

**REPLACEMENT TREE PLANT LIST**

QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
1	AS3	Sugar Maple	<i>Acer saccharum</i>	2" Cal.	B&B	Native	Yes	1%	7%
8	BA3	Paperbark Birch	<i>Betula papyrifera</i>	8-12" H.	B&B	Native	Yes	2%	4%
4	PO3	American Sycamore	<i>Platanus occidentalis</i>	2" Cal.	B&B	Native	Yes	2%	4%

**SURGRADY TREE PLANT LIST**

QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
11	AA3	Dewey Serviceberry	<i>Amelanchier arborea</i>	8-12" H.	B&B	Native	No	2%	2%
6	AL3	Allegheny Serviceberry	<i>Amelanchier laevis</i>	8-12" H.	B&B	Native	No	1%	3%
13	CC3	Eastern Redbud	<i>Cercis canadensis</i>	2" Cal.	B&B	Native	No	2%	2%
18	CF3	Flowering Dogwood	<i>Cornus florida</i>	2" Cal.	B&B	Native	No	2%	2%
7	MA3	Morale Crab	<i>Malus 'Amers' sp.</i>	2" Cal.	B&B	Non-Native	No	1%	1%
14	MP3	Prunella Crab	<i>Malus 'Prunella' sp.</i>	2" Cal.	B&B	Non-Native	No	1%	1%
6	MR3	Japanese Tree Lilac	<i>Syringa reticulata</i>	2" Cal.	B&B	Non-Native	No	1%	1%



**KEY**

- (O) = INTERIOR PARKING LOT TREES
- (O) = INTERIOR ROADWAY PERIMETER PARKING LOT TREES
- (O) = ROW TREES
- (O) = MULTI FAMILY LANDSCAPE TREES
- (O) = INTERIOR PARKING TREES COUNTING AS MULTI FAMILY TREES
- (O) = REPLACEMENT TREES
- (O) = EXISTING TREE COUNTING AS PERIMETER ROADWAY TREE
- (O) = BASIN SHRUBS
- (O) = STORMWATER SEED MIX & STAKED EROSION MAT BY GARDEN NATIVE PLANT NURSERY PHONE 574-588-2432
- (O) = IRRIGATED SEED LAWN
- (O) = FOUNDATION SHRUBS
- (O) = EXISTING TREES TO BE REMOVED
- (O) = TREE PROTECTION FENCING
- (O) = EXISTING TREES TO REMAIN

**WETLAND BUFFER TREE PLANTING NOTES PER CITY OF NOVA**

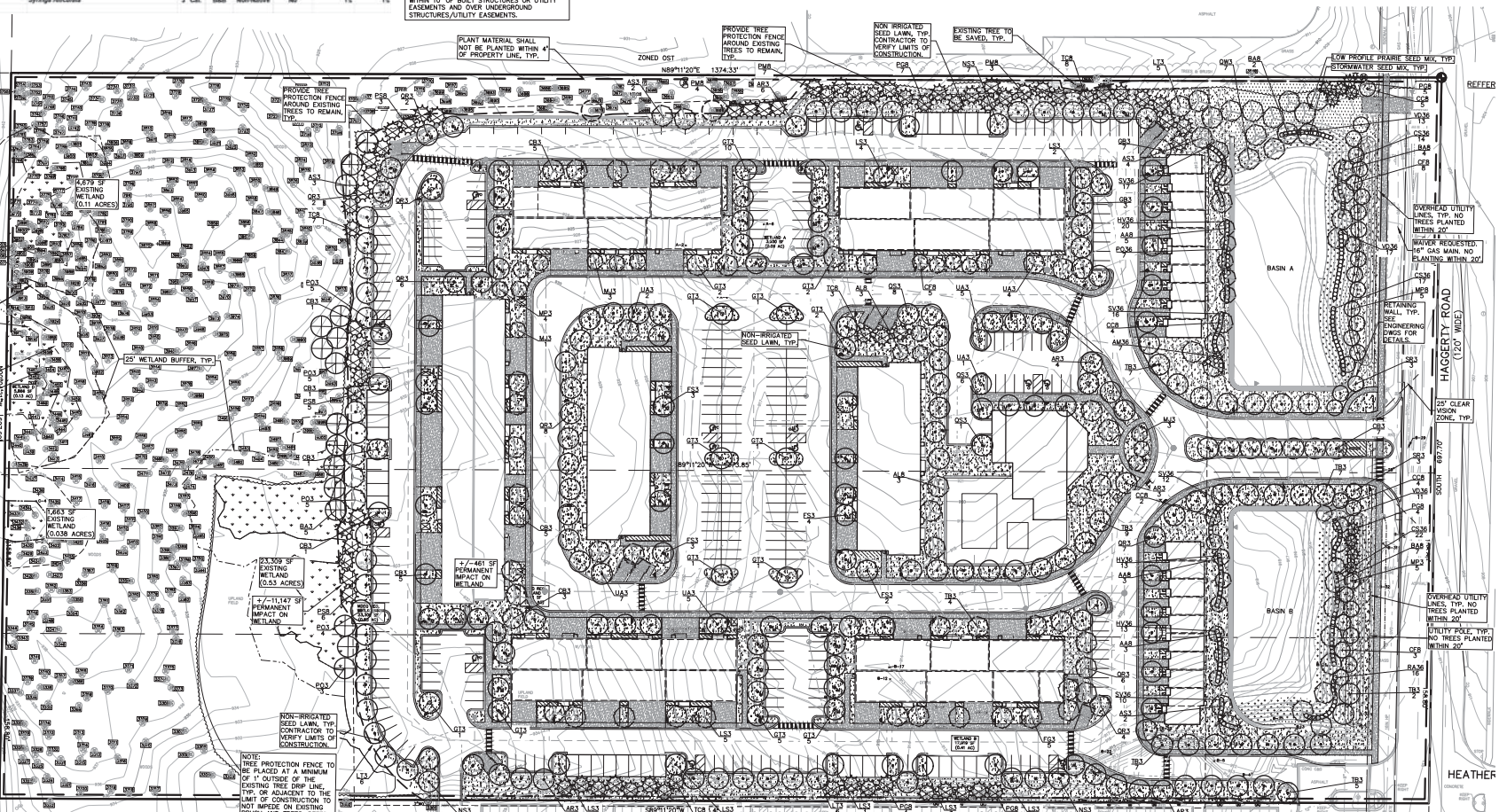
1. ECT RECOMMENDS THAT ALL WORK BE DONE WITH HAND-HELD EQUIPMENT WHERE POSSIBLE AND THAT ALL VEHICLES BE KEPT OUT OF THE WETLAND TO PREVENT SOIL COMPACTING AND UNAUTHORIZED SOIL DISTURBANCE. DISTURBANCE TO 20-FOOT BUFFER NEAR THE 30' BUFFER SHALL BE MINIMIZED AND AVOIDED THROUGH THE USE OF SMALL RUBBER TRACKED EQUIPMENT.

2. THE PROPOSED PLANTING LOCATIONS WITHIN THE 25'-FOOT SETBACK SHALL ALL BE STAKED ON-SITE. PLEASE INDICATE THE TREE OF PROPOSED TO BE PLANTED BY WRITING IT ON EACH STAKE.

3. PROPOSED PLANTING LOCATIONS SHALL BE APPROVED BY THE CITY OF NOVA LANDSCAPE ARCHITECT OR CITY ENVIRONMENTAL CONSULTANT PRIOR TO PLANTING. APPLICANT SHALL CALL FOR AN INSPECTION OF THE STAKED LOCATIONS AT LEAST 48 HOURS PRIOR TO THE PROPOSED PLANTING.

**REVISIONS**

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**CAUTION!**

THE CITY OF NOVA AND PEACONS INC. ARE NOT RESPONSIBLE FOR ANY DAMAGE TO PERSONS OR PROPERTY THAT MAY OCCUR AS A RESULT OF THE USE OF THIS PLAN. THE USER OF THIS PLAN SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND EASEMENTS FROM ALL AFFECTED AGENCIES AND ADJACENT PROPERTY OWNERS. THE USER SHALL BE RESPONSIBLE FOR VERIFYING THE ACCURACY OF ALL INFORMATION AND DATA PROVIDED TO PEACONS INC. AND THE CITY OF NOVA. PEACONS INC. AND THE CITY OF NOVA SHALL NOT BE HELD LIABLE FOR ANY ERRORS OR OMISSIONS IN THIS PLAN.

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TROY, MI 48065-1030

**PRELIMINARY LANDSCAPE PLAN**

PART OF THE NOVALEX PROJECT  
CITY OF NOVA, OAKLAND COUNTY, MICHIGAN

DIST. LAW EN. SUR. FOR. P.M. JTS  
DRES. LAW DN. LAW SUR. FOR. P.M. JTS

ORIGINAL ISSUE DATE: AUGUST 18, 2017

PEA JOB NO. 2015-298

SCALE: 1" = 50'

DRAWING NUMBER: L-10

**NOT FOR CONSTRUCTION**

**BUILDING ELEVATIONS AND DETAILS**

---

# 3 Story Townhouse Building - Haggerty Facade



**Buildings 1 & 10**

# 3 Story Townhouse Building Interior Facade



**Buildings 1 & 10**

# 3 Story Building Facade



**Buildings 5 & 6, Plus outward facing facade of 4 story buildings are similar**

## 4 Story Building Facade

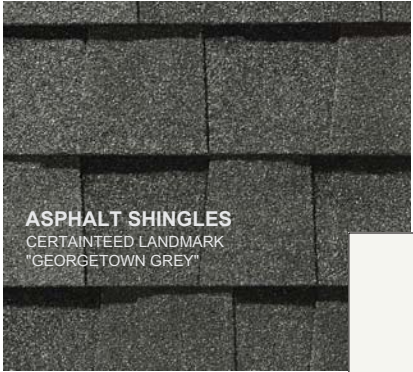


**Buildings 2, 3, 7, 8 & 9 facing center of site**

**SIDING** (HORIZONTAL / VERTICAL)  
 WOOD-GRAIN TEXTURED FIBROUS  
 CONCRETE SIDING  
 SHERWIN WILLIAMS SW 6236  
 "GRAYS HARBOR"

**SIDING** (HORIZONTAL / VERTICAL)  
 WOOD-GRAIN TEXTURED FIBROUS  
 CONCRETE SIDING  
 SHERWIN WILLIAMS SW 6248 "JUBILEE"

**OPEN METAL FRAMEWORK** at  
**STAIRS**  
**METAL-FACED ROOF OVERHANG**  
 at **STAIR ENTRANCES**  
**WINDOW / DOOR FRAMES**  
**METAL RAILING**  
 "BLACK"



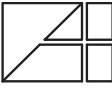
**ASPHALT SHINGLES**  
 CERTAINTEED LANDMARK  
 "GEORGETOWN GREY"

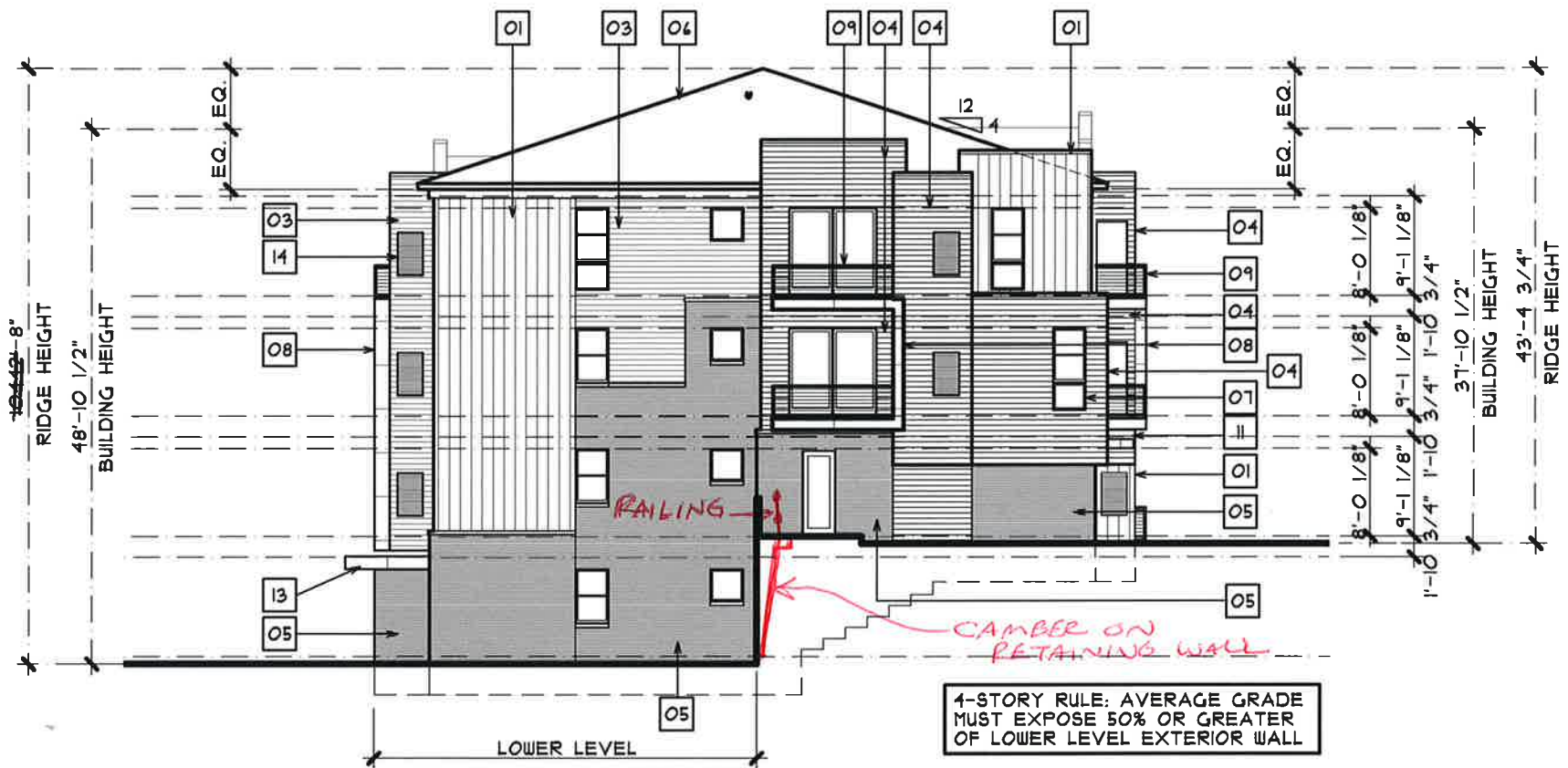


**BRICK**  
 GENERAL SHALE BOWERSTON  
 "DESERT SAGE VELVET"

**METAL-FACED CANTILEVERED  
 BALCONY FRAME**  
**GARAGE DOORS**  
**SIDING** (HORIZONTAL / VERTICAL)  
 WOOD-GRAIN TEXTURED FIBROUS  
 CONCRETE SIDING  
 SHERWIN WILLIAMS SW 7757 "HIGH  
 REFLECTIVE WHITE"

ALL MATERIALS TO BE SIMILAR OR  
 EQUIVALENT TO THOSE SHOWN.





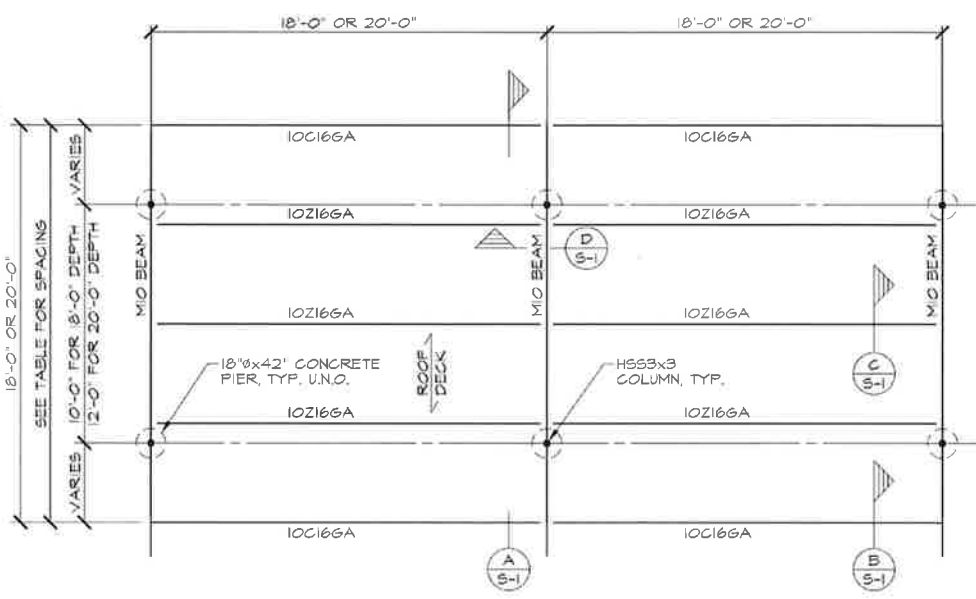
4-STORY RULE: AVERAGE GRADE  
MUST EXPOSE 50% OR GREATER  
OF LOWER LEVEL EXTERIOR WALL

# LEFT SIDE ELEVATION BLDG 275

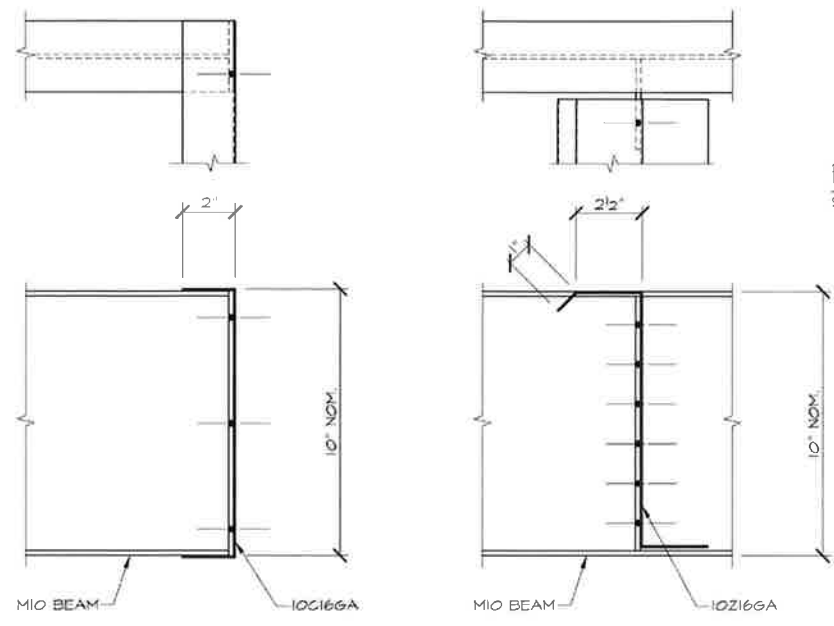
RIGHT SIDE SIM. / OPP. HAND

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

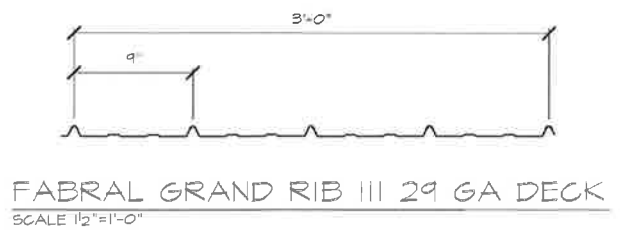




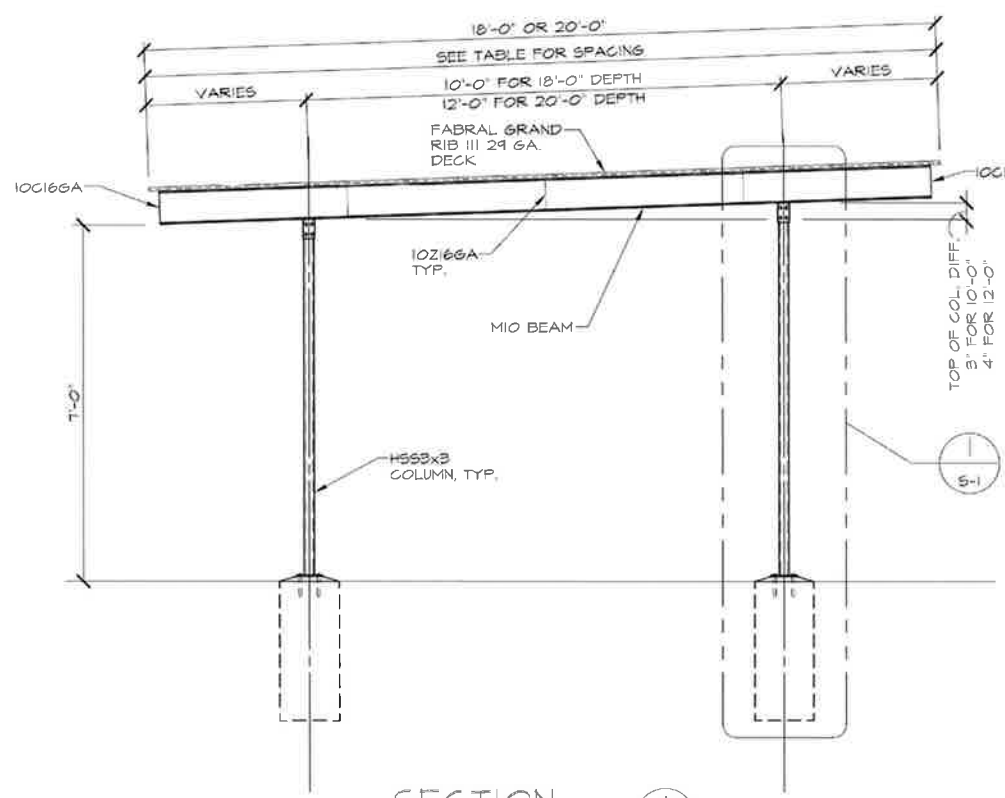
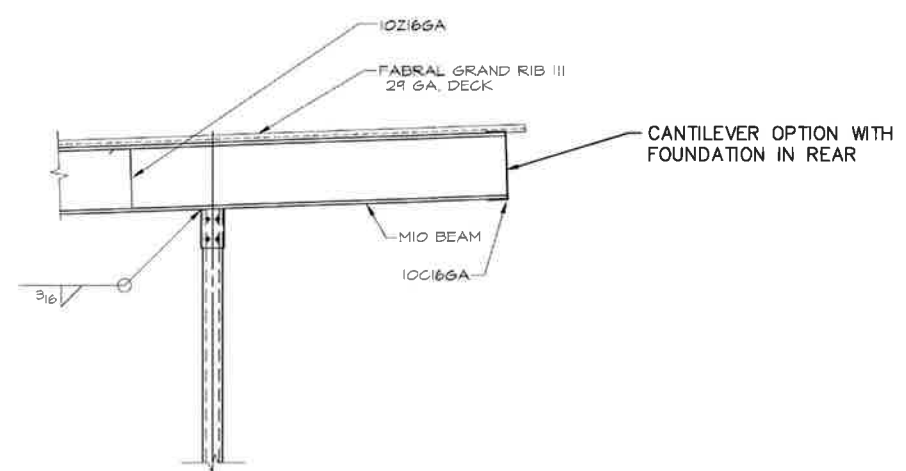
TYPICAL 20'-0" X 20'-0" BAY FRAMING PLAN  
SCALE 3/16"=1'-0"



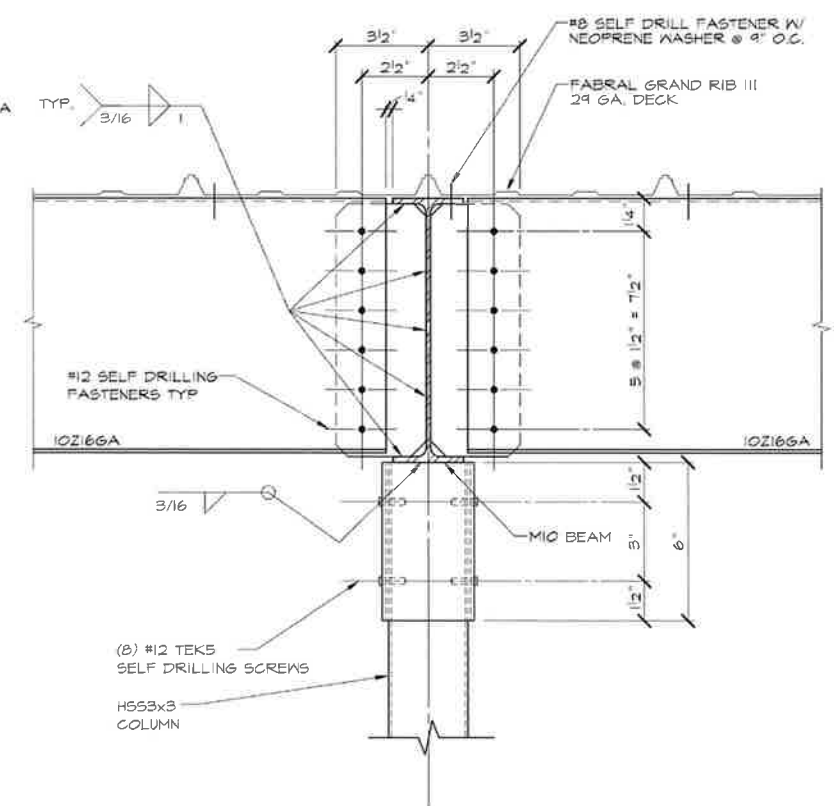
SECTION B SCALE 3"=1'-0"  
SECTION C SCALE 3"=1'-0"



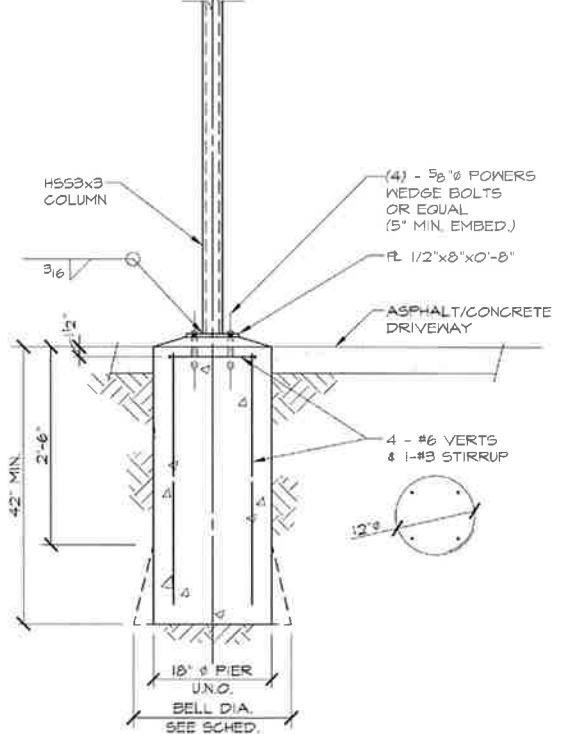
FABRAL GRAND RIB III 29 GA DECK  
SCALE 1/2"=1'-0"



SECTION A SCALE 3/8"=1'-0"



SECTION D SCALE 3"=1'-0"

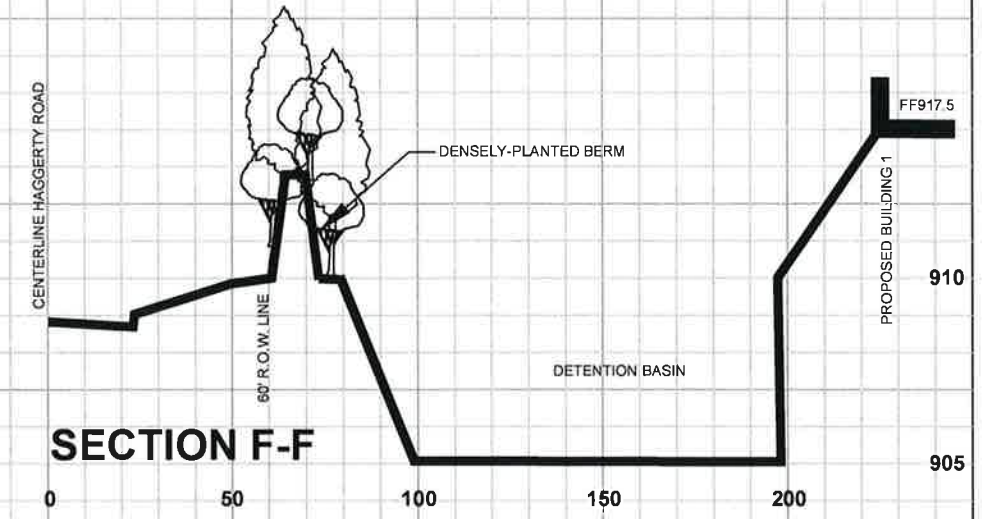
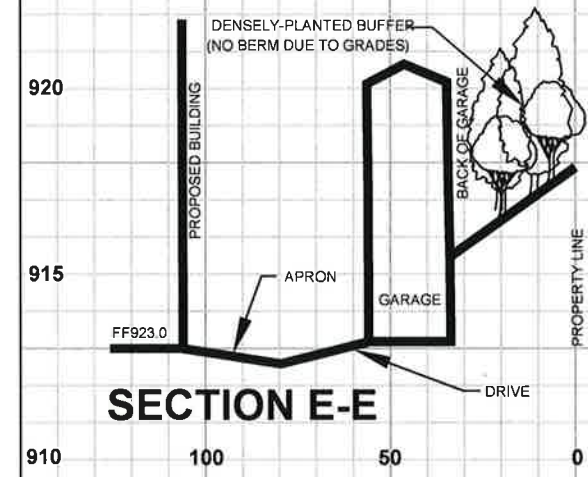
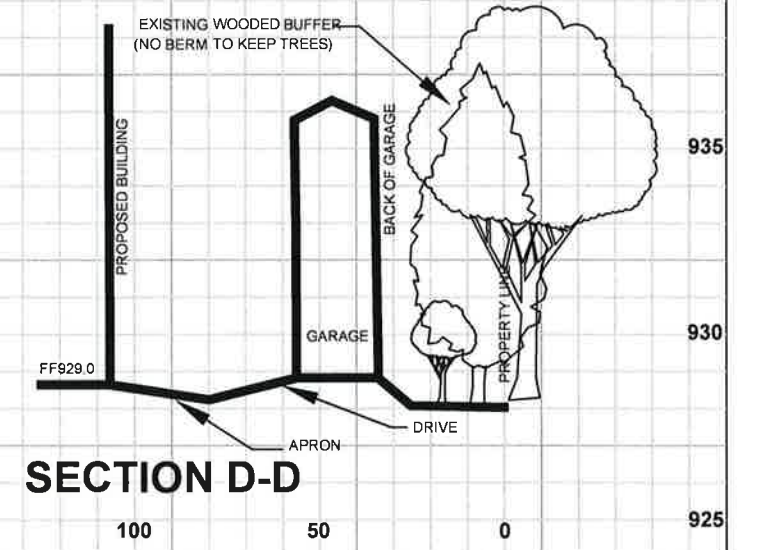
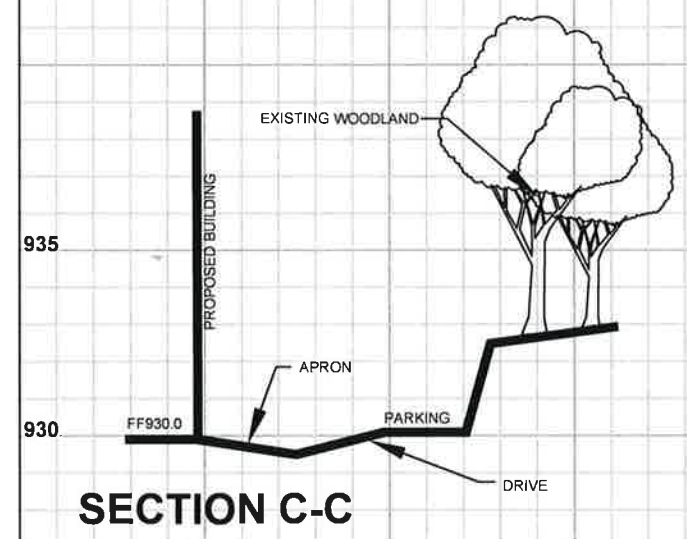
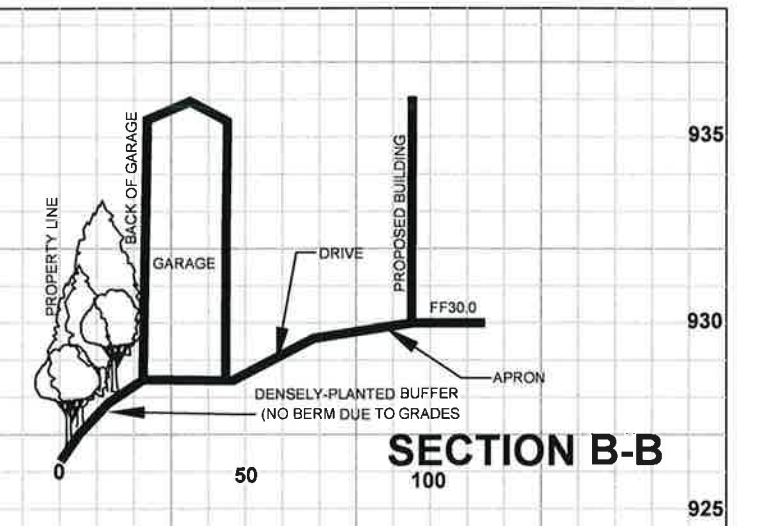
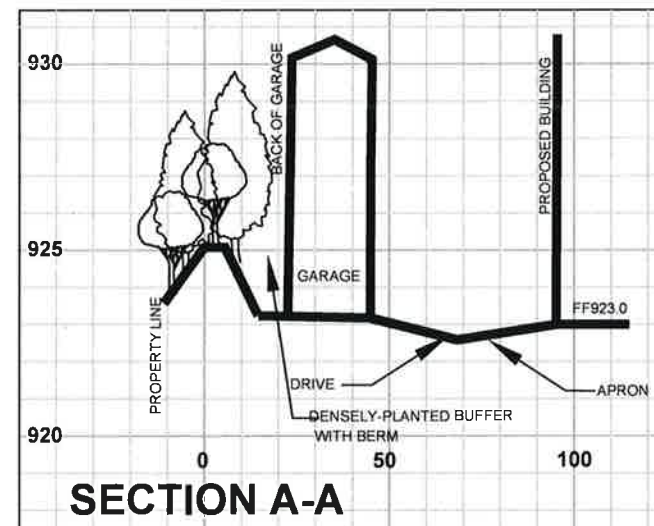
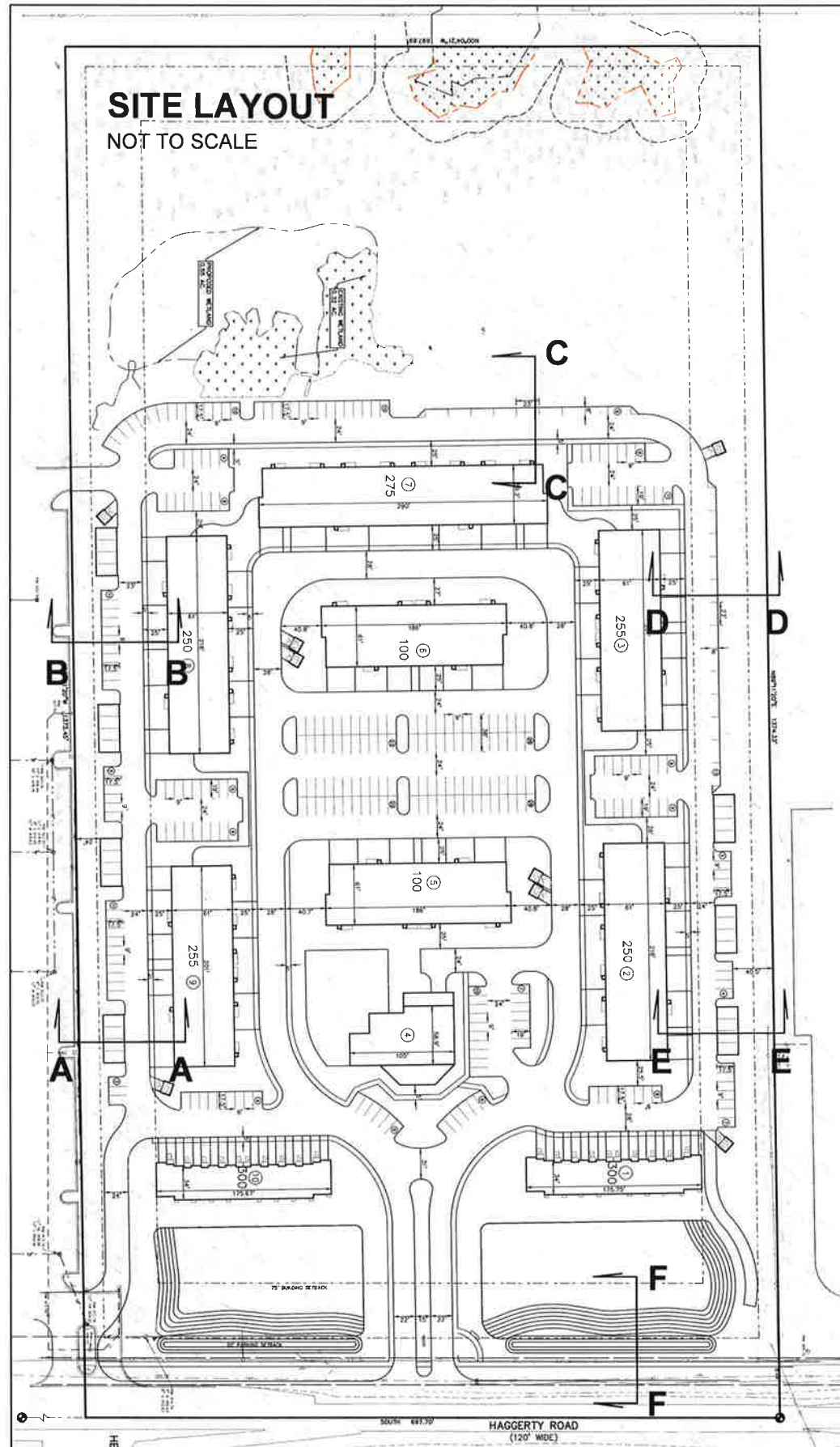


SECTION I SCALE 3/4"=1'-0"

TYPICAL CARPORT DETAIL  
NO SCALE

# NOVAPLEX BUFFER DETAILS

Drawn By: MRH  
Date: 11/11/19



## PLANNING REVIEW

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## PLAN REVIEW CENTER REPORT

### Planning Review

March 09, 2020

### **19-37 NOVAPLEX**

Zoning Map Amendment No. 18.733

#### **PETITIONER**

BC Novaplex LLC

#### **REVIEW TYPE**

PRO Concept Plan: 2<sup>nd</sup> revision

Rezoning Request from OST Office Service Technology to High-Density Multiple Family RM-2 with a Planned Rezoning Overlay

#### **PROPERTY CHARACTERISTICS**

<b>Section</b>	12	
<b>Site Location</b>	East side of Haggerty Road, north of Twelve Mile Road	
<b>Site School District</b>	Novi Community School District	
<b>Current Site Zoning</b>	OST, Office Service Technology	
<b>Proposed Site Zoning</b>	RM-2, High-Density Multiple Family	
<b>Adjoining Zoning</b>	North	OST, Office Service Technology
	East	Farmington Hills
	West	OST, Office Service Technology
	South	OST, Office Service Technology
<b>Current Site Use</b>	Vacant	
<b>Adjoining Uses</b>	North	Office
	East	Single family residential development
	West	Office
	South	Medical Office
<b>Site Size</b>	Gross: 22 Acres; Net: 21.04 Acres	
<b>Parcel ID's</b>	50-22-12-400-009, -010, and -011	
<b>Plan Date</b>	01-13-2020	

#### **PROJECT SUMMARY**

The subject property is located on the west side of Haggerty Road, north of Twelve Mile Road in Section 12 of the City of Novi. The property totals about 22 acres and contains a significant amount of high-quality regulated woodlands along the western boundary. The applicant is proposing to develop a 272 unit multiple-family residential development. The development consists of two attached townhouse style buildings and eight apartment style building. All units range from three to four stories tall. The development is a private street network with two entrances off Haggerty Road. The applicant is requesting to rezone the site from Office Service Technology (OST) to High-Density Multiple Family (RM-2) with a Planned Rezoning Overlay.

#### **PROJECT REVIEW HISTORY**

A Preliminary Site Plan, also referred to as Novaplex, was initially approved for this subject property on August 16, 2000 for development of office buildings. It was identified by the project number SP 99-32B. Final site plan approval was granted in March 22, 2002. The City held an environmental pre-

construction meeting on February 23, 2005, just before the site plan approval expired. In the spring of 2005, a majority of regulated woodlands were removed in the western part of the site. At this time, all the previous approvals/extensions for both PRO and the site plan have expired and are no longer valid. The applicant is no longer proposing office development and is requesting to rezone to allow multiple family uses. Staff has been actively working with the applicant since 2018. Please refer to table below for more details.

Date	Type of meeting	Notes
January 10, 2018	Pre-application meeting	mixed use development with office and multiple-family residential
June 10, 2019	Pre-application meeting	Pre-application meeting. They indicated that their market study did not support office uses for that location.
September 11, 2019	Master Planning and Zoning committee	The Committee has provided many comments for the applicant to consider and requested to come back with a revised plan.
December 11, 2019	Master Planning and Zoning committee	The applicant revised the plan to address few of the concerns raised at the last meeting which are listed later in this review. Committee suggested that the applicant should work with staff with regards to other design issues prior to Planning Commission meeting.

**PRO OPTION**

The PRO option creates a “floating district” with a conceptual plan attached to the rezoning of a parcel. As part of the PRO, the underlying zoning is proposed to be changed (in this case from OST to RM-2) and the applicant enters into a PRO agreement with the City, whereby the applicant submits a conceptual plan for development of the site. The City Council reviews the Concept Plan, and if the plan may be acceptable, it directs for preparation of an agreement between the City and the applicant, which also requires City Council approval. Following final approval of the PRO concept plan and PRO agreement, the applicant will submit for Preliminary and Final Site Plan approval under standard site plan review procedures. The PRO runs with the land, so future owners, successors, or assignees are bound by the terms of the agreement, absent modification by the City of Novi. If the development has not begun within two (2) years, the rezoning and PRO concept plan expires and the agreement becomes void.

**RECOMMENDATION**

Approval of the ***PRO Concept plan is currently not recommended for approval*** for the reasons stated below and rest of the letter. **The applicant should consider providing responses to items listed below prior to March 16, 2020 so that staff can present it to the Planning Commission.**

1. The new rezoning category requested by the applicant is currently not supported by the Future Land Use Map. The applicant should provide exhibits that indicate the connectivity with surrounding residential service uses such as schools, daycare, grocery store and shopping etc.
2. There are number of deviations that are identified in the staff and consultant review letters. Staff requests the applicant revise the design to reduce the number of deviations requested. The applicant should either revise or provide additional information for the deviations which are currently not supported.
3. The applicant should provide additional information to evaluate and quantify the current proposed public benefits. The applicant should also reconsider the public benefits being offered to meet the objective of the PRO ordinance. Typically, any detrimental impact from a change of use to something that is not foreseen in the Master Plan for land use is outweighed by benefits occurring from the proposed development.

4. The applicant is seeking approval of reduction in minimum parking requirements. The applicant should provide parking demand statement from their existing communities similar in style to justify the request.
5. The applicant should provide all the missing information regarding existing wetland boundaries, proposed impacts and required mitigation.

### **MASTER PLANNING AND ZONING COMMITTEE COMMENT SUMMARY**

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The original concept plan was presented to the Master Planning and Zoning committee on September 11, 2019. The Committee provided many comments for the applicant to consider. Following are major concerns, staff comments are in **bold** that list the changes that were presented to the MPZ on December 11, 2020. Comments in **bold and underline** refer to changes made with the current submittal.

1. Reduce the density because if the density of the development comes down, then the scale of the issues will also come down. **The total number of units is reduced from 332 to 272. The percentage of one bedroom units is reduced from 39% to 36%. The total number of rooms is reduced from 902 to 734.**
2. Reduce the significant impact to wetlands and woodlands on site. **Entire layout appears to be outside the regulated woodland boundary to the west and north. Impacts to the high quality woodlands are significantly reduced.**
3. Consider reducing the long list of deviations that were requested. **Few of the deviations are reduced. A complete review will be performed when a complete submittal is made.**
4. Demonstrate connectivity with surrounding residential service uses such as schools, daycare, grocery store and shopping etc. Information is not provided. **The applicant should provide information prior to Planning Commission meeting.**
5. Address the limited amount of sanitary sewer capacity. **Information is provided. Refer to review comments for more details.**

**The plan also made these changes with this submittal that addresses two of staff's comments.**

1. A secondary access to Infinity Medical development to the South is provided.
2. Building cross-section is revised to eliminate the basement style design

The Committee asked the staff to check with Novi schools transportation department whether they would service the site if any kids from this development registered. Novi schools transportation director confirmed that the subject property falls within their jurisdiction. If any kids register at the school, they will be included in their bus routes.

### **REVIEW COMMENTS**

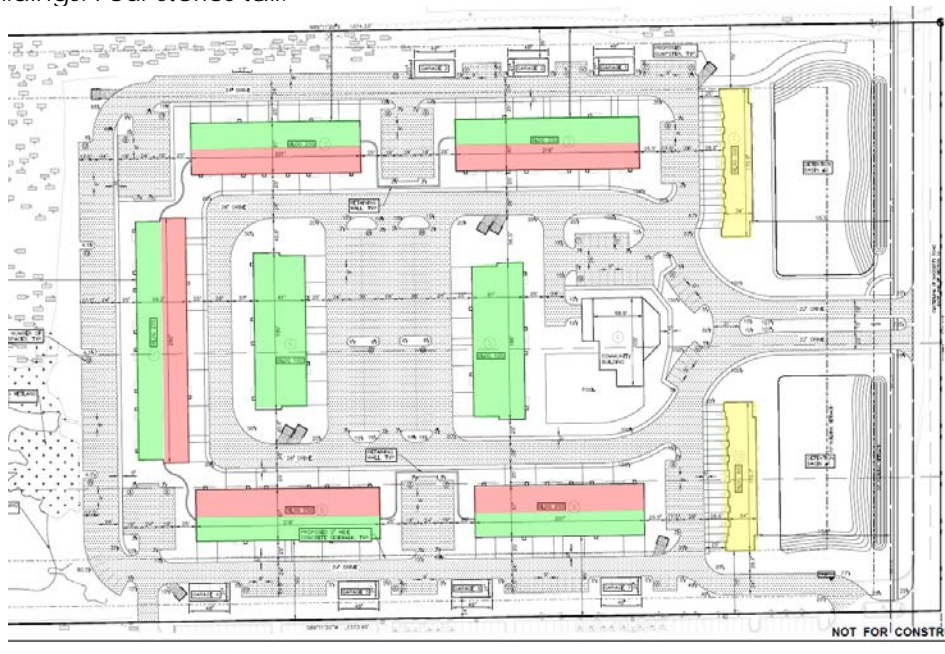
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This project was reviewed for conformance with the Zoning Ordinance with respect to Article 3 (Zoning Districts), Article 4 (Use Standards), Article 5 (Site Standards), Section 7.13 (Amendments to Ordinance) and any other applicable provisions of the Zoning Ordinance. **Please see the attached chart for information pertaining to ordinance requirements.** Items in **bold** below must be addressed and incorporated as part of the next submittal:

1. **Supporting Documentation:** The applicant has provided the following studies as part of their application packet with the original submittal. **The following documents may need to be updated prior to Planning Commission meeting based on the new density.**
  - a. **Community Impact Statement:** The statement concludes that the proposed Rezoning allows for development of an otherwise very difficult parcel to develop. **Staff does not agree with this statement. The parcel has been cleared for development as part of previous plan approvals. The site does not pose any significant challenges for development.** The applicant notes some market challenges that may restrict office development at this time; however, that is not typically a consideration in the development of a property as master-planned.

- b. The statement also noted that this development would provide a 150 feet wide wildlife corridor across its westerly end for wildlife movement, sheltering and food gathering. It should be noted that the 150 feet corridor is only what would be remaining after the additional proposed woodland removals. This is an existing wildlife corridor that will be reduced by the proposed development.
  - c. **Traffic Impact Study:** The City's review of the submitted study notes that the change of use does not create significant impacts despite the flip in peak hour peak direction traffic. Both a right turn deceleration taper and some form of a left turn treatment are warranted along Haggerty Road to address proposed impacts for the site plan.
  - d. **Sign Location Plan:** Please change 'OST to RM-2' to 'OST to RM-2 with a PRO'. Location and other text are acceptable.
  - e. **Soil boring report:** This dates back to 1999. Refer to Engineering review for more details.
  - f. **Wetland boundary determination:** The Plan does not include all of the Wetland 'A' area as determined by MDEQ's Wetland Identification Review (letter dated July 5, 2018). Refer to Wetland review for more details.
  - g. **Market Study:** The applicant studied the supply and demand for the multi-family residential development in Novi. It includes information about average rents and vacancy rates. It notes that the demand for multiple-family especially in close proximity to office areas is high. It also studied the demand for office-flex space and noted that office development is not economically feasible. It states that the current average vacancy rate for rental apartment units is at 4 percent.
  - h. **Sanitary sewer capacity calculations:** Engineering review noted that PEA has demonstrated the existing sanitary main is projected to have sufficient capacity to handle the added flow from Novaplex, as proposed in this concept.
    - Existing conditions = ~ 22% of sewer capacity used
    - Proposed conditions = ~ 72% of sewer capacity usedThus, approximately fifty percent of the sewer's capacity is proposed to be used by Novaplex.
  - i. **Planning Narrative by CIB planning:** The narrative summarizes findings that support the proposed change of use from Office to Multiple Family Residential using various studies. The narrative also provides a letter of supports from the developer of the neighboring office development, Haggerty Corridor Corporate Park. The narrative includes three exhibits. More comments are provided later in this review.
    - i. Exhibit A- List of Project Benefits
    - ii. Exhibit B-List of Requested Deviations
    - iii. Exhibit C- Project Information
2. Deviations: The current revision made an attempt to reduce the number or the extent of the deviations compared to the previous submittal. However, a complete list is not determined as the current plan focuses on the site layout and densities only. The PRO ordinance states that *"each Zoning Ordinance provision sought to be deviated would, if the deviation were not granted, prohibit an enhancement of the development that would be in the public interest, and that approving the deviation would be consistent with the Master Plan and compatible with the surrounding areas."* **The applicant should provide reasonable justification to meet the intent of the Ordinance with the next submittal. Please refer to the list of deviations on page 11 for more detail.**

3. Secondary access for Infinity Medical: The current development to the South, Infinity Medical, constructed a driveway stub to the property line. At the time of site plan approval, review for the office development for Novaplex was ongoing simultaneously. The site plans for Infinity Medical and Novaplex were approved with a condition that Infinity Medical will provide a secondary connection through Novaplex site. A location was coordinated with the Novaplex office plan as it was previously submitted. As noted, much of the Novaplex site was cleared, but the construction of Novaplex office was kept on hold indefinitely. Infinity Medical went ahead and completed the stub construction and dedicated a Fire and Emergency access easement to the City. The current Novaplex plan proposes to extend that connection as previously planned.
4. Height of the Buildings: The plan proposes a mix of different heights listed below:
  - a. Yellow buildings: These are attached town style buildings which are three stories tall.
  - b. Green buildings: Three stories tall.
  - c. Red buildings: Four stories tall.



For RM-2 development, densities and room count differ based on number of stories for the development. **As the majority of the units are three stories, staff determined that all requirements for RM-2 development for 'less than four stories' would apply. However, based on the recent changes to the layout and the building design, staff is supporting the deviation for room count. Please refer to the list of deviations on page 11 for more detail.**

5. Major and Minor Drives: Section 5.10, relating to major and minor driveways in a multiple family residential development would apply to the proposed development. The revised plan currently does not meet a majority of requirements for this section. Please refer to Traffic review letter for more details and comments requested to provide a reasonable justification for this deviation. Traffic suggested some traffic calming measures and reconsider dumpster locations as a start.
6. Plan Review Chart: **The attached chart provides additional comments on many of the Ordinance review standards. Please refer to it in detail.**



7. Other Reviews:

**ENGINEERING:** Engineering recommends approval of the concept plan. Engineering review noted that PEA has demonstrated the existing sanitary main is projected to have sufficient capacity to handle the added flow from Novaplex, as proposed in this concept.

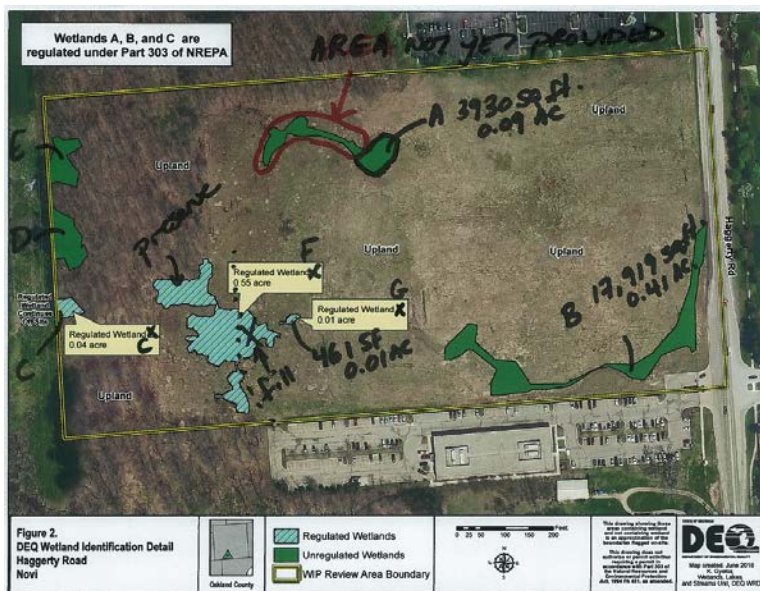
**LANDSCAPE:** This project is **recommended** for approval for PRO Concept Plan, contingent on the applicant revising the plan to remove the single unsupported deviation, i.e. deficiency in perimeter canopy trees along west sides of Lots A and E.

**TRAFFIC:** Traffic is currently **not recommending** approval due to the number of deviations that would be required based on the submitted concept. In particular, lack of good reasoning for reduction in parking and deviation from design standards for the streets. Refer to Traffic review for more detail.

**WOODLANDS:** Woodland review recommends approval. The majority of the site has previously been cleared of trees. 181 replacements are required for trees previously cleared from site and not replaced. Seven (7) regulated trees are proposed for removal on the current Plan requiring thirteen (13) Woodland Replacement Credits. These existing trees are located along the northern section of the site near the northern property boundary. The Plan appears to indicate that sixteen (16) Woodland Replacement Credits will be planted on-site and the remainder (178) shall be paid into the City of Novi Tree Fund.

**WETLANDS:** The last version of the Concept plan proposed approximately 1.05 acres of wetland impact (i.e., PSP19-0129). The current revised plan does not specifically call-out but appears to propose 0.71 acre of impact to the wetland currently shown on the plan. The applicant should address the following with the next submittal:

- i. As noted in the 08-26-19 Wetland review letter, the current Plan has omitted some of the overall area of existing Wetland A (as flagged by MDEQ/EGLE) and should be revised as necessary. However, the wetland areas listed below have been provided on previous plan submittals. **The applicant should provide accurate impact and mitigation areas with the next submittal that incorporate the additional area of Wetland A (as flagged by MDEQ/EGLE).**



Novaplex Wetlands (2019.12.05)

Wetland	Area		Impacts	
	Sq. Ft.	Acre	Sq. Ft.	Acre
A	3,930	0.09	3,930	0.09
B	17,919	0.41	17,919	0.41
C	1,663	0.04	0	0.00
D	5,866	0.13	0	0.00
E	4,679	0.11	0	0.00
F	23,309	0.54	9,000	0.21
G	461	0.01	0	0.00
<b>TOTAL</b>	<b>57,827</b>	<b>1.33</b>	<b>30,849</b>	<b>0.71</b>

Estimated Mitigation Required: 1.5 x Impact Area =  
 46,274 Sq. Ft.  
 1.06 Acre

Based on our calculations, the proposed impacts currently shown on the plan would require approximately 1.06 acre of wetland mitigation. The current plan accounts for 0.55 acre of wetland mitigation. Please note that the impact area to Wetland A and therefore the required

total wetland mitigation area would increase when the overall area of Wetland A is reported. Please note the City's Wetland Ordinance notes the following:

*Mitigation shall be provided onsite where practical and beneficial to the wetland resources. If onsite mitigation is not practical and beneficial, mitigation in the immediate vicinity, within the same watershed, may be considered. Mitigation at other locations within the city will only be considered when the above options are impractical. **The applicant should address how the remainder of required wetland mitigation will be addressed.*** This information and detail are typically required at the time of Preliminary site plan. However, since the proposed impacts would affect the layout and the density, staff recommends that the applicant provide a response at this time.

- ii. It should be noted that neither the City nor EGLE supports the removal of trees/woodlands in order to construct proposed wetland mitigation areas. As Wetland F is both City and EGLE regulated, we recommend that the proposed wetland mitigation area(s) remain outside of the designated Woodland Boundary and that no trees be removed to construct the wetland mitigation area(s).

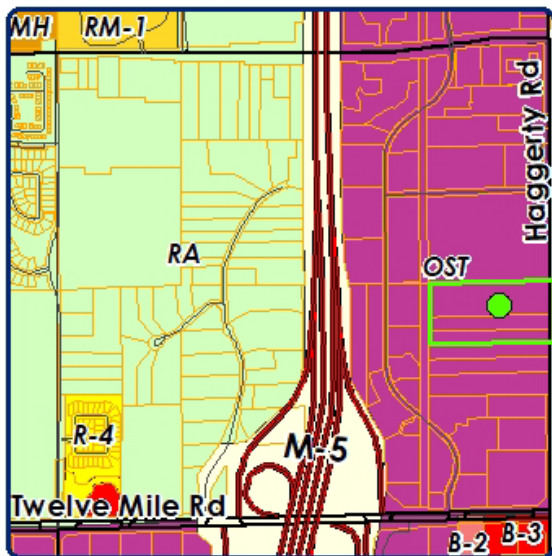
**FAÇADE:** All building/garage elevations conform to the requirements. Elevations for carports are required to comply with the requirements. Additional information is required prior to Planning Commission meeting.

**FIRE:** Fire review approved with conditions

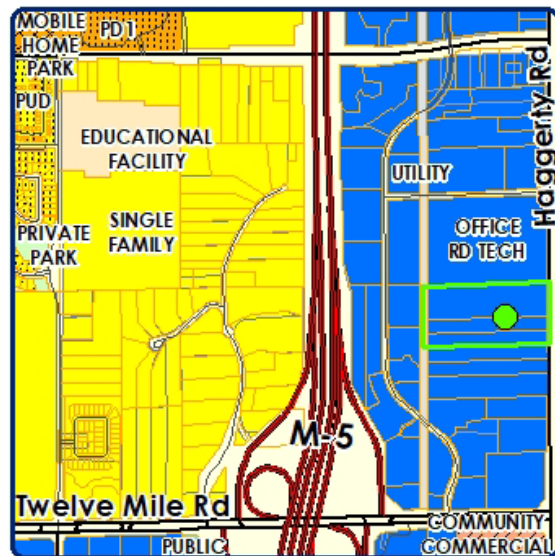
#### LAND USE AND ZONING: FOR SUBJECT PROPERTY AND ADJACENT PROPERTIES

The following table summarizes the zoning and land use status for the subject property and surrounding properties.

**Existing Zoning**



**Future Land Use**



#### Compatibility with Surrounding Land Use

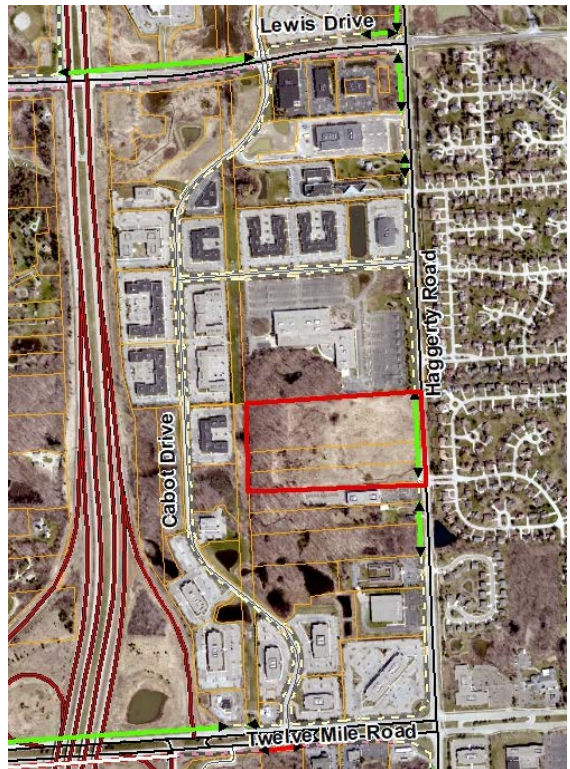
The subject property is located along eastern boundary of the City of Novi, west of Haggerty Road. The City of Farmington Hills is to the east. It is surrounded by existing office development to all sides in Novi with single family residential across Haggerty Road to the east in Farmington Hills. Within Novi, the proposed use is not compatible with the surrounding uses. All surrounding properties are developed and have established office uses. The likelihood of redevelopment is almost none. The

proposed use is not consistent with the surrounding existing uses based on current Zoning requirements.

	Existing Zoning	Existing Land Use	Master Plan Land Use Designation
<b>Subject Property</b>	OST: Office Service Technology	Vacant	Office Research Service and Technology (Uses consistent with OST)
<b>Northern Parcels</b>	OST: Office Service Technology	Office	
<b>Eastern Parcels (across Haggerty Road)</b>	Farmington Hills	Single Family Residential	NA
<b>Western Parcels</b>	OST: Office Service Technology	Office	Office Research Service and Technology (Uses consistent with OST)
<b>Southern Parcels</b>	OST: Office Service Technology	Medical Office	

The applicant has initially considered a mixed use (office-residential) development for this property. The Planning narrative, prepared by CIB Planning, states that rental rates for flex office space, are not high enough to support a speculative development.

The Planning narrative notes that the current residential development is a “professional targeted” development which is intended to be walkable, bikeable, and accessible residential community to primarily serve area companies in Haggerty Corridor Park and their employees. They note that the proximity to the office development is crucial for their development. The applicant states that there is a shortage of land zoned for multiple family developments in Novi and an overage of land zoned for office use. **It should be noted that multiple-family development is not limited to RM-1 and RM-2 zoning. It is also allowed in other districts such as Town Center and Gateway East. Projects like Manchester (172 units) and Huntley Manor (225 units), Emerson Park (125 units) and Woodbridge Park (40 units) are under construction and we have couple other projects such as Flint Street (253 units) under review. A rezoning for Sakura Novi (118 units) was recently approved.**



The planning narrative expands further on the necessity for multiple-family rental development based on current market demand. **The compatibility of the proposed rezoning with the zoning and uses on the adjacent properties should be considered by the Planning Commission in making the recommendation to City Council on the rezoning request.**

**Comparison of Zoning Districts**

The following table provides a comparison of the current (OST) and proposed (RM-2) zoning classifications. It is not a direct comparison between the two uses, given that the two uses are clearly distinct from each other. It is a change of use from Office to residential. The setbacks, buffering an

	OST (EXISTING)	RM-2 (PROPOSED)
Principal Permitted	See attached copy of Section 3.1.23.B	See attached copy of Section 3.1.8.B

	OST (EXISTING)	RM-2 (PROPOSED)
Uses		Outdoor Storage yards*
Special Land Uses	See attached copy of Section 3.1.23.C	See attached copy of Section 3.1.8.C
Lot Size	Except where otherwise provided in this Ordinance, the minimum lot area and width, and the maximum percent of lot coverage shall be determined on the basis of off-street parking, loading, greenbelt screening, yard setback or usable open space requirements as set forth in this Ordinance.	See Section 3.8.1
Lot Coverage		45%
Building Height	46 ft. or 3 stories, whichever is less	65 ft or 5 stories, whichever is less
Building Setbacks	Front: 50 feet Rear: 50 feet Side: 50 feet Exterior side yard setbacks same as front yard	Front: 75 feet Rear: 75 feet Side: 75 feet Exterior side yard setbacks same as front yard
Parking Setbacks  See 3.6.2. for additional conditions	Front: 20 feet Rear: 20 feet Side: 20 feet Exterior side yard setbacks same as front yard	Subject to 3.8 RM-1 and RM-2 Required Conditions

**DEVELOPMENT POTENTIAL**

The land is currently vacant. Development under current OST zoning could result in significant amount of space. For example, a Preliminary site plan was initially approved for this subject property on August 16, 2000 for development of Office buildings. At that time, the site plan proposed two 68,500 square feet, three-story, multiple tenant buildings along with parking and other improvements. In 2018, the applicant proposed a mixed-use development consisting of seven residential buildings with 242 units and two single story office buildings totaling 70,000 square feet (which was not pursued by the applicant at that time following staff’s initial review).

The current concept plan proposes a development of 270 units with 12 DUA for a high-density multifamily development which is below the maximum density allowed for three bedroom units under RM-2 zoning (458 total number of rooms allowed for 3 story building that would allow lower density, 734 rooms proposed). The master plan designation expects the subject property to be developed as office space for research and technology.

As is evident, the existing, proposed and anticipated uses are much different from each other. The Master Plan for Land Use does not anticipate residential uses of this property, so no density guidelines are provided on the plan. The applicant has included and exhibit **‘Comparison of alternate development’ which should be updated based on the revised layout.**

The applicant submitted a narrative from CIB planning that assesses and supports the applicant’s request for change of use. Staff notes that the market assessment from the current draft update to Master plan indicate that an increasing share of the City’s residents and larger market want a different housing pattern. The applicant has provided a market study to support their findings. But while that narrative may provide some reasonable justification for the change of use, staff’s concerns about removing yet more high-quality woodlands in order to propose a higher-density development—without sufficient buffering and requiring multiple additional (and significant) ordinance deviations still remain unaddressed.

In this review letter, staff identifies concerns with connectivity, security, architectural compatibility and lack of adequate screening from adjacent uses. **The applicant should consider addressing those comments and revise the drawings accordingly to offset the impacts of the proposed change of use on the surrounding development.**

## **2016 MASTER PLAN FOR LAND USE: GOALS AND OBJECTIVES**

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The proposed use is currently not recommended by the 2016 Master Plan for Land Use. The following objectives as listed in the Master Plan are applicable for the proposed development. However, at this time the plan follows only a few. **The applicant should consider revisions to the plan to comply with as many goals as possible. Please refer to staff comments in bold and revisions recommended in bold and underline.**

### **1. General Goal: Quality and Variety of Housing**

- a. Provide residential developments that support healthy lifestyles. Ensure the provision of neighborhood open space within residential developments. **The development proposes internal sidewalk system, a clubhouse and a pool.**
- b. Safe housing and neighborhoods. Enhance the City of Novi's identity as an attractive community in which to live by maintaining structurally safe and attractive housing choices and safe neighborhoods.
- c. Maintain existing housing stock and related infrastructure.
- d. Provide a wide range of housing options. Attract new residents to the City by providing a full range of quality housing opportunities that meet the housing needs of all demographic groups including but not limited to singles, couples, first time home buyers, families and the elderly. **The applicant is proposing a rental development with a mix of apartment style units and attached townhouse style units.**

### **2. General Goal: Community Identity**

- a. Maintain quality architecture and design throughout the City. **The current proposed elevations would require a Section 9 waiver, which is not supported. Please refer to the facade review letter for opportunities to maintain quality architecture.**

### **3. General Goal: Environmental Stewardship**

- a. Protect and maintain the City's woodlands, wetlands, water features, and open space. The concept plan proposes additional removal of regulated woodlands. **Please refer to the wetlands and woodlands review letter for opportunities to further protect these natural features.**
- b. Increase recreational opportunities in the City. **The Concept plan proposes recreational opportunities for the residents. They propose to fill two off-site gaps totaling 600 feet as a benefit to the public. This completes the sidewalk loop between Lewis Drive, Cabot Drive Twelve Mile Road and Haggerty Road. The applicant should consider a sidewalk connection from the west side of the property to the Cabot Drive sidewalk through the ITC corridor. This would connect the proposed residential development to the office development, which is supposedly the primary source of residents for this development.**
- c. Encourage energy-efficient and environmentally sustainable development through raising awareness and standards that support best practices. **The applicant should consider energy-efficient design for building materials and constructions, such as LEED recommended. There is no indication at this time.**

### **4. General Goal: Infrastructure**

- a. Provide and maintain adequate water and sewer service for the City's needs. **Please refer to the Engineering memo.**

- b. Provide and maintain adequate transportation facilities for the City's needs. Address vehicular and non-motorized transportation facilities. **Please refer to comment for item b under General Goal 3. Also, refer to Traffic review for required improvements along Haggerty Road, i.e. left turn lane.**

**5. General Goal: Economic Development / Community Identity**

- a. Ensure compatibility between residential and non-residential developments. **Please refer to comments about compatibility with surrounding development earlier in this review.**

**MAJOR CONDITIONS OF PLANNED REZONING OVERLAY AGREEMENT**

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The Planned Rezoning Overlay process involves a PRO concept plan and specific PRO conditions in conjunction with a rezoning request. The submittal requirements and the process are codified under the PRO ordinance (Section 7.13.2). Within the process, which is initiated by the applicant, the applicant and City Council can agree on a series of conditions to be included as part of the approval which must be reflected in the Concept Plan and or the PRO agreement.

The PRO conditions must be in material respects, more strict or limiting than the regulations that would apply to the land under the proposed new zoning district. *Development and use of the property shall be subject to the more restrictive requirements shown or specified on the PRO Plan, and/or in the PRO Conditions imposed, and/or in other conditions and provisions set forth in the PRO Agreement.*

**The applicant is seeking to rezone to RM-2. However, the height and number of rooms is closer to RM-1 standards. The applicant can consider the proposed height and design standard as the conditions of the agreement.**

**The benefits to the public of the rezoning and the extensive deviations are not apparent from the applicant's submission. The applicant should submit a list of PRO Conditions that they are seeking to include with the PRO agreement.**

**ORDINANCE DEVIATIONS**

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Section 7.13.2.D.i.c(2) permits deviations from the strict interpretation of the Zoning Ordinance within a PRO agreement. These deviations must be accompanied by a finding by City Council that ***"each Zoning Ordinance provision sought to be deviated would, if the deviation were not granted, prohibit an enhancement of the development that would be in the public interest, and that approving the deviation would be consistent with the Master Plan and compatible with the surrounding areas."*** Such deviations must be considered by City Council, who will make a finding of whether to include those deviations in a proposed PRO agreement. A proposed PRO agreement would be considered by City Council only after tentative approval of the proposed concept plan and rezoning.

The Concept Plan submitted with an application for a rezoning with a PRO is not required to contain the same level of detail as a preliminary site plan. Staff has reviewed the applicant's Concept Plan in as much detail as possible to determine what deviations from the Zoning Ordinance are currently shown. The applicant may choose to revise the concept plan to better comply with the standards of the Zoning Ordinance, or may proceed with the plan as submitted with the understanding that those deviations would have to be approved by City Council in a proposed PRO agreement. **The applicant provided a request for certain deviations. However, it is not comprehensive. The applicant should refer to all review letters and identify what deviations they would seek and what they would revise the plan to conform.**

The following are deviations from the Zoning Ordinance and other applicable ordinances shown on the concept plan.

**STAFF SUPPORTED** (A total of 7)

1. Planning deviation from section 3.8.2.C for exceeding the maximum allowable length of buildings (180 feet, maximum allowed, a range of 185 feet to 295 feet proposed). **This is supported as the buildings meet the qualifying criteria for City Council's approval for this deviation per section 3.8.2.C.**
2. Planning Deviation from section 3.8.2.D for not meeting the minimum orientation for all buildings along an outer perimeter property line (45 degrees required, 0 degrees proposed); **All buildings are abutting non-residential districts and orientation is compatible to existing office development.**
3. Planning Deviation from section 5.16. for exceeding the maximum distance from the bike parking to entrance being served (120 ft. maximum required, varied distance greater than 120 ft. are proposed). **It is supported as the bike parking locations are suitably placed throughout the development.**
4. Planning Deviation from section 5.16. for not meeting the minimum width requirements for the access path to bike parking (six feet required, 5 feet proposed); **This is supported as the plan maintains a consistent five foot width for all internal sidewalks and because it is a residential development.**
5. Landscape deviation from Sec. 5.5.3.B.ii and iii for lack of berms between the site and the properties on the north, south and west. **This is supported as the existing woodlands and proposed landscaping provides sufficient screening.**
6. Landscape deviation from 5.5.3.F.ii 5.5.3.B.ii and iii for lack of required street trees along Haggerty road. **This is supported due to conflict with the existing overhead electrical lines and an underground gas line along Haggerty Road which make planting street trees impossible.**
7. Landscape deviation from 5.5.3.F.ii to allow the usage of sub-canopy trees for up to 25% of the required multifamily unit trees. **This is supported by staff due to the mix of trees proposed.**

**SUPPORTED BY STAFF WITH CONDITIONS** (A total of 11)

1. Planning Deviation from section 5.16. for lack of covered bike parking areas (25% of parking, 14 spaces should be covered when proposed parking exceeds 20, 0 spaces are covered); The applicant should provide reasons for not meeting this requirement;
2. Planning Deviation from section 3.1.8.D. for not meeting the minimum requirement for usable open space area. A minimum of 54,400 square feet is required. **The applicant should provide the right calculations to verify conformance. The response letter refers to an exhibit which is not included.**
3. Planning deviation from section 5.2.12.A & B for a 30% reduction in the minimum requirements for parking. A minimum of 619 spaces required, 433 proposed. **The current plan proposes a total of 433 spread across the site, including attached/detached garages and surface parking. Following comments are provided in this regard:**
  - a. The applicant also refers to additional 120 apron spaces in front of attached garages to count towards the minimum required. Apron spaces may provide additional guest parking for certain units with access to garage parking, but not necessarily required parking for others. Apron spaces are currently not counted towards minimum required parking. Provide information about if the apron spaces are reserved for people renting the garage. If yes, indicate how that will be enforced.

- b. Traffic review noted that approximately 9 spaces along the curb on the southwest corner of the site should be removed. This will further reduce the proposed parking.
  - c. **The applicant should provide a parking study or existing parking demand calculations from similar development in similar cities. Sheet C 2.1 justifies 571 parking spaces. The explanation should be provided for 433 spaces.**
4. Traffic deviation from section 5.10 for not meeting the minimum width requirements for a major road. A minimum of 28 feet required, 24 feet proposed. **This can be supported if appropriate traffic calming techniques along the major drive loops are proposed to encourage slower speeds.**
5. Traffic deviation from section 5.10 for allowing angled and perpendicular parking on a major drive; **On-street perpendicular parking is proposed on all major drives. This can be supported if appropriate traffic calming techniques along the major drive loops are proposed to encourage slower speeds.**
6. Traffic deviation from section 5.10 for not meeting the minimum requirements for major drive centerline radius. **A minimum centerline radius of 100 feet is required for Major Drives. Provide the radii proposed. This can be supported if appropriate traffic calming techniques along the major drive loops are proposed to encourage slower speeds.**
7. Planning deviation from section 5.7 is most likely required. A lighting and photometric plan is not provided at this time. **The applicant indicated that all requirement will be met at the time of site plan. Given the proximity to the adjacent property lines, it is recommended to provide a photometric plan at this time.**
8. Planning deviation from section 4.19.1.J for exceeding the maximum number of accessory buildings for properties more than 21, 780 square feet. **A maximum two can be proposed; six garages and 20 carports are proposed. The applicant should provide related information to verify conformance. This can be supported if the elevations comply with the Ordinance requirements or acceptable alternatives are proposed.**
9. A section 9 waiver for not meeting the minimum requirements for canopy is most likely required for the proposed carports. **The applicant should provide related information to verify conformance.**
10. Landscape deviation from 5.5.3.F.ii for deficiency in perimeter canopy trees along west sides of parking lots A and E. This is not supported. **That area should be widened and planted with perimeter trees that can serve as both interior drive and parking lot perimeter trees.**
11. Traffic deviation from figure IX.3 of the City's Code of Ordinances for not meeting the design standards for the entrance boulevard island. **The dimensions of the divided entrance are generally within the ranges provided in figure IX.3 of the City's Code of Ordinances. The island length dimension is not within the ranges in the figure and would require a variance if not revised to meet City standards.**

#### **SUBJECT TO THE COUNCIL DETERMINATION/PLANNING COMMISSION RECOMMENDATION**

*(A total of 3)*

1. Planning deviation from section 3.8.1.A.ii.b for exceeding the maximum percentage of one bedroom units. A maximum of 20% is allowed. 36% is proposed. **The applicant notes that it fits the target renters who would be young professionals. A market study is provided.**



2. Planning deviation from section 3.8.2.E for exceeding the maximum percentage of off-street parking, maneuvering lanes, service drives or loading areas within the side and rear yards. A maximum of 30% allowed, 41 % proposed. **The overage is a result of the proposed density. If council approves the density, the requirement for the parking is supported.**

3. Planning deviation from section 3.8.1.B for exceeding the maximum allowable number of rooms for this development. A maximum of 458 rooms is allowed, 734 rooms are proposed. **Staff provides the following comments:**

In the RM-2 district, total number of rooms dictates the maximum density that can be attained for a specific site. The current ordinance provides clear guidelines if the development contains only one type of bedroom units. This development proposes a mix of 1, 2 and 3 bedroom units. In RM-2 with unit less than four stories, maximum allowable rooms is calculated by taking the area of the parcel in square feet, divided by a factor of 2,000. For the subject parcel, the maximum number of rooms allowed for this property is 458 rooms (21.04 acres = 916, 502 sq. ft. / 2,000). In this case, the DUA does not define the development as much as the total number of rooms does. The table below lists the Ordinance maximum and proposed.

	Maximum Allowable	Proposed
<b>Dwelling Units Per Acre (DUA)</b>	8 *	13
<b>Total Number of Units</b>	165 *	272 (63% more)
<b>Total Number of Rooms</b>	458	734 (60 % more)
<b>% of 1 Bedroom Units</b>	20	36 (80% more)

\* This number is calculated based on the site acreage of 21.04 acres; the percentage of unit mix the applicant is proposing (36% 1 BR units, 56% 2 BR units and 8% 3 BR units). Please note that the total number of units may differ from 165 (and the corresponding density), if the percentage mix is revised.

**RM-2 would allow a maximum of 1309 rooms for this site size. It would also allow up to 5 story buildings. The applicant is proposing a less intense development for RM-2 zoning proposing only 45% of total number of rooms that would have been allowed for a RM-2 development. Due to the reduction of impacts to the regulated woodlands and changes to building design, staff is willing to support this deviation because**

- The development will be developed with the density and heights as shown on the PRO plan. They will be conditions of approval.
- There is a good mix of three vs four stories. From the internal courtyards, it appears to be a four story development.
- As the proposed building section clearly differentiates the four stories and three stories sections.
- Building department recommendation that the buildings with mixed height are considered four story for permit review purposes.
- This is also contingent on applicant providing a high-quality façades. The proposed elevations meet the requirements of the façade ordinance. Per our façade consultant, the buildings are well designed with interesting overall composition and high attention to detail.

All deviations from the ordinance requirements shall be identified and included in PRO Agreement. Any deviations identified during later reviews, after Concept Plan approval, will restart the PRO process.

The applicant shall also update narrative addressing ***“ each Zoning Ordinance provision sought to be deviated would, if the deviation were not granted, prohibit an enhancement of the development that would be in the public interest, and that approving the deviation would be consistent with the Master Plan and compatible with the surrounding areas.”***

**APPLICANT’S BURDEN UNDER PRO ORDINANCE**

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The Planned Rezoning Overlay ordinance (PRO) requires the applicant to demonstrate that certain requirements and standards are met. The applicant should be prepared to discuss these items, especially in number 1 below, where the ordinance suggests that the enhancement under the PRO request would be unlikely to be achieved or would not be assured without utilizing the Planned Rezoning Overlay. Section 7.13.2.D.ii states the following:

1. (Sec. 7.13.2.D.ii.a) Approval of the application shall accomplish, among other things, and as determined in the discretion of the City Council, the integration of the proposed land development project with the characteristics of the project area, and result in an enhancement of the project area as compared to the existing zoning, and such enhancement would be unlikely to be achieved or would not be assured in the absence of the use of a Planned Rezoning Overlay.
2. (Sec. 7.13.2.D.ii.b) Sufficient conditions shall be included on and in the PRO Plan and PRO Agreement on the basis of which the City Council concludes, in its discretion, that, as compared to the existing zoning and considering the site specific land use proposed by the applicant, it would be in the public interest to grant the Rezoning with Planned Rezoning Overlay; provided, in determining whether approval of a proposed application would be in the public interest, the benefits which would reasonably be expected to accrue from the proposal shall be balanced against, and be found to clearly outweigh the reasonably foreseeable detriments thereof, taking into consideration reasonably accepted planning, engineering, environmental and other principles, as presented to the City Council, following recommendation by the Planning Commission, and also taking into consideration the special knowledge and understanding of the City by the City Council and Planning Commission.

#### **PUBLIC INTEREST/ BENEFITS TO PUBLIC UNDER PRO ORDINANCE**

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Section 7.13.2.D.ii states that the City Council must determine that the proposed PRO rezoning would be in the public interest and the benefits to public of the proposed PRO rezoning would clearly outweigh the detriments. **The applicant provided Exhibit B along with the Planning Narrative which purports to identify the project benefits and the detriments. The list included nine items. Of them, eight appear to describe the prominent characteristics of the development, such as providing rental opportunities and adding to the tax base, etc. While these can be perceived as positive subsequent features of the development, they do not provide any measurable benefits to the public, and are not the sorts of things that the ordinance contemplates when it talks about benefits to the public.**

The one substantive benefit that appears to fit what the ordinance does contemplate is listed below.

*"We will complete the sidewalk connections in the Haggerty Corridor Corporate Park, as shown on the map exhibit, to ensure that the Master Plan goal of providing non-motorized connectivity is met;"*

The Concept plan proposes to fill two off-site gaps totaling 600 feet as a benefit to the public. This completes the sidewalk loop between Lewis Drive, Cabot Drive Twelve Mile Road and Haggerty Road. The applicant indicated that they would be responsible for design and construction. Right-of-way acquisition is also required for these locations.

The applicant should consider a sidewalk connection from the west side of the property to the Cabot Drive sidewalk through the ITC corridor. This would connect the proposed residential development to the adjacent office development, which was previously indicated as a likely possibility that employees of the adjacent business park would choose to live in the proposed residential development

**Again, this is a PRO in which the applicant seeks both a rezoning and a significant list of ordinance deviations. The benefits to the City beyond the sort of "tax base" increase/property utilization that any viable development would result in are not clear at this point—particularly given the extensive environmental impacts of such a high-density project.**

**The applicant should also indicate the timeline for completion of this benefit. Staff recommends that it is completed prior to occupancy.**

#### **NEXT STEP: PLANNING COMMISSION MEETING**

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The current submittal is not ready for Planning Commission's public hearing. However, based on the applicant's request, the plan is scheduled for a public hearing on March 25. Planning and Wetland reviews are currently not recommending approval. Landscape is recommending conditional approval. Please provide the following no later than March 16, 2020 for reconsideration:

1. Plans in PDF format as submitted without any changes made.
2. A response letter addressing all the comments from ALL the reviews.
3. Refer to recommendation on page 2 for additional information requested prior to March 10, 2020.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5607 or [skomaragiri@cityofnovi.org](mailto:skomaragiri@cityofnovi.org)



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Sri Ravali Komaragiri – Planner



## PLANNING REVIEW CHART: RM-2

**Review Date:** February 25, 2020  
**Review Type:** PRO Concept Plan: 2<sup>nd</sup> Revision  
**Project Name:** **JSP 19-24 NOVAPLEX 2019**  
**Plan Date:** January 13, 2020  
**Prepared by:** Sri Komaragiri, Planner  
**E-mail:** skomaragiri@cityofnovi.org; **Phone:** (248) 735-5607

**Bold** To be addressed before Planning Commission public hearing for PRO Concept  
Underline To be addressed with Preliminary Site Plan submittal  
**Bold and Underline** Possible deviations to be included as part of PRO agreement  
*Italics* Notes to be noted

Item	Required Code	Proposed	Meets Code	Comments
<b>Zoning and Use Requirements</b>				
<b>Master Plan</b> <i>(adopted July 26, 2017)</i>	Office research development and technology	10 residential buildings with 272 units and a clubhouse	No	<ul style="list-style-type: none"> <li>- <b>The proposed rezoning is not supported by the Master Plan. The plan requires Master Planning and Rezoning Committee input.</b></li> <li>- <b>Planning Commission recommendation &amp; City Council approval PRO Concept Plan</b></li> <li>- <b>City Council approval</b></li> <li>- <b>PRO agreement</b></li> <li>- <b>Site Plan or Plat normal approval process</b></li> </ul>
<b>Area Study</b>	The site does not fall under any special category	NA	NA	
<b>Zoning</b> <i>(Effective December 25, 2013)</i>	OST Office Service and Technology	RM-2 High-density Multiple Family	No	
<b>Uses Permitted</b> (Sec 3.1.21.B & C)	Office and Service Uses Sec. 3.1.21.B. - Principal Uses Permitted. Sec. 3.1.21.C. - Special Land Uses Permitted.	Sec. 3.1.8. Multi-Family Residential	No	<b>The proposed rezoning category would allow Multi-family uses.</b>
<b>Phasing</b>		Phasing is not proposed Building construction is proposed to be staggered.	NA	<p><b>The proposed phasing does not indicate a clear timeline. It is an open ended schedule that is directed by the market demand. The residents may have to deal with the construction for an uncertain time period. Please provide further clarification on Phasing with re: timeline, façade, parking etc.</b></p> <p><b>The applicant can consider phasing the units and parking improvements to the</b></p>

Item	Required Code	Proposed	Meets Code	Comments
				west to avoid woodland removals unless needed.
<b>Planned Rezoning Overlay Document Requirements (SDM link: <a href="#">Site development Manual</a>)</b>				
<b>Written Statement</b> <i>(Site Development Manual)</i>  The statement should describe the following	Potential development under the proposed zoning and current zoning	Provided with the last submittal	Yes	Refer to Planning review letter for related comments
	Identified benefit(s) of the development	Provided with the last submittal	Yes	Refer to Planning review letter for related comments
	Conditions proposed for inclusion in the PRO Agreement (i.e., Zoning Ordinance deviations, limitation on total units, etc)	Conditions are currently not identified in the narrative	Yes?	Staff will work with the applicant to identify the conditions as the review progresses.
<b>Sign Location Plan</b> <i>(Page 23,SDM)</i>	Installed within 15 days prior to public hearing Located along all road frontages	Submitted with the last submittal	Yes	Please change OST to RM-2 to 'OST to RM-2 with a PRO'. Location and other text are acceptable.
<b>Traffic Impact Study</b> <i>(Site development manual)</i>	A Traffic Impact Study as required by the City of Novi Site Plan and Development Manual.	Provided with the last submittal	Yes	Refer to Traffic review letter for related comments
<b>Community Impact Statement</b> <i>(Sec. 2.2)</i>	<ul style="list-style-type: none"> <li>- Over 30 acres for permitted non-residential projects</li> <li>- Over 10 acres in size for a special land use</li> <li>- All residential projects with more than 150 units</li> <li>- A mixed-use development, staff shall determine</li> </ul>	All residential projects with more than 150 units.  A Community Impact statement is provided with the last submittal	Yes	Refer to Planning review letter for related comments
<b>Market Study</b>	The applicant submitted a Market study to provide a market demand analysis for the proposed project.	Submitted with the last submittal  The analysis reviewed multiple family use vs flex office space. The analysis is drawn from existing market conditions and future market absorption potential	Yes?	The current zoning allows for office space. The report summarizes that there is more demand for housing than office space at this location, due to projected growth at Haggerty Corridor Park and other areas zoned for office.  Refer to Planning review letter for related comments
<b>Height, bulk, density and area limitations (Sec 3.1.8.D)</b>				

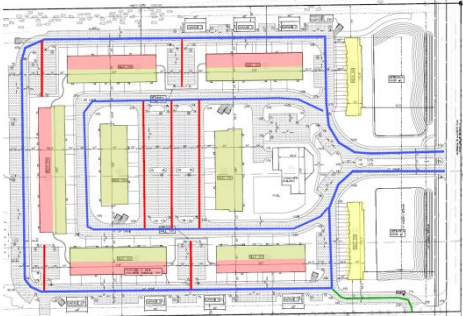
Item	Required Code	Proposed	Meets Code	Comments	
<b>Frontage on a Public Street.</b> (Sec. 5.12)	Frontage on a Public Street is required	The site has frontage and access to Haggerty Road	Yes		
<b>Minimum Zoning Lot Size for each Unit:</b> in Acres (Sec 3.8.1)	RM-1 and RM-2 Required Conditions				
<b>Minimum Zoning Lot Size for each Unit:</b> Width in Feet (Sec 3.8.1)					
<b><u>Usable Open Space Area</u></b> (Sec 3.1.8.D) Article 2: Definitions	200 sf of Minimum usable open space per dwelling unit For a total of 272 dwelling units, <u>required Open Space:54,400 SF</u>  <u>Refer to definitions for Usable Open Space and Open Space</u>	The concept plan proposes a clubhouse and pool. The clubhouse, pool and open space in that block appears to be 24,000 SF  Proposed elevations indicate balconies.	Yes?	<b>C 3.0 indicates the 3.7 acres of open space, which does not fit with the definition of usable open space.</b>  Refer to definition of usable open space. The usable open spaces are supposed to be designed and intended for the private recreational use of residents of the building. They should be directly accessible by means of common passageway.	
<b>Maximum % of Lot Area Covered</b> (By All Buildings)	45%	11.93 %	Yes		
<b>Building Height</b> (Sec. 3.20)	65 ft. or 5 stories whichever is less	3 stories and 4 stories	Yes	Refer to Planning Review letter for interpretation and comments	
<b>Minimum Floor Area per Unit</b> (Sec. 3.1.8.D)	Efficiency	400 sq. ft.	Not proposed	NA	List the proposed minimum building floor area on layout plan under Site Data
	1 bedroom	500 sq. ft.	720 f	Yes	
	2 bedroom	750 sq. ft.	1000 – 1200 sq. ft.	Yes	
	3 bedroom	900 sq. ft.	1470 to 1670 sq. ft.	Yes	
	4 bedroom	1,000 sq. ft.	Not Proposed	NA	
<b><u>Maximum Dwelling Unit Density/Net Site Area</u></b> (Sec. 3.1.8.D) Per Sec. 3.8.2.B, all buildings less than four stories should comply with RM-1 regulations for	Efficiency	Max 10%	Not proposed	No	Densities and room count differ based on number of stories for the development.  Even though, 1 BR units are under the maximum density, they exceed the maximum percentage of units.
	1 bedroom	31.1 Max 20 % for buildings less than 4 stories	Proposed 98 1 bed room units  36 % 1 Bedroom Units 4.66 DUA		
	2 bedroom	20.7	150 2-br units proposed 7.13 DUA		

Item	Required Code	Proposed	Meets Code	Comments
<i>limits on percent of 1 bedroom units and number of rooms.</i>	3+ bedroom	15.8	22 3-br units proposed 1.14 DUA	
<b>Residential Building Setbacks (Sec 3.1.8.D)</b>				
Front @ Haggerty Road	75 ft. (Sec. 3.6.B)	All building setback 75 feet from all sides	Yes	
Rear West	75 ft.			
Side North	75 ft.			
Side South	75 ft.			
<b>Parking Setback (Sec 3.1.8.D) (Sec 3.1.12.D) Refer to applicable notes in Sec 3.6.2</b>				
Front (3.6.2.B)	75 ft.	A minimum of 20 ft. on all sides.	Yes	<b>Parking is provided on street and a few in garage</b>
Rear (3.6.2.B)	20 ft.		Yes	
Side (3.6.2.B)	20 ft.		Yes	
<b>Note To District Standards (Sec 3.6.2)</b>				
<b>Exterior Side Yard Abutting a Street (Sec 3.6.2.C)</b>	All exterior side yards abutting a street shall be provided with a setback equal to front yard.	No exterior side yards	NA	
<b>Off-Street Parking in Front Yard (Sec 3.6.2.E)</b>	Off-street parking is allowed in front yard	Parking is not proposed in the front yard	NA	
<b>Distance between buildings (Sec 3.6.2.H)</b>	It is governed by sec. 3.8.2 or by the minimum setback requirements, whichever is greater	RM-2 code has additional requirements for distance between buildings.	No	<b>See Comments later in the review</b>
<b>Wetland/Watercourse Setback (Sec 3.6.2.M)</b>	A setback of 25ft from wetlands and from high watermark course shall be maintained	Wetlands exist on south and west side of the site. minimal impacts are proposed		<b>The Plan does not include all of the Wetland A area as determined by MDEQ's Wetland Identification Review (letter dated July 5, 2018). Refer to wetland review letter for more detail</b>
<b>Parking setback screening (Sec 3.6.2.P)</b>	Required parking setback area shall be landscaped per sec 5.5.3.	Screening is provided, but parking lot perimeter trees are deficient	No	<b>Refer to landscape review for more comments</b>
<b>Modification of parking setback requirements (Sec 3.6.2.Q)</b>	The Planning Commission may modify parking setback requirements based on its determination according to Sec 3.6.2.Q	None required	NA	
<b>RM-1 and RM-2 Required Conditions (Sec 3.8)&amp; (Sec 3.10)</b>				
<b>Total number of rooms</b>	For RM-2 building less than four stories, RM-1	After reviewing the definitions for story and	No	<b>Densities, room count and maximum number of</b>

Item	Required Code	Proposed	Meets Code	Comments	
(Sec. 3.8.1.B)	<p>regulations apply; Total No. of rooms &lt; Net site area in SF/2000</p> <p>For RM-2 buildings, four or more: Total No. of rooms &lt; Net site area in SF/700</p> <p><b>Total number of rooms allowed for 3 story development: 458</b></p> <p><i>FYI_Total number of rooms allowed for 4-story development: 1309</i></p>	<p>basement, staff made a determination that the proposed development contains 3 story buildings.</p> <p><b>Total number of rooms proposed:734</b></p>		<p><b>Units differ based on number of stories for the development</b></p> <p><a href="#">This is considered a deviation.</a></p>	
<b>Public Utilities</b> (Sec. 3.8.1)	All public utilities should be available	All public utilities are available	Yes	<b>Refer to Engineering review and the memo for more details</b>	
<b>Maximum Number of Units</b> (Sec. 3.8.1.A.ii)  <i>Applicable for RM-1 building and RM-2 buildings less than four stories</i>	Efficiency < 5 percent of the units	Not Proposed	NA	<a href="#">This is considered a deviation for exceeding the maximum allowable percentage of one bedroom units</a>	
	1 bedroom units < 20 percent of the units	<b>36.3%</b>	<b>No</b>		
	Balance should be at least 2 bedroom units	Proposed	Yes		
<b>Room Count per Dwelling Unit Size</b> (Sec. 3.8.1.C) <i>*An extra room such as den count towards an extra room</i>	<b>Dwelling Unit Size</b>	<b>Room Count *</b>	No	<b>Floorplans are provided. The plans indicate a large area for both living/dining.</b>	
	Efficiency	1			Not proposed
	1 bedroom	2			2
	2 bedroom	3			3
	3 or more bedrooms	4			4
<i>For the purpose of determining lot area requirements and density in a multiple-family district, a room is a living room, dining room or bedroom, equal to at least eighty (80) square feet in area. A room shall not include the area in kitchen, sanitary facilities, utility provisions, corridors, hallways, and storage. Plans presented showing one (1), two (2), or three (3) bedroom units and including a "den," "library," or other extra room shall count such extra room as a bedroom for the purpose of computing density.</i>					
<b>Setback along natural shore line</b> (Sec. 3.8.2.A)	A minimum of 150 feet along natural shore line is required.	No natural shore line exists within the property	NA		
<b>Structure frontage</b> (Sec. 3.8.2.B)	Each structure in the dwelling group shall front either on a dedicated public street or approved private drive built per City standards.	Proposed Private Drive	Yes	<b>Proposed drive does not currently meet the requirements for private drive for multiple family developments per section 5.10. Subject to City Council approval</b>	



Item	Required Code	Proposed	Meets Code	Comments
<a href="#">Maximum length of the buildings</a> (Sec. 3.8.2.C)	A single building or a group of attached buildings cannot exceed 180 ft.	Most of the buildings exceed 180 ft.	No	<a href="#">This is considered a deviation</a>
<a href="#">Modification of maximum length</a> (Sec. 3.8.2.C)	Planning Commission may modify the extra length up to 360 ft. if		No	Buildings exceed 180 feet, but meet the qualifying criteria for City Council's approval for this deviation
	Common areas with a minimum capacity of 50 persons for recreation or social purposes	Not applicable		
	Additional setback of 1 ft. for every 3 ft. in excess of 180 ft. from all property lines abutting a residential district or major thoroughfare	Does not abut residential district  163 feet setback from Haggerty Road		
<a href="#">Building Orientation</a> (Sec. 3.8.2.D)	Where any multiple dwelling structure and/ or accessory structure is located <u>along an outer perimeter property line adjacent to another residential or nonresidential district</u> , said structure shall be oriented at a minimum angle of forty-five (45) degrees to said property line.	Buildings and Accessory structures (Carport and Garages) orientation do not meet the minimum requirement for all buildings	No	<a href="#">This is considered a deviation</a>
<a href="#">Yard setback restrictions</a> (Sec. 3.8.2.E)	Within any front, side or rear yard, <u>off-street parking, maneuvering lanes, service drives or loading areas</u> cannot exceed 30% of yard area	Parking is provided in the required side yards. 41 %	No	<a href="#">This is considered a deviation</a>  Footprint is reduced compared to original layout. It appears that the proposed number 41% may have been reduced. Please check and confirm.
<b>Off-Street Parking or related drives</b> (Sec. 3.8.2.F)  Off-street parking and related drives shall be	No closer than 25 ft. to any wall of a dwelling structure that contains openings involving living areas or	25 ft. minimum	Yes	Drive aprons are not subject to this requirements
	No closer than 8 ft. for other walls or	Appears to comply	Yes	
	No closer than 20 ft. from ROW and property line	Minimum of 20 ft. is maintained	Yes	
<b>Pedestrian Connectivity</b> (Sec. 3.8.2.G)	5 feet sidewalks on both sides of the Private drive are required to permit safe and convenient pedestrian	Appears to comply	Yes	

Item	Required Code	Proposed	Meets Code	Comments
	access.			
	Where feasible sidewalks shall be connected to other pedestrian features abutting the site.	Provides connectivity to Haggerty Road	Yes	
	All sidewalks shall comply with barrier free design standards	A note has been added	Yes	
<b>Minimum Distance between the buildings</b> (Sec. 3.8.2.H)	(Total length of building A + total length of building B + 2(height of building + height of building B))/6	Appear to comply	Yes?	<b>Please provide a minimum distance table to verify the distances. Refer to Planning review letter for more details.</b>
<b>Minimum Distance between the buildings</b> (Sec. 3.8.2.H)	In no instance shall this distance be less than thirty (30) feet unless there is a corner-to-corner relationship in which case the minimum distance shall be fifteen (15) feet.	Buildings are setback by at least 30 ft. from each other	Yes	
<b>5.10 Additional Road Design, Building Setback, And Parking Setback Requirements, Multiple-Family Uses</b>				
<u>Road standards</u> (Sec. 5.10)	A private drive network within a cluster, two -family, multiple-family, or non-residential uses and developments shall be built to City of Novi Design and Construction Standards for local street standards (twenty-eight (28) feet back-to-back width	It appears that the proposed layout does not comply with multiple requirements of this section.  All drives in the development are considered Major Drives	No	
For the purpose of this review, staff categorized the drives as follows: 1. Major Drive: Blue line 2. Minor Drive: Green line 3. Parking Drives: Red line				
<u>Major Drives</u>	- Width: 28 feet -	<b>Outer loop major drive is 24 feet wide</b> Inner loop is 28 feet wide Parking drives are 24 feet wide	No	<b>Bolded items do not meet the code.</b>  <u><a href="#">This is considered a deviation</a></u>

Item	Required Code	Proposed	Meets Code	Comments
Minor Drive	<ul style="list-style-type: none"> <li>- Cannot exceed 600 feet</li> <li>- Width: 24 feet with no on-street parking</li> <li>- Width: 28 feet with parking on one side</li> <li>- Parking on two sides is not allowed</li> <li>- Needs turn-around if longer than 150 feet</li> </ul>	Meets the requirements	Yes	
<a href="#">Parking on Major and Minor Drives</a>	<ul style="list-style-type: none"> <li>- Angled and perpendicular parking, permitted on minor drive, but not from a major drive;</li> <li>- minimum centerline radius: 100 feet</li> <li>- Adjacent parking and on-street parking shall be limited near curves with less than two-hundred thirty (230) feet of centerline radius</li> </ul>	<p><b>On-street perpendicular/parallel parking is proposed on all Major Drives</b></p> <p><b>Minimum centerline radius is not provided</b></p>	No	<p><b>Bolded items do not meet the code.</b></p> <p><u><b>This is considered a deviation</b></u></p>
<b>Driveways, Parking, Loading and Dumpster Requirements</b>				
<a href="#">Number of Parking Spaces</a> (Sec.5.2.12.A & B)	<p>For 2 or less bedroom units:2 spaces each</p> <p>For 3 or more bedroom units: 2 ½ spaces each</p> <p>For 98-1 BR units: 196 spaces</p> <p>150-2 BR units: 300 spaces</p> <p>For 22- 3 bedroom units: 55 spaces</p> <p><b>Private Clubs</b></p> <p>One (1) for each four (4) member families:68 spaces</p> <p><b>TOTAL: 619 spaces</b></p>	<p>Attached Garages: 120</p> <p>Detached Garages: 31</p> <p>Carports/Surface: 282</p> <p>TOTAL PROPOSED (not including 120 Apron spaces): 433</p>	Yes?	<p><b>Apron spaces may provide additional guest parking for certain units with access to garage parking, but not necessarily required parking for others.</b></p> <p><u><b>This is considered a deviation. Additional information is required to justify the reduction in parking proposed. Refer to Traffic review for more details.</b></u></p>
<b>Landbank Parking</b> (Sec.5. 2.14)	Maximum number of Landbank spaces: 25% of required parking	Not proposed	NA	
<b>Parking Space Dimensions and Maneuvering Lanes</b> (Sec. 5.3.2)	<ul style="list-style-type: none"> <li>- 90° Parking: 9 ft. x 19 ft.</li> <li>- 24 ft. two way drives</li> <li>- 9 ft. x 17 ft. parking spaces allowed along 7 ft. wide interior sidewalks as long as detail indicates a 4" curb at these locations and</li> </ul>	<ul style="list-style-type: none"> <li>- 24 ft. two way drives</li> <li>- 9 ft. x 17 ft. parking spaces with buffer or sidewalk as required</li> </ul>	Yes?	<b>Refer to Traffic comments on parking depth</b>

Item	Required Code	Proposed	Meets Code	Comments
	along landscaping			
<b>Parking stall located adjacent to a parking lot entrance</b> (public or private) (Sec. 5.3.13)	- shall not be located closer than twenty-five (25) feet from the street right-of-way (ROW) line, street easement or sidewalk, whichever is closer	Not applicable	NA	
<b>End Islands</b> (Sec. 5.3.12)	- End Islands with landscaping and raised curbs are required at the end of all parking bays that abut traffic circulation aisles. - The end islands shall generally be at least 8 feet wide, have an outside radius of 15 feet, and be constructed 3' shorter than the adjacent parking stall as illustrated in the Zoning Ordinance	End Islands are proposed wherever applicable	Yes	<b>Include dimensions on the plan. Refer to Traffic comments.</b>  <u>All parking end islands must be three feet shorter than the adjacent parking space.</u>
<b>Barrier Free Spaces</b> <i>Barrier Free Code</i>	To be determined once minimum required spaces for the clubhouse are determined	13 handicap spaces are proposed at multiple locations. Two are provided near the club house	Yes	
<b>Barrier Free Space Dimensions</b> <i>Barrier Free Code</i>	- 8' wide with an 8' wide access aisle for van accessible spaces - 5' wide with a 5' wide access aisle for regular accessible spaces	All are van accessible	Yes	
<b>Barrier Free Signs</b> <i>Barrier Free Code</i>	One sign for each accessible parking space.	Signs proposed	Yes	
<b>Minimum number of Bicycle Parking</b> (Sec. 5.16.1)	One (1) space for each five (5) dwelling units  For 272 units, 54 bike spaces are required  10% of total parking for clubhouse: 7 spaces	67 spaces provided	Yes	<u>Include, count, location, type and layout</u>
<b><u>Bicycle Parking General requirements</u></b> (Sec. 5.16)	- No farther than 120 ft. from the entrance being served - When 4 or more spaces are required for a building with multiple entrances, the spaces shall be provided in multiple locations	The bike racks are not shown on the plan, but are noted to be located at 11 different locations including the clubhouse.	No	<b><u>This is considered a deviation</u></b> <b>Two deviations are required:</b> <b>1. To allow 5 feet sidewalk in lieu of 6 feet</b> <b>2. Locations to be farther away than 120</b>

Item	Required Code	Proposed	Meets Code	Comments
	- Spaces to be paved and the bike rack shall be inverted "U" design - Shall be accessible via 6 ft. paved sidewalk			
<b>Bicycle Parking Lot layout</b> (Sec 5.16.6)	Parking space width: 6 ft. One tier width: 10 ft. Two tier width: 16 ft. Maneuvering lane width: 4 ft. Parking space depth: 2 ft. single, 2 ½ ft. double	Not provided	No	<u>Provide the bike layout plan as required at the time of final site plan. It should meet the requirements.</u>
<b>Loading Spaces</b> Sec. 5.4.1	For RM-2, there is no standard loading area required	It appears that there is a loading dock proposed to the west for the clubhouse	Yes	
<u>Exterior lighting</u> <u>Sec. 5.7</u>	Photometric plan and exterior lighting details needed at time of Final Site Plan submittal	A lighting and photometric plan is not provided at this time	No	Given the proximity to the adjacent property lines, it is unclear if the light levels can be maintained under Ordinance maximum. <b>A lighting and a photometric plan is required with the next submittal. The plans are expected to conform to the code.</b>
<b>Accessory Use (Sec. 4.19)</b>				
<b>Accessory Buildings</b>  Sec. 2.2. Definitions	Any structure, either temporary or permanent, having a roof supported by columns or walls, and intended for the shelter, or enclosure of persons, animals, chattels, or property of any kind.	Proposed Garages and carports are subject these requirements	Yes	
<b>Location: Accessory Building</b> Sec. 4.19.1.B	They shall not be erected in any required front yard or in any required exterior side yard.	Proposed in rear yard and interior side yard	Yes	
<b>Setbacks: Detached Accessory Building</b> Sec. 4.19.1.G	- It shall not be located closer than ten (10) feet to any main building - It shall not be located closer than six (6) feet to any interior side lot or rear lot line.	Carports: 40 feet minimum Garages: 36 feet minimum	Yes	<b>The applicant should consider the proposed setbacks as a condition of approval.</b>
<b>Height: Detached Accessory Building</b> Sec. 4.19.1.G	The height equal to the maximum permitted height of the district; provided, if the accessory building exceeds	Proposed structures comply with this requirement	Yes	

Item	Required Code	Proposed	Meets Code	Comments
	one (1) story or fourteen (14) feet in height, the building shall be set back one (1) foot for each foot the building exceeds fourteen (14) feet in height.			
<a href="#">Façade requirements for Accessory building in excess of 200 sf</a> Sec. 4.19.1.L	<ul style="list-style-type: none"> <li>- materials and architecture shall be compatible with the principal structure,</li> <li>- shall have a minimum roof pitch of 3/12 and overhangs of no less than six (6) inches.</li> </ul>	Garages:28 Carports: Elevations not provided	No	Proposed materials for the garages do not comply with the requirements. Please refer to Façade review for more comments.  Carport elevations are expected to meet the Ordinance requirement, if relevant information is not provided now.
<b>Maximum Total Floor Area</b> Sec. 4.19.1.C	The total floor area of all accessory buildings shall not occupy more than Twenty-five (25) percent of any required rear yard.	Appears to comply	Yes	
<a href="#">Maximum number of Accessory buildings</a> Sec. 4.19.1.J	Lots less than 21,780 SF: 1 Lots more than 21,780 SF: 2	Garages: 6 Carports: 20	No	Staff can support the deviation for overage if the materials comply with Ordinance requirements. Refer to façade review for more details
<b>Dumpster</b> Sec 4.19.2.F	<ul style="list-style-type: none"> <li>- Located in rear yard</li> <li>- Attached to the building or</li> <li>- No closer than 10 ft. from building if not attached</li> <li>- Not located in parking setback</li> <li>- If no setback, then it cannot be any closer than 10 ft., from property line.</li> <li>- Away from Barrier free Spaces</li> </ul>	Dumpsters are located at six different locations All are detached Farther than 10 ft.	Yes	<b>Dual dumpsters can be place in a single enclosure. Placement should be reconsidered to allow for easy maneuvering and pick-up. Refer to Traffic review for concerns with dumpster truck maneuvering.</b>

Item	Required Code	Proposed	Meets Code	Comments
<b>Dumpster Enclosure</b> <i>Sec. 21-145. (c) Chapter 21 of City Code of Ordinances</i>	<ul style="list-style-type: none"> <li>- Screened from public view</li> <li>- A wall or fence 1 ft. higher than height of refuse bin</li> <li>- And no less than 5 ft. on three sides</li> <li>- Posts or bumpers to protect the screening</li> <li>- Hard surface pad.</li> <li>- Screening Materials: Masonry, wood or evergreen shrubbery</li> </ul>	Unable to determine.	Yes?	<u>Provide additional information that conforms to the code at the time of Preliminary site plan or provide information now if additional deviations are requested.</u>
<b>Roof top equipment and wall mounted utility equipment</b> <i>Sec. 4.19.2.E.ii</i>	All roof top equipment must be screened and all wall mounted utility equipment must be enclosed and integrated into the design and color of the building	Unable to determine.	Yes?	<u>If information is not provided at this time, it is expected to comply at the time of Preliminary site plan review.</u>
<b>Roof top appurtenances screening</b>	Roof top appurtenances shall be screened in accordance with applicable facade regulations, and shall not be visible from any street, road or adjacent property.	Unable to determine.	Yes?	<u>If information is not provided at this time, it is expected to comply at the time of Preliminary site plan review.</u>
<b>Accessory Structures</b> <i>(Sec. 4.19.2)</i>	<p>Anything constructed or erected, the use of which requires location on the ground or attachment to something having location on the ground.</p> <p><b>Flagpoles, solar structures, transformers and utility boxes</b></p>	Carports and garages are proposed	NA	<p><u>Contact Planning department for relevant permits if any accessory structures are proposed</u></p> <p><u>Any future proposed structures are expected to comply with the requirements if not approved as part of the PRO plan</u></p>
<b>Sidewalks</b>				
<b>Non-Motorized Plan</b>	Proposed Off-Road Trails and Neighborhood Connector Pathways. No trails proposed in the vicinity	Applicant is proposing to build off-site sidewalks to provide connectivity to Haggerty Corridor Park	Yes	<b>Refer to Plan review letter for more comments</b>
<b>Internal Sidewalks</b> <i>Sec. 3.8.2.G</i>	Five foot sidewalks required on both sides of internal public or private drives	<p>Sidewalk provided on both sides for most part. Unit 5 and 6 doesn't access to sidewalks.</p> <p>No sidewalk east of Building 2 near the parking spaces</p>	No	<p><b><u>This could be a deviation</u></b></p> <p><b>There is no buffer/green space proposed between the sidewalks and the driveways. The applicant could consider wider sidewalks for safety and to allow for usable</b></p>

Item	Required Code	Proposed	Meets Code	Comments
				space in case of snow piled on the side of the roads.
<b>Public Sidewalks</b> (Chapter 11, Sec.11-276(b))	A 6 foot sidewalk is required along Haggerty Road	Sidewalk proposed along Haggerty Road	Yes	<b>Label the width of the sidewalk. Potential conflicts with existing utility lines.</b>
<b>Other Requirements</b>				
<b>Residential Entryway lighting</b> Sec. 5.7	One street light is required per entrance.	Not provided at this time	No	
<b>Design and Construction Standards Manual</b>	Land description, Sidwell number (metes and bounds for acreage parcel, lot number(s), Liber, and page for subdivisions).	Provided	Yes	
<b>General layout and dimension of proposed physical improvements</b>	Location of all existing and proposed buildings, proposed building heights, building layouts, (floor area in square feet), location of proposed parking and parking layout, streets and drives, and indicate square footage of pavement area (indicate public or private).	Additional information is requested in this other review letters to verify conformance	No	<b>Please provide additional information as requested</b>
<b>Economic Impact</b>	- Total cost of the proposed building & site improvements - Number of anticipated jobs created (during construction & after building is occupied, if known)	Community Impact statement provided, which addresses these questions.	Yes	
<b>Other Permits and Approvals</b>				
<b>Development/ Business Sign</b> (City Code Sec 28.3)  <i>Sign permit applications may be reviewed as part of Preliminary Site Plan or separately for Building Office review.</i>	Signage if proposed requires a permit. It can be reviewed at the time of Preliminary site plan or after site plan approval	Signage is not proposed at this time.	Yes?	<u><a href="#">For sign permit information contact ordinance at 248-735-5678</a></u>
<b>Development and Street Names</b>	Development and street names must be approved by the Street Naming	The project received Project name approval.	Yes	



Item	Required Code	Proposed	Meets Code	Comments
	Committee before Preliminary Site Plan approval	It requires street name approval		
<b>Property Split or Combination</b>	The proposed property split must be submitted to the Assessing Department for approval.	Three parcels are supposed to be combined	NA	The parcel combination should be completed prior to final stamping set approval.
<b>Other Legal Requirements</b>				
<b>PRO Agreement (Sec. 7.13.2.D(3))</b>	A PRO Agreement shall be prepared by the City Attorney and the applicant (or designee) and approved by the City Council, and which shall incorporate the PRO Plan and set forth the PRO Conditions and conditions imposed	Not applicable at this moment	NA	<u>PRO Agreement shall be approved by the City Council after the Concept Plan is tentatively approved</u>
<b>Master Deed/Covenants and Restrictions</b>	Applicant is required to submit this information for review with the Final Site Plan submittal	Not applicable at this moment	NA	<u>If one is proposed, then a Master Deed draft shall be submitted prior to Stamping Set approval.</u>
<b>Conservation easements</b>	Conservation easements may be required for woodland impacts	Not applicable at this moment	NA	<u>The following documents will be required during Site Plan review process after the Concept PRO approval</u>
<b>Lighting and Photometric Plan (Sec. 5.7)</b>				
<b>Intent (Sec. 5.7.1)</b>	Establish appropriate minimum levels, prevent unnecessary glare, reduce spillover onto adjacent properties & reduce unnecessary transmission of light into the night sky	Not provided at this time		<b>A lighting and photometric plan is typically required during site plan review. But given the intensity of the development, we recommend providing one with the Concept Plan submittal</b>
<b>Lighting Plan (Sec. 5.7.A.i)</b>	Site plan showing location of all existing & proposed buildings, landscaping, streets, drives, parking areas & exterior lighting fixtures			
<b>Building Lighting (Sec. 5.7.2.A.iii)</b>	Relevant building elevation drawings showing all fixtures, the portions of the walls to be illuminated, illuminance levels of walls and the aiming points of any remote fixtures.			

Item	Required Code	Proposed	Meets Code	Comments
<b>Lighting Plan</b> (Sec. 5.7.2.A.ii)	Specifications for all proposed & existing lighting fixtures			
	Photometric data			
	Fixture height			
	Mounting & design			
	Glare control devices (Also see Sec. 5.7.3.D)			
	Type & color rendition of lamps			
	Hours of operation			
	Photometric plan illustrating all light sources that impact the subject site, including spill-over information from neighboring properties			
<b>Required Conditions</b> (Sec. 5.7.3.A)	Height not to exceed maximum height of zoning district (or 25 ft. where adjacent to residential districts or uses)			
<b>Required Conditions</b> (Sec. 5.7.3.B)	<ul style="list-style-type: none"> <li>- Electrical service to light fixtures shall be placed underground</li> <li>- Flashing light shall not be permitted</li> <li>- Only necessary lighting for security purposes &amp; limited operations shall be permitted after a site's hours of operation</li> </ul>			
<b>Security Lighting</b> (Sec. 5.7.3.H)  Lighting for security purposes shall be directed only onto the area to be secured.	<ul style="list-style-type: none"> <li>- All fixtures shall be located, shielded and aimed at the areas to be secured.</li> <li>- Fixtures mounted on the building and designed to illuminate the facade are preferred</li> </ul>			
<b>Required Conditions</b> (Sec. 5.7.3.E)	Average light level of the surface being lit to the lowest light of the surface being lit shall not exceed 4:1			
<b>Required Conditions</b> (Sec. 5.7.3.F)	Use of true color rendering lamps such as metal halide is preferred over high & low pressure sodium lamps			
<b>Min. Illumination</b> (Sec. 5.7.3.k)	Parking areas: 0.2 min			
	Loading & unloading areas: 0.4 min			

Item	Required Code	Proposed	Meets Code	Comments
	Walkways: 0.2 min			
	Building entrances, frequent use: 1.0 min			
	Building entrances, infrequent use: 0.2 min			
<b>Max. Illumination adjacent to Non-Residential</b> (Sec. 5.7.3.K)	When site abuts a non-residential district, maximum illumination at the property line shall not exceed 1 foot candle			
<b>Cut off Angles</b> (Sec. 5.7.3.L)	when adjacent to residential districts - All cut off angles of fixtures must be 90° - maximum illumination at the property line shall not exceed 0.5 foot candle			

**NOTES:**

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. Please refer to those sections in Article 3, 4 and 5 of the zoning ordinance for further details
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

## ENGINEERING REVIEW

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# PLAN REVIEW CENTER REPORT

February 25, 2020

**Engineering Review**  
Novaplex PRO Concept  
JZ19-0037

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## **Applicant**

BC Novaplex LLC

## **Review Type**

Revised PRO Concept Plan

## **Property Characteristics**

- Site Location: West side of Haggerty Road, between Twelve Mile Road and Thirteen Mile Road
- Site Size: 22.00 acres gross
- Plan Date: 01/31/2020
- Design Engineer: PEA, Inc.

## **Project Summary**

- Proposed mixed use development with residential apartments.
- Water service would be provided by looping public water main from the existing 12-inch water main on the neighboring parcels to the north and south.
- Sanitary sewer service would be provided by extension of existing 8-inch sanitary sewer near the southeast corner of the site.
- Storm water would be collected by a single storm sewer collection system and detained in one of two proposed on-site detention basins.

## **Recommendation**

The Revised Concept Site Plan and Revised Concept Storm Water Management Plan can be recommended. All other comments can be addressed during the detailed design review.

**Comments:**

**General**

1. The site plan shall be designed in accordance with the Design and Construction Standards (Chapter 11).
2. A right-of-way permit will be required from the City of Novi and Oakland County for work in the Haggerty Road right-of-way.
3. Label the master planned 60-foot half right-of-way width for Haggerty Road. The dedication of the master-planned half width right-of-way of sixty (60) feet in width is requested with this project. Show the additional right-of-way width to be dedicated along Haggerty Road labeled as "**proposed**" right-of-way.
4. Generally, all proposed trees shall remain outside utility easements. Where proposed trees are required within a utility easement, the trees shall maintain a minimum 5-foot horizontal separation distance from any existing or proposed utility.
5. Show the locations of all light poles on the utility plan and indicate the typical foundation depth for the pole to verify that no conflicts with utilities will occur. Light poles in a utility easement will require a License Agreement.
6. **Current** soil borings shall be provided for a preliminary review of the constructability of the proposed development (roads, basin, etc.). **The included 1999 McDowell & Associates geotechnical report will not be accepted as current.** Borings identifying soil types, and groundwater elevation should be provided at the time of Preliminary Site plan.
7. The Non-domestic User Survey form shall be submitted to the City so it can be forwarded to Oakland County.
8. A letter from either the applicant or the applicant's engineer must be submitted with the Concept Plan submittal highlighting the changes made to the plans addressing each of the comments in this review.

**Utilities**

9. **Sheet C-7.0 has demonstrated the existing 8-inch sanitary sewer is projected to have sufficient capacity for the added flow from the site, as proposed in this concept.**
10. Provide a sanitary sewer monitoring manhole, unique to the clubhouse, within a dedicated access easement or within the road right-of-way. If not in the right-of-way, provide a 20-foot wide access easement to the monitoring manhole from the right-of-way (rather than a public sanitary sewer easement).
11. Sanitary leads shall be buried at least 5 feet deep where under the influence of pavement.
12. The sanitary sewer basis of design has been revised to show the breakdown of number of bedrooms per apartment. Additionally, the REUs per apartment reflect the "Residences: Mobile Home Parks & Multiple Family Residences" Usage Type for one, two, or three or more bedrooms on the City of Novi Sewer Unit Factor Chart.

13. Note and show the proposed water main and sanitary sewer easements within the proposed site.
14. Remove the water main basis of design on the utility sheet. This information is not necessary.
15. Per Article III, Section 11-68.a.4 of the Code of Ordinances, water mains shall, wherever feasible, be constructed outside of pavement.
16. Show relocation of the existing fire hydrant near the southeast corner of the development. Currently, it is shown within the proposed pavement area.
17. Profile view is required for all proposed water mains (8" diameter or larger).
18. Gate valves shall be arranged so that no single line failure will require more than eight hundred (800) feet of main or thirty (30) multiple units to be out of service.
19. Provide evidence that the proposed storm outlet connection on Haggerty Road has adequate capacity to take in the additional flow from the proposed site. If it is through the existing ditch, information where the ditch is ultimately draining to and its available capacity must be shown on plan. Coordinate with Oakland County as required.
20. A minimum cover depth of 3 feet shall be maintained over all storm sewers. Grades shall be elevated and minimum pipe slopes shall be used to maximize the cover depth. In situations where the minimum cover cannot be achieved, Class V pipe must be used with an absolute minimum cover depth of 2 feet. A Design and Construction standards variance application must be submitted under a separate cover where 3-feet of cover cannot be provided.

### **Paving & Grading**

21. The proposed sidewalk should generally be located such that the outside edge is one (1) foot inside the master planned right-of-way line, as described in Chapter 7.4.2(C) of the Engineering Design Manual. If existing topography or other constraints interfere with this requirement, a request for variance from the Design and Construction Standards can be submitted.
22. Provide at least 3-foot clearance between the sidewalk and any fixed objects, including hydrants and utility poles. Note on the plan any location where the 3-foot separation cannot be provided.

### **Storm Water Management Plan**

23. The SWMP must address the discharge of storm water off-site, and evidence of its adequacy must be provided. This should be done by comparing pre- and post-development discharge rates. The area being used for this off-site discharge should be delineated and the ultimate location of discharge shown.
24. Provide details for the storm sewer proposed east-west near the south property line.
25. Show how the proposed Haggerty Road widening is to drain.

26. Storm water quality standards can be met with the proposed and preferred permanent 3-foot pool depth of the detention basins. The proposed pre-treatment structures may be removed.
27. An adequate maintenance access route to the outlet control structure for Detention Basin No. 1 shall be provided as it has for Detention Basin No. 2. Additionally, a maintenance access route shall be provided for any pretreatment structures, if kept. Verify access routes do not conflict with proposed landscaping.
28. A 25-foot vegetated buffer shall be provided around the perimeter of each storm water basin. Call out the said buffer on plan. Both basins appear to be lacking the full 25 feet of buffer on the sides abutting the main site drive aisle and Buildings 1 and 10 above the proposed freeboard elevations of 911.00. The retaining wall cannot be included in the buffer, since the wall is unable to be vegetated.

**Off-Site Easements**

29. Any required off-site easements must be executed prior to final approval of the plans. Drafts shall be submitted at the time of the Preliminary Site Plan submittal.

**The following must be submitted with the Preliminary Site Plan:**

30. A letter from either the applicant or the applicant's engineer must be submitted with the Stamping Set highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved.

**The following must be submitted with the Final Site Plan:**

31. An itemized construction cost estimate must be submitted to the Community Development Department for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. **The estimate must be itemized** for each utility (water, sanitary, storm sewer), on-site paving (square yardage), right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pre-treatment structure and restoration).
32. Draft copies of any off-site utility easements, a recent title search, and legal escrow funds must be submitted to the Community Development Department for review and approved by the Engineering Division and the City Attorney prior to being executed.

**The following must be submitted at the time of Stamping Set Submittal:**

33. A draft copy of the Storm Drainage Facility Maintenance Easement Agreement (SDFMEA), as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department. Once the agreement is approved by the City's Legal Counsel, this agreement will then be sent to City Council for approval/acceptance. The



- SDFMEA will then be recorded at the office of the Oakland County Register of Deeds. This document is available on our website.
34. A draft copy of the 20-foot wide easement for the water main to be constructed onsite must be submitted to the Community Development Department. This document is available on our website.
  35. A draft copy of the 20-foot wide easement for the sanitary sewer to be constructed onsite must be submitted to the Community Development Department. This document is available on our website.
  36. A draft copy of the 20-foot wide easement for the sanitary sewer monitoring manhole to be constructed onsite must be submitted to the Community Development Department. This document is available on our website.
  37. A draft copy of the warranty deed for the additional proposed right-of-way along Haggerty Road must be submitted for review and acceptance by the City.

To the extent this review letter addresses items and requirements that require the approval of or a permit from an agency or entity other than the City, this review shall not be considered an indication or statement that such approvals or permits will be issued.

Please contact Victor Boron at (248) 735-5695 with any questions.



Victor Boron  
Civil Engineer

cc: Sri Komaragiri, Community Development  
Ben Croy, PE, Engineering  
Kate Richardson, Engineering

# MEMORANDUM



**TO:** SRI KOMARAGIRI, PLANNER  
**FROM:** VICTOR BORON, CIVIL ENGINEER  
**SUBJECT:** REVIEW OF REZONING IMPACT ON PUBLIC UTILITIES  
REZONING 18.733, NOVAPLEX  
**DATE:** FEBRUARY 26, 2020

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The Engineering Division has reviewed a rezoning request for the 22.00 acres located on the west side of Haggerty Road between Twelve Mile Road and Thirteen Mile Road. The applicant is requesting to rezone parcels 22-12-400-009, 22-12-400-010, and 22-12-400-011 from the existing zoning of Office Service Technology (OST) to Multiple-Family (RM-2). The Master Plan for Land Use indicates a future land use of Office Research Development Technology.

### Utility Demands

A residential equivalency unit (REU) equates to the utility demand from one single family home. If the area were developed under the current zoning, demand on the utilities for the site would be 2.8 REUs per acre for office use. Other acceptable uses under Office Service Technology such as Factory use may have slightly higher REUs per acre, thus having greater impact on utilities. The applicant intends to propose a high-density multiple-family residential development. This would have an approximate utility demand of 9.5 REUs per acre.

### Water System

The site is located within the Intermediate Pressure District. Water service is currently available from a twelve-inch water main on the adjacent parcel to the north and a twelve-inch water main on the adjacent parcel to the south. The proposed rezoning would have minimal impact on available capacity, pressure and flows in the City's water distribution system.

### Sanitary Sewer

The site is located within the Hudson Sewer District. Sanitary service is available by connection to an existing eight-inch sanitary sewer running parallel to Haggerty Road near the southeast corner of the property. The proposed rezoning would likely have a significant impact on available capacity of the downstream sanitary sewer, but the applicant has demonstrated the capacity is projected to be sufficient. Calculations have been provided showing all properties and their uses, existing and future, tributary to this eight-inch portion of sewer. These calculations have been reviewed by Engineering and are acceptable as shown on the plans, even though the proposed development is projected to consume a large portion of the sewer's capacity. An estimated 50% of the sewer's capacity would be consumed by the subject rezoning, while an estimated 22% would be consumed by all other uses tributary to the sewer. This totals 72% of the sewer's capacity consumed after construction of Novaplex.

### Summary

The requested rezoning will result in utility demands that are greater than the utility demand if the property were to be developed under the current zoning. However, the

utility capacities are still sufficient to meet the demands of the requested rezoning. Therefore, the rezoning would have a significant, but acceptable, impact on utility demands.

cc: Scott Roselle; Water & Sewer Senior Manager  
Barb McBeth, AICP; City Planner  
Ben Croy, P.E.; City Engineer  
Kate Richardson, Civil Engineer

## LANDSCAPE REVIEW

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# PLAN REVIEW CENTER REPORT

February 24, 2020

## Revised PRO Concept Plan - Landscaping

### Novaplex Multi-family Housing

#### Review Type

Revised PRO Concept Plan Landscape Review

#### Job #

JZ19-0037

#### Property Characteristics

- Site Location: Haggerty Road, south of 13 Mile road
- Site Zoning: OST – proposed re-zoning to RM-2 with Overlay
- Adjacent Zoning: North, West, South: OST, East: Farmington Hills SFR
- Plan Date: 1/31/2020

#### Ordinance Considerations

This project was reviewed for conformance with Chapter 37: Woodland Protection, Zoning Article 5.5 Landscape Standards, the Landscape Design Manual and any other applicable provisions of the Zoning Ordinance. Items in **bold** below must be addressed and incorporated as part of the revised PRO Concept plan submittal. Underlined items must be addressed on Preliminary or Final Site Plans. Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. This review and the Landscape Chart are summaries and are not intended to substitute for any Ordinance.

#### Recommendation

This project **is recommended for approval for PRO Concept Plan, contingent on the applicant revising the plan to remove the single unsupported deviation.** The remaining changes that don't require a deviation can be addressed on Preliminary and Final Site plans.

#### **LANDSCAPE DEVIATIONS NOTED:**

1. Lack of screening berms between the site and the properties on the north, south and west. *Supported by staff as the existing woodlands and proposed landscaping provides sufficient screening.*
2. Lack of street trees due to overhead electrical lines and an underground gas line along Haggerty Road which make planting street trees impossible. *Supported by staff.*
3. Deviation to use subcanopy trees for up to 25% of the required multifamily unit trees. *Supported by staff.*
4. Deficiency in perimeter canopy trees along west sides of Lots A and E. *Not supported by staff.*

**Please work to eliminate the unsupported deviation and replace the Waivers Requested on Sheet L-1.0 with a list of deviations required.**

#### Ordinance Considerations

Existing Soils (Preliminary Site Plan checklist #10, #17)

Provided

Existing and proposed overhead and underground utilities, including hydrants. (LDM 2.e.(4))

Provided

Existing Trees (Sec 37 Woodland Protection, Preliminary Site Plan checklist #17 and LDM 2.3 (2) )

1. Provided
2. With the revised layout, only 7 regulated trees are proposed to be removed. This is much appreciated. 13 woodland replacement trees are required for this project and 181 replacement trees are required for the initial project that wasn't built. 16 trees are proposed to be planted on site.
3. **All other site landscaping requirements must be completely met before replacement trees can be planted on site.**

Adjacent to Residential - Buffer (Zoning Sec. 5.5.3.B.ii and iii)

1. Property is adjacent to OST-zoned property developed as commercial.
2. 4.5-6' landscaped berms are required but none are provided.
3. **The lack of berms requires a landscape deviation.** *It is supported by staff as the existing woodland is to remain for the western 300lf of the property, and dense landscaping is proposed along the north and south property lines.*

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Zoning Sec. 5.5.3.B.ii and iii)

1. The berms along Haggerty Road are provided. **Please add some variation in the berms' height above the 3 feet minimum.**
2. Based on the frontage, 17 deciduous canopy or large canopy trees and 24 subcanopy trees are required. The required trees are provided.
3. Overhead and underground utilities along Haggerty Road make planting any street trees impossible. No street trees are proposed because of this. *The lack of street trees is a deviation that is supported by staff.*

Parking Lot Landscaping (Zoning Sec. 5.5.3.C.)

1. Based on the vehicular use area, 3,833 of landscape area is required and 5,046 is apparently provided, although that number must be confirmed by labeling each island with its area in SF. A total of 19 canopy trees are required, and 19 are provided.
2. If necessary, please increase the area of all undersized islands with trees to at least 200sf of contiguous greenspace.
3. Multifamily unit trees are used to meet the parking lot interior tree requirement as is allowed.

Parking Lot Perimeter Canopy Trees (Zoning Sec. 5.5.3.C.(3) Chart footnote)

1. Based on the parking lot perimeter, 31 trees are required, and 31 are provided.
2. Multifamily unit trees are used to meet the parking lot perimeter tree requirement as is allowed.

Multi-Family Housing Landscaping (Zoning Sec. 5.5.3.F.ii)

1. Unit Landscaping
  - a. Based on the 86 units, 258 trees are required and are provided.
  - b. 64 of the unit trees are subcanopy trees (25%). *A landscape deviation to use subcanopy trees for up to 25% of the required multi-family unit trees in order to increase diversity on the site is supported by staff.*
2. Interior Roadway
  - a. Based on the interior drives' perimeters (not including parking lot perimeters), 171 deciduous canopy trees are required and 171 (including 2 existing trees within 15' of the road) are provided.
  - b. **There are no trees between the drive and Parking lots A and E. That area should be widened and planted with perimeter trees that can serve as both interior drive and parking lot perimeter trees.**
3. Building foundation landscaping.

- a. All buildings appear to meet or exceed the foundation landscaping requirement of at least 35% of the front face of the building being landscaped.
- b. Please provide detailed foundation plantings plans on the Final Site Plans, at the latest.

Woodland Replacement Trees (Sec. 37, LDM Sec 1)

1. See the Landscape Chart and ECT's letter for more details related to woodland replacements.
2. Please consider using native species found in the existing woodland to remain as replacement tree species for any replacements planted on site to create a more natural connection with the woods.
3. Please add a note stating that the location of woodland replacement trees must be agreed upon by the City to ensure that existing habitat is not damaged with the planting of those trees.

Plant List (LDM 4)

1. Provided.
2. 27 of 34 species (79%) used are native to Michigan. Please try to maintain this proportion for the foundation species.
3. The tree diversity is acceptable per the Landscape Design Manual.
4. Please replace the Red Obelisk Beech and Slender Silhouette Sweetgums with species/cultivars that have a minimum mature canopy width of 20 feet and minimum mature height of 30 feet.

Planting Notations and Details (LDM)

Provided – see the Landscape Chart for more detailed discussion.

Storm Basin Landscape (Zoning Sec 5.5.3.E.iv and LDM 1.d.(3))

1. Sufficient coverage with large native shrubs is provided.
2. Please clearly show the high water line (HWL) for both ponds.
3. Please survey the site for *Phragmites australis*. If it is found, show the locations on the existing conditions plan and add a control plan for its complete eradication. If it is not found, add a note to that effect to the existing conditions plan.

Irrigation (LDM 1.a.(1)(e) and 2.s)

Please provide an irrigation system plan or other means of providing sufficient water for plant establishment and long-term survival on the Final Site Plans.

Proposed topography 2' contour minimum (LDM 2.e.(1))

Provided

Snow Deposit (LDM.2.q.)

Provided

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5621 or [rmeader@cityofnovi.org](mailto:rmeader@cityofnovi.org).



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Rick Meader – Landscape Architect

## LANDSCAPE REVIEW SUMMARY CHART – Revised PRO Concept Plan

**Review Date:** February 24, 2020  
**Project Name:** JZ19-0037: NOVAPLEX  
**Plan Date:** February 24, 2020  
**Prepared by:** Rick Meader, Landscape Architect E-mail: [rmeader@cityofnovi.org](mailto:rmeader@cityofnovi.org);  
 Phone: (248) 735-5621

### LANDSCAPE DEVIATIONS NOTED:

- Lack of screening berms between the site and the properties on the north, south and west. *Supported by staff as the existing woodlands and proposed landscaping provides sufficient screening.*
- Lack of street trees due to overhead electrical lines and an underground gas line along Haggerty Road which make planting street trees impossible. *Supported by staff.*
- Deviation to use subcanopy trees for up to 25% of the required multifamily unit trees. *Supported by staff to increase site diversity.*
- Deficiency in perimeter canopy trees along west sides of Lots A and E. *Not supported by staff.*

**Please work to eliminate the unsupported deviation, and replace the Waivers Requested on Sheet L-1.0 with a list of deviations required.**

Items in **Bold** need to be addressed by the applicant before approval of the PRO Concept Plan. Underlined items need to be addressed for Preliminary and/or Final Site Plan.

Item	Required	Proposed	Meets Code	Comments
<b>Landscape Plan Requirements (LDM (2))</b>				
<b>Landscape Plan</b> <i>(Zoning Sec 5.5.2, LDM 2.e.)</i>	<ul style="list-style-type: none"> <li>▪ New commercial or residential developments</li> <li>▪ Addition to existing building greater than 25% increase in overall footage or 400 SF whichever is less.</li> <li>▪ 1" =20' minimum with proper North. Variations from this scale can be approved by LA</li> <li>▪ Consistent with plans throughout set</li> </ul>	Site plan scale is 1" =50'	Yes	<u>Please use a smaller scale (1" =20', minimum) for the detailed foundation and clubhouse planting designs when they are provided.</u>
<b>Project Information</b> <i>(LDM 2.d.)</i>	Name and Address	Location map is on cover sheet	Yes	<u>Please copy the location map to the landscape plans.</u>
<b>Owner/Developer Contact Information</b> <i>(LDM 2.a.)</i>	Name, address and telephone number of the owner and developer or association	Provided in title block	Yes	
<b>Landscape Architect contact information</b> <i>(LDM 2.b.)</i>	Name, Address and telephone number of RLA/PLA/LLA	Yes	Yes	



Item	Required	Proposed	Meets Code	Comments
<b>Sealed by LA.</b> <i>(LDM 2.g.)</i>	Requires original signature	No		<u>Need original signature on stamping sets</u>
<b>Miss Dig Note</b> (800) 482-7171 <i>(LDM.3.a.(8))</i>	Show on all plan sheets	In Title Block	Yes	
<b>Zoning</b> <i>(LDM 2.f.)</i>	Include all adjacent zoning	<u>Parcel:</u> OST <u>Proposed rezoning:</u> RM-2 <u>North, South, West:</u> OST <u>East:</u> Farmington Hills Single Family residential	Yes	
<b>Survey information</b> <i>(LDM 2.c.)</i>	<ul style="list-style-type: none"> <li>▪ Legal description or boundary line survey</li> <li>▪ Existing topography</li> </ul>	Description, Topo on C-1.0	Yes	
<b>Existing plant material</b> <b>Existing woodlands or wetlands</b> <i>(LDM 2.e.(2))</i>	<ul style="list-style-type: none"> <li>▪ Show location type and size. Label to be saved or removed.</li> <li>▪ Plan shall state if none exists.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Tree labels, woodland limits on Sheet C-1.0, T-1.0-T-1.2</li> <li>▪ The layout preserves most of the existing trees on site – only 7 regulated trees are shown as being removed.</li> <li>▪ Removals indicated on T-1.0-T1.2</li> <li>▪ Replacement calculations provided on T-1.0</li> </ul>	Yes	<ol style="list-style-type: none"> <li>1. Please see the ECT letters for comprehensive reviews of the woodland and wetland impacts.</li> <li>2. The preservation of the intact woodland is appreciated.</li> </ol>
<b>Soil types</b> <i>(LDM.2.r.)</i>	<ul style="list-style-type: none"> <li>▪ As determined by Soils survey of Oakland county</li> <li>▪ Show types, boundaries</li> </ul>	Soil types and map provided on Sheet L-1.1	Yes	
<b>Existing and proposed improvements</b> <i>(LDM 2.e.(4))</i>	Existing and proposed buildings, easements, parking spaces, vehicular use areas, and R.O.W	Yes	Yes	
<b>Existing and proposed utilities</b> <i>(LDM 2.e.(4))</i>	<ul style="list-style-type: none"> <li>▪ Overhead and underground utilities, including hydrants</li> <li>▪ Proposed light posts</li> </ul>	<ul style="list-style-type: none"> <li>▪ All utilities are shown on Utility Plan and Landscape Plan.</li> <li>▪ No light posts are provided.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Yes</li> <li>▪ No</li> </ul>	
<b>Proposed grading. 2' contour minimum</b>	Provide proposed contours at 2' interval	<ul style="list-style-type: none"> <li>▪ Contours and spot elevations</li> </ul>	Yes	<b>Please highlight the high water line (HWL) on</b>

Item	Required	Proposed	Meets Code	Comments
<i>(LDM 2.e.(1))</i>		are provided on Sheet C-4.0. <ul style="list-style-type: none"> <li>Contours are shown on the landscape plan.</li> <li>Existing and proposed walls are shown on the landscape plan.</li> <li>Per Sheet 6.0, the HWL elevation is 909.44.</li> </ul>		<b>both ponds on the landscape plan</b>
<b>Snow deposit</b> <i>(LDM.2.q.)</i>	Show snow deposit areas on plan	Yes	Yes	
<b>LANDSCAPING REQUIREMENTS</b>				
<b>Parking Area Landscape Requirements LDM 1.c. &amp; Calculations (LDM 2.o.)</b>				
<b>General requirements</b> <i>(LDM 1.c)</i>	<ul style="list-style-type: none"> <li>Clear sight distance within parking islands</li> <li>No evergreen trees</li> </ul>	Only the City of Novi clear vision zones are provided.	No	<u>Please show the RCOC clear vision zone for Haggerty Road entry and City of Novi clear vision zone for all interior intersections. (RCOC rules are attached to this review).</u>
<b>Name, type and number of ground cover</b> (LDM 1.c.(5))	As proposed on planting islands	Seed is shown as the groundcover across the site.	Yes	
<b>General</b> <i>(Zoning Sec 5.5.3.C.ii)</i>				
<b>Parking lot Islands</b> <i>(a, b. i)</i>	<ul style="list-style-type: none"> <li>A minimum of 200 SF to qualify</li> <li>A minimum of 200sf unpaved area per tree planted in an island</li> <li>6" curbs</li> <li>Islands minimum width 10' BOC to BOC</li> <li>Minimum 200sf per tree planted in an island</li> </ul>	<ul style="list-style-type: none"> <li>Islands are provided.</li> <li>Total interior area is shown for each parking area, but not individual islands' area.</li> </ul>	No	<ol style="list-style-type: none"> <li>Please label the SF of all individual islands' contiguous unpaved area (should not include sidewalks and each island's SF should be shown, not a total, to be sure each island is compliant).</li> <li>Each island's width should also be dimensioned at the back of curb.</li> <li>Please increase the size of any undersized islands to provide at least 200sf in interior area per tree planted in it.</li> </ol>
<b>Curbs and Parking stall reduction</b> <i>(c)</i>	Parking stall can be reduced to 17' and the	Currently Parking Lots A and E require	No	1. By reducing the parking stall lengths

Item	Required	Proposed	Meets Code	Comments
	curb to 4" adjacent to a sidewalk of minimum 7 ft.	a deviation for the lack of perimeter trees along the west side, and the drive in those areas also needs a deviation.		<p>for those lots, there would be sufficient room for the required trees along the west side of them.</p> <p>2. Those areas can share canopy trees between the parking lot and drive if they are provided.</p> <p>3. <b>The carpports may have to be modified or eliminated to meet this requirement and avoid a landscape deviation.</b></p> <p>4. <b>A deviation is required to not provide the required perimeter trees along the west sides of lots A and E. It is not supported by staff as sufficient area for the trees could be provided there.</b></p>
<b>Contiguous space limit (i)</b>	Maximum of 15 contiguous spaces	15 is maximum bay length	Yes	
<b>Plantings around Fire Hydrant (d)</b>	<ul style="list-style-type: none"> <li>▪ No plantings with matured height greater than 12' within 10 ft. of fire hydrants</li> <li>▪ Keep trees at least 5 feet from underground utility lines.</li> </ul>	All trees are located at least 10 feet from hydrants.	Yes	
<b>Landscaped area (g)</b>	Areas not dedicated to parking use or driveways exceeding 100 sq. ft. shall be landscaped	Yes	Yes	
<b>Clear Zones (LDM 2.3.(5))</b>	<ul style="list-style-type: none"> <li>▪ Road Commission for Oakland County clear distance zones for Haggerty Road entry.</li> <li>▪ 25 ft corner clearance required at internal intersections. Refer to Zoning Section 5.5.9</li> </ul>	City of Novi clear zones are provided at Haggerty Road.	No	<p>1. <u>Please indicate the clear vision zone per RCOC regulations for Haggerty Road entry (attached) and per Novi rules (Sec 5.9 illustration is below) for interior intersections.</u></p> <p>2. <u>Please check clear vision zones and verify that trees</u></p>

Item	Required	Proposed	Meets Code	Comments
				won't block views.
<b>Category 1: For OS-1, OS-2, OSC, OST, B-1, B-2, B-3, NCC, EXPO, FS, TC, TC-1, RC, Special Land Use or non-residential use in any R district (Zoning Sec 5.5.3.C.iii)</b>				
A = Total square footage of vehicular use areas up to 50,000sf x 7.5%	<ul style="list-style-type: none"> <li>• <math>A = x \text{ sf} * 7.5\% = A \text{ sf}</math></li> <li>• <math>50,000 * 7.5\% = 3750 \text{ sf}</math></li> </ul>			
B = Total square footage of additional paved vehicular use areas (not including A or B) over 50,000 SF) x 1 %	<ul style="list-style-type: none"> <li>• <math>B = x \text{ sf} * 1\% = B \text{ sf}</math></li> <li>• <math>(X - 50000) * 1\% = B \text{ sf}</math></li> <li>• <math>(58326-50000)*1\% = 83 \text{ sf}</math></li> </ul>			
<b>Category 2: For: I-1 and I-2 (Zoning Sec 5.5.3.C.iii)</b>				
A. = Total square footage of vehicular use area up to 50,000 sf x 5%	$A = x \text{ sf} * 5\% = A \text{ sf}$	NA		
B = Total square footage of additional paved vehicular use areas over 50,000 SF x 0.5%	$B = 0.5\% * x \text{ sf} = B \text{ SF}$	NA		
<b>All Categories</b>				
C = A+B Total square footage of landscaped islands	$A + B = C \text{ SF}$ $3750+83 = 3,833 \text{ sf}$	5,046 sf	Yes	<ol style="list-style-type: none"> <li>1. Please label all individual islands, including endcaps, with trees with their area in SF.</li> <li>2. Please enlarge the non-compliant islands to at least 200sf and plant a deciduous canopy tree in it.</li> <li>3. While the islands appear to be compliant, a landscape deviation would be required for any deficiency in area or required islands. <i>It would not be supported by staff.</i></li> </ol>
D = C/200 Number of canopy trees required	<ul style="list-style-type: none"> <li>• <math>C/200 = D \text{ Trees}</math></li> <li>• <math>3833/200 = 19 \text{ trees}</math></li> </ul>	19 trees	Yes	
<b>Parking Lot perimeter trees</b>	<ul style="list-style-type: none"> <li>• 1 Canopy tree per 35 lf</li> <li>• <math>1102\text{lf}/35 = 31 \text{ trees}</math></li> </ul>	<ul style="list-style-type: none"> <li>▪ 31 trees are provided (multi-</li> </ul>	Yes	<b>1. A landscape deviation is required</b>

Item	Required	Proposed	Meets Code	Comments
		family unit trees) ■ Perimeter parking lot trees are provided as required except on the west side of lots A and E.		for the lack of perimeter trees on the west sides of Lots A and E. <i>It is not supported by staff.</i> 2. <b>Note: Additional trees are not required, but some perimeter trees from elsewhere on the site should be moved to those areas at a rate of 1/35lf.</b>
Access way perimeter	See Multi-family interior drive parking lot requirements below			
Parking land banked	None	None		
<b>Berms, Walls and ROW Planting Requirements</b>				
<b>Berms</b>				
<ul style="list-style-type: none"> <li>■ All berms shall have a maximum slope of 33%. Gradual slopes are encouraged. Show 1ft. contours</li> <li>■ Berm should be located on lot line except in conflict with utilities.</li> <li>■ Berms should be constructed with 6" of top soil.</li> </ul>				
<b>Residential Adjacent to Non-residential (Sec 5.5.3.A) &amp; (LDM 1.a)</b>				
Berm requirements <i>(Zoning Sec 5.5.A)</i>	Landscaped berm 4.5-6 feet high required around all of project as it borders OST on the north, west and south	<ul style="list-style-type: none"> <li>■ No berms</li> <li>■ Dense plantings, mostly large evergreen trees, are provided along the north and south property lines.</li> <li>■ Approximately 300 feet of existing woodland is to be preserved on the entire western portion of the property.</li> </ul>	No	1. <b>Landscape deviations are required for any berms not provided.</b> 2. <i>The deviations are supported by staff as sufficient alternate screening is proposed.</i>
Planting requirements <i>(LDM 1.a.)</i>	LDM Novi Street Tree List	NA		
<b>Adjacent to Public Rights-of-Way (Sec 5.5.B) and (LDM 1.b)</b>				
Berm requirements <i>(Zoning Sec 5.5.3.A.(5))</i>	Berm with 2' crest and minimum 3' height is required	A 3' tall berm is provided.	Yes	<u>Please add variations in height to both berms, with a minimum height of 3 feet.</u>
<b>Cross-Section of Berms (LDM 2.j)</b>				
Slope, height and width	<ul style="list-style-type: none"> <li>■ Label contour lines</li> <li>■ Maximum 33%</li> </ul>	No	No	<u>Please provide a typical berm cross section</u>

Item	Required	Proposed	Meets Code	Comments
	<ul style="list-style-type: none"> <li>Min. 2 feet flat horizontal area</li> <li>Minimum 3 feet high</li> <li>Constructed of loam with 6' top layer of topsoil.</li> </ul>			<u>showing the construction details noted to the left.</u>
Type of Ground Cover		NA		
Setbacks from Utilities	Overhead utility lines and 15 ft. setback from edge of utility or 20 ft. setback from closest pole	<ul style="list-style-type: none"> <li>An overhead line crosses the site along Haggerty Road, just inside the right-of-way.</li> <li>An underground gas line is within the right-of-way</li> <li>No trees are proposed within 15 feet of the line.</li> </ul>	Yes	<u>Please show the utility lines on the berm cross section, with spacing.</u>
<b>Walls (LDM 2.k &amp; Zoning Sec 5.5.3.vi)</b>				
<b>Material, height and type of construction footing</b>	Freestanding walls should have brick or stone exterior with masonry or concrete interior	Retaining walls are indicated in the site interior in several locations.	TBD	<u>Please indicate tw/bw elevations on grading plan and provide either standard or detailed construction drawings, depending on the height of the walls.</u>
<b>Walls greater than 3 ½ ft. should be designed and sealed by an Engineer</b>		No details are provided	TBD	
<b>ROW Landscape Screening Requirements (Sec 5.5.3.B. ii)</b>				
<b>Greenbelt width (2)(3) (5)</b>	Adjacent to Pkg: 20 ft. Not adj to Pkg: 34 ft	162 ft min	Yes	
Min. berm crest width	2'	Varying width, min 2'	Yes	
Minimum berm height (9)	3 ft	3' tall, consistent	Yes	<u>Please add variations in height, with 3' min ht</u>
3' wall	(4)(7)	No walls are indicated in the greenbelt	Yes	
<b>Canopy deciduous or large evergreen trees</b> Notes (1) (10)	<ul style="list-style-type: none"> <li>Not adj to pkg: 1 tree per 35 lf</li> <li>(698-63-38)lf/35 = 17 trees</li> </ul>	<ul style="list-style-type: none"> <li>9 large evergreen trees</li> <li>2 deciduous canopy trees</li> </ul>	No	<b>The calculations need to be revised to RM-2 guidelines, and the correct number of large trees should be provided.</b>
<b>Sub-canopy deciduous trees</b> Notes (2)(10)	<ul style="list-style-type: none"> <li>Not adj to pkg: 1 tree per 25 lf</li> <li>(698-74-24)lf/25 = 24</li> </ul>	32 subcanopy trees	Yes	<b>1. Please revise calculations per RM-2 guidelines.</b>

Item	Required	Proposed	Meets Code	Comments
	trees			2. Subcanopy trees can't be used as a substitute for canopy trees unless they are under wires. 3. As there are more subcanopy trees than are required, they can be reduced in number in exchange for more large evergreen or canopy trees.
<b>Canopy deciduous trees in area between sidewalk and curb</b> <i>(Novi Street Tree List)</i>	<ul style="list-style-type: none"> <li>▪ 1 tree per 35 lf</li> <li>▪ (698- RCOC clear vision zone halfway between sidewalk and curb/edge of pavement:</li> <li>▪ <math>x/35 = x</math> trees</li> </ul>	No trees	No	<b>A landscape deviation is necessary</b> because of a number of utility lines running along Haggerty Road, both above and below ground which prevent any trees from being planted there. <i>This deviation is supported by staff.</i>
<b>Multi-family/Attached Dwelling Units (Zoning Sec 5.5.3.E.ii)</b>				
Interior Street Trees (Sec 5.5.3.E.ii.B.ii.b(2))	<ul style="list-style-type: none"> <li>• 1 deciduous canopy tree per 35 lf of interior roadway, excluding driveways, parking entry drives and interior roads adjacent to public rights-of-way</li> <li>• <math>x/35 = y</math> trees</li> <li>• <math>7451/35 = 213</math> trees</li> </ul>	TBD	No	1. Please use deciduous canopy trees as interior street trees, not subcanopy trees or evergreen trees except in cases where the evergreen trees would provide screening. 2. The "doubled perimeter" where the drive is close enough to parking lots where a perimeter tree of the lot or drive is within 15 feet of the perimeter only needs be counted once, but those areas must be wide enough to have trees planted in them, and they must have trees planted in them at 1/35lf. This applies to lots A and E. 3. This requirement and

Item	Required	Proposed	Meets Code	Comments
				<p><b>the multifamily unit tree requirement must be independently met before woodland replacement trees can be proposed.</b></p> <p>4. Please revise the planting per the rules related to what can and can't be used for each requirement.</p> <p>5. A landscape deviation would be required for the lack of perimeter trees along the west sides of Lots A and E. <i>It would not be supported by staff.</i></p>
Site Landscaping (Sec. 5.5.3.E.ii.b.(1))	<ul style="list-style-type: none"> <li>• (3) deciduous canopy trees or large evergreen trees for each dwelling unit on the ground floor.</li> <li>• Evergreens not closer than 20 ft from roadway</li> <li>• 86 units * 3 = 258 trees</li> </ul>	<ul style="list-style-type: none"> <li>• 194 large evergreen or deciduous canopy trees (some of which are used in an around the parking lots, which is allowed)</li> <li>• <u>64 subcanopy trees</u> 258 total trees</li> </ul>	Yes	<p>1. Site landscaping trees may be used toward parking lot requirements (parking lot interior and perimeter trees).</p> <p>2. <b>A landscape deviation may be requested</b> to use subcanopy trees for up to 25% of the required site landscaping trees (64 subcanopy trees) to help provide diversity. <i>The deviation would be supported by staff.</i></p>
Building Foundation Landscaping	35% of building frontage facing drives must be landscaped with mix of trees, bushes, perennials, grasses and/or annuals.	All buildings' frontages have at least 35% of their frontages shown as being landscaped.	Yes	<u>Provide detailed foundation planting plans with species on Final Site Plans.</u>
<b>Transformers/Utility boxes</b> (LDM 1.e from 1 through 5)	<ul style="list-style-type: none"> <li>▪ A minimum of 2 ft. separation between box and the plants</li> <li>▪ Ground cover below 4" is allowed up to pad.</li> <li>▪ No plant materials within 8 ft. from the</li> </ul>	None proposed	TBD	<p>1. <u>When transformer locations are finalized, screening shrubs per standard detail are required.</u></p> <p>2. <u>Please add a note to this effect to the plans.</u></p>



Item	Required	Proposed	Meets Code	Comments
	doors			
<b>Detention/Retention Basin Requirements (Sec. 5.5.3.E.iv)</b>				
<b>Planting requirements</b> <i>(Sec. 5.5.3.E.iv)</i>	<ul style="list-style-type: none"> <li>▪ Clusters of large native shrubs shall cover 70-75% of the basin rim area</li> <li>▪ 10" to 14" tall grass along sides of basin</li> <li>▪ Refer to wetland for basin mix</li> </ul>	<ul style="list-style-type: none"> <li>▪ The masses provided appear to meet the requirement.</li> <li>▪ The species provided are good.</li> </ul>	Yes	<u>Please clearly show the HWL for each pond on the landscape plan and locate the shrubs along it.</u>
<b>Phragmites Control</b>	<ul style="list-style-type: none"> <li>▪ Survey site for Phragmites australis</li> <li>▪ If any is found, show location(s) on existing conditions plan and provide a control plan for its complete eradication.</li> </ul>	None indicated	TBD	<ol style="list-style-type: none"> <li>1. <u>Please survey the site and add a control plan if necessary.</u></li> <li>2. <u>If none is found, please add a note to that effect to the existing conditions plan.</u></li> </ol>
<b>Woodland Replacement Trees (Sec 37, LDM)</b>				
<b>Species breakdown</b>	<ul style="list-style-type: none"> <li>▪ Replacement mix must approximate mix of trees removed.</li> <li>▪ No more than 10% evergreen since forest is a deciduous hardwood forest with no evergreens.</li> </ul>	(16) 3" cal. Deciduous canopy trees	TBD	<ol style="list-style-type: none"> <li>1. <u>Sizes can be reduced to 2.5" deciduous canopy and 6' evergreen.</u></li> <li>2. <u>Please consider using species already in the woods for replacements to tie in with the existing woodlands.</u></li> <li>3. <u>Please add a note stating that the placement of woodland replacements in or near the existing woodland or wetlands shall be approved by the City Landscape Architect and/or ECT to ensure healthy habitat is not damaged or diminished by the plantings.</u></li> </ol>
<b>Spacing requirements</b> <i>(LDM Table 1.a.(1)(f))</i>	See table for spacing requirements	<ul style="list-style-type: none"> <li>▪ Large evergreen trees – approx. 10 ft</li> <li>▪ Deciduous canopy trees – approx. 20 ft</li> </ul>	<ul style="list-style-type: none"> <li>▪ No</li> <li>▪ Yes</li> </ul>	<ol style="list-style-type: none"> <li>1. <u>Please provide greater spacing for evergreen trees than is proposed.</u></li> <li>2. <u>Per the LDM, Large evergreen trees must</u></li> </ol>

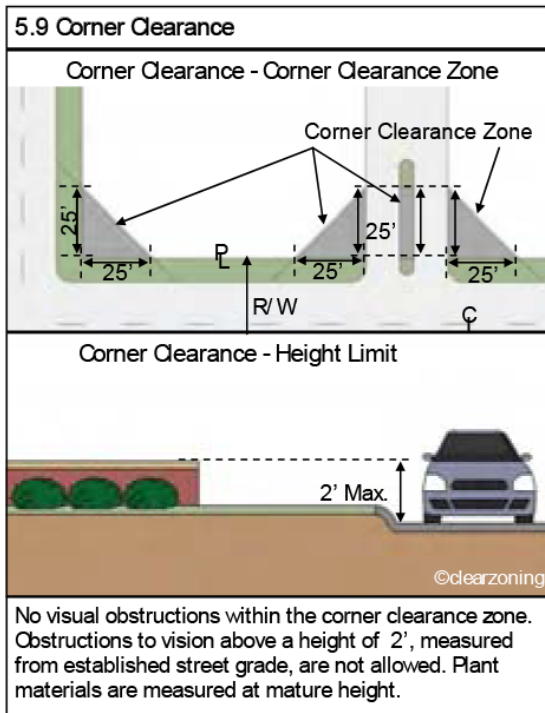
Item	Required	Proposed	Meets Code	Comments
				<p><u>be at least 15 feet from each other and 20 feet from a deciduous canopy tree</u></p> <p>3. <u>Deciduous canopy trees must be placed a minimum of 20 feet from each other and from large evergreen trees.</u></p>
<b>LANDSCAPING NOTES, DETAILS AND GENERAL REQUIREMENTS</b>				
<b>Landscape Notes – Utilize City of Novi Standard Notes</b>				
<b>Installation date</b> <i>(LDM 2.l. &amp; Zoning Sec 5.5.5.B)</i>	Provide intended date	Between Mar 15- Nov 15	No	<u>Please add to plan set</u>
<b>Maintenance &amp; Statement of intent</b> <i>(LDM 2.m &amp; Zoning Sec 5.5.6)</i>	<ul style="list-style-type: none"> <li>▪ Include statement of intent to install and guarantee all materials for 2 years.</li> <li>▪ Include a minimum one cultivation in June, July and August for the 2-year warranty period.</li> </ul>	No	No	<u>Please add to plan set</u>
<b>Plant source</b> <i>(LDM 2.n &amp; LDM 3.a.(2))</i>	Shall be northern nursery grown, No.1 grade.	No	No	<u>Please add to plan set</u>
<b>Irrigation plan</b> <i>(LDM 2.s.)</i>	<ul style="list-style-type: none"> <li>▪ A fully automatic irrigation system or a method of providing sufficient water for plant establishment and survival is required on Final Site Plans.</li> <li>▪ An alternative method of providing water for plant establishment and long-term survival can be proposed instead.</li> </ul>	None		<p>1. <u>Please add irrigation plan or information as to how plants will be watered sufficiently for establishment and long- term survival.</u></p> <p>2. <u>If xeriscaping is used, please provide information about plantings included and how they will be watered until established.</u></p>
<b>Other information</b> <i>(LDM 2.u)</i>	Required by Planning Commission	NA		<u>Please follow spacing requirements of LDM Table 1.a.(1)(f) for all trees.</u>
<b>Establishment period</b> <i>(Zoning Sec 5.5.6.B)</i>	<b>2 yr. Guarantee</b>	Yes	Yes	
<b>Approval of substitutions.</b>	City must approve any substitutions in writing	Yes	Yes	

Item	Required	Proposed	Meets Code	Comments
<i>(Zoning Sec 5.5.5.E)</i>	prior to installation.			
<b>Plant List (LDM 2.h.) – Include all cost estimates</b>				
Quantities and sizes	<ul style="list-style-type: none"> <li>▪ Refer to LDM suggested plant list, tree diversity requirements.</li> <li>▪ At least 50% of species used should be native to Michigan.</li> </ul>	Yes	Yes	
Root type		Yes	Yes	
Botanical and common names		<ul style="list-style-type: none"> <li>▪ Tree diversity is acceptable</li> <li>▪ 27 of 34 non-woodland replacement species (79%) used are native to Michigan</li> </ul>	Yes	<ol style="list-style-type: none"> <li>1. Deciduous canopy trees must have a minimum mature height of 30 feet and minimum canopy width of 20 feet.</li> <li>2. <u>Please replace the Red Obelisk Beech and Slender Silhouette Sweetgum as they do not meet the minimum canopy width requirement.</u></li> <li>3. <u>Please work to use a similar proportion of native species in the foundation plantings.</u></li> </ol>
Type and amount of lawn		No	No	<u>Please add areas of each in cost table.</u>
Cost estimate <i>(LDM 2.t)</i>		For all new plantings, mulch and sod as listed on the plan	No	No
<b>Planting Details/Info (LDM 2.i) – Utilize City of Novi Standard Details</b>				
Canopy Deciduous Tree	Refer to LDM for detail drawings	Yes	Yes	
Evergreen Tree		Yes	Yes	
Multi-stem Tree		Yes	Yes	
Shrub		Yes	Yes	
Perennial/ Ground Cover		Yes	Yes	
Tree stakes and guys. (Wood stakes, fabric guys)		Yes	Yes	
Tree protection fencing	Located at Critical Root Zone (1' outside of dripline)	<ul style="list-style-type: none"> <li>▪ Yes</li> <li>▪ Tree fencing line is shown on T-1.0</li> </ul>	Yes	<u>Please also show the tree protection fence line on the Demolition Plan and/or Soil Erosion Control Plan.</u>
<b>Other Plant Material Requirements (LDM 3)</b>				
<b>General Conditions</b> <i>(LDM 3.a)</i>	Plant materials shall not be planted within 4 ft. of property line	<ul style="list-style-type: none"> <li>▪ Yes</li> <li>▪ Note is added on Sheet L-1.0</li> </ul>	Yes	

Item	Required	Proposed	Meets Code	Comments
<b>Plant Materials &amp; Existing Plant Material</b> <i>(LDM 3.b)</i>	Clearly show trees to be removed and trees to be saved.	<ul style="list-style-type: none"> <li>▪ Existing tree tags and woodland line are shown on T-1.0</li> <li>▪ Trees to be removed are shown as lighter than trees to be saved and are indicated on tree chart.</li> </ul>	Yes	
<b>Landscape tree credit</b> <i>(LDM3.b.(d))</i>	Substitutions to landscape standards for preserved canopy trees outside woodlands/ wetlands should be approved by LA. Refer to Landscape tree Credit Chart in LDM	None		
<b>Plant Sizes for ROW, Woodland replacement and others</b> <i>(LDM 9.b.(2)(a)i)</i>	See Landscape Design Manual Table 9.b.(2)(a).i for required sizes	Yes	Yes	
<b>Plant size credit</b> <i>(LDM 9.b.(2)(a)(ii))</i>	NA	None		
<b>Prohibited Plants</b> <i>(LDM 9.b)</i>	No plants on City Invasive Species List	None are proposed	Yes	
<b>Recommended trees for planting under overhead utilities</b> <i>(LDM 3.e)</i>	Label the distance from the overhead utilities	No trees are proposed beneath the overhead utility line.	Yes	
<b>Nonliving Durable Material: Mulch</b> <i>(LDM 4)</i>	<ul style="list-style-type: none"> <li>▪ Trees shall be mulched to 3" depth and shrubs, groundcovers to 2" depth</li> <li>▪ Specify natural color, finely shredded hardwood bark mulch. Include in cost estimate.</li> </ul>	Shown in planting details	Yes	

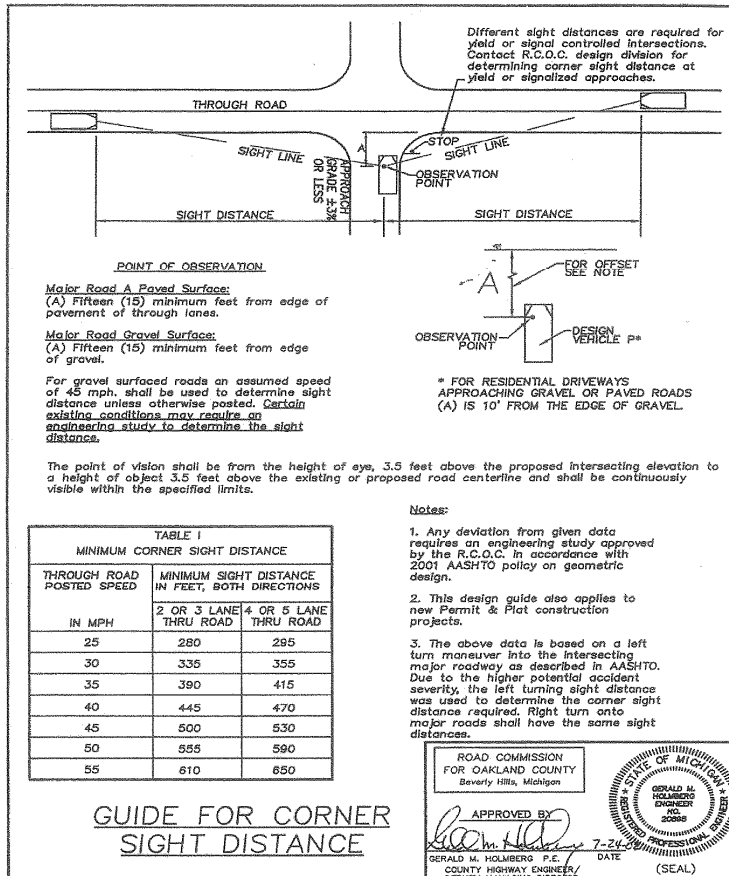
**NOTES:**

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. For the landscape requirements, please see the Zoning Ordinance landscape section 5.5 and the Landscape Design Manual for the appropriate items under the applicable zoning classification.
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.



Road Commission for Oakland County Sight Distance Guidelines

FIGURE 6-1



## TRAFFIC REVIEW

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AECOM  
27777 Franklin Road  
Southfield  
MI, 48034  
USA  
aecom.com

**Project name:**

JSP19-0024 Novaplex 2<sup>nd</sup> Revised PRO Concept  
Traffic Review

**From:**  
AECOM

**Date:**  
February 26, 2020

**To:**  
Barbara McBeth, AICP  
City of Novi  
45175 10 Mile Road  
Novi, Michigan 48375

**CC:**  
Sri Komaragiri, Lindsay Bell, Kate Richardson,  
Madeleine Kopko, Victor Boron

# Memo

**Subject:** JSP19-0024 Novaplex 2<sup>nd</sup> Revised PRO Concept Traffic Review

The 2<sup>nd</sup> revised PRO concept site plan was reviewed to the level of detail provided and AECOM recommends **denial** for the applicant to move forward until the comments provided below are adequately addressed to the satisfaction of the City.

## GENERAL COMMENTS

1. The applicant, BC Novaplex LLC, is proposing an apartment complex, consisting of 10 buildings containing 270 units, garages, clubhouse, and outdoor areas on the west side of Haggerty Road, between Twelve and Thirteen Mile Roads.
2. Haggerty Road is under the jurisdiction of Oakland County.
3. The parcel is zoned OST. The applicant is proposing rezoning the area to RM-2 with a PRO.
4. Summary of traffic-related waivers/variances:
  - a. The applicant is requesting a deviation for required parking spaces.
  - b. A deviation for major drive width will be required for the width of the outer drive loop.
  - c. A deviation for parking on a major drive will be required for the outer loop.
  - d. A deviation for island length exceeding standard length will be required for the entrance at Haggerty Road.
  - e. A deviation for exceeding the maximum 120' distance from the bicycle parking to building entrances may be required.
  - f. A deviation may be required if all bicycle parking facilities are not made accessible from adjacent street(s) and pathway(s) via a paved route that has a minimum width of 6'.

## TRAFFIC IMPACTS

1. AECOM performed an initial trip generation estimate based on the ITE Trip Generation Manual, 10<sup>th</sup> Edition, as follows:

ITE Code: 221 Multi-Family housing (Mid-Rise)  
Development-specific Quantity: 270  
Zoning Change: As indicated above for PRO

Trip Generation Summary				
	Estimated Trips	Estimated Peak-Direction Trips	City of Novi Threshold	Above Threshold?
AM Peak-Hour Trips	91	67	100	No
PM Peak-Hour Trips	115	70	100	No
Daily (One-Directional) Trips	1,470	N/A	750	Yes

2. The number of trips exceeds the City's threshold of more than 750 trips per day or 100 trips per either the AM or PM peak hour. AECOM recommends performing the following traffic impact studies in accordance with the City's requirements. This study was provided during the Pre-App phase and was revised for this submittal.

Trip Impact Study Recommendation	
Type of Study:	Justification
Rezoning Traffic Impact Study	The applicant is proposing rezoning the parcels and so a rezoning traffic study comparing the trips possible under the current and proposed zoning, as well as the proposed land use, is required. A RTIS was submitted by the applicant and reviewed by AECOM in a separate letter.
Traffic Impact Study	The proposed developments exceed the City of Novi thresholds for requiring a Traffic Impact Study. This study was provided during the Pre-App phase and was revised for the PRO concept submittal. It was reviewed in a separate letter.

## EXTERNAL SITE ACCESS AND OPERATIONS

The following comments relate to the external interface between the proposed development and the surrounding roadway(s).

1. The applicant is proposing two (2) points of access to the development, as follows:
  - a. One (1) divided driveway off of Haggerty Road.
    - i. The dimensions of the divided entrance are generally within the ranges provided in Figure IX.3 of the City's Code of Ordinances. The applicant could consider modifying the proposed dimensions to meet the standards. The island length dimension is not within the ranges in the figure and **would require a variance if not revised to meet City standards.**
  - b. Two (2) tie ins to existing access points for adjacent parcel on Haggerty Road.
2. The applicant has included a right turn lane and taper along Haggerty Road. The applicant should submit proposed Haggerty Road revisions to the Road Commission for Oakland County for their review and approval.
3. The applicant has extended the extra lane from the property to the south as a left turn bypass lane. The applicant should submit proposed Haggerty Road revisions to the Road Commission for Oakland County for their review and approval.
4. The applicant should confirm that the proposed driveways meet the same side spacing requirements as indicated in Section 11-216(d)(1)(d) and Figure IX.12 of the City's Code of Ordinances and dimension the spacing on the plans. It needs to be clearly shown.
5. The applicant should include sight distance measurements for the driveways along Haggerty Road. Refer to Figure VIII-E of the City's Code of Ordinances for more information.
6. The applicant is proposing a sidewalk along Haggerty Road, and continuing the sidewalk along the adjacent parcel to connect to the existing sidewalk.



- a. The applicant should provide proposed sidewalk and ramp details and include the latest Michigan Department of Transportation (MDOT) sidewalk ramp detail.

## INTERNAL SITE OPERATIONS

*The following comments relate to the on-site design and traffic flow operations.*

### 1. General Traffic Flow

- a. The site generally appears to be accessible to passenger vehicles.
- b. The applicant has provided fire truck turning paths to ensure accessibility.
- c. The majority of the drives in the development are considered major drives as per the City's Zoning Ordinance, Section 5.10.1.B. Major drives shall have a width of 28' and angled and perpendicular parking spaces are not permitted (5.10.1.B.v.d). The inner loop of drives complies with the Ordinance; however, the outer loop remains 24' wide with perpendicular parking. **The applicant will be required to get deviations for both major drive width and parking on a major drive for the currently proposed site plan.** AECOM would support these deviations if the following criteria are met:
  - i. Traffic calming measures are implemented along the outer loop to encourage slower speeds.
  - ii. At least 9 of the parking spaces placed along the curve on the southwest corner of the site should be removed.
- d. The applicant has provided some width dimensions for the end island areas throughout the development to ensure compliance with Figure 5.3.12 in the City's Zoning Ordinance. The width of the islands internal to the central parking area should also have widths dimensioned.
  - i. The applicant has indicated the end islands are 3' shorter than the adjacent parking stall.
  - ii. The islands internal to the parking bays in the central area appear to also be 3' shorter than the adjacent parking stalls. The internal islands are not required to be shorter than the adjacent parking spaces and may match the length.
  - iii. All landscape islands should have a curb height of 6". 4" curb heights are permitted for vehicle overhangs only, in front of 17' long parking spaces.
- e. The applicant has not provided more than 15 consecutive parking spaces, which is in compliance with the City's Zoning Ordinance, Section 5.5.3.C.ii.i.
- f. The applicant has proposed eight (8) trash receptacles in the development. The locations of some of the proposed facilities is such that, when in active use, the collection vehicle will diminish access to the maneuvering aisle and/or parking spaces. The applicant should review the placement of the receptacles and consider alternate locations that would not diminish access, if possible, in order to be in compliance with Section 5.4.4 of the Zoning Ordinance.
  - i. The applicant has confirmed that some of the trash receptacles are accessible by trash collection vehicles via turning movement paths.

### 2. Parking Facilities

- a. The applicant should reference the Planning Review letter for information regarding required off-street parking quantities. **The applicant has indicated they are requesting a deviation for the number of parking spaces required on the site.**
  - i. The applicant should strongly consider conducting a parking study to demonstrate the required number of spaces and indicate how the requirements will be met.
    1. If the garages are available for rent and not included in the apartment rentals, allowances will need to be made for lack of rental by residents.
  - ii. The applicant is proposing a mix of surface lot and garage spaces.
  - iii. The applicant should indicate the number of garages present in the buildings and how many parking spaces are included per garage.
  - iv. 120 apron spaces are indicated.
    1. The access to the garages should also be included in the plans.

- b. As stated in Section 1.c of this letter, perpendicular parking is not allowed on major drives. **The applicant would be required to seek a deviation for parking on the outer loop.**
- c. The proposed parking lot parking space dimensions are in compliance with City standards. The applicant has provided curb heights throughout the site.
- d. The applicant has generally indicated 9' parking space widths, which is in compliance with City standards.
- e. The applicant has indicated thirteen (13) accessible parking spaces.
  - i. The applicant has not indicated which spaces are van accessible. Three (3) of the thirteen spaces must be van accessible.
  - ii. Signs indicating accessible spaces must be placed at the head of each accessible space. The spaces in the central parking area must each have their own signs.
- f. The applicant has generally indicated 24' aisles in the parking lot areas. Please refer with Section 5.3.2 of the City's Zoning Ordinance. The outer loop of the property is not considered a minor drive, it is a major drive. The length exceeds the maximum length for a minor drive. **A deviation would be required to maintain the 24' width.** AECOM would not support that deviation.
- g. The applicant is required to provide 54 bicycle parking spaces, one (1) space for each five (5) dwelling units as well as 10% of the parking required for the Club building.
  - i. The applicant should indicate the locations where the bicycle parking is proposed and whether it is covered parking or not.
  - ii. The Zoning Ordinance, Section 5.16.1.F suggests providing spaces in multiple locations in increments of two (2) when more than four (4) spaces are required. Given the range of buildings to be served by the bicycle parking in this development, the applicant should provide the bicycle parking throughout the development, no more than 120 feet from the building entrances being served (Section 5.16.1.E). **The applicant has indicated they may require a waiver for the 120' distance, given the number of entrances.** All bicycle parking should be at most 120' from a building entrance. The Ordinance does not require bicycle parking to be provided at every single entrance.
  - iii. The Zoning Ordinance, Section 5.16.4, provides the following covered bicycle parking space requirement: *Unless waived or modified as provided in subsection 5E, when twenty (20) or more bicycle parking spaces are required, twenty-five (25) percent of the bicycle parking spaces shall be covered bicycle parking spaces.*
    - 1. Under this section, the applicant is required to provide 14 (25%) of the 54 bicycle parking spaces as covered parking.
  - iv. The applicant has provided the design of proposed bicycle racks and should indicate the height to ensure compliance with Section 5.16.5.B of the City's Zoning Ordinance.
  - v. The applicant has provided a proposed bicycle parking layout, however the location that it is intended to be at is not clear. The detail indicates it is near the Field Services Building. No building on the site plan is labeled as the Field Services Building. The applicant should indicate locations of the bicycle parking and distances from the entrances of the proposed buildings to review compliance with Section 5.16.

### 3. Sidewalk Requirements

- a. The applicant has generally proposed a 5' sidewalk width details throughout the site. The sidewalks adjacent to parking spaces at the Community Building have been dimensioned as 7'.
- b. The applicant should indicate locations of and details for all proposed sidewalk ramps throughout the site and include the latest MDOT sidewalk ramp detail.
- c. **It should be noted that all bicycle parking facilities shall be accessible from adjacent street(s) and pathway(s) via a paved route that has a minimum width of 6'. The applicant should revise the plans or seek a deviation.**

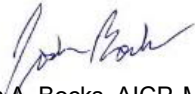
## SIGNING AND STRIPING

1. All on-site signing and pavement markings shall be in compliance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD). The following is a discussion of the proposed signing and striping.
  - a. The applicant has provided proposed signing locations but should provide additional details in the signing quantities table (MMUTCD designation and proposed size) in future submittals.
  - b. The stop sign detail shown on sheet C-9.0 indicates a sign size of 24". Stop signs are required to be a minimum of 30".
2. The applicant should provide the following notes and details related to the proposed signing.
  - a. Single signs with nominal dimensions of 12" x 18" or smaller in size shall be mounted on a galvanized 2 lb. U-channel post. Multiple signs and/or signs with nominal dimension greater than 12" x 18" shall be mounted on a galvanized 3 lb. or greater U-channel post as dictated by the weight of the proposed signs.
  - b. The applicant should indicate a bottom height of 7' from final grade for all signs installed.
  - c. The applicant should indicate that all signing shall be placed 2' from the face of the curb or edge of the nearest sidewalk to the near edge of the sign.
  - d. Traffic control signs shall use the FHWA Standard Alphabet series.
  - e. Traffic control signs shall have High Intensity Prismatic (HIP) sheeting to meet FHWA retroreflectivity requirements.
3. The applicant has included parking space striping notes to indicate that:
  - a. The standard parking spaces shall be striped with four (4) inch white stripes.
  - b. The accessible parking space and associated aisle should be striped with four (4) inch blue stripes.
  - c. Where a standard space is adjacent to an accessible space, abutting blue and white stripes shall be installed.
4. The applicant has provided a detail for the proposed international symbol for accessibility pavement markings that may be placed in the accessible parking space. The symbol shall be white or white with a blue background and white border with rounded corners.
5. The applicant should provide a detail for the proposed crosswalk markings.
6. The applicant should indicate any proposed pavement markings along Haggerty Road.
7. The applicant should include maintenance of traffic plans for the work along Haggerty Road in future submittals.

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

**AECOM**



Josh A. Bocks, AICP, MBA  
Senior Transportation Planner/Project Manager



Patricia Thompson, EIT  
Traffic Engineer

**TRAFFIC IMPACT STUDY REVIEW**

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AECOM  
27777 Franklin Road  
Southfield  
MI, 48034  
USA  
aecom.com

**To:**  
Barbara McBeth, AICP  
City of Novi  
45175 10 Mile Road  
Novi, Michigan 48375

**Project name:**  
JZ19-37 Novaplex Traffic Impact Study Review  
Letter

**From:**  
AECOM

**Date:**  
August 29, 2019

**CC:**  
Sri Komaragiri, Lindsay Bell, Kate Richardson,  
Madeleine Kopko, Kale Richardson

# Memo

**Subject:** JZ19-37 Novaplex Traffic Impact Study Review Letter

The traffic impact study (TIS) for the Novaplex development was reviewed to the level of detail provided and AECOM recommends **approval** of the TIS; however, the applicant should review the comments provided below and provide an update to the City.

## GENERAL COMMENTS

1. The memo will provide comments on a section-by-section basis following the format of the submitted report.

## PROJECT OVERVIEW

1. The project is proposed on the west side of Haggerty Road, between 12 Mile road and 13 Mile Road.
2. The development is proposed to consist of 350 multi-family residential units.
3. The TIS examines the traffic conditions at the intersection of Haggerty Road and Heatherbrook Drive/Infinity Medical Drive.

## DATA COLLECTION

1. The study intersections are Haggerty Road and Heatherbrook Drive/Infinity Medical Drive along with Haggerty Road and the proposed Site Driveway.
2. The preparer provided the historical AADT values for Haggerty Road to show a growth rate of less than 2% annually from 2000 to 2012. However, the text states volumes decreased from 2013 to 2018, and that 2017 values were used. The AADT for any of these years is not available in the appendix, with the exception of the 2017 AADT that was added to the turn lane/taper warrants. The 2017 AADT is listed as 16,230. 4 hour counts are the only 2017 data present in the appendix. The preparer should include the data for 2013-2018 as referenced, or update the reference to the provided data.
3. A lane use and traffic control inventory was conducted as well.

## BASELINE CONDITIONS

### Existing Conditions (2019)

1. The delay, Level of Service (LOS), average queue length, and 95<sup>th</sup> percentile queue lengths were calculated for the existing conditions. The intersection of Haggerty Road and Heatherbrook Drive/Invinity Medical Drive is a two way stop controlled intersection.
2. During the AM peak, the westbound left turning movement experiences the worst delay, at LOS E. The eastbound left turning movement operates at LOS D. The narrative describes the eastbound turning movement as operating at either an LOS E or F and should be revised.
3. During the PM peak, both the eastbound and westbound left turning movements operate at LOS F, with motorists waiting, on average, more than a minute to complete their turns.
4. A signal warrant analysis was done for the intersection. The existing volumes did not meet any of the warrant thresholds. A signal is not warranted at this location for existing conditions.

### Background Conditions (No Build 2022)

1. A 1% annual growth rate was applied to the 2019 volumes to arrive at the 2022 No Build values.
2. Eastbound and Westbound left turns operate at LOS E or F for both AM and PM peak periods under the background conditions.
3. Queue lengths remain insignificant, with a maximum of 2 to 3 vehicles.

## SITE TRIP GENERATION AND DISTRIBUTION

1. ITE Code 221, for Multi-Family Homes (Mid-Rise) was used to generate trips.
2. 1,906 vpd is the AADT for the site, with 117 trips during AM peak and 147 trips during PM peak
3. Existing peak hour traffic patterns, along with the site plans and ITE methodologies, were used to assign the trips to the study road network.

## FUTURE CONDITITONS (With Development 2022)

1. With the addition of the site traffic, the eastbound and westbound left turn approaches remain operating at LOS E or F. However, the delay increases for the westbound left turn movement by nearly 20 seconds in the AM peak and 25 seconds in the PM peak. The eastbound left turn movement has a delay increase of about 23 seconds during the PM peak under the build conditions.
2. Despite significant delay values, of nearly 2 minutes (103 seconds) for the east- and westbound left turns, the queue lengths indicate a queue of approximately 3 vehicles (63 feet).
3. The preparer should revise the narrative to match the max queue length present in the table and the synchro outputs.

### Future Signal Warrant Analysis / Access Management

1. The warrant analysis examined 3 warrants and dfound a signal was not warranted at the intersection of Haggerty Road and Heatherbrook Drive/Invinity Medical Drive with the development traffic conditions.
2. Driveway spacing is indicated to be consistent with the requirements set forth in the city ordinances.
3. The site driveway warrants a right turn taper and a left turn treatment, according to RCOC's guidelines.

## REZONING TRAFFIC COMPARISON

1. The applicant compared the previously approved site plan for this development with the multi-family .
2. Total trips proposed are lower than the previously approved site plan. However, the number of trips out-bound during the AM peak and in-bound during the PM peak exceed the previous site plan. This is a flip of the peak direction during peak hours.

## CONCLUSIONS AND RECOMMENDATIONS

1. No signals are warranted for the intersections studied for either current or future traffic conditions.
2. The STOP controlled left turn movements at the intersection of Haggerty Road and Heatherbrook Drive/Infinity Medical Drive will operate at LOS E or F during both peak periods, with delays of over a minute and a half. However, due to small amounts of vehicular traffic, queue length is not expected to cause major issues.
3. Both a right turn deceleration taper and some form of a left turn treatment are warranted for the site driveway.
4. The change of use does not create significant impacts despite the flip in peak hour peak direction traffic.

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

**AECOM**



Josh A. Bocks, AICP, MBA  
Senior Transportation Planner/Project Manager



Patricia A. Thompson, EIT  
Traffic Engineer

WETLAND REVIEW

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ECT Project No. 190526-0300

February 18, 2020

Ms. Barbara McBeth  
City Planner  
Community Development Department  
City of Novi  
45175 W. Ten Mile Road  
Novi, Michigan 48375

Re: Novaplex (JZ19-0037)  
Wetland Review of the 2<sup>nd</sup> Revised PRO Concept Plan (PSP20-0011)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the 2<sup>nd</sup> Revised Planned Re-Zoning Overlay (PRO) Concept Plan for the proposed Novaplex project prepared by PEA, Inc. dated and stamped “Received” by the City of Novi Community Development Department on January 31, 2020 (Plan). The Plan was reviewed for conformance with the City of Novi Wetland and Watercourse Protection Ordinance and the natural features setback provisions in the Zoning Ordinance. ECT most-recently visited the proposed project site on August 20, 2019 for the purpose of a wetland boundary verification.

**ECT does not currently recommend approval of the 2<sup>nd</sup> Revised PRO Concept Plan for Wetlands. The Applicant should address the items noted below in the *Wetland Comments* Section of this letter prior to receiving Wetland approval of the Revised PRO Concept Plan.**

The following wetland related items are required for this project:

Item	Required/Not Required/Not Applicable
Wetland Permit (specify Non-Minor or Minor)	Required (Non-Minor)
Wetland Mitigation	Required (Impacts currently > 0.25-acre wetland mitigation threshold)
Wetland Buffer Authorization	Required
EGLE Permit	Required
Wetland Conservation Easement	Required for any areas of proposed on-site wetland mitigation

The proposed project is located north of Twelve Mile Road and west of Haggerty Road (between the vacant Magna building to the north and the Botsford Center Rehabilitation Center to the south). The project site includes Parcel ID’s 50-22-12-400-009, -010, and -011. The Plan proposes the construction of ten (10) multi-family residential buildings, a club house/community building, garages, associated parking and utilities and two (2) stormwater detention basins.

An on-site wetland delineation and tree survey have been completed for the site by ECT. In addition, the Michigan Department of Environmental Quality (MDEQ, now the Michigan Department of Environment,

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Blvd., Suite 300  
Ann Arbor, MI  
48105

(734)  
769-3004

FAX (734)  
769-3164

Great Lakes, and Energy (EGLE)) conducted a Level 3 Wetland Identification Review of approximately 22 acres on the subject site on June 7, 2018. The MDEQ Wetland Identification Report is dated July 5, 2018 (Report). At that time, the MDEQ stated that “based on our site investigation which included a review of plants, hydrology, and soils, the DEQ confirms, in part, the wetland boundary lines flagged by your consultant. The DEQ also reviewed other pertinent information such as aerial imagery, soil survey data, topographic mapping data, and surface hydrology data”. In addition, the Report states:

*Approximately 0.72-acre of wetland was overlooked and omitted by the consultant. The DEQ extended the consultant’s wetland delineation boundary flagging associated with wetlands within the western and northcentral portion of the Wetland Identification Program (WIP) review area and located two other wetlands within the southwest portion of the WIP review area. The wetland areas showed evidence of sustained surface (or near-surface) hydrology occurring during the growing season and were associated with hydrophytic plant species and hydric soil.*

*Modified boundaries were documented on the enclosed site map (Figure 2). The site map of the WIP review area was created by combining information from your consultant and the DEQ. The new map identifies areas containing regulated wetland, unregulated wetland, and non-wetland (upland)”.*

#### **Wetland Evaluation**

ECT’s in-office review of available materials included the City of Novi Regulated Wetland and Woodland map, USGS topographic quadrangle map, NRCS soils map, USFWS National Wetland Inventory map, and historical aerial photographs. The site includes areas indicated as City-regulated wetland on the official City of Novi Regulated Wetland and Woodland Map (see Figure 1).

ECT visited the site most recently on August 20, 2019 for the purpose of a wetland boundary verification. The focus of the inspection was to review site conditions in order to determine whether on-site wetlands are considered regulated under the City of Novi’s Wetland and Watercourse Protection Ordinance. Wetland boundary flagging was in place in some areas of the site at the time of our inspection and not present in others. ECT concurs with the seven (7) wetland areas (Wetlands A, B, C, D, E, F, and G) indicated on the MDEQ’s Wetland Identification Detail figure (Figure 2, attached). The current Plan appears to show most of the wetland areas that have been delineated on site by the applicant’s wetland as well as by MDEQ during their June 7, 2018 WIP review.

**There is one (1) main discrepancy between the applicant’s Plan and the MDEQ’s Wetland Identification Detail. The Plan does not include all of the Wetland A area as determined by MDEQ. This is part of the area that MDEQ notes as being omitted by the applicant’s consultant in the northcentral portion of the site.**

Wetlands A, B, F, and G are all primarily open water/emergent wetlands located in the northcentral, southwest and southeast sections of the subject property, respectively. The eastern section of Wetland A contained standing water at the time of our inspection. In general, these wetland areas appear to contain seasonal standing water. Existing vegetation observed within these wetland areas included common reed (*Phragmites australis*), reed canary grass (*Phalaris arundinacea*), purple loosestrife (*Lythrum salicaria*), sensitive fern (*Onoclea sensibilis*), cattails (*Typha spp.*) and several other species.

Wetlands C, D, and E are primarily forested/scrub-shrub wetlands located along the western edge of the subject properties. Portions of these wetlands included standing water at the time of our inspection. Existing vegetation observed within these wetland areas included cattail (*Typha spp.*), silver maple (*Acer*

*saccharinum*), silky dogwood (*Cornus amomum*), reed canary grass (*Phalaris arundinacea*), and several other species).

What follows is a summary of the wetland impacts associated with the proposed site design as shown on the current Plan. It should be noted that the current Plan has omitted some of the overall area of existing Wetland A and should be revised as necessary.

**Wetland Impact Review**

The Plan indicates seven (7) areas of existing wetland on the development site. The proposed Plan currently proposes impacts to four (4) of these wetlands (i.e., Wetlands A, B, F, and G). Wetlands C, D, and E are proposed to be preserved. It should be noted that the current Plan does not appear to indicate and quantify the proposed impacts to the existing wetlands and 25-foot wetland setbacks. A description of the apparent wetland impacts follows. The following table (Table 1) summarizes the existing wetlands and the apparent wetland impacts:

**Table 1. Proposed Wetland Impacts**

<i>Wetland Area</i>	<i>Wetland Area (square feet)</i>	<i>Wetland Area (acre)</i>	<i>City Regulated?</i>	<i>EGLE Regulated?</i>	<i>Impact Area (square feet)</i>	<i>Impact Area (acre)</i>	<i>Impact Volume (cubic yards)</i>
A	3,930*	0.09*	<b>City/Essential</b>	No	3,930*	0.09*	Not Provided
B	17,919	0.41	<b>City/Essential</b>	No	17,919	0.41	Not Provided
C	1,663	0.038	<b>City/Essential</b>	Yes	None	None	None
D	5,866	0.13	<b>City/Essential</b>	No	None	None	None
E	4,679	0.11	<b>City/Essential</b>	No	None	None	None
F	23,309	0.53	<b>City/Essential</b>	Yes	Not Provided	Not Provided	Not Provided
G	481	0.01	<b>City/Essential</b>	Yes	481	0.01	Not Provided
<b>TOTAL</b>	<b>57,847</b>	<b>1.33</b>	<b>--</b>	<b>--</b>	<b>&gt;22,330</b>	<b>&gt;0.51</b>	<b>Not Provided</b>

*\*Note: The Plan does not include all of the Wetland A area as determined by MDEQ. This is part of the area that MDEQ notes as being omitted by the applicant’s consultant in the northcentral portion of the site.*

**As noted above, the current Plan does not clearly indicate the proposed impacts to the on-site wetlands. Specifically, the proposed impact to Wetland F has not been quantified. In addition, the associated volume (cubic yards) of fill has not been provided on the Plan. As noted, the Plan does not include all of the Wetland A area as determined by MDEQ. This is part of the area that MDEQ notes as being omitted by the applicant’s consultant in the northcentral portion of the site.**

In addition to wetland impacts, the Plan also proposes impacts to the 25-foot natural features setbacks. These impacts have not, however, been indicated or quantified on the Plan.

The applicant shall show the following information on subsequent site plans:

- Area (square feet) of all existing 25-foot wetland buffer areas;
- Area (square feet) of all wetland buffer impacts (both permanent and temporary);
- The proposed impacts to wetlands and 25-foot wetland setbacks shall be indicated on the Plan on the same sheet at the proposed site plan, not just on the existing conditions/demo plan;
- Volume (cubic yards) of all proposed wetland impacts.

The currently proposed wetland impacts do require wetland mitigation as the City's threshold for wetland mitigation is 0.25-acre of wetland impact and the MDEQ's threshold is 0.30-acre. Currently, the Plan does not clearly indicate the total quantity of proposed total wetland impact.

### **City of Novi Wetland Ordinance Requirements**

The City of Novi Wetland and Watercourse Protection Ordinance (City of Novi Code of Ordinances, Part II, Chapter 12, and Article V) describes the regulatory criteria for wetlands and review standards for wetland permit applications.

As stated in the Ordinance, it is the policy of the city to prevent a further net loss of those wetlands that are: (1) contiguous to a lake, pond, river or stream, as defined in Administrative Rule 281.921; (2) two (2) acres in size or greater; or (3) less than two (2) acres in size, but deemed essential to the preservation of the natural resources of the city under the criteria set forth in subsection 12-174(b).

The wetland essentiality criteria as described in the Wetland and Watercourse Protection Ordinance are included below. Wetlands deemed essential by the City of Novi require the approval of a use permit for any proposed impacts to the wetland:

*All noncontiguous wetland areas of less than two (2) acres which appear on the wetlands inventory map, or which are otherwise identified during a field inspection by the city, shall be analyzed for the purpose of determining whether such areas are essential to the preservation of the natural resources of the city....In making the determination, the city shall find that one (1) or more of the following exist at the particular site:*

- (1) *The site supports state or federal endangered or threatened plants, fish or wildlife appearing on a list specified in Section 36505 of the Natural Resources Environmental Protection Act (Act 451 of 1994) [previously section 6 of the endangered species act of 1974, Act No. 203 of the Public Acts of 1974, being section 229.226 of the Michigan Compiled Laws].*
- (2) *The site represents what is identified as a locally rare or unique ecosystem.*
- (3) *The site supports plants or animals of an identified local importance.*
- (4) *The site provides groundwater recharge documented by a public agency.*
- (5) *The site provides flood and storm control by the hydrologic absorption and storage capacity of the wetland.*
- (6) *The site provides wildlife habitat by providing breeding, nesting or feeding grounds or cover for forms of wildlife, waterfowl, including migratory waterfowl, and rare, threatened or endangered wildlife species.*
- (7) *The site provides protection of subsurface water resources and provision of valuable watersheds and recharging groundwater supplies.*
- (8) *The site provides pollution treatment by serving as a biological and chemical oxidation basin.*
- (9) *The site provides erosion control by serving as a sedimentation area and filtering basin, absorbing silt and organic matter.*
- (10) *The site provides sources of nutrients in water food cycles and nursery grounds and sanctuaries for fish.*

*After determining that a wetland less than two (2) acres in size is essential to the preservation of the natural resources of the city, the wetland use permit application shall be reviewed according to the standards in subsection 12-174(a).*

### **Wetland Permits & Regulatory Status**

ECT has evaluated the on-site wetlands and believes that they are all considered to be essential/regulated by the City of Novi as they meet one or more of the essentiality criteria (i.e., functions and values) outlined in the City of Novi Wetland and Watercourse Protection Ordinance. Based on the criteria set forth in The City of Novi Wetlands and Watercourse Protection ordinance (Part II-Code of Ordinances, Ch. 12, Article V.), the on-site wetlands appear to meet the definition of a City-regulated wetland and meet one or more of the essentially criteria (i.e., wildlife habitat, storm water control, etc.). Any proposed use of the wetlands will require a City of Novi *Wetland Use Permit* as well as an *Authorization to Encroach the 25-Foot Natural Features Setback* for any proposed impacts to the 25-foot wetland buffers. It appears as though a City of Novi Non-Minor Use Wetland Permit would be required for the proposed impacts as the total wetland impacts appear to be greater than 10,000 square feet and/or likely greater than 300 cubic yards of impact [i.e., threshold for City of Novi Non-Residential (i.e., non-single family residence) Minor Wetland Permits]. A City of Novi *Authorization to Encroach the 25-Foot Natural Features Setback* would be required for any proposed impacts to on-site 25-foot wetland buffers.

ECT encourages the Applicant to minimize impacts to on-site wetlands and wetland setbacks to the greatest extent practicable. The Applicant should consider modification of the proposed lot boundaries and/or site design in order to preserve wetland and wetland buffer areas. It is ECT's opinion that the preservation of the 25-foot wetland buffer areas is important to the overall health of the wetlands, especially after site development. The existing buffer serves to filter pollutants and nutrients from storm water before entering the wetlands, as well as to provide additional wildlife habitat.

The City regulates wetland buffers/setbacks. Article 24, Schedule of Regulations, of the Zoning Ordinance states that:

*“There shall be maintained in all districts a wetland and watercourse setback, as provided herein, unless and to the extent, it is determined to be in the public interest not to maintain such a setback. The intent of this provision is to require a minimum setback from wetlands and watercourses.*

*Within an established wetland or watercourse setback, unless and only to the extent determined to be in the public interest by the body undertaking plan review, there shall be no deposition of any material, removal of any soils, minerals and/or vegetation, dredging, filling or land balancing, or construction of any temporary or permanent structures.*

*In determining whether proposed activities are in the public interest, the benefit which would reasonably be expected to accrue from the proposal shall be balanced against the reasonably foreseeable detriments of the construction or other activity, taking into consideration the local, state, and national concern for the protection and preservation of the natural feature in question. If, as a result of such a balancing, there remains a debatable question whether the proposal is clearly in the public interest, authorization for the construction or other activity within the setback shall not be granted”.*

EGLE generally regulates wetlands that are within 500 feet of a waterbody, regulated stream or are part of wetland system greater than 5 acres in size. As noted, EGLE (formerly MDEQ) conducted a Level 3 Wetland Identification Review and summarized this in a Report dated July 5, 2018. EGLE has regulatory authority over Wetlands C, F, and G. The Applicant should provide a copy of the MDEQ Wetland Use Permit application to the City (and our office) for review and a copy of the approved permit upon issuance. A City of Novi Wetland Permit cannot be issued prior to receiving this information.

### **Wetland Mitigation**

EGLE generally requires mitigation for impacts greater than one-third (0.33) acre and the City requires mitigation for impacts greater than one-quarter (0.25) acre. While the Plan does not appear to specifically quantify the overall wetland impacts, as noted above, the proposed impacts to existing wetlands appears to be greater than 0.25-acre and appear to require compensatory wetland mitigation. Proposed wetland mitigation is not however indicated on the Plan. **If impacts exceed these thresholds for wetland mitigation, subsequent site plans shall include a wetland mitigation plan.**

It should be noted that Section 12-176. – Mitigation of the City’s Wetlands and Watercourse Protection Ordinance states the following:

*Mitigation shall be provided onsite where practical and beneficial to the wetland resources. If onsite mitigation is not practical and beneficial, mitigation in the immediate vicinity, within the same watershed, may be considered. Mitigation at other locations within the city will only be considered when the above options are impractical.*

### **Wetland Comments**

The following are repeat comments from our Wetland Review of the Revised PRO Concept Plan (PSP19-0129) letter dated August 26, 2019. The current status of each comment follows in ***bold italics***. The applicant has not addressed our previous comments. Please consider the following comments when preparing subsequent site plan submittals:

1. ECT encourages the Applicant to minimize impacts to on-site wetlands and wetland setbacks to the greatest extent practicable. The Applicant should consider modification of the proposed limits of disturbance boundaries and/or site design in order to preserve wetland and wetland buffer areas. It is ECT’s opinion that the preservation of the 25-foot wetland buffer areas is important to the overall health of the wetlands, especially after site development. The existing buffer serves to filter pollutants and nutrients from storm water before entering the wetlands, as well as to provide additional wildlife habitat.

***This comment still applies.***

2. The Plan does not include all of the Wetland A area as determined by MDEQ’s Wetland Identification Review (letter dated July 5, 2018). The plan should be updated to include all areas of existing wetland.

***This comment has not been addressed.***

3. Proposed wetland impacts shall be clearly indicated, quantified and labeled on the Plan. All impact areas (square feet or acres) and impact volumes (cubic yards) shall be indicated on the Plan.

***This comment has not been addressed.***

4. Subsequent site plans shall clearly indicate, label, and quantify (square feet or acres) the areas of all existing 25-foot wetland setbacks. Areas of proposed impact to 25-foot wetland buffers shall also be indicated, quantified (square feet or acres), and labeled on the Plan.

***This comment has not been addressed.***

5. Wetland flag numbers should also be included on the Plan for all wetland areas.

***This comment has not been addressed. Some wetland flag numbers have been provided but not all.***

6. Impacts are proposed to EGLE-regulated wetlands F and G. The Applicant should provide a copy of the EGLE Wetland Use Permit application to the City (and our office) for review and a copy of the approved permit upon issuance. A City of Novi Wetland Permit cannot be issued prior to receiving this information.

***This comment still applies.***

7. Should temporary impacts to either wetland or wetland setback be required, the applicant shall designate on the Plan a proposed native seed mix to be used in the restoration of these areas. Temporary impacts to wetlands and wetland setbacks shall be restored using a native seed mix; common grass seed or sod is not authorized in these areas. Seed mix details shall be included on the Plan, if applicable. The applicant should review and revise the Plan as necessary.

***This comment still applies.***

8. Should wetland mitigation continue to necessary due to proposed wetland impacts exceeding the City of EGLE mitigation thresholds, the applicant shall submit a detailed wetland mitigation plan for approval concurrently with the site development plan. Subsequent Plans should provide detailed information regarding the proposed wetland mitigation area, and specifically contain all of the requirements listed in Section 12-176. – Mitigation of the City of Novi Wetland Ordinance. .

The Plan shall also indicate the wetland Mitigation Ratio required for each area of wetland impact keeping in mind that the minimum requirement for mitigation of emergent and scrub-shrub wetland is 1.5-to-1 and the minimum requirement for mitigation of forested wetland is 2.0-to-1.

***This comment has not been addressed. It should be noted that Section 12-176. – Mitigation of the City’s Wetlands and Watercourse Protection Ordinance states the following:***

***Mitigation shall be provided onsite where practical and beneficial to the wetland resources. If onsite mitigation is not practical and beneficial, mitigation in the immediate vicinity, within the same watershed, may be considered. Mitigation at other locations within the city will only be considered when the above options are impractical.***

9. The Applicant is encouraged to provide wetland conservation easements for any areas of remaining wetland and 25-foot wetland buffer. The Applicant shall provide wetland conservation easements as directed by the City of Novi Community Development Department for any areas of proposed wetland mitigation areas (if necessary). This language shall be submitted to the City Attorney for review. The executed easement must be returned to the City Attorney within 60 days of the issuance of the City of Novi Wetland and Watercourse permit.

***Please note that the Applicant shall provide wetland conservation easements as directed by the City of Novi Community Development Department for any areas of proposed wetland mitigation areas (if necessary). This language shall be submitted to the City Attorney for review. The executed easement must be returned to the City Attorney within 60 days of the issuance of the City of Novi Wetland and Watercourse permit.***

**Recommendation**

ECT does not currently recommend approval of the 2<sup>nd</sup> Revised PRO Concept Plan for Wetlands. The Applicant should address the items noted below in the *Wetland Comments* Section of this letter prior to receiving Wetland approval of the Revised PRO Concept Plan.

If you have any questions regarding the contents of this letter, please contact us.

Respectfully submitted,

**ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.**

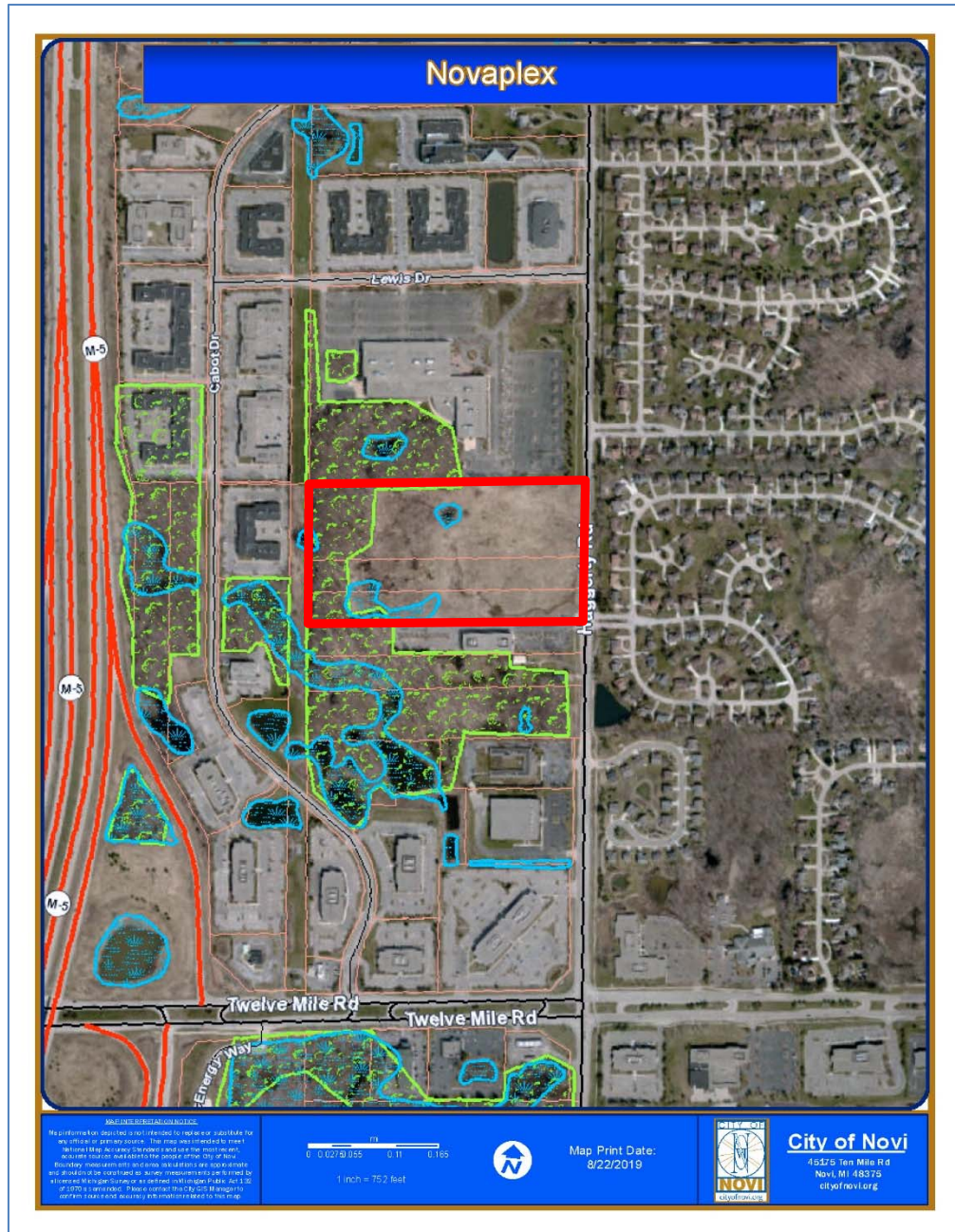


Pete Hill, P.E.  
Senior Associate Engineer

cc: Lindsay Bell, City of Novi Planner  
Sri Komaragiri, City of Novi Planner  
Madeleine Kopko, City of Novi Planning Assistant  
Rick Meader, City of Novi Landscape Architect

Attachments: Figure 1 – City of Novi Regulated Wetland and Woodland Map  
Figure 2 – DEQ Wetland Identification Detail  
Site Photos





**Figure 1.** City of Novi Regulated Wetland & Woodland Map (approximate project boundary shown in red). Regulated Woodland areas are shown in green and Regulated Wetland areas are shown in blue.

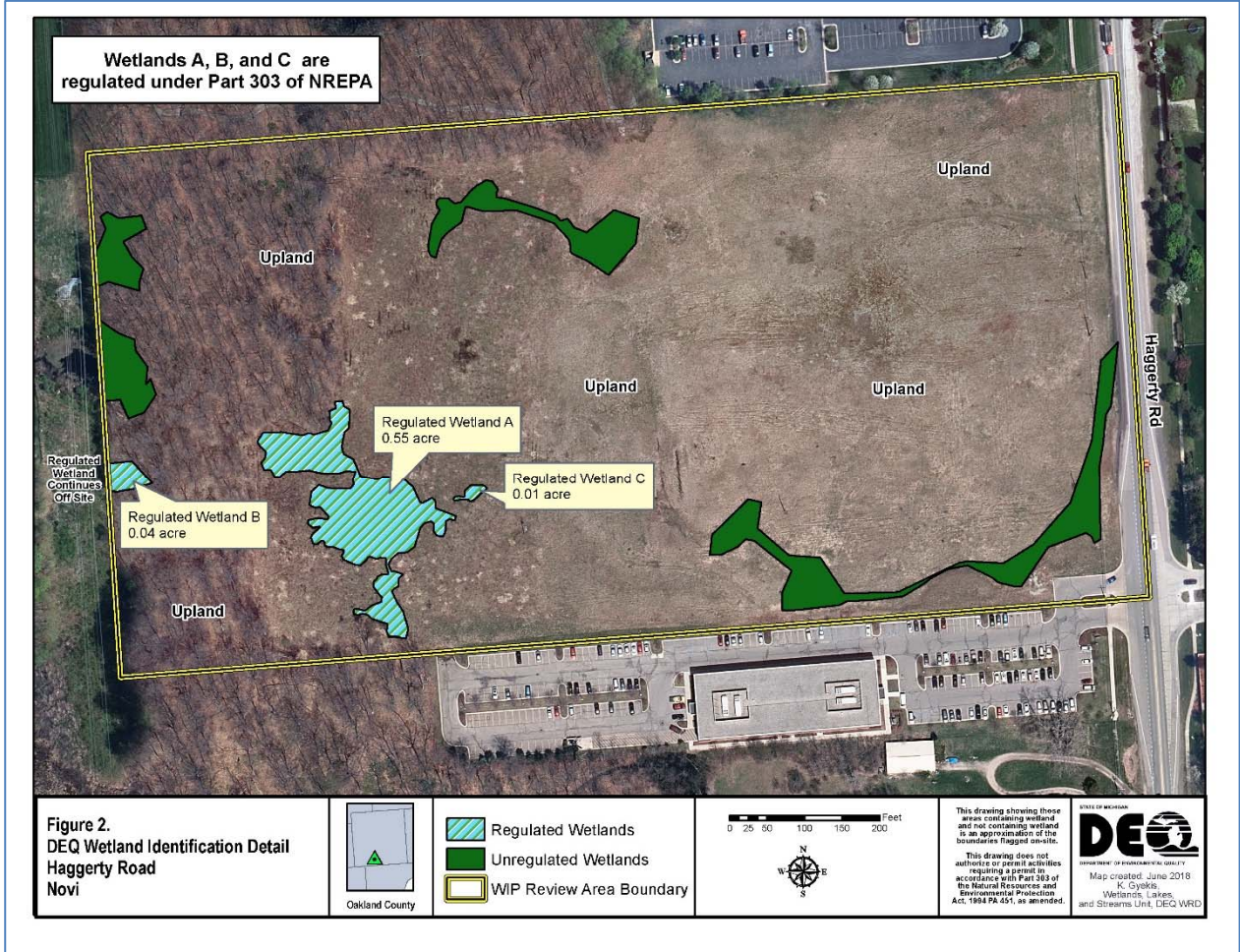


Figure 2. DEQ Wetland Identification Detail.

***Site Photos***



**Photo 1.** Looking west at Wetland C on the western edge of the project site (ECT, August 20, 2019).



**Photo 2.** Looking east at the northern edge of Wetland F near existing edge of woodlands (ECT, August 20, 2019).



**Photo 3.** Looking south at Wetland A (ECT, August 20, 2019).



**Photo 4.** Looking west at Wetland B on the southern edge of the project site (ECT, August 20, 2019).



**Photo 5.** Looking east at the western extents of Wetland A along the northern section of the project site (ECT, August 20, 2019).

ECT Project No. 170397-0500

January 8, 2017

Ms. Barbara McBeth, AICP  
City Planner, Community Development Department  
City of Novi  
45175 W. Ten Mile Road  
Novi, Michigan 48375

Re: Novaplex (PWT17-0010)  
Wetland Evaluation

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) conducted a wetland evaluation for a property located north of Twelve Mile Road and west of Haggerty Road. It is located south of the currently vacant Magna building located at the southwest corner of Haggerty Road and Lewis Drive, Section 12. The Wetland Boundary Determination Application notes that the gross site acreage is 22 acres. The on-site wetland acreage does not appear to be listed on the plans submitted by the applicant, however it is noted that there are three (3) small pockets of forested wetland along the west property line as well as two (2) emergent wetlands in the open field area in the central and eastern portion of the site.

Based on our review of the application, Novi aerial photos, Novi GIS, the City of Novi Official Wetlands and Woodlands Map (see Figure 1, attached), and our on-site wetland evaluation inspection on November 7, 2017, the overall development site contains City-Regulated Wetlands as well as Woodlands. It should be noted that a significant portion of the development site had been previously cleared for the purpose of constructing a development that was never built. Wetland and Woodland Permits were issued for the previously-proposed impacts. ECT estimates that approximately 17.4 acres of the 22-acre site was previously cleared in preparation for development. Approximately 4.6 acres of the site remains as City Regulated Woodland area.

**City of Novi Wetland Ordinance Requirements**

The City of Novi Wetland and Watercourse Protection Ordinance (City of Novi Code of Ordinances, Part II, Chapter 12, Article V.; Division 2.) describes the regulatory criteria for wetlands and review standards for wetland permit applications.

The wetland essentiality criteria as described in the Wetland and Watercourse Protection Ordinance are included below. Wetlands deemed essential by the City of Novi require the approval of a use permit for any proposed impacts to the wetland.

*All noncontiguous wetland areas of less than two (2) acres which appear on the wetlands inventory map, or which are otherwise identified during a field inspection by the city, shall be analyzed for the purpose of determining whether such areas are essential to the preservation of the natural resources of the city. . . . In making the determination, the city shall find that one (1) or more of the following exist at the particular site:*

- (1) *The site supports state or federal endangered or threatened plants, fish or wildlife appearing on a list specified in Section 36505 of the Natural Resources Environmental Protection Act (Act 451 of*

1994) [previously section 6 of the endangered species act of 1974, Act No. 203 of the Public Acts of 1974, being section 229.226 of the Michigan Compiled Laws].

- (2) The site represents what is identified as a locally rare or unique ecosystem.
- (3) The site supports plants or animals of an identified local importance.
- (4) The site provides groundwater recharge documented by a public agency.
- (5) The site provides flood and storm control by the hydrologic absorption and storage capacity of the wetland.
- (6) The site provides wildlife habitat by providing breeding, nesting or feeding grounds or cover for forms of wildlife, waterfowl, including migratory waterfowl, and rare, threatened or endangered wildlife species.
- (7) The site provides protection of subsurface water resources and provision of valuable watersheds and recharging groundwater supplies.
- (8) The site provides pollution treatment by serving as a biological and chemical oxidation basin.
- (9) The site provides erosion control by serving as a sedimentation area and filtering basin, absorbing silt and organic matter.
- (10) The site provides sources of nutrients in water food cycles and nursery grounds and sanctuaries for fish.

*After determining that a wetland less than two (2) acres in size is essential to the preservation of the natural resources of the city, the wetland use permit application shall be reviewed according to the standards in subsection 12-174(a).*

### **Wetland Evaluation**

ECT's in-office review of available materials included the City of Novi Regulated Wetland and Watercourse map, USGS topographic quadrangle map, NRCS soils map, USFWS National Wetland Inventory map, and historical aerial photographs. The site includes several wetland areas that are indicated as City-regulated on the official City of Novi Regulated Wetland and Watercourse Map (see Figure 1).

The focus of the site inspection was to review site conditions in order to determine whether City-regulated wetlands are found on-site as well as confirm any wetland boundaries delineated by the applicant's wetland consultant. PEA, Inc. performed the on-site wetland delineation. Pink wetland boundary flagging was in place at the time of our site inspection.

The *Topographic Survey* provided by the applicant (Figure 2) indicates a total of five (5) on-site wetlands. The conceptual site plan that was previously submitted by the applicant proposed the filling of two (2) of the five (5) delineated wetlands on the site. As noted in the *Community Impact Statement (CIS)* prepared July 20, 2017 and previously submitted by the applicant, it is noted that about half of the wetlands are forested with the remaining wetlands consisting of emergent wetlands located in the open field areas. The applicant's consultants (PEA and Fleis & Vandenbrink) note that the wetlands are very typical for urban areas and exhibit poor to fair quality and provide minimal plant diversity. Common plants are noted as silver maple, reed canary grass, cattail, red-twig dogwood and black willow.

The CIS continues to state that based on the definition of wetland regulation by the Michigan Department of Environmental Quality (MDEQ) and the City of Novi, it is their opinion that all five (5) flagged wetlands are not regulated by the MDEQ or the City of Novi. Furthermore, based upon that opinion of regulation, the City's 25-foot wetland and watercourse buffer regulation would not apply. Finally, the CIS notes that the "small, unregulated" wetlands within the previously-disturbed area of the proposed development will be filled. The small wetlands within the proposed wildlife corridor along the westerly property line will be preserved.

ECT disagrees with the applicant's assessment that the on-site wetlands are not regulated by the City or by MDEQ (see *Wetland Regulatory Discussion* section for additional information). We have reviewed the wetland flagging and have determined that the wetland boundaries were accurately flagged in the field.

The following is a brief description of each of the on-site wetlands:

Wetland A is an emergent wetland located in the north/central open portion of the site. The dominant vegetation consisted of mainly common reed (*Phragmites australis*); an invasive species of vegetation. This wetland was proposed to be filled on the previously submitted concept plan. It appears as if a portion of this wetland was previously filled as authorized by the City of Novi Wetland and Watercourse Permit (Permit No. 99-32C-Renewal, dated August 24, 2004). Previous plans indicated a somewhat larger wetland in this area of the site (0.41-acre as opposed to the 0.09-acre wetland shown on the current *Topographic Survey Plan*).

Wetland B is an emergent wetland located along the southern and southeastern portion of the site. The dominant vegetation consisted of mainly common reed (*Phragmites australis*); an invasive species of vegetation.

It should be noted that it appears as if the applicant has labeled two (2) separate wetlands as wetland "A". Wetland A is forested wetland located in the western portion of the site. The dominant vegetation consisted of silver maple (*Acer saccharinum*). This wetland is proposed to be preserved on the pre-application site plan.

Wetland D is forested wetland with an open water element located in the western portion of the site. This wetland is proposed to be preserved on the pre-application site plan. The dominant vegetation consisted of silver maple (*Acer saccharinum*), narrow-leaved cattail (*Typha angustifolia*), and reed canary grass (*Phalaris arundinacea*).

Wetland E is forested wetland located in the northwestern portion of the site. The dominant vegetation consisted of silver maple (*Acer saccharinum*). This wetland is proposed to be preserved on the pre-application site plan.

#### **Wetland Regulatory Discussion**

ECT has evaluated the on-site wetlands and believes that they are all considered to be essential/regulated by the City of Novi as they meet one or more of the essentiality criteria (i.e., functions and values) outlined in the City of Novi Wetland and Watercourse Protection Ordinance (listed above). Specifically, the wetlands provide either flood and storm control or wildlife habitat. As noted, the wetlands appear to accurately flagged in the field and appear to be generally indicated accurately on the *Topographic Survey* provided by the applicant (Figure 2, attached). The dominant vegetation within Wetland B consisted of mainly common reed (*Phragmites australis*); an invasive species of vegetation.

The Michigan Department of Environmental Quality (MDEQ) generally regulates wetlands that are within 500 feet of a waterbody, regulated stream or are part of wetland system greater than 5 acres in size. It is the applicant's responsibility to contact MDEQ in order to confirm the regulatory authority with respect to the on-site wetland areas.

Any proposed use of the wetlands will require a City of Novi *Wetland Use Permit* as well as an *Authorization to Encroach the 25-Foot Natural Features Setback* for any proposed impacts to the 25-foot wetland buffers.



The applicant is urged to minimize impacts to on-site wetlands and wetland setbacks to the greatest extent practicable. The City regulates wetland buffers/setbacks. Article 24, Schedule of Regulations, of the Zoning Ordinance states that:

*“There shall be maintained in all districts a wetland and watercourse setback, as provided herein, unless and to the extent, it is determined to be in the public interest not to maintain such a setback. The intent of this provision is to require a minimum setback from wetlands and watercourses?”*

It should be noted that in those cases where an activity results in the impact to wetland areas of 0.25-acre or greater that are deemed essential under City of Novi Ordinance subsection 12-174(b) mitigation shall be required. The MDEQ’s threshold for the requirement of wetland mitigation is 0.3-acre of wetland impacts. It should be noted that the original site development plan appears to have proposed the filling of approximately 0.41-acre (17,985 square feet) of existing wetland. This impact appears to have been previously-authorized through a City of Novi Wetland Permit. The previous permit does not appear to have included wetland mitigation as a required condition. Although not specified on the current conceptual site plan, the applicant appears to be proposing the filling of Wetland A (3,918 square feet/0.090-acre) and Wetland B (18,267 square feet/0.419-acre) for a total of approximately 22,185 square feet (0.509-acre).

The applicant shall provide information on subsequent plans that clearly indicates the areas of onsite wetlands as well as the area of the 25-foot wetland buffers (i.e., square feet or acres). The plans shall also clearly indicate the area (square feet or acres) of all wetland and wetland buffer impacts (both permanent and temporary, if applicable) and the volume (cubic yards) of all wetland impacts.

#### **Woodland Observations**

As shown on the *Topographic Survey* (Figure 2), a forested buffer remains along the western edge of this parcel. Sections of this remaining forested area appear to exceed 300 lineal feet in width. The remaining woodland areas consists of a high-quality beech-sugar maple forest that has a dense canopy dominated by beech and sugar maple trees with some ash, basswood, oak, elm, black cherry, and walnut. Ironwood is a dominant understory tree along with beech and sugar maple saplings. Shrubs consist of predominantly spicebush with some witch-hazel, viburnum and common elderberry. Ground cover within this woodland includes creeping strawberry-bush, woodbine, Jack-in-the-pulpit, Solomon’s seal, Christmas fern, bloodroot, beech drops, and mayapple.

A relatively recent concept plan previously submitted by the applicant proposed the removal of **203** remaining regulated trees requiring a total of **382** Woodland Replacement Credits. The current pre-application plan submitted by the applicant proposes the removal of **245** remaining regulated trees requiring a total of **457** Woodland Replacement Credits. This plan proposes a total of **327** on-site Woodland Replacement Credits according to the following:

- 151 3” caliper deciduous trees (1-to-1 replacement ratio) = 151 Credits;
  - 142 8-foot tall evergreens (1.5-to-1 replacement ratio) = 95 Credits;
  - 162 1.5” caliper deciduous tree (2-to-1 replacement ratio) = 81 Credits;
- 327 Credits**

Based on these replacement quantities, **130** Credits would be required to be paid to the City of Novi Tree Fund. In addition, the concept and pre-application plans noted that an additional **181** Woodland Replacement Credits continue to be required for the trees that were previously-cleared from the site. The

previously-submitted development plan required a total of **775** Woodland Replacement Trees; **181** Woodland Replacement Credits were to be planted on-site and **594** Woodland Replacement Credits were to be paid to the City of Novi Tree Fund. The required payment to the City of Novi Tree Fund was **\$193,050** (\$325 per Tree Credit x 594 Credits).

It is ECT's understanding that a Woodland Replacement Performance Financial Guarantee is being held for the on-site replacement of these **181** Woodland Replacement Credits. In addition, it is our understanding that the previously required payment to the City of Novi Tree Fund of **\$193,050** (\$325 per Tree Credit x 594 Credits) was made by the applicant.

The remaining woodland areas on the subject site are of high quality, contain mature high-quality trees, and contain very few invasive plant species located in this area as well. ECT recommends that no additional woodland impacts be authorized for the development of this property.

#### **Wetland/Woodland Comments**

ECT recommends that the Applicant address the items noted below in subsequent site plan submittals:

1. It should be noted that that subsequent site plans shall clearly indicate, label, and quantify the areas of all existing wetlands and 25-foot wetland setbacks. It should also be noted that the applicant's wetland consultant has included two (2) different areas labelled as "Wetland A"; and there is no "Wetland C" on the Plan. The applicant shall label all on-site wetlands and 25-foot wetland setbacks on the Plan. Wetland flag numbers should also be included on the Plan. Specifically, the applicant shall show the following information on subsequent site plans:
  - a. The area of all existing on-site wetland/watercourse areas (square feet or acres);
  - b. The area of all existing 25-foot buffer areas (square feet or acres);
  - c. Area (square feet) and volume (cubic yards) of all wetland/watercourse impacts (both permanent and temporary);
  - d. Area (square feet) of all wetland buffer impacts (both permanent and temporary).
2. In addition, based on the review of historic aerial photos and our site inspection, the previously-authorized clearing, grubbing, grading and tree removal work impacted all existing wetlands within the previously-defined limits of disturbance area that were present at that time. The current pre-application plan does not propose impacts to wetlands outside of the previously approved limits of disturbance area. It should be noted, however, that the applicant did not complete all of the wetland fill authorized by previous permits. Specifically, the current Plan appears to propose the filling of two (2) of the five (5) delineated wetlands on the site (see Figure 2, Topographic Survey Plan). ECT supports the re-authorization of wetland impacts proposed within the previously-proposed limits of disturbance area.

The applicant shall continue to preserve the wetlands and wetland setbacks located along the western edge of the proposed site.

3. It appears as though a City of Novi Non-Minor Use Wetland Permit would be required for the proposed impacts as the total wetland impacts appear to be greater than 10,000 square feet and/or likely greater than 300 cubic yards of impact [i.e., threshold for City of Novi Non-Residential (i.e., non-single family residence) Minor Wetland Permits]. A City of Novi *Authorization to Encroach the*

*25-Foot Natural Features Setback* would be required for any proposed impacts to on-site 25-foot wetland buffers.

4. It should be noted that it is the Applicant's responsibility to confirm the need for a Permit from the MDEQ for any proposed wetland impact. Final determination as to the regulatory status of each of the on-site wetlands shall be made by MDEQ. The on-site wetlands could be regulated by the Michigan Department of Environmental Quality (MDEQ) as MDEQ regulates wetlands that are located within 500-feet of a pond, stream, drain or lake or are greater than 5-acres in size. A permit from this agency may be required for any direct impacts, or potentially for storm water discharge from the proposed detention basin to existing wetlands (if applicable). The Applicant should provide a copy of the MDEQ Wetland Use Permit application to the City (and our office) for review and a copy of the approved permit upon issuance. A City of Novi Wetland Permit cannot be issued prior to receiving this information.
5. The remaining woodland areas on the subject site are of high quality, contain mature high-quality trees, and contain very few invasive plant species located in this area as well. As 79% of the site has been previously cleared for development, ECT recommends that **no additional woodland impacts be authorized** for the development of this property.

As always, please feel free to contact our office if you have any questions.

Sincerely,

**ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.**



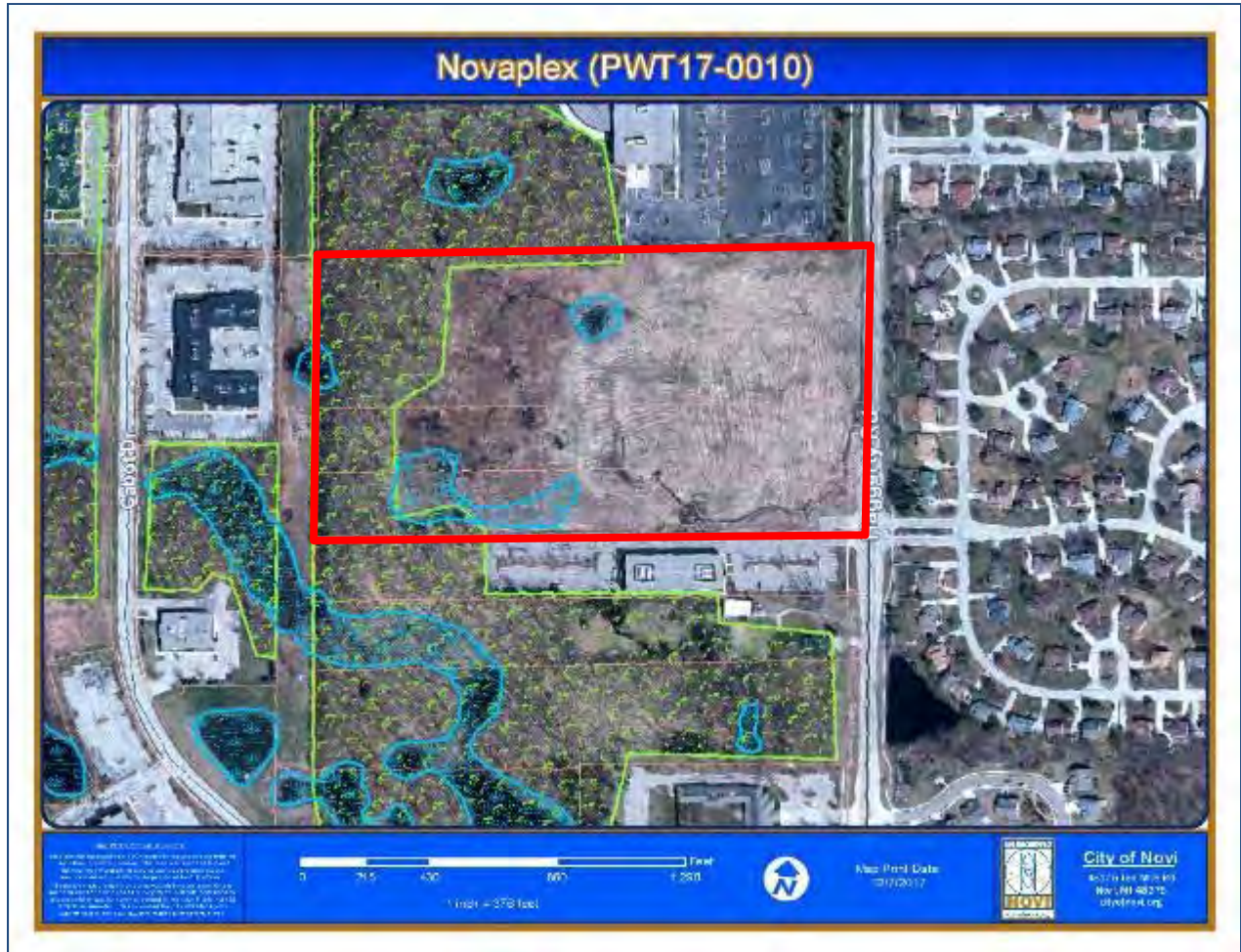
Matthew Carmer  
Senior Scientist  
Professional Wetland Scientist #1746



Pete Hill, P.E.  
Senior Associate Engineer

cc: Lindsay Bell, City of Novi Planner ([lbell@cityofnovi.org](mailto:lbell@cityofnovi.org))  
Sri Komaragiri, City of Novi Planner ([skomaragiri@cityofnovi.org](mailto:skomaragiri@cityofnovi.org))  
Rick Meader, City of Novi Landscape Architect ([rmeader@cityofnovi.org](mailto:rmeader@cityofnovi.org))  
Hannah Smith, City of Novi Planning Assistant ([hsmith@cityofnovi.org](mailto:hsmith@cityofnovi.org))

Attachments: Figure 1 – City of Novi Regulated Wetland Boundaries Map  
Figure 2 – Topographic Survey  
Site Photos



**Figure 1. City of Novi Regulated Wetland Boundaries Map.** Regulated wetland boundaries are shown in blue and regulated woodland areas are indicated in green. The approximate property boundary is shown in red.

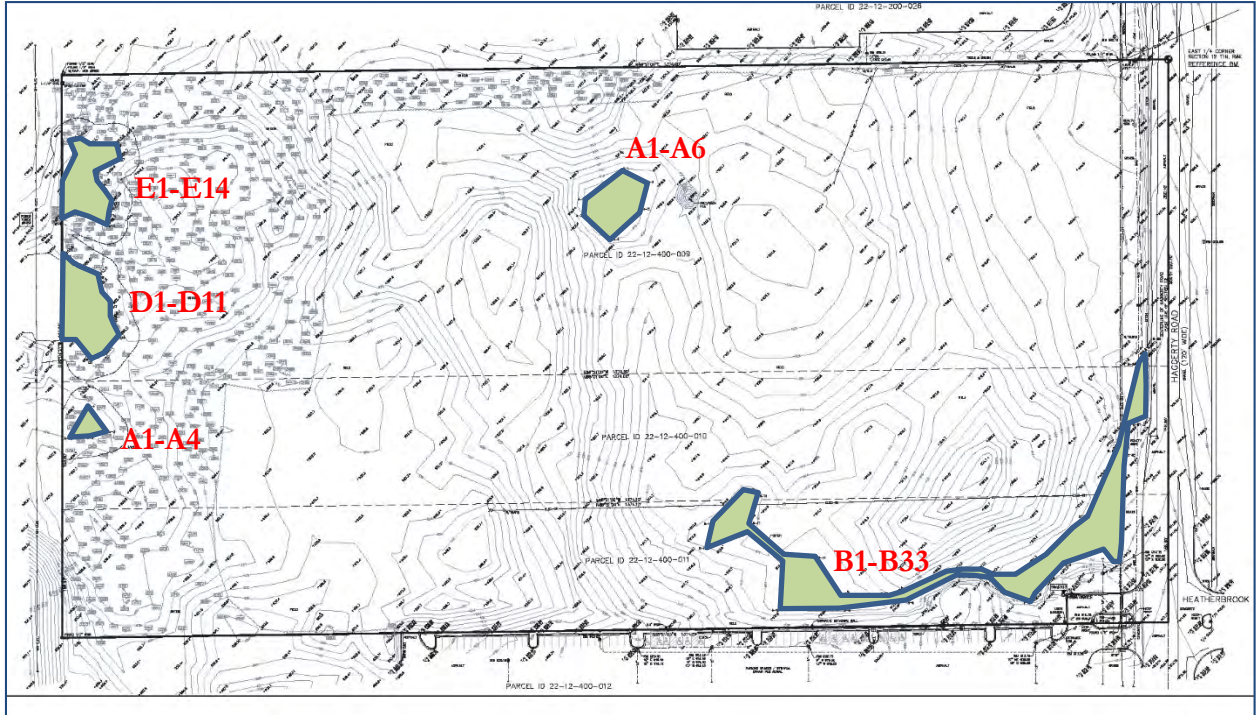


Figure 2. Topographic Survey (provided by PEA, Inc.).

*Site Photos*



**Photo 1.** Looking north at Wetland A located within northcentral section of the site (ECT, November 7, 2017).



**Photo 2.** Looking east at Wetland B in the southern section of the site (ECT, November 7, 2017).



**Photo 3.** Looking northwest at Wetland A in the western section of the site (ECT, November 7, 2017).



**Photo 4.** Looking west at Wetland D in the western section of the site (ECT, November 7, 2017).



**Photo 5.** Looking northwest at Wetland E in the northwestern section of the site (ECT, November 7, 2017).



**Photo 6.** Looking north within the high-quality regulated woodland area located in the western section of the site (ECT, November 7, 2017).



## WOODLAND REVIEW

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ECT Project No.: 190526-0400

February 18, 2020

Ms. Barbara McBeth  
 City Planner  
 Community Development Department  
 City of Novi  
 45175 West Ten Mile Road  
 Novi, MI 48375

Re: Novaplex (JZ19-0037)  
 Woodland Review of the 2<sup>nd</sup> Revised PRO Concept Plan (PSP20-0011)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the 2<sup>nd</sup> Revised Planned Re-Zoning Overlay (PRO) Concept Plan for the proposed Novaplex project prepared by PEA, Inc. dated and stamped “Received” by the City of Novi Community Development Department on January 31, 2020 (Plan). The Plan was reviewed for conformance with the City of Novi Woodland Protection Ordinance Chapter 37. ECT most-recently visited the proposed project site on August 20, 2019 for the purpose of a woodland evaluation.

**ECT currently recommends approval of the Revised PRO Concept Plan for Woodlands. The Applicant should address the items noted below in the *Woodland Comments* Section of this letter prior to receiving Woodland approval of the Final Stamping Set Plan.**

The following woodland related items are required for this project:

Item	Required/Not Required/Not Applicable
Woodland Permit	Required
Woodland Fence	Required
Woodland Conservation Easement	Required

The proposed project is located north of Twelve Mile Road and west of Haggerty Road (between the vacant Magna building to the north and the Botsford Center Rehabilitation Center to the south). The project site includes Parcel ID’s 50-22-12-400-009, -010, and -011. The Plan proposes the construction of ten (10) multi-family residential buildings, a club house/community building, garages, associated parking and utilities and two (2) stormwater detention basins.

The purpose of the Woodlands Protection Ordinance is to:

- 1) *Provide for the protection, preservation, replacement, proper maintenance and use of trees and woodlands located in the city in order to minimize disturbance to them and to prevent damage from erosion and siltation, a loss of wildlife and vegetation, and/or from the destruction of the natural habitat. In this regard, it is the intent of this chapter to protect the integrity of woodland areas as a whole, in recognition that woodlands serve as part of an ecosystem, and to*

*place priority on the preservation of woodlands, trees, similar woody vegetation, and related natural resources over development when there are no location alternatives;*

- 2) *Protect the woodlands, including trees and other forms of vegetation, of the city for their economic support of local property values when allowed to remain uncleared and/or unharvested and for their natural beauty, wilderness character of geological, ecological, or historical significance; and*
- 3) *Provide for the paramount public concern for these natural resources in the interest of health, safety and general welfare of the residents of the city.*

What follows is a summary of our findings regarding on-site woodlands associated with the proposed project.

### **On-Site Woodland Evaluation**

ECT has reviewed the City of Novi Official Woodlands Map and completed an onsite Woodland Evaluation on August 20, 2019. ECT's in-office review of available materials included the City of Novi Regulated Woodland map and other available mapping. The subject property does include areas indicated as City-regulated woodland on the official City of Novi Regulated Wetland and Woodland Map (see Figure 1). The majority of the site has been previously cleared of trees, however, as shown on the *Topographic Survey* (Sheet C-1.0), a forested buffer remains along the western portion and a section of the northwester edge of this parcel. Sections of this remaining forested area appear to exceed 300 lineal feet in width. The remaining woodland areas consists of a high-quality beech-sugar maple forest that has a dense canopy dominated by beech and sugar maple trees with some ash, basswood, oak, elm, black cherry, and walnut. Ironwood is a dominant understory tree along with beech and sugar maple saplings. Shrubs consist of predominantly spicebush with some witch-hazel, viburnum and common elderberry. Ground cover within this woodland includes creeping strawberry-bush, woodbine, Jack-in-the-pulpit, Solomon's seal, Christmas fern, bloodroot, beech drops, and mayapple.

The *Community Impact Statement (CIS)* submitted with the Plan notes that the property is a historically disturbed and vacant site. There is regulated woodland along the west property line, with the remainder of the site an open, tilled field. Some of the woodland is located within forested wetlands (i.e., along the western side of the site) with the remainder being an upland mix of trees. The CIS states that overall, the woodlot is in fair to good condition. It is stated that the proposed development is contained within the previously cleared area of the site. The limit of disturbance will be approximately 20-feet from the edge of the proposed buildings and approximately 15-feet from paved surfaces. The CIS notes that the disturbance is necessary for the physical construction of the proposed improvements. While it is unlikely, it is possible that disruption may encroach on the easterly edge of tree roots in places. As the site design is further refined, efforts will be made to reduce the encroachments and if a regulated tree is damaged, it will be replaced per the City's tree replacement ordinance. It is noted that tree mitigation for this development will occur on-site.

An existing tree survey and tree list has been provided. The Plan includes a surveyed tree list (*Prelim. Tree List*, Sheets T-1.1 & T-1.2) that identifies tree tag numbers, diameter-at-breast-height (DBH), common/botanical name, condition, and required replacement credit quantities for all surveyed trees. The *Prelim Landscape Calculations* plan (Sheet L-1.1) includes a *Tree Replacement* Summary that lists the total woodland replacements credits that are required for the proposed tree removals.

The surveyed trees have been marked with aluminum tree tags allowing ECT to compare the tree diameters reported on the Plan to the existing tree diameters in the field. ECT found that the Plan appears to accurately depict the location, species composition and the size of the existing trees. ECT took a sample of diameter-at-breast-height (DBH) measurements and found that the data provided on the Plan was consistent with the field measurements.

The City of Novi regulates all trees 8-inches diameter-at-breast-height (DBH) and greater that are located within the areas delineated as regulated woodlands on the City-Regulated Woodlands Map. The City also regulates any individual tree greater than or equal to 36-inches DBH, irrespective of whether such tree is within a regulated woodland. Proposed woodland impacts will require a Woodland Permit and the regulated trees shall be relocated or replaced by the permit grantee.

**Proposed Woodland Impacts and Replacements**

A *Tree Replacement* Table has been included on Sheet L-1.1 (*Prelim Landscape Calculations*). The Applicant has noted the following woodland impacts associated with the Plan:

- Stems to be Removed 8” to 11”: 3 x 1 replacement (Requiring 3 Replacements)
- Stems to be Removed 11” to 20”: 2 x 2 replacements (Requiring 4 Replacements)
- Stems to be Removed 20” to 30”: 2 x 3 replacements (Requiring 6 Replacements)
- Subtotal Replacements Required: 13 Replacements
- Replacement Required for Trees Previously Cleared from Site and Not Replaced: 181 Replacements
  
- Total Replacements Required: 194 Replacements

In summary, seven (7) regulated trees are proposed for removal on the current Plan requiring thirteen (13) Woodland Replacement Credits. These existing trees are located along the northern section of the site near the northern property boundary. The Plan appears to indicate that sixteen (16) Woodland Replacement Credits will be planted on-site and the remainder (178) shall be paid into the City of Novi Tree Fund.

**City of Novi Woodland Review Standards and Permit Requirements**

Based on Section 37-29 (*Application Review Standards*) of the City of Novi Woodland Ordinance, the following standards shall govern the grant or denial of an application for a use permit required by this article:

*No application shall be denied solely on the basis that some trees are growing on the property under consideration. However, the protection and conservation of irreplaceable natural resources from pollution, impairment, or destruction is of paramount concern. Therefore, the preservation of woodlands, trees, similar woody vegetation, and related natural resources shall have priority over development when there are location alternatives.*

In addition,

*“The removal or relocation of trees shall be limited to those instances when necessary for the location of a structure or site improvements and when no feasible and prudent alternative location for the structure or improvements can be had without causing undue hardship”.*

The City of Novi regulates all trees 8-inches diameter-at-breast-height (DBH) and greater that are located within the areas delineated as regulated woodlands on the City-Regulated Woodlands Map. The City also regulates any individual tree greater than or equal to 36-inches DBH, irrespective of whether such tree is

within a regulated woodland. Proposed woodland impacts will require a Woodland Permit and the regulated trees shall be relocated or replaced by the permit grantee.

**Woodland Comments**

The following are repeat comments from our Woodland Review of the Revised PRO Concept Plan (PSP19-0129) letter date August 26, 2019. The current status of each comment follows in ***bold italics***. Please consider the following comments when submitting future site development plan submittals:

1. The majority of the site has previously been cleared of trees. The Plan notes that an additional 181 Woodland Replacement Credits are required for the trees that were to be planted on-site for the clearing that was associated with the previous development that was not built. The current Plan proposes the removal of an additional 163 trees requiring 303 Woodland Replacement Credits.

The remaining woodland areas on the subject site are of high quality, contain mature high-quality trees, and contain very few invasive plant species located in this area as well. As approximately 79% of the site has been previously cleared for development, ECT recommends that **no additional woodland impacts be authorized** for the development of this property.

***The overall impacts to Regulated Woodland areas have been significantly reduced from the previous plan submittal. The current Plan proposes the removal of seven (7) regulated trees requiring thirteen (13) Woodland Replacement Credits. These existing trees are located along the northern section of the site near the northern property boundary. The Plan appears to indicate that sixteen (16) Woodland Replacement Credits will be planted on-site and the remainder (178) shall be paid into the City of Novi Tree Fund. ECT urges the applicant to make Plan modifications to preserve all of the remaining/existing on-site trees.***

2. It should be noted that the Plan proposes a total of 163 tree removals requiring an additional 303 Woodland Replacement Credits. Of these trees to be removed, the applicant notes that eighteen (18) of these trees (11%) should be treated as exempt because the tree's condition. ECT evaluated these trees for the condition value of the trunk, growth rate, structure, signs of insects or disease, crown development, and life expectancy. Based on these rankings it was determined if the tree is above or below a 50% health/condition ranking. ECT agrees with the exclusion of seven (7) of these eighteen (18) trees from replacement. The trees that appear to be <50% health/condition are Trees #3385, #3680, #3702, #3822, #3833, #3977, and #3999. The applicant shall review the information related to tree removals and replacements on the Plan and make revisions as necessary.

***As noted in Comment #1, above, the overall impacts to Regulated Woodland areas have been significantly reduced from the previous plan submittal. One (1) tree (Tree #3680; 8" sugar maple) is being removed and the applicant has suggested that it is exempt from replacement due to its very poor condition. ECT previously evaluated a list of trees that the applicant requested be exempt from replacement due to condition. ECT agrees with the current assessment that Tree #3680 does not require Woodland Replacement Credit.***

3. A Woodland Permit from the City of Novi would be required for proposed impacts to any trees 8-inch DBH or greater located within the regulated woodland boundaries or any tree greater than 36-inches DBH. Such trees shall be relocated or replaced by the permit grantee either through

approved on-site replacement trees or through a payment to the City of Novi Tree Fund. All deciduous replacement trees shall be two and one-half (2 ½) inches caliper or greater and will be counted at a 1:1 replacement ratio. All proposed coniferous replacement trees shall be 6-feet in height (minimum) and will be counted at a 1.5:1 replacement ratio. See the attached City of Novi Woodland Replacement Chart for acceptable woodland replacement species.

***This comment still applies.***

4. A Woodland Replacement Performance financial guarantee for the planting of replacement trees will be required. This financial guarantee will be based on the number of on-site woodland replacement trees (credits) being provided at a per tree value of \$400.

***This comment still applies. Based on the current Plan, the Woodland Replacement Performance financial guarantee shall be \$6,400 (16 On-site Woodland Replacement Credits x \$400/Credit).***

5. The Applicant will be required to pay the City of Novi Tree Fund at a value of \$400/credit for any Woodland Replacement tree credits that cannot be placed on site.

***This comment still applies. Based on the current Plan, the required payment to the City of Novi Tree Fund shall be \$71,200 (178 additional Woodland Replacement Credits Required x \$400/Credit).***

6. It should be noted that the *Preliminary Landscape Plan* (Sheet L-1.0) indicates that woodland replacement trees are to be planted within the regulated woodland areas remaining on the west side of the project site. The Plan also notes that replacement planting numbers and locations within the woodland will be jointly determined by the applicant's landscape architect and the City of Novi's Landscape architect. Any trees that cannot be planted without bringing harm to the existing woods will be replaced by a contribution to the City of Novi Tree Fund.

It is ECT's opinion that because the quality of the remaining woodland area is so high, no Woodland Replacement Trees shall be authorized within the existing Regulated Woodland area.

***This comment no longer applies. The sixteen (16) proposed on-site Woodland Replacement trees are proposed to be planted on the eastern edge of the existing Regulated Woodland area and not within the Regulated Woodland area.***

7. The Plan appears to indicate that 140 Woodland Replacement Credits will be planted on-site and the remainder (343) shall be paid into the City of Novi Tree Fund. Sheet L-1.1 (*Prelim Landscape Calculations*) and Sheet L-1.0 (*Preliminary Landscape Plan*) contain some discrepancies. The *Preliminary Landscape Plan* appears to indicate a total of 104 deciduous replacement trees (104 Credits at 1-to-1 replacement ratio) and 54 evergreens (36 Credits at 1.5-to-1 replacement ratio) are to be planted. The information regarding replacements provided on the *Prelim Landscape Calculations* sheet differs slightly. Please review and revise the landscaping sheets to ensure that the woodland removal and proposed replacement information is consistent.

***See Comment #1. The overall impacts to Regulated Woodland areas have been significantly reduced from the previous plan submittal. The current Plan proposes the removal of seven (7) regulated trees requiring thirteen (13) Woodland Replacement Credits. These existing trees are located along the northern section of the site near the northern property boundary. The Plan appears to indicate that sixteen (16) Woodland Replacement Credits will be planted on-site and the remainder (178) shall be paid into the City of Novi Tree Fund. ECT urges the applicant to make Plan modifications to preserve all of the remaining/existing on-site trees.***

***The Tree Replacement Information included on Sheet T-1.0 (Prelim. Tree Preservation Plan) is no longer accurate and shall be revised. The number of on-site replacement trees indicated on this Plan no longer appears to be correct.***

8. Based on a successful inspection of the installed on-site Woodland Replacement trees (if applicable), the Woodland Replacement Performance Guarantee shall be returned to the Applicant. A Woodland Maintenance financial guarantee equal to twenty-five percent (25%) of the value of the original Woodland Replacement material will then be kept for a period of 2-years after the successful inspection of the tree replacement installation.

***This comment still applies. Based on the current Plan, the required Woodland Maintenance financial guarantee shall be \$1,600 (16 On-site Woodland Replacement Credits x \$400/Credit x 0.25).***

9. The Applicant shall provide preservation/conservation easements as directed by the City of Novi Community Development Department for any areas of woodland replacement trees. The applicant shall demonstrate that the all proposed woodland replacement trees will be guaranteed to be preserved as planted with a conservation easement or landscape easement to be granted to the city. This language shall be submitted to the City Attorney for review. The executed easement must be returned to the City Attorney within 60 days of the issuance of the City of Novi Woodland permit. Any associated easement boundaries shall be indicated on the Plan.

***This comment still applies.***

10. Replacement material should not be located 1) within 10' of built structures or the edges of utility easements and 2) over underground structures/utilities or within their associated easements. In addition, replacement tree spacing should follow the *Plant Material Spacing Relationship Chart for Landscape Purposes* found in the City of Novi *Landscape Design Manual*.

***This comment still applies.***

Novaplex (JZ19-0037)  
Woodland Review of the 2<sup>nd</sup> Revised PRO Concept Plan (PSP20-0011)  
February 18, 2020  
Page 7 of 10

**Recommendation**

ECT currently recommends approval of the Revised PRO Concept Plan for Woodlands. The Applicant should address the items noted below in the *Woodland Comments* Section of this letter prior to receiving Woodland approval of the Final Stamping Set Plan.

If you have any questions regarding the contents of this letter, please contact us.

Respectfully submitted,

**ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.**

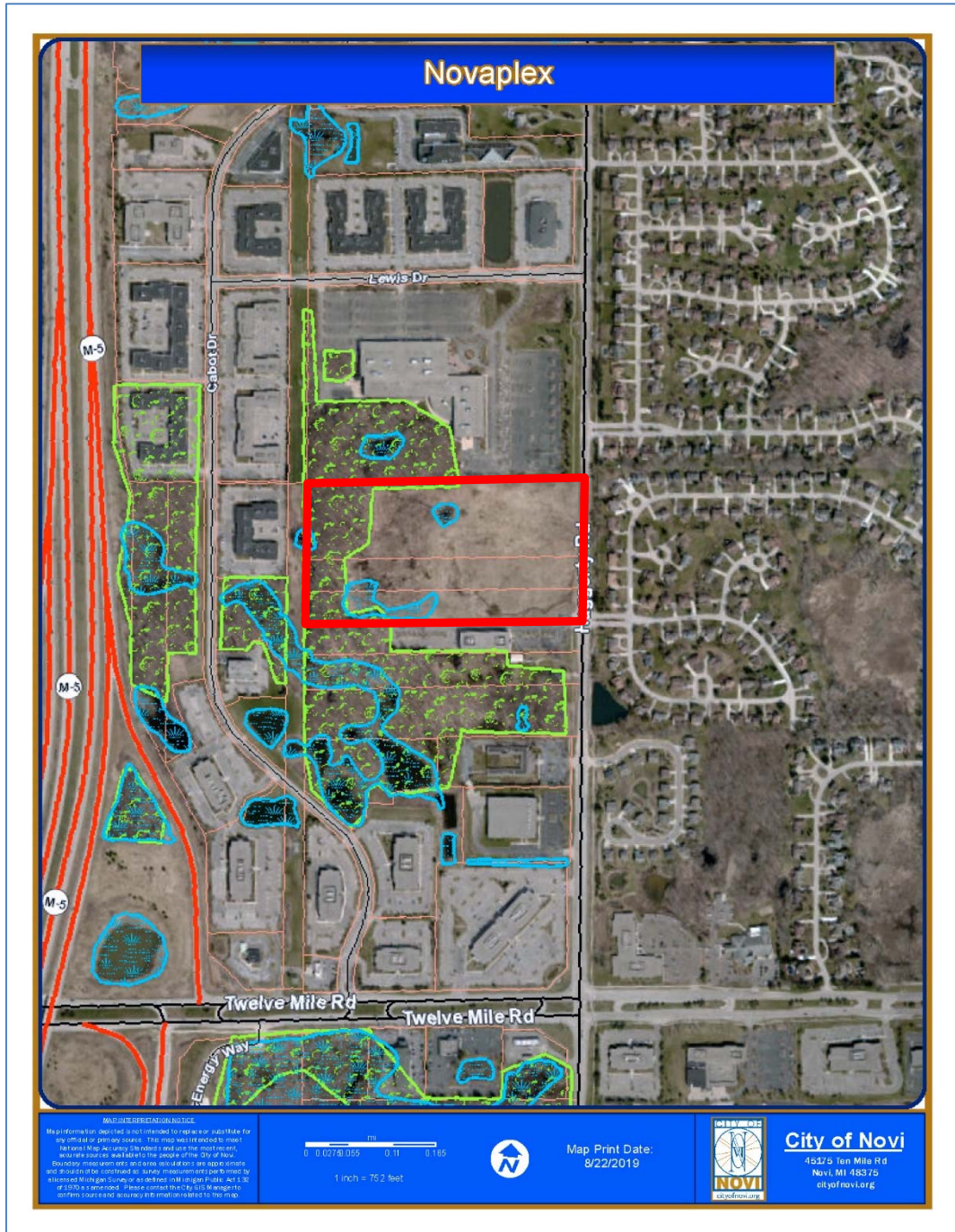


Pete Hill, P.E.  
Senior Associate Engineer

cc: Lindsay Bell, City of Novi Planner  
Sri Komaragiri, City of Novi Planner  
Madeleine Kopko, City of Novi Planning Assistant  
Rick Meader, City of Novi Landscape Architect

Attachments: Figure 1 – City of Novi Regulated Wetland and Woodland Map  
Site Photos





**Figure 1.** City of Novi Regulated Wetland & Woodland Map (approximate project boundary shown in red). Regulated Woodland areas are shown in green and Regulated Wetland areas are shown in blue.

***Site Photos***



**Photo 1.** Looking east from within the Regulated Woodland area on the western portion of the site (ECT, August 20, 2019).



**Photo 2.** Looking east along the existing regulated woodland area located on the northern portion of the site (ECT, August 20, 2019).



**Photo 3.** Looking west from the southeast portion of the site towards the regulated woodland area located on the western portion of the site (ECT, August 20, 2019).

## FAÇADE REVIEW

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February 24, 2020

City of Novi Planning Department  
 45175 W. 10 Mile Rd.  
 Novi, MI 48375- 3024

*Façade Review Status Summary:*  
**Full Compliance, Section 9 Waiver Not Required.**

Re: **FACADE ORDINANCE REVIEW**  
**Novaplex, JZ19-37**

Façade Region: 1, Zoning District: OST, Rezoned to RM-2

Dear Ms. McBeth;

The following is the Façade Review for the above referenced project, based on the drawings prepared by Alexander Bogaerts Architects, dated 1/31/20. The proposed percentages of materials on each elevation are shown in the table below. The maximum percentage allowed by the Ordinance is shown in the right hand column. All buildings in a RM-2 District are considered to be Façade Region 1. A sample board as required by Section 5.15.4.D was not available at the time of this review.

<b>Building 100</b>	<b>Front</b>	<b>Rear</b>	<b>Left Side</b>	<b>Right Side</b>	Façade Ordinance Section 5.15 Maximum
Brick	30%	30%	31%	31%	100% (30% Minimum)
Vertical Siding, Cement Fiber Type	22%	17%	27%	27%	50%
Horizontal Siding, Cement Fiber Type	26%	25%	28%	28%	50%
Asphalt Shingles	20%	24%	9%	9%	50%
Flat Metal	3%	4%	5%	5%	50%

<b>Building 300</b>	<b>Front</b>	<b>Rear</b>	<b>Left Side</b>	<b>Right Side</b>	Façade Ordinance Section 5.15 Maximum
Brick	30%	32%	30%	30%	100% (30% Minimum)
Vertical Siding, Cement Fiber Type	18%	19%	12%	12%	50%
Horizontal Siding, Cement Fiber Type	37%	31%	48%	48%	50%
Asphalt Shingles	14%	14%	9%	9%	50%
Flat Metal	1%	4%	1%	1%	50%

<b>Building 250 (255 Similar)</b>	<b>Front</b>	<b>Rear</b>	<b>Left Side</b>	<b>Right Side</b>	Façade Ordinance Section 5.15 Maximum
Brick	30%	30%	33%	33%	100% (30% Minimum)
Vertical Siding, Cement Fiber Type	21%	16%	19%	19%	50%
Horizontal Siding, Cement Fiber Type	24%	30%	35%	35%	50%
Asphalt Shingles	24%	21%	9%	9%	50%
Flat Metal	3%	3%	4%	4%	50%

<b>Building 275</b>	<b>Front</b>	<b>Rear</b>	<b>Left Side</b>	<b>Right Side</b>	Façade Ordinance Section 5.15 Maximum
Brick	30%	30%	31%	31%	100% (30% Minimum)
Vertical Siding, Cement Fiber Type	19%	17%	21%	21%	50%
Horizontal Siding, Cement Fiber Type	24%	24%	34%	34%	50%
Asphalt Shingles	24%	23%	10%	10%	50%
Flat Metal	3%	6%	4%	4%	50%

<b>Community Building</b>	<b>Front</b>	<b>Rear</b>	<b>Left Side</b>	<b>Right Side</b>	Façade Ordinance Section 5.15 Maximum
Brick	35%	42%	54%	37%	100% (30% Minimum)
Smooth Block (12" x 24", similar to Limestone)	34%	16%	27%	20%	50%
Fiber Cement Siding, horizontal	7%	9%	13%	15%	50%
Cement Panels (Similar To EIFS)	5%	11%	0%	22%	50%
Asphalt Shingles (non-residential building)	19%	22%	6%	6%	50%

<b>Garage Buildings</b>	<b>Front</b>	<b>Rear</b>	<b>Left Side</b>	<b>Right Side</b>	Façade Ordinance Section 5.15 Maximum
Brick	31%	31%	32%	32%	100% (30% Minimum)
Vertical Siding, Cement Fiber Type	20%	22%	20%	20%	50%
Horizontal Siding, Cement Fiber Type	8%	21%	29%	29%	50%
Asphalt Shingles (residential style building)	41%	26%	19%	19%	50%

Recommendation - As shown above, all facades on all buildings are in full compliance with the Façade Ordinance. In general, the buildings are well designed with interesting overall composition and high attention to detail. For reference, our prior review dated 8/27/19 identified significant deviations from the Façade Ordinance on all buildings, to the extent that a Section 9 Waiver was not recommended. All such deviations have now been eliminated and a Section 9 waiver is no longer required.

A façade material sample board as required by Section 5.15.4.D of the Ordinance should be provided to more clearly illustrate the proposed types, colors and textures of all façade materials.

Carports – Carports are indicated on the site plan; however, elevations of the carports were not provided at the time of this review. It should be noted that the carports are considered canopies as regulated by Section 5.15.12 of the Façade Ordinance. Section 5.15.12 requires that canopies within residential projects be consistent with the primary buildings with respect to materials, architectural style, and extent of ornamentation. The applicant should submit drawings for the carports indicating compliance with this Section.

If you have any questions regarding this review, please do not hesitate to call.

Sincerely,  
DRN & Architects PC

A handwritten signature in black ink, appearing to read "Douglas R. Necci", written in a cursive style.

Douglas R. Necci, AIA

## FIRE REVIEW

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February 6, 2020

TO: Barbara McBeth- City Planner  
Sri Ravali Komaragiri- Plan Review Center  
Lindsay Bell-Plan Review Center  
Madeleine Kopko-Planning Assistant

**CITY COUNCIL**

**Mayor**  
Bob Gatt

**Mayor Pro Tem**  
Dave Staudt

Andrew Mutch

Laura Marie Casey

Kelly Breen

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Justin Fischer

**City Manager**  
Peter E. Auger

**Director of Public Safety  
Chief of Police**  
David E. Molloy

**Fire Chief**  
Jeffery R. Johnson

**Assistant Chief of Police**  
Erick W. Zinser

**Assistant Chief of Police**  
Scott R. Baetens

**Assistant Fire Chief**  
John B. Martin

RE: Novaplex Residential – Revised PRO Concept Plan

**PSP # 20-0011**

JZ19-37

PSP # 19-0162

PSP # 19-0129

PSP# 19-0090

PSP# 17-0181

**Project Description:**

**Build a 11 building Multi-tenant Community off of Haggerty Rd north of Twelve Mile Rd.**

**Comments:**

- **All** fire hydrants **MUST** in installed and operational prior to any building construction begins.
- **CORRECTED 8/9/19KSP**-All water mains and fire hydrants **MUST** be put on plans for review.
- **CORRECTED 8/9/19 KSP**-In front of building #7, the drive is > 150'. **MUST** put hammerhead turn around, or shorten the drive to < 150' or connect the drive to the drive to the west. **(IFC 503.2.5)**
- Fire Hydrant spacing is 300' from hydrant to hydrant (as the hose comes off the fire truck driving). **Novi City Ordinance 11-68(F)(1)c.**
- All FDC's **MUST** be within 100' from a fire hydrant. **(IFC 912.2.3)**

**Recommendation:**

APPROVED WITH CONDITIONS

Sincerely,

Kevin S. Pierce-Fire Marshal  
City of Novi – Fire Dept.

**Novi Public Safety Administration**  
45125 Ten Mile Road  
Novi, Michigan 48375  
248.348.7100  
248.347.0590 fax

cityofnovi.org

cc: file

## PROJECT NARRATIVE

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# Novaplex Apartments (BC Novaplex LLC)

31731 Northwestern Highway, Suite 250W, Farmington Hills, MI 48334

January 31, 2019

Ms. Barbara McBeth, AICP, City of Novi Planner  
City Development Department  
47175 Novi Road  
Novi, MI 48375

**Re: Novaplex Apartments Submittal for Planning Commission review plus previous response to 12-6-19 Preapplication Review comments**  
West side of Haggerty Road, North of 12 Mile Road, from OST to RM-2 with a Planned Rezoning Overlay (PRO).

Dear Ms. McBeth,

Attached please find our full PRO submittal package for Planning Commission review. It is essentially the same plans we submitted for our December Master Plan Committee review, but we've added all the architectural plans, grading, utility and landscape info plus the various studies, reports and details.

We offer the following responses to specific items in the previous review letter:

## **Current Revised Submittal**

1. The site density has been greatly reduced, which has reduces many of the other impact issues.
2. We have almost eliminated impacts on the woodlands and greatly reduced impacts on wetlands. We understand that any wetland mitigation not provided onsite must be provided for elsewhere.
3. We ask that the city consider the general design for this site is in keeping with the spirit of the zoning ordinance in that the site layout works well within the context of the surrounding OST developments because its design sets it apart from standard layouts for an apartment complex. Because of our efforts to make this site fit within the context of the surrounding area, it is difficult to reduce the total number of deviations (that are mostly based on standard apartment layouts) but we have been able to reduce the scope of many of the most significant deviations dramatically.
4. Because of the history of separate zoning districts and of separating zoning uses, connectivity between various uses is difficult at best. The nearest school is 1 mile away, but on the opposite side of M-5. Shopping is 1 mile east, 1.5 miles north' and 1.5 miles west. Almost all Novi residents must drive to get to schools or shopping or services or work. Our development is intended to help reduce the need to drive to work for some or all of our residents, but it will not reduce all the suburban connectivity issues that have built up over decades of the separation of uses and the area's "car culture."

5. In response to a concern raised by the City in our previous review, our engineer has determined that our use of the existing sanitary sewer will not exceed the capacity of the sewer. At full buildout of the parcels contributing this sanitary sewer, and estimating the Novaplex usage based on our original 332-unit layout, the sewer will be at approximately 74% of its capacity. This information has been provided to the City's Engineering Department. Our reduced density to 270 units will result in even more excess capacity.

## **Review Concerns**

1a. The Community Impact Statement will be revised. Based on the reduced density, the associate impacts will also be reduced.

1b. It is our intent to preserve the remaining woodlands, with the exception of the possible removal of a few trees (only if needed) along the edge of the woodland for grading purposes (they will be mitigated on-site) that will be determined after a detailed site design is developed.

1c. Reducing the unit count on the traffic study to 272 units does not reduce the need for the proposed improvements shown. There will be less traffic, but the length and configuration of the lanes and tapers will be the same.

1d. The text on the Sign Location Plan will be revised to note this site is proposed as a PRO.

1e. With the exception of the previous tree removal, no site changes have taken place, so the onsite soils have not changed. Additional soil borings will be provided with future detailed site design drawings, once the site layout has been established.

1f. The wetland survey results as indicated by EGLE (MDEQ) have been incorporated into the plan and will be mitigated appropriately.

1g(a). The market study will be reviewed/revised as needed to account changes in the Market, if any.

1h(b). The Planning Narrative will be revised as needed to account changes in the Site Plan.

2. We accept the Staff's decision to support a deviation of the 3-story –vs- 4 story building. We still assert the majority of our buildings are 4 story, and also provided visual support for our assertion. The building department interprets them as 4 story, the lowest level is completely separate (no stairs or elevator) from the upper floors, and building height is usually determined by its highest useable component, not its lowest (if a high-rise has 2 stories of offices/meeting rooms extending beyond its high-rise footprint, it is not considered a 2 story building).

3. We will discuss reductions in deviations in the Ordinance Deviation section below.

4. Secondary access for Infinity Medical will be provided at some point beyond the rear (west side) of their building. It is currently shown where we believe it works best for the existing and proposed grading. Future detailed grading design for Novaplex Site will identify the best location for the connection, and we will work with Infinity Medical to relocate the connection point.

5. We are providing a Major Drive (in the context of this development) from the primary entrance and looping through the interior of the site, along the clubhouse and bordering all apartment buildings. A minor drive is provided starting at the shared entrance with Infinity Medical and looping around the

exterior of the site, touching 7 of the 9 apartment buildings, before tying into the Major Drive. We are open to adding some traffic calming devices and adjusting the dumpster locations are requested by the City. We have also removed the parking spaces from the Major Drive in front of the Clubhouse.

6. We will address comments on the Plan Review Chart to the best of our ability, within the design goal of Novaplex for a multifamily use within the OST context.

7ai & 7aii. In response to a concern raised by the City in our previous review, our engineer has determined that our use of the existing sanitary sewer will not exceed the capacity of the sewer. At full buildout of the parcels contributing this sanitary sewer, and assuming the original apartment design of 332-unit project, the sewer will be at approximately 74% of its capacity. This information has been provided to the City's Engineering Department. Our reduced density to 272-units will result in even more excess capacity.

7aiii-7avi. Regarding any engineering comments, it is our intent to meet all engineering and safety standards relating to utilities, grading drainage, emergency vehicle access, accessibility, etc. Any issues regarding the site layout will be addressed to the best of our ability with direct input from the Engineering Department, with the understanding that we are not trying to build a traditional apartment complex in a traditional residential setting. The design of Novaplex is about fitting with the context of the area.

7bi-7bvii. Regarding landscaping comments, it is our intent to meet all landscaping standards relating to island sizes, landscape areas, tree mitigation, open space, interior and perimeter landscaping, etc.

7c. It is our intent to meet all traffic and road improvement standards relating to the traffic impacts from this development. Regarding the layout of interior drives, the layout of this site is consistent with other Uses in the OST area. We are not trying to build a traditional apartment complex in a traditional residential setting. The design of Novaplex is about fitting with the context of the area.

7d. It is our intent to preserve the woodlands, with the exception of the possible removal of a few trees along the edge of the woodland (only if necessary) for grading purposes (they will be mitigated on-site) that will be determined after a detailed site design is developed.

7e. The wetland survey results as indicated by EGLE (MDEQ) have been incorporated into the plan and will be mitigated appropriately. We understand that any wetland mitigation not provided onsite must be provided for elsewhere.

7f. Additional brick will be added to the facades to conform to City requirements. We will add it when we are incorporating any other design comments made by the Planning Commission.

7g. Regarding any public safety comments, it is our intent to meet all public safety standards relating to utilities, grading, emergency vehicle access, accessibility, etc. Any issues regarding the site layout will be addressed to the best of our ability with direct input from the Fire Department, with the understanding that we are not trying to build a traditional apartment complex in a traditional residential setting. The design of Novaplex is about fitting with the context of the area.

## **Compatibility with Surrounding Land Use**

Planning identified five planned or under construction developments nearby and requested that Beztak examine how they compare with Novaplex. Please see the memo accompanying the attached Market Study addressing these developments. Some are included in the study, and some are “for sale” products or not truly comparable because of product or location. The developments mentioned in the review are generally not within walking distance of the employment center and general area we would serve. Some of the developments referenced by Planning are in the “downtown” area, attracting a different clientele base than Novaplex, and 2 developments are “for sale” units and thus in a different category altogether.

Huntley Manor and Emerson Park are not comparable product as they are entirely traditional townhouse-style developments with attached, dedicated garages. They are also located in the Novi / Grand River area south of I-96. In addition, Emerson Park is “for sale” product. Woodbridge park is for sale product and not in a comparable neighborhood. The Bond (Flint St.) is comparable in terms of style, but it is in a neighborhood near Novi / Grand River area south of I-96.that is away from the potential employers that will attract residents to Novaplex. Encore at Manchester is a traditional townhouse-style development with attached, dedicated garages; this is located in a similar area as Novaplex but does not offer the multi-modal connectivity with localized employment that Novaplex offers.

## **Development Potential**

We have previously provided our analysis of the development potential for this site and the availability of other OST sites in the City. This site is better-suited and more beneficial to the area as a multi-family development, and the minor reduction on Vacant OST land will have no noticeable impact of the City. The reduction of environmental impacts resulting from the new site layout makes multi-family even more desirable for this site.

## **Master Plan Goals and Objectives.**

We have previously submitted a detailed narrative addressing how this project meets the goals and objectives of the Master Plan. The reduction of density resulting from the new site layout makes multi-family even more compatible Use for this site.

## **Major Conditions of a PRO Agreement**

Public Benefits - We are willing to include additional public benefits to incorporate into our development plan. We are currently determining our options based on the new site layout, the reduced density, accessibility issues and our proximity to public spaces.

## **Ordinance Deviations**

1. Useable Open Space – It is our intent to meet the Useable Open Space requirement. With our submittal to the Planning Commission, we will include a Useable Open Space plan including pool and park space, personal open space associated with each unit, common open space areas with the development, etc.
2. Max. Percentage of 1-bed Units – Part of creating a viable and vibrant residential community is meeting the needs of the Market. Based on the likely residents we will attract to the City, more 1-

bedroom units will be needed (we normally request 40% 1-bedroom units). We currently proposed approximately 36%, which will serve the market demand without unreasonably exceeding the City's standards.

3. Total Number of Rooms – When considering that 5 of our buildings are 4-story and 4 are 3-story, we believe the room counts and density calculations meet the ordinance requirements.

In our submission, Beztak presented a calculation showing the blended maximum number of rooms based on the proportion of 4-story buildings and 3-story buildings in relation to the total site area. Since 5 of 9 buildings are 4-story, and 4 of 9 buildings are 3-story, and the total net site area is 916,458, the maximum number of rooms is 930. The total number of rooms we have presented is 734, below the blended maximum.

4. Maximum Length of Buildings – We have reduced the density on site by reducing the number of buildings, but also by using some of our smaller buildings. The longest buildings present their narrowest side to the public on Haggerty Road, and the length extends away from Haggerty. The longer buildings are also shielded from view by the front townhome-style buildings which are less than the 180' long limit. Because they are set back behind the front buildings, they are farther from Haggerty Road so their length is less noticeable, and finally, many buildings in the (OST) area are longer than 180', so the extra length on this site does not appear out-of-place.
5. Building Orientation- “Angled” buildings are not the predominant orientation in the OST District. Part of the goal of this development is to “fit in”. Adding the angle also tends to require a little more disruption to achieve the same density.
6. Yard Setback Restrictions – We currently meet the 30% side yard parking/drives maximum. The current layout has approximately 28.5% drive/parking coverage in the side yard.
7. Off street Parking and Relative Drives – We intend to meet this requirement.
8. Major Road Width – We propose only 1 Major Drive loop, with the rest of the drives being Minor Drives. We have provided a 28' wide primary drive through the interior of the site, adjacent to all the 4-story portions of the buildings. With the exception of garage aprons and a small amount of guest parking, there are no parking spaces directly on this drive. The remainder of the site and parking is served by secondary drives.
9. Parking along Major Drives – We only propose 1 Major Drive. This Major Drive has individual garage access drives, but no on-street parking lots or parking bays.
10. Major Drive Centerline Radius – With detailed design, we will try to improve our Major Drive radii. They currently meet turn radius requirements, but this is not a Major Drive through a traditional Apartment Complex, so we are concerned that larger radii will allow for faster traffic.
11. Number of Parking Spaces – We include apron spaces in our parking counts because even though they are not included by the ordinance, they will be used by the residents regularly and often. Our goal is to provide the parking our residents will need and use based on our extensive experience (148 properties with 28,000 units owned and/or managed in 15 states), and not over-pave the site with unnecessary parking.
12. Bicycle Parking Location - it is our intent to meet all Bicycle Parking requirements for this site.

13. Bicycle Parking Access Path - it is our intent to meet all Bicycle access requirements for this site.
14. Exterior Lighting - it is our intent to meet all exterior lighting requirements for this site.
15. Facade Requirements for Accessory Buildings - it is our intent to meet all Accessory Building Facade requirements for this site.
16. Maximum Number of Accessory Buildings – It is important for this multifamily market to provide at least 1 covered parking space per unit, in a combination of garages and carports. Because of the grading slopes on the drives needed to make this site work, it is not feasible to make long flat garage buildings right next to driveways. Smaller garage pads are needed to work with the slopes, so more (small) buildings are needed.
17. Section 9 Waiver – Our intent is to meet the Section 9 materials requirements. We will incorporate the changes to the building materials quantities while we address any other changes required by the Planning Commission.
18. Landscape Deviations - Regarding landscaping comments, it is our intent to meet all landscaping standards relating to island sizes, landscape areas, tree mitigation, open space, interior and perimeter landscaping, etc.
19. Traffic Deviations - it is our intent to meet all traffic and road improvement standards relating to the traffic impacts from this development. Regarding the layout of interior drives, the layout of this site is consistent with other uses in the OST area. We are not trying to build a traditional apartment complex in a traditional residential setting. The design of Novaplex is about fitting with the context of the area.

Please feel free to call or email me with any questions you may have regarding our responses. We look forward to discussing our plans with you and the Master Plan Committee on December 11th.

Thank you,



Mark Highlen – Land Development Project Manager  
for Novaplex (The Beztak Companies)  
248-737-6175 (direct), 248-506-9398 (mobile), [mhighlen@beztak.com](mailto:mhighlen@beztak.com) (email)

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## Appendix B: Summary of Requested Deviations

We are trying to make the multi-family use fit in with the surrounding developments. Using a completely different set of design standards will make it less likely to fit in.

Zoning & Use Requirements	Allowed	proposed	comments
Master Plan	Office/research/tech	Multi-family	Does not conform, but will conform with PRO approval
Zoning	OST	RM-2	Does not conform, but will conform with PRO approval
Uses Permitted	Office / Service	Multi-family	Does not conform, but will conform with PRO Approval

Items in **RED** are deviations

### LOT AREA / DENSITY

Gross Ac.	22.00	958320 sf
- wetland	n/a - under 2 acres regulated	
- r.o.w	0.96	41862 sf
Net Ac.	21.04	916458 sf

	required	provided
Rooms (1 per 700sf)	1309	742
Open Space	n/a	120630
Useable Open Space (200/U)	54400	105193.5
Lot Coverage	45%max.	0.00%

### BUILDING SPECIFICATIONS

Building	depth, ft	length, ft	height, ft	footprint	Units	Stories	Total area	1-bed	2-bed	3-bed	"rooms"	
1 (type 300)	36	175.75	36	n/a	9	3	n/a	0	0	10	40	
2 (type 250)	65	218	46	n/a	36	4	n/a	4	32	0	104	
3 (type 255)	65	201	46	n/a	36	4	n/a	20	16	0	88	
4 (Clubhouse)	65	105	18	n/a	0	1	n/a	0	0	0	0	
5 (type 100)	65	186	36	n/a	30	3	n/a	22	6	2	70	
6 (type 100)	65	186	36	n/a	30	3	n/a	22	6	2	70	
7 (type 275)	65	290	46	n/a	48	4	n/a	6	42	0	138	
8 (type 250)	65	218	46	n/a	36	4	n/a	4	32	0	104	
9 (type 255)	65	201	43	n/a	36	4	n/a	20	16	0	88	
10 (type 300)	36	175.75	36	n/a	9	3	n/a	0	0	10	40	
<b>totals</b>					<b>0</b>	<b>270</b>	<b>0</b>	<b>98</b>	150	24	742	133

Note: The Planning Commission can modify the allowed length of a building if:

**Common space with 50 person capacity, for recreation, dining or social activities, AND the building is set back 1 more foot for every 3' of additional length,**

Note: These buildings have multiple entrances, but no common hallways serving all units,

Buildings 2 through 9 will each have space on the ground floor dedicated to storage lockers and bicycle storage for residents.

There is ample room and amenities at the clubhouse. We want to encourage people to gather together, not to gather in groups of 50 or less.

### Deviations

**BUILDING LENGTH (7 out of 10)**

**COMMON SPACE FOR LONGER BUILDING**

**Building set back 1' more PER 3' of extra length (FOR LONGER BUILDING)**

**% OF 1 BEDROOM UNITS (33% MAX, 36.3% PROPOSED)**

**Angle of Bldg to Property line (45° req., 0° & 9° proposed)**

**Buildings must have frontage on an approved private drive to private road standards**

**parking & drives must be 25' from living space w/windows. Drive aprons do not conform**

**Drive aprons are counted in provided parking. Apron spaces do not block sidewalks**

**Building Setbacks off Drives (25'), Not private road (75')**

**Number of Parking Spaces**

Adding a room suitable for 50 people gather in each of 9 residential buildings would add thousands of sq.ft. (more disruption) to the project.  
 Bldg lengths are proportionate to buildings in the area. Stepped floor grades (4) and a variety of materials and colors that reduce the appearance of mass.

Total Units 272  
 % of total 36.03% 1's 55.15% 2's 8.82% 3's  
 Note: all units meet or exceed the minimum required sq.ft.  
 Market supports more 1-bed units + reduces community impacts + smaller units = less impervious

Building	depth, ft	length, ft	height, ft	area (envelope)	Spaces
garage 1	21	67	14	1407	6
garage 2	21	45	14	945	4
garage 3	21	45	14	945	4
garage 4	21	89	14	1869	8
garage 5	21	45	14	945	4
garage 6	21	56	14	1176	5
				total detached	31
				total attached	133
Carports	332	One carport per Unit		total carports	124
				<b>Total Covered Parking</b>	<b>288</b>

**BUILDING SETBACKS & ALIGNMENT**

Building	front	side	rear	angle to PL	
1	187	75	n/a	90	parallel/perpendicular fits with character of the area.
2	n/a	115	n/a	0	parallel/perpendicular fits with character of the area.
3	n/a	116	n/a	0	parallel/perpendicular fits with character of the area.
4	n/a	116	215	90	middle of site
5	n/a	n/a	215	90	middle of site
6	n/a	n/a	n/a	90	middle of site
7	n/a	92	215	90	parallel/perpendicular fits with character of the area. No adjacent buildings
8	n/a	92	n/a	0	parallel/perpendicular fits with character of the area.
9	n/a	92	n/a	0	parallel/perpendicular fits with character of the area.
10	181	75	n/a	90	parallel/perpendicular fits with character of the area.
garage 1	n/a	n/a	n/a	0	Accessory Bldg
garage 2	n/a	n/a	n/a	0	Accessory Bldg
garage 3	n/a	n/a	n/a	0	Accessory Bldg
garage 4	n/a	n/a	180	0	Accessory Bldg
garage 5	n/a	n/a	n/a	0	Accessory Bldg
garage 6	n/a	n/a	n/a	0	Accessory Bldg
Carports		24-44		n/a	

**BUILDING to BUILDING SETBACKS**

Building	to Building	overlap	to nearest adjacent building(s) required	provided
1	2	61	47.7	96
2	3	61	51	93

2	5	61	47.7	108
4	5	105	53	69
5	6	171	81	198
6	7	186	89.3	80
6	8	61	47.7	93
8	9	61	51	93
5	9	61	47.7	78
9	10	61	47.7	96

**PARKING & DRIVES**

only 30% side yard can be used for parking & drives

Property Depth	1374 ft
Front & rear yard Setback	75 ft
Property Depth remainder	1224 ft
side yard Setback	75 ft
Side Yard Area	183600 sf

Total Parking + drives in 75' side yard	51799
Side Yard parking/drives	28.21%

Parking is allowed in side yard in OST.

Part of fitting into the adjacent sites is not to use similar design/layout standards (don't look like spot zoning)

**Buildings must have frontage on an approved private drive constructed to private road standards**

This site is served by driveways, not by a private road. The site and all buildings will have a Haggerty Road Address.

parking & drives must be 25' from living space w/ doors/windows. **Drive aprons do not conform**

Note: Attached garages w/ aprons means some parking will be adjacent to building, with windows above/next to

**Parking Required**

1 bed	98	2	196	
2 bed	150	2	300	
3 bed	24	2.5	60	
Club	270	4	67.5	
		Total	<b>623.5</b>	2.31 per unit

Most 1 bed units (60%) have only 1 resident. Remainder (40%) may have 2 cars  
 Many 2 bed units will have 2 residents, but not all will have 2 cars  
 Most 3 bed units will have 2 residents. 3rd room is usually an office or storage  
 Residents, like most people, don't get frequent visitors, especially not weekdays  
 Residents will likely walk to clubhouse + 5 Staff and 4-5 visitors at any time

**Parking Needed**

**582**

2.0 avg per unit + 15 for Clubhouse + 10% for Guests.

**Parking Provided**

Garages, att.	133	
Garages, det.	31	
Aprons	133	
Carports	124	
Surface	185	
	total	<b>606</b>
		2.24 per unit

No need for 68 clubhouse parking spaces. Only needs about 20 spaces  
 Farthest apartment is 700' from the clubhouse. Majority are 100' to 500' away.  
 (reference: walking across a Meijer store is about 530' )  
 Ordinance doesn't count apron parking in front of garages. Residents will use it.  
 Not counting aprons = adding 118 parking spaces = 37760 sf of unnecessary pvm't

**Bicycle Parking**

Building	Units	Spaces per	Spaces	length
1	9	1/5	1.8 = 2	175.75
2	36	1/5	7.2 = 8	218
3	36	1/5	7.2 = 8	201
4 (Club)	0	10% of 83	8.3 = 9	105
5	30	1/5	6 = 6	186
6	30	1/5	6 = 6	186
7	48	1/5	9.6 = 10	290
8	36	1/5	7.2 = 8	218
9	36	1/5	7.2 = 8	201
10	9	1/5	1.8 = 2	175.75

Required number and types of bicycle spaces shall be provided  
 With numerous entrances, may need waiver for 120' max. distance to entrances.

**Section 5.10 Additional Road Design, Building Setback and Parking Setback Requirements**

28' wide drive loop	Provided	
with direct access to public road	Provided	
Setbacks off Major/Minor Drives	Deviation	Not a private road so no internal front setbacks. Just meeting 25' setback from buildings to drive/parking
25' Parking/drive setback from building	Provided	

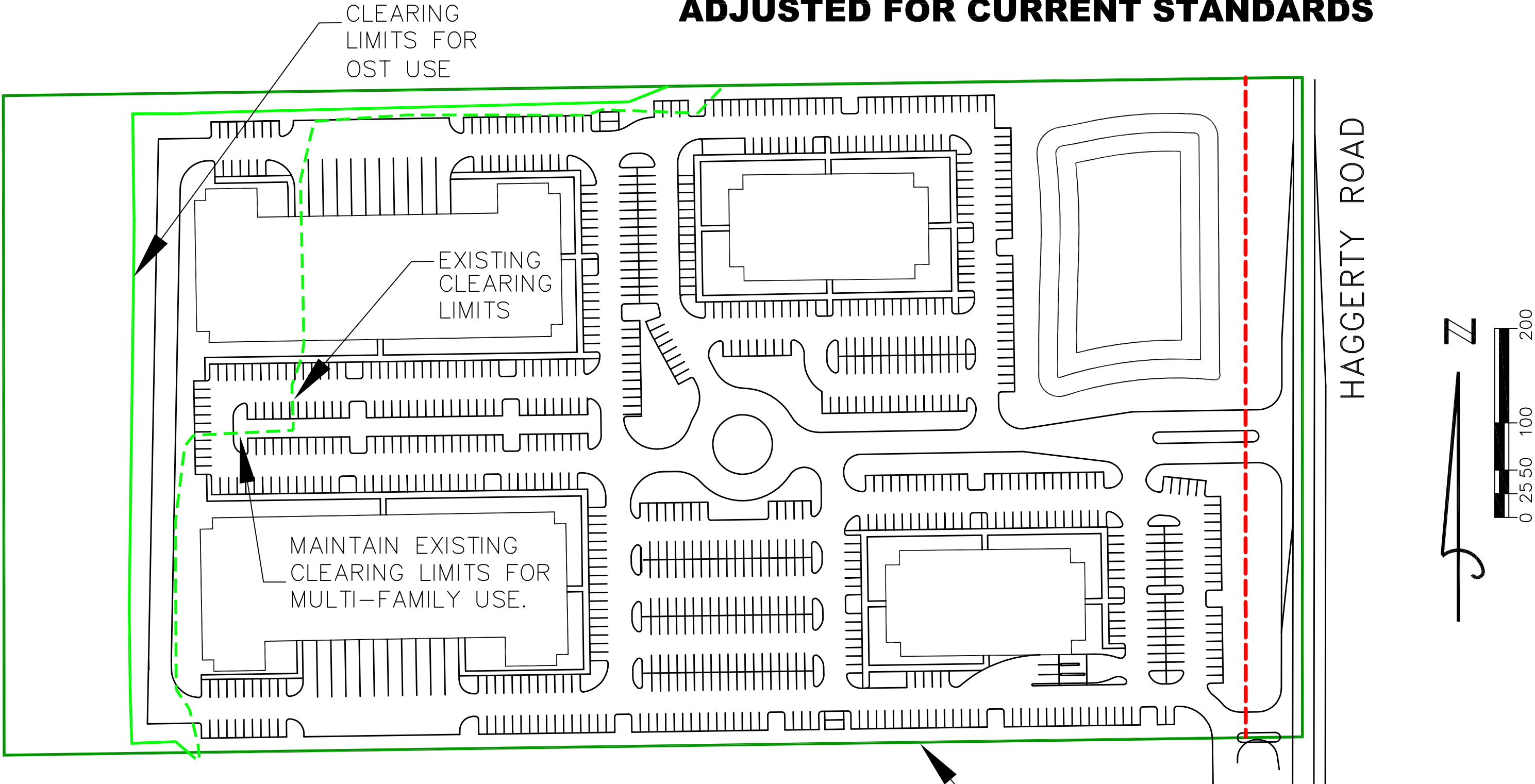
**Site Plan**

Parking Setback Screening	no	Does not conform, but will conform with PRO approval
Structure Fronts Public Road or Approved Private Dr	no	Does not conform, but this development doesn't have in internal "road"
Parking space Screening	no	Does not conform, but will conform with PRO approval
Perimeter Berm	no	Would require removal of more trees in some areas. Grade diff. w/ neighbor too great in others

**List of revision made from previous Site Plan**

- Reduced density
- Reduced number of buildings
- reduced percentage of 1-bed units
- increased n'ly buffer by about 7'
- increased s'ly buffer by about 4'
- Condensed site layout to the east and somewhat to the south.
- Removed all development from the existing westerly treeline
- Removed all\* development from the existing northerly treeline (\*very limited disruption may occur due to grading)
- Reducing proposed wetland disturbance
- Increased area for wetland mitigation
- All buildings set back at least 75' from property lines
- Eliminate deviation for % of parking in the side yard
- Improved the parking ratio
- Added berms along Haggerty Road
- Included Buffer Details to show how front, side and rear yards will be treated

# COMPARISON OF NECESSARY DISRUPTION AREA ORIGINAL APPROVED NOVAPLEX SITE LAYOUT ADJUSTED FOR CURRENT STANDARDS



THE ADDITIONAL CLEARING LIMITS FOR THE PREVIOUSLY APPROVED OST USE UPDATED FOR CURRENT DESIGN STANDARDS (80,854 SF) IS LARGER THAN THE CLEARING LIMITS FOR THE PROPOSED MULTI-FAMILY USE (68,341 SF). THE UPDATE CONSISTED OF RESIZING THE DETENTION BASING TO HOLD A 100-YEAR STORM (APPROX.) AND ALSO INCREASE THE NUMBER OF PARKING SPACES.

PLEASE NOTE THAT THIS LAYOUT SHOW THE SAME 3 STORY OFFICE BUILDINGS NEAR THE FRONT OF THE SITE. NEWER TECH BUILDINGS TEND TO BE ON A SINGLE FLOOR, WHICH WOULD MEAN LARGER BUILDING FOOTPRINTS. ALSO NOTE THIS LAYOUT DOES NOT HAVE SPACE FOR ANY SIGNIFICANT TREE REPLACEMENT OR ONSITE WETLAND MITIGATION.

PROPERTY LINE

HAGGERTY ROAD

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COMMUNITY IMPACT STATEMENT

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# **Community Impacts and Project Benefits for the proposed Novaplex Residential Development**

Prepared January 29, 2020 by the Beztak Companies  
with the assistance of their Development Consultants for the  
Novi Planning Commission and City Council

## **Index of Information**

1. Community Impact Topics
  - Employment / Housing
  - Environmental Features, Impacts and Mitigation
  - Utility Impacts
  - Public Safety
  - Social Impacts
2. Summary of Project Benefits
3. Conclusion

# 1. Community Impact Topics

## **Providing housing in the OST District will benefit employees, businesses and the City**

(Text in blue are excerpts copied from the cited source)

Many companies are looking at more than just financial and logistical concerns when considering where to expand or relocate their offices. An article titled “6 Things Leaders Should Consider When Relocating Their Firm’s Offices”, published January 19, 2017 By Lauren Dixon, Associate Editor *for* Talent Economy notes that “... Many companies in recent years have opted to relocate their headquarters back into the city, as more workers express interest in urban living. In 2014, Nielsen’s data shows that U.S. city growth outpaced other areas for the first time since the 1920s” and goes on to state “Increasingly, labor and considerations around talent are really what’s driving real estate decisions these days for all types of different operations,” said Mark Seeley, senior vice president of the labor analytics team at CBRE Group Inc., a commercial real estate company based in Los Angeles. Companies are being much more thoughtful than in the past about locations and how that can enable their ability to acquire talent. “Market conditions are forcing companies to be much more strategic,” Seeley said. “They can’t just assume that if they’re a large company with a great brand, they can just plop a building anywhere and they’re going to be able to get the applicant pools that they need.”

Of the 6 considerations for leaders when relocating, 2 speak directly to idea that companies can benefit when they consider conveniences for their employees.

4. Examine trends around the employee lifecycle. “...There’s an entire lifecycle of workforce that people need to be thinking about as they’re being strategic about where they locate”.

Although younger generations tend to move to major cities, they might migrate to the suburbs if they chose to start families later on. Seeley advised leaders to think more holistically about all generations in the talent pool.

5. Convenience is a differentiator. Employees in some competitive sectors have the ability to be picky when choosing employers, Seeley said. And for some, their choice isn’t only about the amount on their paycheck; it’s more about the company’s environment and location. Amenities available in and around the office building — cafes, gyms, etc. — are part of this consideration.

In an article titled “Facebook’s Employee Community Solves Relocation Housing Issues” posted by Mike Armstrong on Oct 9, 2013, Mr. Armstrong notes “One of the trickiest parts of moving to a new city for work is finding a home. It’s hard enough moving to an area that you’re familiar with...”. “A large number of transferees and new employees end up searching for housing options in places they’ve never even been, and a blind relocation is stressful and often results in housing that leaves something to be desired. Facebook recently announced a plan that could alleviate the issue altogether. Facebook is planning a housing community ...which will be strictly used by their employees. This is a definite perk in many ways for Facebook’s employees. The idea is to free up employee time and add convenience to their lives, which usually translates to more productivity.”

There are many more articles and studies that reach the same conclusion: The benefits of housing very near work are many. A 25 minute one-way commute (average per SEMCOG) = 208 hrs/person/ year.

- The time saved could go towards more important things like family, hobbies or sleep.
- Living close to work makes an active commute (biking/walking) possible most days.
- Employees can go home during their lunch break to take care of chores, let the dog out, or visit their young kids.

Fewer long-distance commuters means fewer miles driven



- Less wear-and-tear on roadways
- Less gasoline used
- Less pollution

Shorter commutes result in less stress and more worker productivity

Many companies recognize the impacts of commutes on employees and productivity, and they have programs or stipends to encourage living near work. Facebook and Harley Davidson are a couple of the better-known ones. Compuware, Marketing Associates and Strategic Staffing Solutions are local companies that offer incentives for employees to live near their offices in Downtown Detroit. Even without employer participation, employees recognize the benefits of living near work. When we broke ground on our apartment project Five Points of Auburn Hills, one of our first calls was from a professor working across the street at Oakland University.

By allowing certain service-related uses in the OST district, Novi has already taken a significant step towards attracting new companies and retaining current ones, recognizing that employee convenience is of growing importance to businesses. Allowing for well-designed multi-family housing within appropriate areas of the OST District will help further promote Novi's reputation as a business-friendly community that cares for residents and employees, and allows for growth in an environmentally responsible manner.

### **Employment - Construction**

**OST** – Calculating the number of construction jobs needed to complete a OST project like this is difficult because so many factors can impact the number of workers employed. It is our best estimate that developing the site plus approximately 4 padsites and buildings over the course of about 3 - 5 years (if market demand increases substantially) will generate maybe 250 to 300 hundred construction jobs.

**Apartments** – It is also difficult to calculating the number of construction jobs needed to complete a Residential project like this, but it is safe to say that 1) the entire project will be completed is a shorter timeframe, and 2) there is much more work that goes into apartment construction (more walls, more doors, more bathrooms/plumbing, more cabinets, etc.). It is our best estimate that developing 10 apartment buildings and a clubhouse over the course of about 2 years will generate a maybe 350 – 450 construction jobs.

### **Employment – Daytime Operational**

**OST** – In our experience, the research/office buildings could be home for between 4 and 15 companies, with 100 to 150 permanent employees.

**Apartments** - Once completed, the apartments will employ approximately 10 permanent operations and maintenance staff, plus weekly work for a grounds/landscape maintenance company and monthly apartment refurbishing work (cleaning, paint and carpet) once the tenant turnover cycle begins.

### **Permanent Population**

**Apartments** - From an infrastructure design standpoint, the estimated apartment population would be 3.2 persons per unit x 272 units x 0.6 apartment (residential equivalency unit) = 522 residents. In our experience, the apartments will be home for anywhere from 400 to 480 residents.

**OST** – With the exception of a potential multi-shift business or security guards, we do not anticipate a significant nighttime population

## **Opportunity Cost**

### **Increase in Residential Use -**

We anticipate 272 residential units will be developed on this 22 acre site (21.03 ac. net). People spend where they live. Providing opportunities for business growth/jobs is good, but without nearby housing opportunities, employees leave the area with their salaries. People tend to spend where they live. More housing in Novi helps keep the income in the city.

### **Decrease in OST Use -**

This site is 22 acres (21.03 ac. net). There is about 900 acres of OST land, with about 590 acres of vacant / underdeveloped OST parcels in addition to this site. It could take several decades to fully develop the remaining vacant / underdeveloped OST land. The proposed change to a multi-family use represents less than 4% of the remaining developable acreage.

It is better to approve a zoning change that allows development of a complimentary Use on this single piece of OST land, and also supports the existing and future OST property in the area. Why lose tax dollars from a developed property plus the benefits of new Novi Residents and their wages, to hold to the “potential” of this single piece of land for years or decades.

## **Environmental Features, Impacts and Mitigation**

**Topography** - The site slopes upward 35' along the n'ly property line, from an elevation of 907 at the Haggerty Road r.o.w. to 942 at the northwest property corner; and it slopes upward 24' along the s'ly property line, from an elevation of 914 at the Haggerty Road r.o.w. to 938 at near the southwest property corner. The slope of the property makes it difficult to develop large-footprint buildings. Smaller building footprints allow for more grading flexibility, but small building footprints don't work well for demisable research office buildings. By using apartment buildings with smaller footprints, there is much more opportunity for grading flexibility, resulting in less total earthwork.

**Woodlands** - The property is a historically disturbed, but vacant site. There is a regulated woodland along the west property line, with the remainder of the site an open field. Some of the woodland has small pockets of wetland with the remainder being an upland mix of trees. Overall, the woodlot is in fair to good condition. Adjacent properties also contain regulated woodlands contiguous with the woodland on the Novaplex property. The proposed is contained within the cleared area of the site, east of the easterly edge of the woodland. The limit of disturbance will be approximately 20 feet from the edge of proposed buildings and approximately 15 feet from paved surfaces. This disturbance is necessary for the physical construction of the proposed improvements. While it is unlikely, it is possible that disruption may encroach on the easterly edge of tree roots in places. As the site design is further refined, efforts will be made to reduce the encroachments. If a regulated tree is damaged, it will be

replaced per the City's tree replacement ordinance. Tree mitigation for this development will occur onsite. The mitigation trees, if any, will not count towards other landscaping requirements according to Section 2509.

**Habitat** – A Wildlife Corridor will be designated onsite and protected for the benefit of the community. Wildlife Corridors (definition adopted from State of Florida) “are tracts of land or habitat that are linked and allow wildlife to travel from one location to another to find food, shelter, a mate, ...”. Based upon this definition, Novaplex will provide a wildlife corridor across its wooded westerly end for wildlife movement, sheltering and food gathering. This corridor will continue to serve as habitat and provide the link to the woodlands north and south of the property. It must be noted that although this woodland serves as a wildlife corridor for the micro/local community, a larger macro view shows that M-5, Twelve Mile and Thirteen Mile Roads, Cabot Drive, Lewis Drive, Geneva Drive plus numerous existing developments impede on connecting this isolated piece of property from a larger framework.

**Wetlands** - Based upon PEA's wetland delineation and site observations on April 11 and May 11, 2017, wetlands exist on the subject property. A total of 5 wetlands were flagged on the site. About half the wetlands are forested with the remaining wetlands occurring in the open field/emergent. The wetlands are very typical for urban areas. They exhibit poor to fair quality and provide minimal plant diversity. Common plants include silver maple, reed canary grass, cattail, redbird dogwood and black willow. These 5 small pockets of wetland do not provide any significant amount of storm water storage. They do not provide any notable wildlife habitat and do not recharge any aquifers. One of them exists because a neighboring development discharges their concentrated storm water runoff onto this site, and the road ditch that ultimately accepts the runoff is very poorly drained. These small pockets of wetland are not essential to the preservation of the natural resources of the city. These 5 small pockets of wetland are regulated because they are within 500' of an inland lake, pond, river, or stream, as defined by in the Wetlands Protection Act. The small wetlands in the woodlot/wildlife corridor will be preserved, and one wetland in the cleared area on the west side of the site will be expanded and enhanced as mitigation for some small wetland pockets disturbed by this development.

## Utility Impacts

**Water Main** - Based on previous surveys and conversations with the City Engineering Department, there is Public Water Main available to this site, located within the Haggerty Road right-of-way at the southeast corner of the site and in the adjacent Magna property to the north. The public water system is designed considering the development of this area, and it has sufficient capacity for the proposed uses with no impact to the surrounding developments. (see the attached site plan for utility demand calculations)

**Sanitary Sewer** – Based on previous surveys and conversations with the City Engineering Department, there is Public Sanitary Sewer available to this site, located within the Haggerty Road right-of-way. The public sanitary system is designed considering the development of this area, and it has sufficient capacity for the proposed uses with no impact to the surrounding developments. The Design Engineer has provided information and calculations to the City Engineering Department show sufficient capacity in the sewer system for full development of the contributing area. (see the attached site plan for utility demand calculations)

**Storm Water Management** - The storm water management system for this site will conform to City requirements to detain a 100-year storm event onsite. Storm water management will be provided by constructing vegetated swales where possible, plus sedimentation and detention ponds which discharge into the Haggerty Road right-of-way ditch at the northeast corner of the site. The adjacent medical building development to the south currently outlets its storm runoff onto this site. Novaplex will include this offsite runoff in its storm water management system design and maintain the flow as pass-through drainage.

## Public Safety

Novi's population is around 59,395 per the Census Update page on the City's website. The proposed 272 apartments will likely add up to 522 residents to the population. That is a 0.87% increase.

**Fire / EMS Responses** (yearly) – This development will add about 522 residents to the population of Novi. These new residents will add a small amount to the number of Fire/EMS calls. In 2016, the Fire Department received 4426 service and medical emergency calls. For this development we would calculate an additional 34 calls per year, or an average of less than 1 service/EMS call per week. Because we expect the adult average age in this new development will skew younger than the adult average age in the City, we anticipate even fewer calls than calculated.

**Police Responses** (yearly) – This development will add approximately 522 residents to the population of Novi. These new residents will add an equally small amount to the number of Police calls. In 2016, the Police Department responded to 2146 calls for criminal activity. Our 272 apartment units would result in about 18 additional calls per year, or 1.5 calls per month average. Given the type of residents likely to live here, we would anticipate fewer calls than that. For reference, our research showed that Farmington Hills Police responded to 54 calls from our nearby Citation Club Apartments (600 units at the northeast corner of Haggerty and 13 Mile Roads), which likely has a similar demographic.  $54 \text{ calls} / 600 \text{ units} = 0.09 \text{ calls/unit/year}$ , which translate to about 24 police calls per year for a 272 unit complex, or 2 calls per month.

## Social Impacts

Lights –

- Lighting levels will meet or be less than allowed by ordinance
- Building lighting is architecturally integrated with the building style, material, and color.
- Building- and pole-mounted lighting will be shielded and directed downward.
- Light poles and fixtures for the apartment will be residential in scale

Noise -

- The adjacent properties are businesses with less sensitivity to noise.
- Apartments are occupied primarily from evening through early morning, and businesses from morning to early evening, so the uses generally won't disturb each other.
- Apartments generally generate less loud noises than office/research, and each use generates the majority of their noise during different hours.

Safety -

- Apartment Staff will be onsite during normal office hours 7 days a week

- A staff member will be on-call for emergencies during off-hours
- Residents must pass a rigorous review including criminal and civil background checks
- Our residents expect a safe environment and don't generally tolerate troublemakers.

#### Traffic –

- Site is near the intersection of Haggerty and 12 Mile Road, with quick access to M-5, I-275 and I-96/I-696.
- This is one of the best locations in the City to handle and disperse the traffic
- Office/Industrial developments generally have larger volumes of traffic
- Providing a residential Use in the area spreads traffic out, reducing the peak-time traffic.
- See attached Traffic Impact Study for traffic counts and recommended improvements.

#### Schools -

- The general estimate is 0.15 to 0.18 children/unit in Apartments
- Our residents could include approx. 40-49 school-aged children for 272 units.
- Because of our target resident demographics, our properties usually have about 25% fewer children than the general estimate.
- New children are beneficial as school districts will experience shrinking enrollment and competition from private and charter schools.
- The Novi School's Transportation Office confirmed there is existing service to residences on Haggerty Road, just south of 12 Mile Road. They would not disclose the capacity of that bus route, nor speculate on future capacity or future service needs..

**Many Impacts from this development are positive, and the other impacts are minimal and reasonably mitigated.**

## 2. Summary of Project Benefits

- Puts workers potentially closer to employment
  - Opportunity for corporate housing
  - Pedestrians = reduction in local traffic
  - Shorter drive to work may spread out peak traffic
- Provides residential density where its impacts are best mitigated
  - Near major roadway/freeway intersections to help disperse traffic.
  - Near employment to help minimize traffic
  - Impacts on roadways are lessened
  - Impacts from exhaust are lessened
- Provides potential students for local schools
- Provides high-quality residents for the City
- Minimal impacts on infrastructure
- Different hours of use/occupation
  - People at work when not at home
    - Offices provide some security when apartments empty
    - Apartments provide some security when offices empty.
  - Different times for peak infrastructure use so less concerns about capacity.
    - Water / Sanitary, Traffic, Electric

- Providing opportunities for business growth/jobs is good, but without nearby housing opportunities, employees leave the area with their salaries. More housing helps keep the income in the city.
- Many corporations seek out and relocate or expand into areas convenient for employees. They look for “everything in one area” for convenience of employees. These apartments will be a great complement to the area businesses, support high-income employment in the area and make a more productive, less disruptive use out of land.
  - Nearby shopping & services makes daily errands easier
  - Nearby housing reduces travel time
- Filling in a 430’ safety path gap south of the site and another 166’ gap north of the site, as well as constructing the safety path on the Novaplex site greatly improves walkability along Haggerty Road. Along with a small gap being completed by the development at the corner of 13 Mile Road, it completes the looped pathway system along Haggerty from 12 Mile to 13 Mile, and back south through the corporate park.
- Provides pedestrians/cyclists a pocket park seating area along the Haggerty Road safety path, about halfway between 12 Mile Road & 13 Mile Road
- Preserves a wildlife corridor between existing woodlots on adjacent sites
- Allows for existing businesses to thrive and expand, for new businesses to relocate to the area, and allow for some employees to relocate closer to work
- This project conforms to the Goals of the Master Plan

### **3. Conclusion**

This proposed Rezoning allows for development of an otherwise very difficult parcel to develop; Does not prevent future significant development of OST businesses on numerous other sites; Supports and enhances viability of existing and vacant OST parcels; Satisfies the Market Demand for multi-family residences in the area; Brings new residents and their income to the City; Supports schools and local businesses; Improves and Promotes walkability in the area; Reduced potential impacts on infrastructure; Protects a portion of existing woodlot for a wildlife corridor; and Meets the Goals of the Master Plan.

This proposed Rezoning with a PRO will greatly enhance the area to the benefit of neighbors, the local community and the City as a whole.

MDEQ WETLAND REPORT

---



RICK SNYDER  
GOVERNOR

STATE OF MICHIGAN  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
LANSING



C. HEIDI GREYER  
DIRECTOR

July 5, 2018

Mr. Mark Highlen  
Bezteck Companies  
31731 Northwestern Highway, Suite 250W  
Farmington Hills, Michigan 48334

Dear Mr. Highlen:

SUBJECT: Wetland Identification Report  
Wetland Identification Site Name: 63-Haggerty Road-Novi  
MiWaters Submission Number: HND-0H69-FWMKW

The Department of Environmental Quality (DEQ) conducted a Level 3 Wetland Identification Review of approximately 22 acres on property (Property Tax Identification Numbers 50-22-12-400-009, -010, and -011) located in Town 01 North, Range 08 East, Section 12, city of Novi, Oakland County on June 7, 2018. The wetland identification was conducted in accordance with Part 303, Wetlands Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), and Rule 4 (1), Wetland Identification and Assessment (R 281.924), of the Administrative Rules for Part 303. This is a report of our findings in response to your Wetland Identification Program (WIP) application.

Based on our on-site investigation which included a review of plants, hydrology, and soils, the DEQ confirms, in part, the wetland boundary lines flagged by your consultant. The DEQ also reviewed other pertinent information such as aerial imagery, soil survey data, topographic mapping data, and surface hydrology data.

Approximately 0.72 acre of wetland area was overlooked and omitted by the consultant. The DEQ extended the consultant's wetland delineation boundary flagging associated with wetlands within the western and northcentral portion of the WIP review area and located two other wetlands within the southwest portion of the WIP review area. The wetland areas showed evidence of sustained surface (or near-surface) hydrology occurring during the growing season and were associated with hydrophytic plant species and hydric soil.

Modified boundaries were documented on the enclosed site map (Figure 2). The site map of the WIP review area was created by combining information from your consultant and the DEQ. The new map identifies areas containing regulated wetland, unregulated wetland, and non-wetland (upland).



Mr. Mark Highlen

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July 5, 2018

Approximately **0.60 acre (38 percent)** of the 1.58 acres of wetland within the WIP review area are regulated by the DEQ because of wetland size and/or proximity to a pond, lake, or stream/drain. For those areas identified as regulated wetland on the site map, specifically **Wetlands A, B, and C**, please be advised that any of the following activities require a permit under Part 303:

- a) Deposit or permit the placing of fill material in a regulated wetland.
- b) Dredge, remove, or permit the removal of soil or minerals from regulated wetland.
- c) Construct, operate, or maintain any use or development in a regulated wetland.
- d) Drain surface water from a regulated wetland.

For those areas identified as unregulated wetland or non-wetland (upland) on the site map, the DEQ lacks jurisdiction under Part 303 for activities occurring in those areas. The unregulated wetlands are not regulated by the DEQ because they are not contiguous to the Great Lakes, an inland lake or pond, or a river or stream; and are five acres or less in size.

This Wetland Identification Report is limited to findings pursuant to Part 303 and does not constitute a determination of jurisdiction under other DEQ-administered programs. Any land use activities undertaken within the WIP review area may be subject to regulation pursuant to the NREPA under Part 91, Soil Erosion and Sedimentation Control.

Please be aware that this wetland identification report does not constitute a determination of the jurisdiction under local ordinances or federal law. The United States Army Corps of Engineers (USACE) retains regulatory authority over certain wetlands pursuant to Section 404 of the Clean Water Act (CWA), and specifically those wetlands associated with traditionally navigable waters of the state. Navigable waters are generally the Great Lakes, their connecting waters, and river systems and lakes connected to these waters. In other areas of the state, the DEQ is responsible for identification of wetland boundaries for purposes of compliance with the CWA under an agreement with the United States Environmental Protection Agency. Your review area does not appear to be within those areas also regulated by the USACE. Additional information may be obtained by contacting the USACE at 313-226-2218.

You may request the DEQ reassess the wetland boundaries and regulatory status of wetlands within any portion of the review area, should you disagree with the findings, within 60 days of the date of this report. A written request to reassess the Wetland Identification review area must be accompanied by supporting evidence with regard to wetland vegetation, soils, or hydrology different from, or in addition to, the information relied upon by DEQ staff in preparing this report. The request should be submitted to:

Wetland Identification Program  
Department of Environmental Quality  
Water Resources Division  
P.O. Box 30458  
Lansing, Michigan 48909-7958

Mr. Mark Highlen

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July 5, 2018

The findings contained in this report do not convey, provide, or otherwise imply approval of any governing act, ordinance, or regulation, nor does it waive the obligation to acquire any applicable federal, state, county, or local approvals. This Wetland Identification Report is not a permit for any activity that requires a permit from the DEQ.

Should you need to apply for a permit for future work within this site, please use the same site name listed within the subject line of this letter when you are listing the site location within the MiWaters online permit application.

The findings contained in this report are binding on the DEQ until July 5, 2021, a period of three years from the date of this Wetland Identification Report unless a reassessment has been conducted. Please contact me at 517-243-5002; [gyekisk@michigan.gov](mailto:gyekisk@michigan.gov); or DEQ, P.O. Box 30458, Lansing, Michigan 48909-7958, if you have any questions regarding this report.

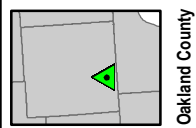
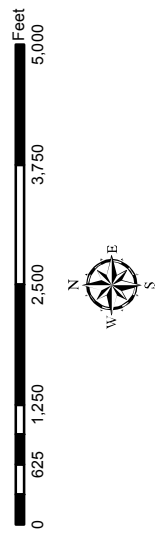
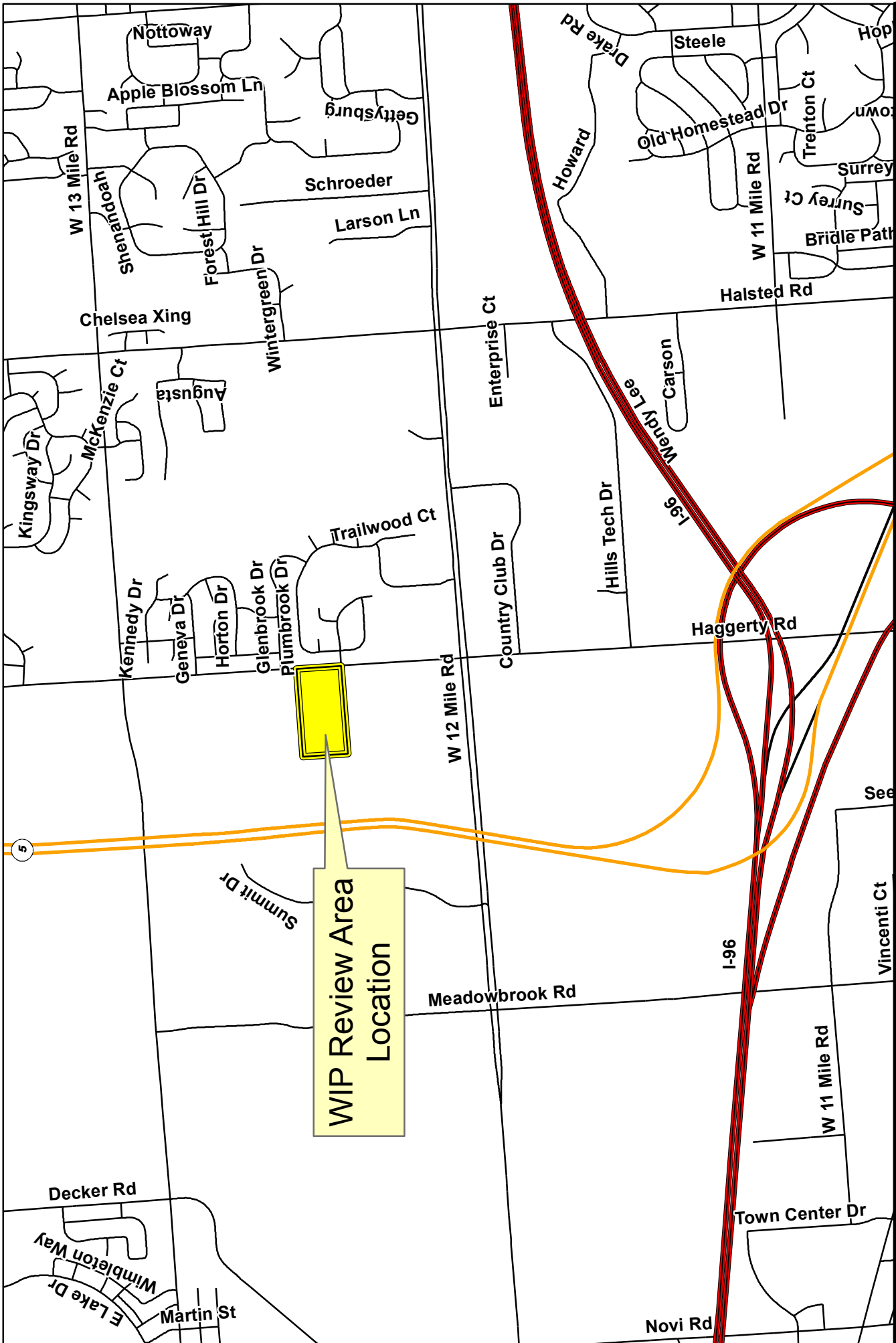
Sincerely,

A handwritten signature in black ink that reads "Keto Gyekis". The signature is fluid and cursive, with the first name "Keto" being more prominent and the last name "Gyekis" following in a similar style.

Keto Gyekis  
Wetland Identification Program Coordinator  
Water Resources Division

Enclosures

cc: Oakland County Soil Erosion Enforcement Agent (CEA)  
Oakland County Health Division  
City of Novi Clerk  
Mr. Jeffrey Smith, PEA, Inc.  
Mr. Andrew Hartz, DEQ  
Ms. Susan Tepatti, DEQ



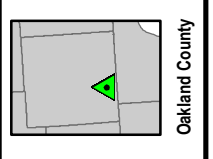
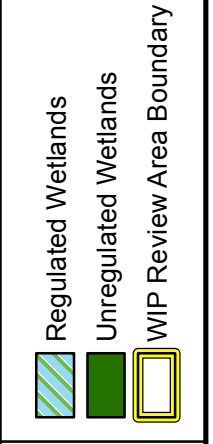
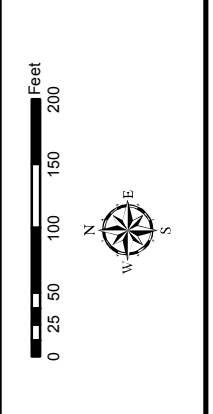
**Figure 1.**  
 DEQ Wetland Identification Location  
 Haggerty Road  
 Novi

**Wetlands A, B, and C are regulated under Part 303 of NREPA**



Regulated Wetland Continues Off Site

This drawing showing those areas containing wetland and not containing wetland and the boundary boundaries flagged on-site. This drawing does not authorize or permit activities in wetlands in accordance with Part 303 of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended.



**Figure 2.**  
**DEQ Wetland Identification Detail**  
**Haggerty Road**  
**Novi**

# TRAFFIC IMPACT STUDY

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# MEMO

VIA EMAIL

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**To:** Mr. Mark Highlen  
Beztak Companies

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**From:** Julie Kroll, PE, PTOE  
Jacob Swanson, EIT  
Fleis & VandenBrink

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**Date:** May 10, 2019

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**Re:** Novaplex Residential Development  
City of Novi, Michigan  
Traffic Impact Study

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## INTRODUCTION

This memorandum presents the results of a Traffic Impact Study (TIS) completed for the proposed Novaplex multi-family residential development in the City of Novi, Michigan. The proposed development includes up to 350 multi-family residential units. The project site is located on the west side of Haggerty Road, approximately ½ mile north of 12 Mile Road. Site access is proposed via one new site driveway to Haggerty Road and a shared access connection with the existing Infinity Medical Building Driveway aligned with Heatherbrook Drive. Per the City of Novi Community Development Department's *Site Plan and Development Manual (Section 1)*, a TIS is required for the project.

Haggerty Road is under the jurisdiction of the Road Commission for Oakland County (RCOC). This TIS has been completed to identify the impacts (if any) of the proposed development traffic on the intersection of Haggerty Road & Heatherbrook Drive / Infinity Medical Drive, as well as the proposed site driveways.

The scope of the 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 methodologies published by the Institute of Transportation Engineers (ITE). Additionally, F&V solicited input regarding the scope of work from RCOC and the City of Novi traffic engineering consultant, AECOM.

## DATA COLLECTION

The existing weekday turning movement traffic volume data were collected by F&V subconsultant Traffic Data Collection, Inc. (TDC) on Tuesday, February 14, 2017. Intersection turning movement counts were collected during the weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods at the intersection of Haggerty Road & Heatherbrook Drive / Infinity Medical Drive.

Per the City of Novi Community Development Department's *Site Plan and Development Manual (Section 1, pg 48)*, "the City may permit counts up to three years old to be increased by a factor supported by documentation or a finding that traffic has increased at a rate less than two percent annually in the past three to five years". F&V reviewed the historical traffic volume data for Haggerty Road which indicates that traffic volumes decreased between 2013 and 2018. Therefore, it was determined that the 2017 traffic volumes were acceptable for use in the study. The historical traffic volumes are attached.

Since the historical traffic volumes showed a decrease in growth, the SEMCOG community profile for the City of Novi was reviewed to calculate a background growth rate. The SEMCOG data showed a projected marginal increase in population and employment from 2010 to 2040. The SEMCOG community profile data is attached.

Therefore, a conservative background traffic growth of 1% per year was assumed in this study to calculate the existing 2019 traffic volumes. This data was used as a baseline to establish existing traffic conditions without the proposed development. Additionally, F&V collected an inventory of existing lane use and traffic controls.

### EXISTING CONDITIONS (2019)

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro (Version 10) traffic analysis software. This analysis was based on the existing lane use and traffic control shown on the attached **Figure 1**, the existing peak hour traffic volumes shown on the attached **Figure 2**, and the methodologies presented in the *Highway Capacity Manual 6<sup>th</sup> Edition* (HCM). Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. Additionally, SimTraffic network simulations were reviewed to evaluate network operations and vehicle queues. The existing conditions results are attached and summarized in **Table 1**.

**Table 1: Existing Intersection Operations and Vehicle Queue Lengths**

Intersection	Control	Approach	Existing Conditions			
			AM Peak		PM Peak	
			Delay (s/veh)	LOS	Delay (s/veh)	LOS
1 Haggerty Road & Heatherbrook Drive / Infinity Medical Drive	Stop (Minor)	EBL	34.9	D	64.9	F
		EBR	15.5	C	13.5	B
		WBL	47.4	E	69.3	F
		WBR	10.8	B	16.1	C
		NBL	9.8	A	8.9	A
		SBL	8.2	A	9.9	A
Intersection	Control	Approach	Average (ft)	95 % (ft)	Average (ft)	95 % (ft)
1 Haggerty Road & Heatherbrook Drive / Infinity Medical Drive	Stop (Minor)	EBL	5	22	10	36
		EBR	13	37	17	45
		WBL	17	48	16	50
		WBR	9	33	8	31
		NBL	10	31	0	5
		SBL	1	8	3	15

The results of the existing conditions analysis show that the STOP controlled left turn movements from Heatherbrook Drive and the Infinity Medical Office driveway currently operate at a LOS E or F during both peak periods. The vehicle simulations were further reviewed which show that significant vehicle queuing is not present during the peak periods for the STOP controlled approaches. The 95<sup>th</sup> percentile vehicle queue lengths for these approaches are calculated to be 50 feet (2 vehicles) or less during both peak periods, which is not significant.

### Existing Signal Warrant Analysis

A signal warrant analysis was performed at the study intersection of Haggerty Road & Heatherbrook Drive / Infinity Medical Drive. The *Michigan Manual on Uniform Traffic Control Devices (MMUTCD)* documents eight warrants by which traffic signal control may or should be considered. This study evaluated the volume warrants: Warrant 1 (8-Hour), Warrant 2 (4-Hour), and Warrant 3 (Peak-Hour). The results of the signal warrant analysis indicate that the existing volumes **do not meet** the thresholds to satisfy any signal warrants evaluated. The existing signal warrant analysis worksheets are attached.

### BACKGROUND CONDITIONS (NO BUILD 2022)

The 1% annual growth rate was applied to the existing 2019 traffic volumes to calculate the projected 2022 background traffic volumes with the addition of the proposed development. In addition to background growth, it is important to account for traffic that is expected to be generated by approved developments within the vicinity of the study area that have yet to be constructed or are currently under construction. No background

developments were identified near the study area that are expected to be completed prior to the site buildout of the proposed development.

**Background Operations**

Background peak hour vehicle delays and LOS were calculated based on the existing lane use and traffic control shown on the attached **Figure 1**, the background traffic volumes shown on the attached **Figure 3**, and the methodologies presented in the HCM. The results of the background conditions assessment are attached and summarized in **Table 2**.

**Table 2: Background Intersection Operations and Vehicle Queue Lengths**

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 Haggerty Road & Heatherbrook Drive / Infinity Medical Drive	Stop (Minor)	EBL	34.9	D	64.9	F	37.0	E	72.7	F	2.1	D > E	7.8	-
		EBR	15.5	C	13.5	B	15.9	C	13.8	B	0.4	-	0.3	-
		WBL	47.4	E	69.3	F	52.5	F	78.2	F	5.1	E > F	8.9	-
		WBR	10.8	B	16.1	C	10.9	B	16.6	C	0.1	-	0.5	-
		NBL	9.8	A	8.9	A	9.9	A	8.9	A	0.1	-	0.0	-
		SBL	8.2	A	9.9	A	8.2	A	10.0	B	0.0	-	0.1	A > B
Intersection	Control	Approach	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)
1 Haggerty Road & Heatherbrook Drive / Infinity Medical Drive	Stop (Minor)	EBL	5	22	10	36	4	22	9	33	-1	0	-1	-3
		EBR	13	37	17	45	11	34	17	44	-2	-3	0	-1
		WBL	17	48	16	50	18	48	11	40	1	0	-5	-10
		WBR	9	33	8	31	12	37	8	31	3	4	0	0
		NBL	10	31	0	5	9	29	1	6	-1	-2	1	1
		SBL	1	8	3	15	1	7	3	15	0	-1	0	0

The results of the background conditions analysis show that all study intersection approaches and movements are expected to continue to operate in a manner similar to existing conditions during both the AM and PM peak hours, with the exception of the left-turn movements during the AM peak period. The eastbound left-turn and westbound left-turn movement will decrease to a LOS E and LOS F, respectively. Review of network simulations also indicates traffic operations will be similar to existing conditions, with the 95<sup>th</sup> percentile vehicle queue lengths on Heatherbrook Drive and Infinity Medical Drive at 50 feet (2 vehicles) or less during both peak periods, which is not significant.

**SITE TRIP GENERATION**

The number of AM and PM peak hour vehicle trips that would be generated by the proposed development was forecast based on data published by ITE in the *Trip Generation Manual, 10<sup>th</sup> Edition*. The site trip generation forecast for the proposed development is summarized in **Table 3**.

**Table 3: Site Trip Generation**

Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
					In	Out	Total	In	Out	Total
Multi-Family Homes (Mid-Rise)	221	350	D.U.	1,906	30	87	117	90	57	147

**SITE TRIP DISTRIBUTION**

The vehicle trips that would be generated by the proposed development were assigned to the study road network based on existing peak hour traffic patterns, the proposed site plan, and the methodologies published by ITE. This methodology indicates that new trips will return to their direction of origin. The site trip distributions used in the analysis are summarized in **Table 4**.



**Table 4: Site Trip Distribution**

To/From	Via	AM	PM
North	Haggerty Road	34%	43%
South	Haggerty Road	66%	57%
Total		100%	100%

The site-generated vehicle trips were assigned to the study road network based on these trip distribution patterns and are shown on the attached **Figure 4**. The site-generated trips were added to the background traffic volumes to calculate the future peak hour traffic volumes shown on the attached **Figure 5**.

**FUTURE CONDITIONS (WITH DEVELOPMENT 2022)**

Future peak hour vehicle delays and LOS *with the proposed development* were calculated based on the existing lane use and traffic control, the future traffic volumes, the proposed site access plan, and the methodologies presented in the HCM. Additionally, SimTraffic simulations were reviewed to evaluate network operations and vehicle queues. The results of the future conditions analysis are attached and are summarized in **Table 5**.

**Table 5: Future Intersection Operations and Vehicle Queue Lengths**

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 Haggerty Road & Heatherbrook Drive / Infinity Medical Drive	Stop (Minor)	EBL	37.0	E	72.7	F	44.4	E	95.6	F	7.4	-	22.9	-
		EBR	15.9	C	13.8	B	17.6	C	14.5	B	1.7	-	0.7	-
		WBL	52.5	F	78.2	F	72.2	F	103.3	F	19.7	-	25.1	-
		WBR	10.9	B	16.6	C	11.1	B	17.3	C	0.2	-	0.7	-
		NBL	9.9	A	8.9	A	10.2	B	9.1	A	0.3	A > B	0.2	-
		SBL	8.2	A	10.0	B	8.3	A	10.2	B	0.1	-	0.2	-
2 Haggerty Road & Proposed Site Drive	Stop (Minor)	EBL	N/A				33.6	D	65.1	F	N/A			
		EBR	N/A				17.4	C	13.9	B	N/A			
		NB LT	N/A				9.9	A	9.3	A	N/A			
		SB	N/A				Free		Free		N/A			
Intersection	Control	Approach	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)	Avg. (ft)	95 % (ft)
1 Haggerty Road & Heatherbrook Drive / Infinity Medical Drive	Stop (Minor)	EBL	4	22	9	33	6	25	15	44	2	3	6	11
		EBR	11	34	17	44	18	43	23	51	7	9	6	7
		WBL	18	48	11	40	25	63	16	48	7	15	5	8
		WBR	12	37	8	31	10	33	9	32	-2	-4	1	1
		NBL	9	29	1	6	11	32	7	23	2	3	6	17
		SBL	1	7	3	15	1	10	5	21	0	3	2	6
2 Haggerty Road & Proposed Site Drive	Stop (Minor)	EBL	N/A				20	48	18	48	N/A			
		EBR	N/A				27	53	20	46	N/A			
		NB LT	N/A				13	55	36	123	N/A			
		SB	N/A				Free		Free		N/A			

The results show that all STOP controlled left turn movements from Heatherbrook Drive, Infinity Medical Office Drive, and proposed site driveway will operate at a LOS E or F during both peak periods. However, review of network simulations indicates acceptable traffic operations and significant vehicle queues are not observed. On all STOP controlled approaches, 95<sup>th</sup> percentile vehicle queues are calculated to be 53 feet (2 - 3 vehicles) or less during both peak periods, which is not significant.

### Future Signal Warrant Analysis

A signal warrant analysis was performed at the study intersection of Haggerty Road & Heatherbrook Drive / Infinity Medical Drive. The analysis evaluated the volume warrants: Warrant 1 (8-Hour), Warrant 2 (4-Hour), and Warrant 3 (Peak-Hour) with the addition of the site generated traffic volumes. The results of the signal warrant analysis indicate that the future volumes **do not meet** the thresholds to satisfy any signal warrants evaluated. The future signal warrant analysis worksheets are attached.

### Access Management

The offset distance at the proposed site driveway to Haggerty Road was evaluated according to the commercial driveway spacing requirements outlined in the City Ordinance *Section 11-216*. These requirements indicate that the proposed site driveway requires a minimum offset of 200 feet from Glenbrook Drive, on the opposite side of the street and 300 feet from Heatherbrook Drive, on the same side of the street. The proposed site drive on Haggerty Road meets these driveway spacing requirements, as summarized in **Table 6** below.

**Table 6: City of Novi - Driveway Spacing**

Adjacent Driveway	City Requirement	Proposed	Met?
North (Glenbrook)	200 ft	500 ft	Yes
South (Heatherbrook)	300 ft	300 ft	Yes

The existing shared site access driveway at Heatherbrook Dr. currently provides left-turn passing flares/right-turn lanes on the north and south approaches. Therefore, this analysis evaluated the RCOC warrants for right and left turns at the proposed site access drive to Haggerty Road. The results of this analysis indicates that a right-turn deceleration taper and a left turn treatment are recommended at the proposed Site Drive. Any proposed geometric improvements on Haggerty Road should be reviewed by RCOC and designed in accordance with RCOC requirements.

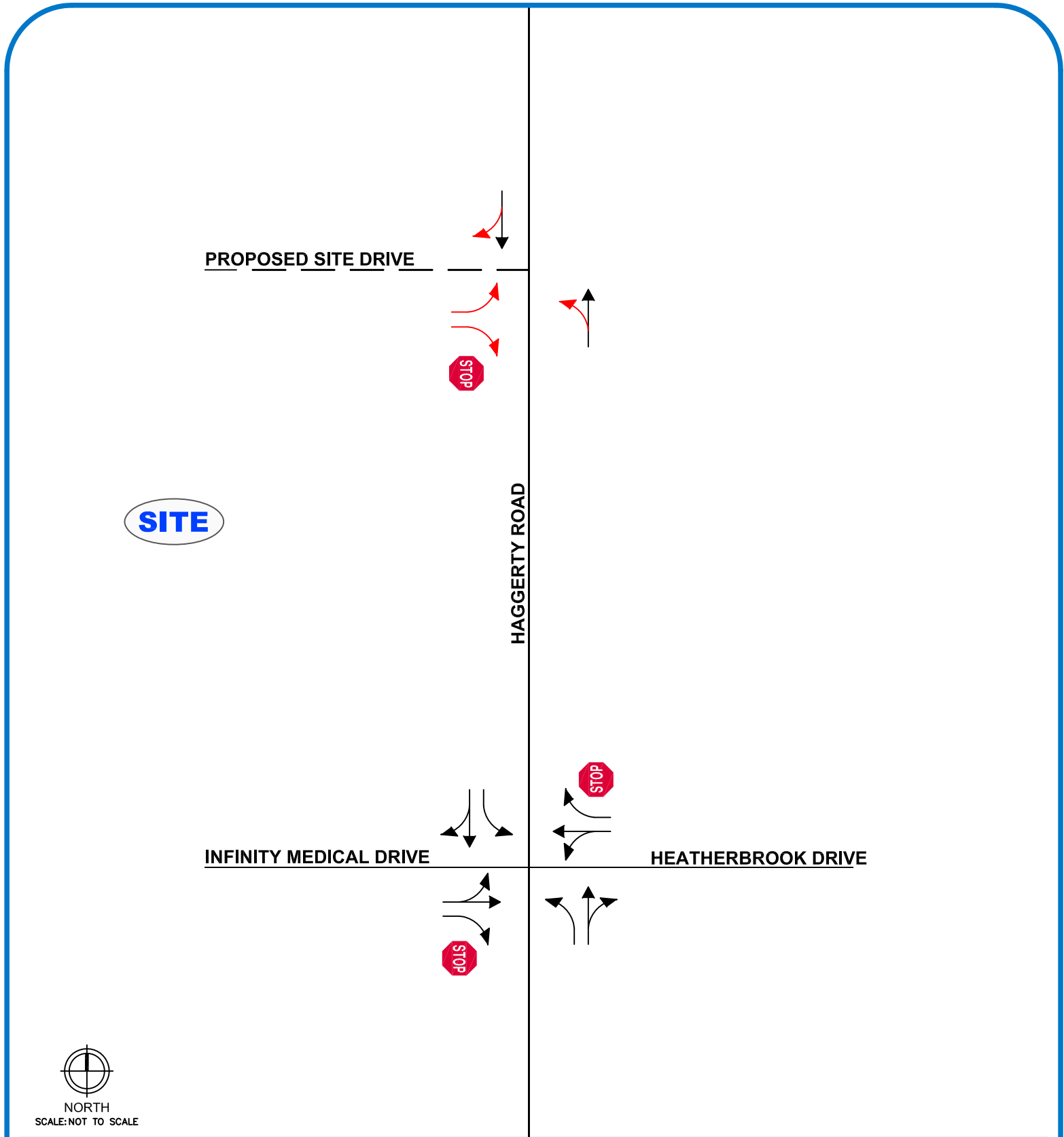
### CONCLUSIONS

*The conclusions of this Traffic Impact Study are as follows:*

1. The results of the existing conditions analysis show that the STOP controlled left turn movements from Heatherbrook Drive and the Infinity Medical Office driveway currently operate at a LOS E or F during both peak periods; however the 95<sup>th</sup> percentile vehicle queue lengths for these approaches are calculated to be 50 feet (2 vehicles) or less during both peak periods, which is not significant.
2. The analysis of background conditions **without the proposed development** show operations similar to existing conditions and any increases in delay would not be discernable.
3. The analysis of future conditions **with the proposed development** show that all STOP controlled left turn movements from Heatherbrook Drive, Infinity Medical Office Drive, and the proposed site driveway will operate at a LOS E or F during both peak periods. However, review of network simulations indicates acceptable traffic operations and significant vehicle queues are not observed. On all STOP controlled approaches, 95<sup>th</sup> percentile vehicle queues are calculated to be 53 feet (2 - 3 vehicles) or less during both peak periods, which is not significant.
4. A traffic signal is not warranted or recommended at the intersection of Haggerty Road & Heatherbrook Drive / Infinity Medical Drive with the existing or future traffic volumes.
5. The proposed site driveway on Haggerty Road meets the City of Novi driveway spacing requirements.
6. A right turn deceleration taper and left turn treatment is recommended at the proposed site access drive on Haggerty Road. Any proposed geometric improvements should be reviewed by RCOC and designed in accordance with RCOC requirements.

**Attached:** Figures 1-5  
 Traffic Volume Data  
 SEMCOG Data  
 Synchro / SimTraffic Results  
 Signal Warrants  
 RCOC Auxiliary Lane Warrants





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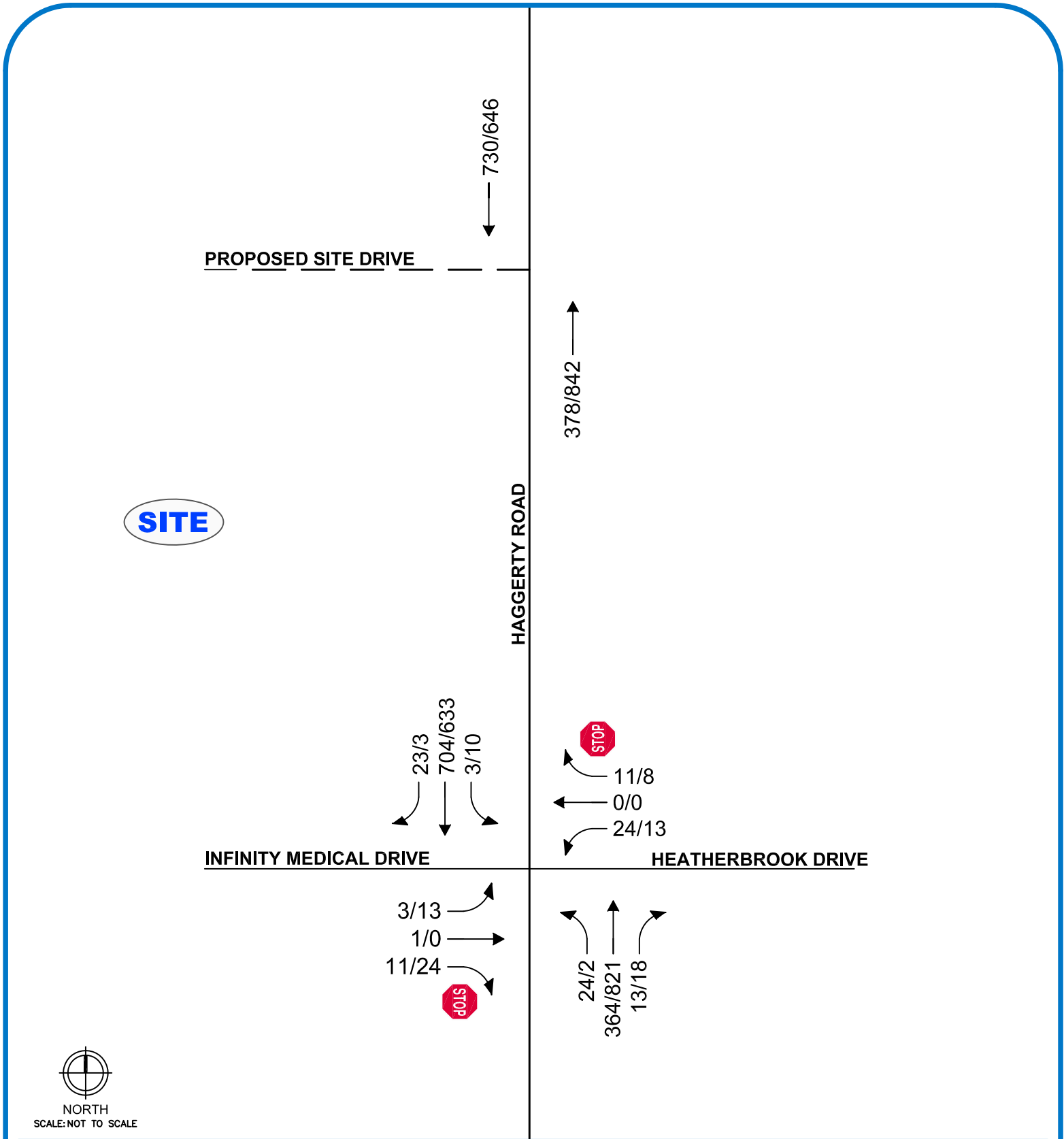


# FIGURE 1 LANE USE AND TRAFFIC CONTROL

NOVAPLEX TIS - CITY OF NOVI, MI

## LEGEND

-  ROADS
-  LANE USE
-  SIGNALIZED INTERSECTION
-  UNSIGNALIZED INTERSECTION



**SITE**

HAGGERTY ROAD

PROPOSED SITE DRIVE

INFINITY MEDICAL DRIVE

HEATHERBROOK DRIVE

730/646

378/842

23/3  
704/633  
3/10

11/8  
0/0  
24/13

3/13  
1/0  
11/24

24/2  
364/821  
13/18



NORTH  
SCALE: NOT TO SCALE

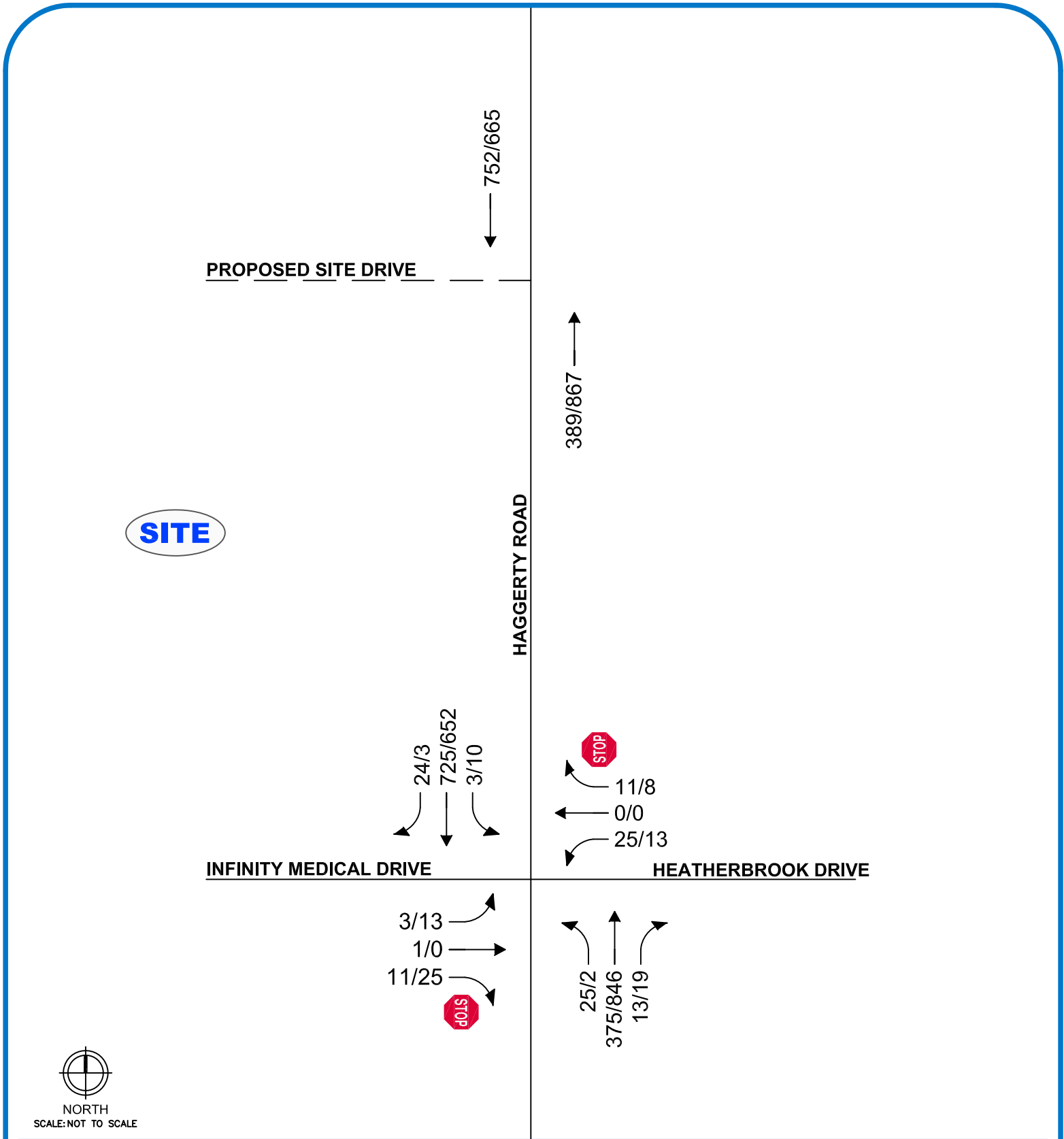


## FIGURE 2 EXISTING TRAFFIC VOLUMES

NOVAPLEX TIS - CITY OF NOVI, MI

### LEGEND

- ROADS
- TRAFFIC VOLUMES (AM/PM)
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION

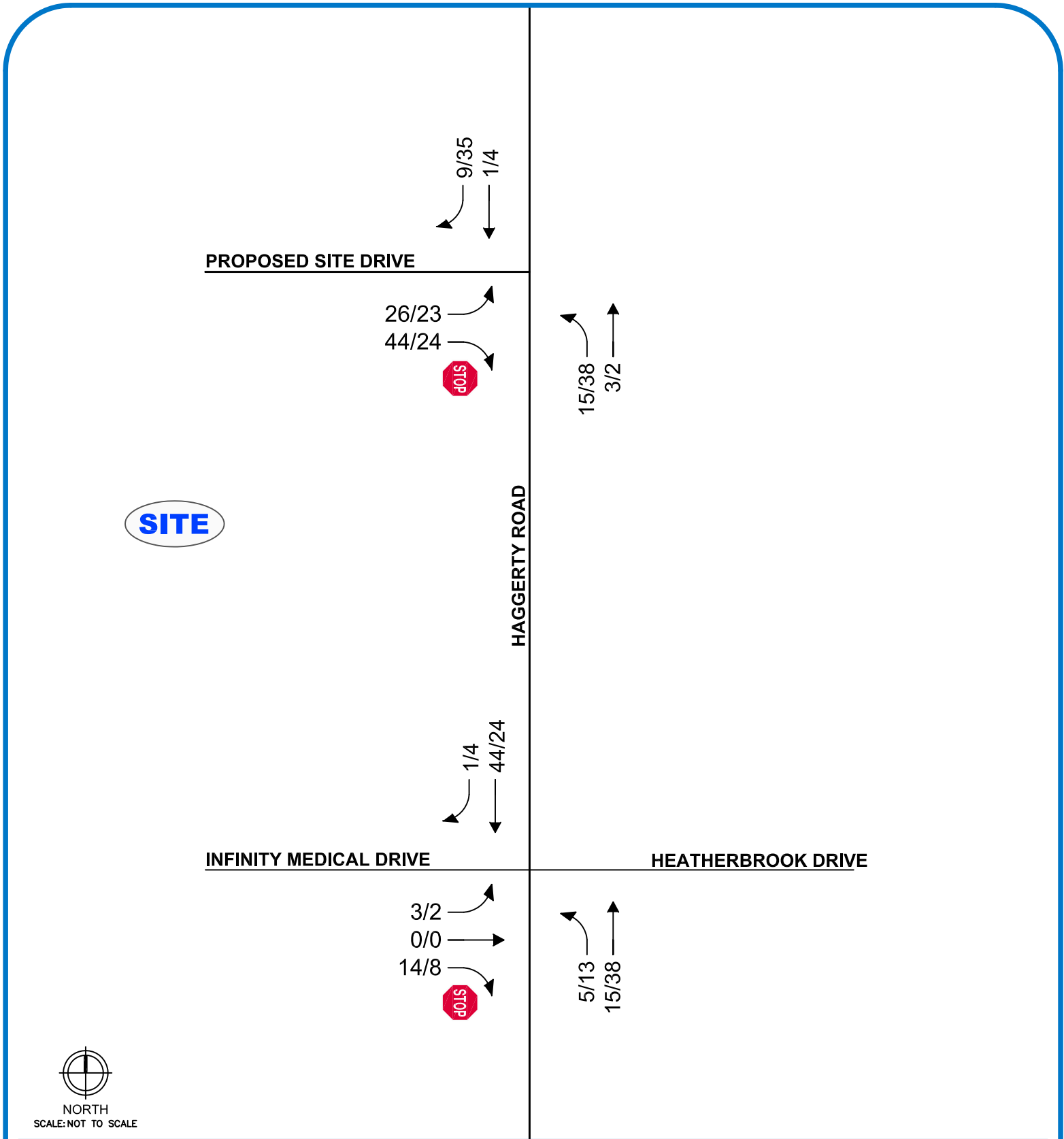


# FIGURE 3 BACKGROUND TRAFFIC VOLUMES

NOVAPLEX TIS - CITY OF NOVI, MI

## LEGEND

- ROADS
- TRAFFIC VOLUMES (AM/PM)
- SIGNALIZED INTERSECTION
- UNSIGNALED INTERSECTION

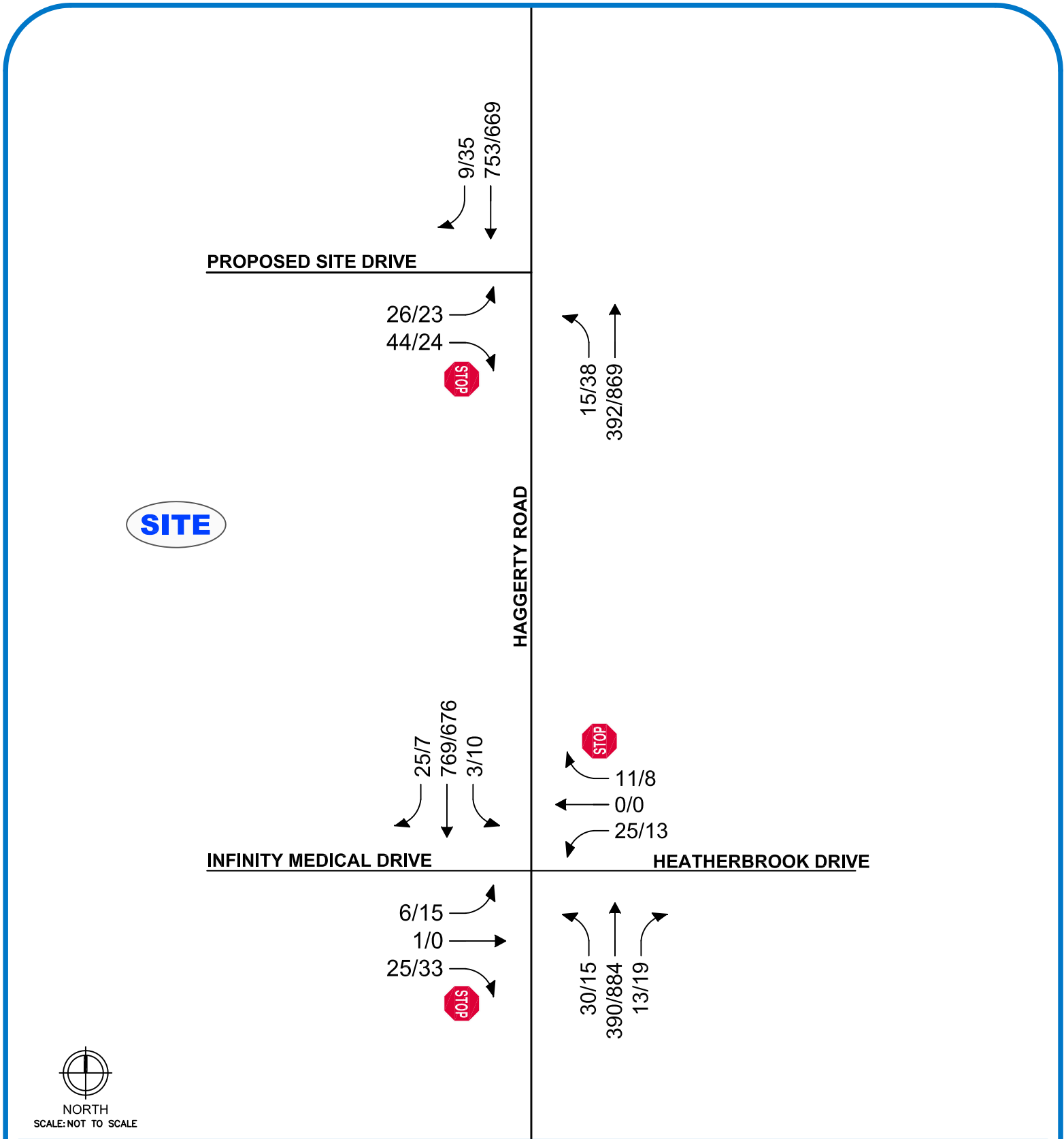


**FIGURE 4**  
**SITE-GENERATED**  
**TRAFFIC VOLUMES**  
 NOVAPLEX TIS - CITY OF NOVI, MI



**LEGEND**

	ROADS
	TRAFFIC VOLUMES (AM/PM)
	SIGNALIZED INTERSECTION
	UNSIGNALIZED INTERSECTION



**SITE**

**HAGGERTY ROAD**

**PROPOSED SITE DRIVE**

**INFINITY MEDICAL DRIVE**

**HEATHERBROOK DRIVE**



NORTH  
SCALE: NOT TO SCALE



**FIGURE 5**  
**FUTURE TRAFFIC VOLUMES**  
NOVAPLEX TIS - CITY OF NOVI, MI

**LEGEND**

- ROADS
- TRAFFIC VOLUMES (AM/PM)
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION

# Traffic Data Collection, LLC

tdcounts.com

Phone: (586) 786-5407

Traffic Study Performed For:

**Fleis & VandenBrink**



Project: City of Novi Traffic Study  
 Type: 4 Hour Video TMC  
 Weather: Sunny, Dry 40 Degs  
 Count By: Miovision Video SCU 34N

File Name : TMC\_1 Haggerty & Heatherbrooke\_2-14-17  
 Site Code : TMC\_1  
 Start Date : 2/14/2017  
 Page No : 1

Groups Printed- Pass Cars - Single Units - Heavy Trucks - Ped

Start Time	Haggery Road Southbound					Heatherbrook Drive Westbound					Haggery Road Northbound					Medical Center Driveway Eastbound					Int. Total
	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	Rgt	Thru	Left	Peds	App. Total	
07:00 AM	3	115	0	0	118	5	0	5	4	14	0	40	8	0	48	1	0	0	0	1	181
07:15 AM	4	150	2	0	156	2	0	3	0	5	0	57	8	0	65	0	0	0	0	0	226
07:30 AM	3	151	0	0	154	5	0	14	1	20	1	68	7	0	76	0	0	1	0	1	251
07:45 AM	13	186	2	0	201	3	0	9	0	12	0	67	8	0	75	0	0	0	0	0	288
Total	23	602	4	0	629	15	0	31	5	51	1	232	31	0	264	1	0	1	0	2	946
08:00 AM	10	151	1	0	162	1	0	7	0	8	4	71	6	0	81	2	0	0	0	2	253
08:15 AM	3	209	0	0	212	3	0	4	0	7	2	86	5	0	93	2	0	0	0	2	314
08:30 AM	4	149	1	0	154	3	0	5	0	8	1	98	8	0	107	2	0	2	0	4	273
08:45 AM	6	181	1	0	188	4	0	8	0	12	6	102	5	0	113	5	1	1	0	7	320
Total	23	690	3	0	716	11	0	24	0	35	13	357	24	0	394	11	1	3	0	15	1160
**** BREAK ****																					
04:00 PM	2	111	0	0	113	2	1	3	0	6	3	185	0	0	188	14	0	5	0	19	326
04:15 PM	0	95	2	0	97	0	0	0	0	0	6	208	1	0	215	7	0	5	0	12	324
04:30 PM	1	111	3	0	115	0	0	3	0	3	4	221	0	0	225	12	0	3	0	15	358
04:45 PM	2	115	8	0	125	3	0	0	1	4	2	180	0	0	182	7	0	5	0	12	323
Total	5	432	13	0	450	5	1	6	1	13	15	794	1	0	810	40	0	18	0	58	1331
05:00 PM	0	162	4	0	166	2	0	3	1	6	4	222	0	0	226	12	0	4	0	16	414
05:15 PM	2	142	2	0	146	0	0	5	0	5	6	213	0	0	219	6	0	3	0	9	379
05:30 PM	1	165	1	0	167	1	0	2	0	3	2	195	1	0	198	4	0	1	0	5	373
05:45 PM	0	152	3	0	155	5	0	3	0	8	6	175	1	0	182	2	0	5	0	7	352
Total	3	621	10	0	634	8	0	13	1	22	18	805	2	0	825	24	0	13	0	37	1518
Grand Total	54	2345	30	0	2429	39	1	74	7	121	47	2188	58	0	2293	76	1	35	0	112	4955
Apprch %	2.2	96.5	1.2	0		32.2	0.8	61.2	5.8		2	95.4	2.5	0		67.9	0.9	31.2	0		
Total %	1.1	47.3	0.6	0	49	0.8	0	1.5	0.1	2.4	0.9	44.2	1.2	0	46.3	1.5	0	0.7	0	2.3	
Pass Cars	54	2323	28	0	2405	39	1	74	0	114	45	2162	58	0	2265	75	1	35	0	111	4895
% Pass Cars	100	99.1	93.3	0	99	100	100	100	0	94.2	95.7	98.8	100	0	98.8	98.7	100	100	0	99.1	98.8
Single Units	0	20	2	0	22	0	0	0	0	0	2	25	0	0	27	1	0	0	0	1	50
% Single Units	0	0.9	6.7	0	0.9	0	0	0	0	0	4.3	1.1	0	0	1.2	1.3	0	0	0	0.9	1
Heavy Trucks	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	3
% Heavy Trucks	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1
Ped	0	0	0	0	0	0	0	0	7	7	0	0	0	0	0	0	0	0	0	0	7
% Ped	0	0	0	0	0	0	0	0	100	5.8	0	0	0	0	0	0	0	0	0	0	0.1

Comments: 4 hour traffic study conducted during typical weekday (Tuesday) from 7:00-9:00 AM morning & 4:00-6:00 PM afternoon peak hours, while school was in session. Non-signalized intersection. Video SCU camera located with SW intersection quadrant.



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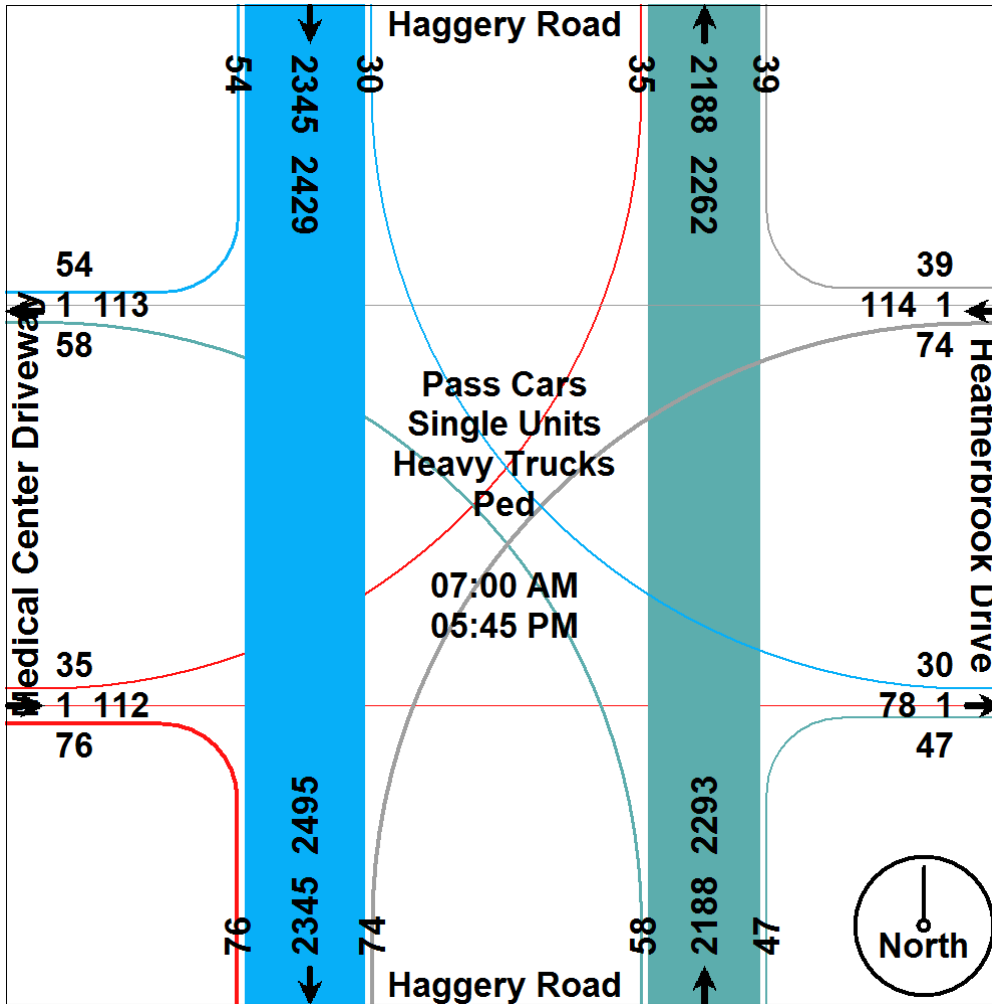
Traffic Study Performed For:

**Fleis & VandenBrink**



Project: City of Novi Traffic Study  
Type: 4 Hour Video TMC  
Weather: Sunny, Dry 40 Degs  
Count By: Miovision Video SCU 34N

File Name : TMC\_1 Haggerty & Heatherbrooke\_2-14-17  
Site Code : TMC\_1  
Start Date : 2/14/2017  
Page No : 2



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Traffic Study Performed For:

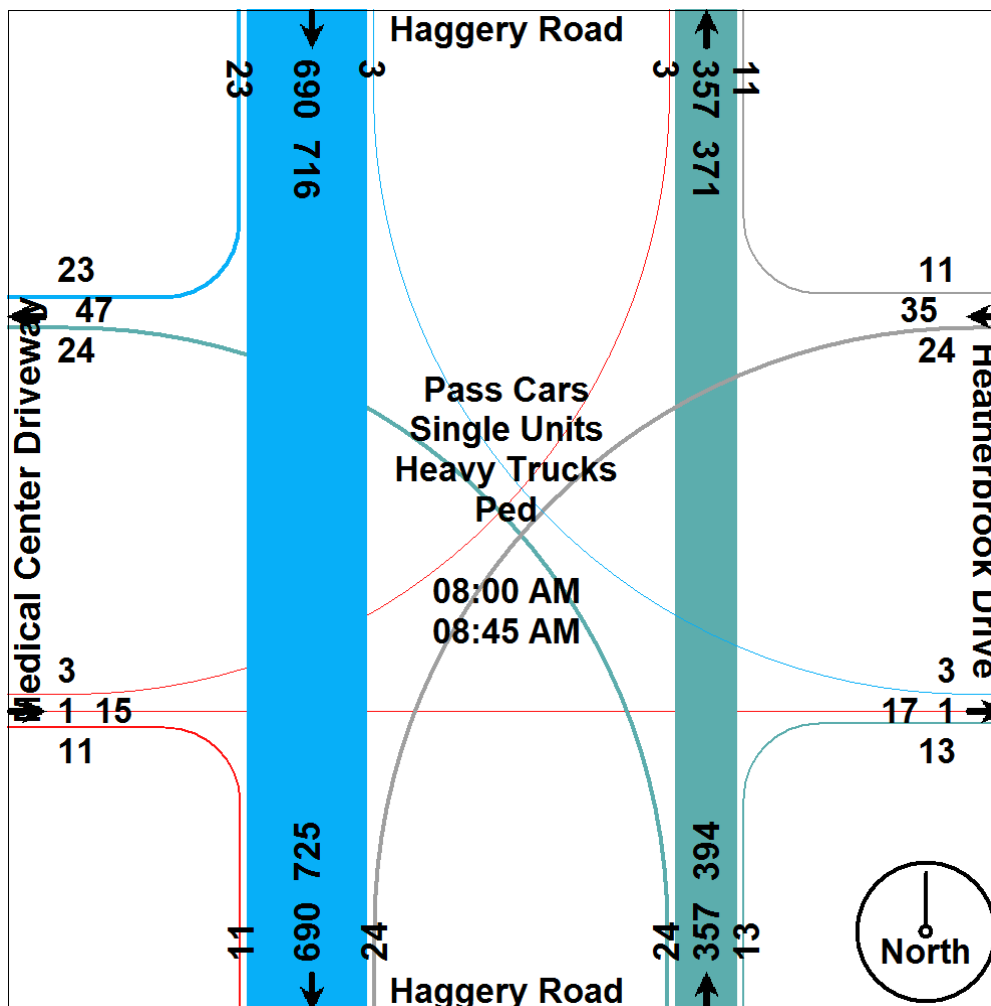
**Fleis & VandenBrink**



Project: City of Novi Traffic Study  
 Type: 4 Hour Video TMC  
 Weather: Sunny, Dry 40 Degs  
 Count By: Miovision Video SCU 34N

File Name : TMC\_1 Haggerty & Heatherbrooke\_2-14-17  
 Site Code : TMC\_1  
 Start Date : 2/14/2017  
 Page No : 3

Start Time	Haggery Road Southbound				Heatherbrook Drive Westbound				Haggery Road Northbound				Medical Center Driveway Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 07:00 AM to 12:30 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	10	151	1	162	1	0	7	8	4	71	6	81	2	0	0	2	253
08:15 AM	3	209	0	212	3	0	4	7	2	86	5	93	2	0	0	2	314
08:30 AM	4	149	1	154	3	0	5	8	1	98	8	107	2	0	2	4	273
08:45 AM	6	181	1	188	4	0	8	12	6	102	5	113	5	1	1	7	320
Total Volume	23	690	3	716	11	0	24	35	13	357	24	394	11	1	3	15	1160
% App. Total	3.2	96.4	0.4		31.4	0	68.6		3.3	90.6	6.1		73.3	6.7	20		
PHF	.575	.825	.750	.844	.688	.000	.750	.729	.542	.875	.750	.872	.550	.250	.375	.536	.906
Pass Cars	23	683	2	708	11	0	24	35	12	347	24	383	11	1	3	15	1141
% Pass Cars	100	99.0	66.7	98.9	100	0	100	100	92.3	97.2	100	97.2	100	100	100	100	98.4
Single Units	0	6	1	7	0	0	0	0	1	9	0	10	0	0	0	0	17
% Single Units	0	0.9	33.3	1.0	0	0	0	0	7.7	2.5	0	2.5	0	0	0	0	1.5
Heavy Trucks	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
% Heavy Trucks	0	0.1	0	0.1	0	0	0	0	0	0.3	0	0.3	0	0	0	0	0.2
Ped	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Ped	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Traffic Study Performed For:

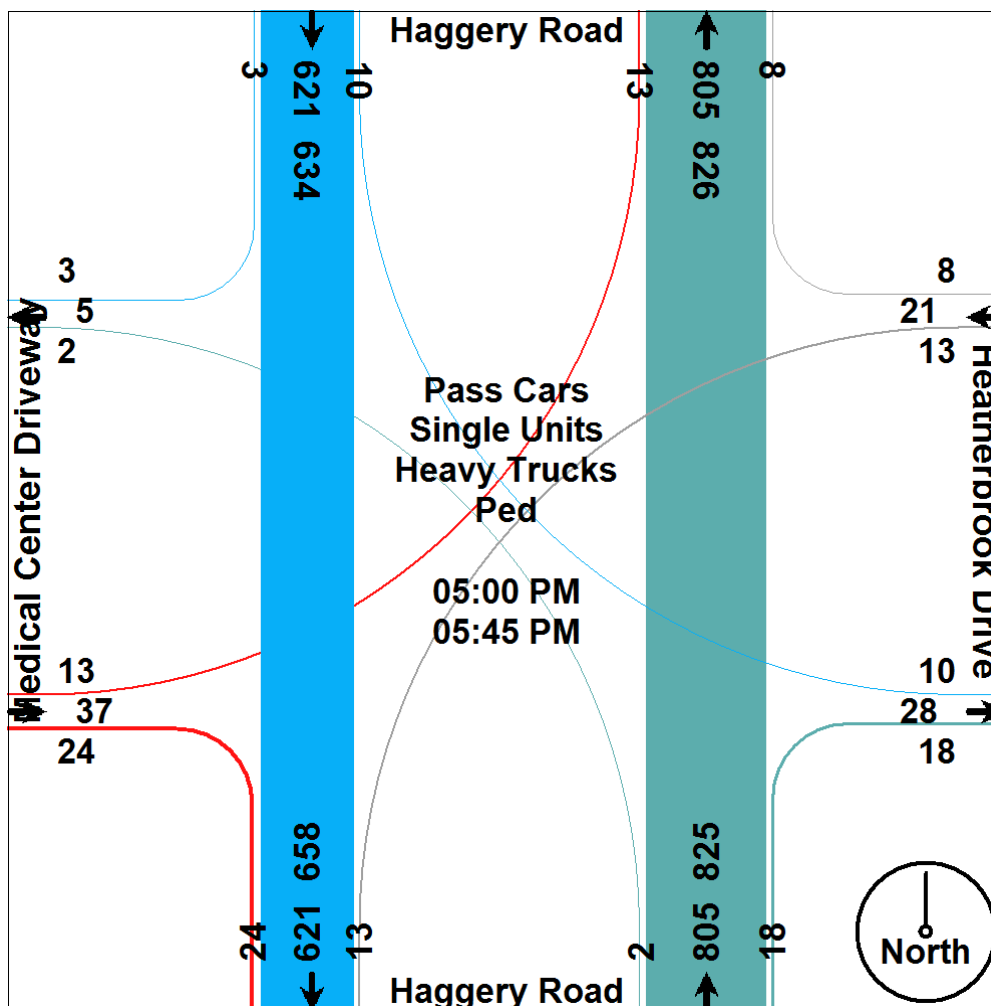
**Fleis & VandenBrink**



Project: City of Novi Traffic Study  
 Type: 4 Hour Video TMC  
 Weather: Sunny, Dry 40 Degs  
 Count By: Miovision Video SCU 34N

File Name : TMC\_1 Haggerty & Heatherbrooke\_2-14-17  
 Site Code : TMC\_1  
 Start Date : 2/14/2017  
 Page No : 4

Start Time	Haggery Road Southbound				Heatherbrook Drive Westbound				Haggery Road Northbound				Medical Center Driveway Eastbound				Int. Total
	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	Rgt	Thru	Left	App. Total	
Peak Hour Analysis From 12:45 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:00 PM																	
05:00 PM	0	162	4	166	2	0	3	5	4	222	0	226	12	0	4	16	413
05:15 PM	2	142	2	146	0	0	5	5	6	213	0	219	6	0	3	9	379
05:30 PM	1	165	1	167	1	0	2	3	2	195	1	198	4	0	1	5	373
05:45 PM	0	152	3	155	5	0	3	8	6	175	1	182	2	0	5	7	352
Total Volume	3	621	10	634	8	0	13	21	18	805	2	825	24	0	13	37	1517
% App. Total	0.5	97.9	1.6		38.1	0	61.9		2.2	97.6	0.2		64.9	0	35.1		
PHF	.375	.941	.625	.949	.400	.000	.650	.656	.750	.907	.500	.913	.500	.000	.650	.578	.918
Pass Cars	3	615	10	628	8	0	13	21	18	804	2	824	24	0	13	37	1510
% Pass Cars	100	99.0	100	99.1	100	0	100	100	100	99.9	100	99.9	100	0	100	100	99.5
Single Units	0	6	0	6	0	0	0	0	0	1	0	1	0	0	0	0	7
% Single Units	0	1.0	0	0.9	0	0	0	0	0	0.1	0	0.1	0	0	0	0	0.5
Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Heavy Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ped	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Ped	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



## Road Commission for Oakland County

### 1563 Weekly Volume Report - Mon 04/23/2012 - Sun 04/29/2012

<b>Location ID:</b>	1563
<b>Located On:</b>	HAGGERTY
<b>From Road:</b>	TWELVE MILE
<b>Direction:</b>	2-WAY
<b>Community:</b>	Farmington Hills
<b>AADT:</b>	13279

<b>Type:</b>	LINK
<b>To Road:</b>	THIRTEEN MILE
<b>Period:</b>	Mon 04/23/2012 - Sun 04/29/2012

Start Time	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Avg
12:00 AM				63				63
1:00 AM				32				32
2:00 AM				17				17
3:00 AM				22				22
4:00 AM				22				22
5:00 AM				95				95
6:00 AM				321				321
7:00 AM				843				843
8:00 AM				967				967
9:00 AM			811					811
10:00 AM			771					771
11:00 AM			1032					1032
12:00 PM			1130					1130
1:00 PM			1048					1048
2:00 PM			963					963
3:00 PM			1007					1007
4:00 PM			1266					1266
5:00 PM			1300					1300
6:00 PM			953					953
7:00 PM			700					700
8:00 PM			518					518
9:00 PM			370					370
10:00 PM			240					240
11:00 PM			105					105
<b>Total</b>	<b>0</b>	<b>0</b>	<b>12214</b>	<b>2382</b>	<b>0</b>	<b>0</b>	<b>0</b>	
<b>24HrTotal</b>				14596				14596
<b>AM Pk Hr</b>								
<b>AM Peak</b>								0
<b>PM Pk Hr</b>								
<b>PM Peak</b>								0
<b>% Peak Hr</b>								
<b>% Peak Hr</b>				8.91%				8.91%

List View All DIRs

Record   1   of 1 Goto Record

Location ID	1563	MPO ID	9677				
Type	LINK	HPMS ID					
On NHS		On HPMS					
LRS ID		LRS Loc Pt.					
SF Group	01	Route Type					
AF Group		Route					
GF Group							
Class Dist Grp							
WIM Group							
Funct'l Class	-	Milepost					
Located On	HAGGERTY						
Loc On Alias							
From Road	TWELVE MILE						
To Road	THIRTEEN MILE						
From PR	From MP	To PR	To MP	Bgn PT	End PT	Length	▼
639005	4.05	639005	5.049	63059738	63056726		

More Detail

STATION DATA

Directions:

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2012	13,279						
2010	13,490						
2008	15,410						
2005	15,690						
2002	14,340						

1-5 of 9

Travel Demand Model										
Model Year	Model AADT	AM PHV	AM PPV	MD PHV	MD PPV	PM PHV	PM PPV	NT PHV	NT PPV	

VOLUME COUNT			
	Date	Int	Total
<input type="button" value="ⓘ"/>	Wed 4/25/2012	60	14,596
<input type="button" value="ⓘ"/>	Mon 4/12/2010	60	14,050
<input type="button" value="ⓘ"/>	Mon 5/19/2008	60	15,380
<input type="button" value="ⓘ"/>	Mon 5/2/2005	60	16,063
<input type="button" value="ⓘ"/>	Wed 11/20/2002	60	14,494
<input type="button" value="ⓘ"/>	Mon 8/12/2002	60	16,412
<input type="button" value="ⓘ"/>	Thu 4/13/2000	60	17,876
<input type="button" value="ⓘ"/>	Tue 3/7/2000	60	16,620
<input type="button" value="ⓘ"/>	Mon 11/8/1999	60	17,481
<input type="button" value="ⓘ"/>	Mon 10/12/1998	60	32,305

1-10 of 11

VOLUME TREND <input type="button" value="ⓘ"/>	
Year	Annual Growth
2012	-1%
2010	-6%
2008	-1%
2005	3%
2002	-6%
2000	-4%
1999	-45%
1998	8%

## Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Table 17-2. 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 minor movement is a function of the service rate or capacity of the approach and the degree of saturation. . . .

Exhibit 17-2. Level of Service Criteria for TWSC Intersections

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	$\leq 10$
B	$> 10$ and $\leq 15$
C	$> 15$ and $\leq 25$
D	$> 25$ and $\leq 35$
E	$> 35$ and $\leq 50$
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. To remain consistent with the AWSC intersection analysis procedure described later in this chapter, a total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The proposed level of service criteria for TWSC intersections are somewhat different from the criteria used in Chapter 16 for signalized intersections. The primary reason for this difference is that drivers expect different levels of performance from different kinds of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection. 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.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

## 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. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle for a 15-min analysis period. The criteria are given in Exhibit 16-2. 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 very low delay, up to 10 sec per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

**LOS B** describes operations with delay greater than 10 and up to 20 sec per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS A, causing higher levels of average delay.

Exhibit 16-2. Level-of-Service Criteria for Signalized Intersections

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	$\leq 10.0$
B	$> 10.0$ and $\leq 20.0$
C	$> 20.0$ and $\leq 35.0$
D	$> 35.0$ and $\leq 55.0$
E	$> 55.0$ and $\leq 80.0$
F	$> 80.0$

**LOS C** describes operations with delay greater than 20 and up to 35 sec per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

**LOS D** describes operations with delay greater than 35 and up to 55 sec per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high  $v/c$  ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

**LOS E** describes operations with delay greater than 55 and up to 80 sec per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high  $v/c$  ratios. Individual cycle failures are frequent occurrences.

**LOS F** describes operations with delay in excess of 80 sec per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection. It may also occur at high  $v/c$  ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Capacity Manual, 2010. Transportation Research Board, National Research Council

HCM 6th TWSC  
 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Existing Conditions  
 AM Peak Hour

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	3	1	11	24	0	11	24	364	13	3	704	23
Future Vol, veh/h	3	1	11	24	0	11	24	364	13	3	704	23
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	-	-	None	-	-	None	-	-	None
Storage Length	40	-	0	-	-	125	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	73	73	73	87	87	87	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	5	2	18	33	0	15	28	418	15	4	838	27

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1349	1349	852	1352	1355	426	865	0	0	433	0	0
Stage 1	860	860	-	482	482	-	-	-	-	-	-	-
Stage 2	489	489	-	870	873	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	129	152	362	128	151	633	774	-	-	1132	-	-
Stage 1	353	376	-	569	557	-	-	-	-	-	-	-
Stage 2	564	553	-	349	370	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	122	146	362	117	145	633	774	-	-	1132	-	-
Mov Cap-2 Maneuver	122	146	-	117	145	-	-	-	-	-	-	-
Stage 1	340	374	-	549	537	-	-	-	-	-	-	-
Stage 2	531	533	-	329	369	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	20.7		35.9		0.6		0	
HCM LOS	C		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	774	-	-	127	362	117	633	1132	-	-
HCM Lane V/C Ratio	0.036	-	-	0.052	0.051	0.281	0.024	0.003	-	-
HCM Control Delay (s)	9.8	-	-	34.9	15.5	47.4	10.8	8.2	-	-
HCM Lane LOS	A	-	-	D	C	E	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	1.1	0.1	0	-	-



HCM 6th TWSC  
 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Existing Conditions  
 PM Peak Hour

Intersection												
Int Delay, s/veh	2.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	13	0	24	13	0	8	2	821	18	10	633	3
Future Vol, veh/h	13	0	24	13	0	8	2	821	18	10	633	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	-	-	None	-	-	None	-	-	None
Storage Length	40	-	0	-	-	125	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	66	66	66	91	91	91	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	22	0	40	20	0	12	2	902	20	11	666	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1612	1616	668	1626	1607	912	669	0	0	922	0	0
Stage 1	690	690	-	916	916	-	-	-	-	-	-	-
Stage 2	922	926	-	710	691	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	85	105	462	83	106	335	931	-	-	745	-	-
Stage 1	439	449	-	329	354	-	-	-	-	-	-	-
Stage 2	327	350	-	428	449	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	81	103	462	75	104	335	931	-	-	745	-	-
Mov Cap-2 Maneuver	81	103	-	75	104	-	-	-	-	-	-	-
Stage 1	438	442	-	328	353	-	-	-	-	-	-	-
Stage 2	314	349	-	385	442	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	31.6		49		0		0.2	
HCM LOS	D		E					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	931	-	-	81	462	75	335	745	-	-
HCM Lane V/C Ratio	0.002	-	-	0.267	0.087	0.263	0.036	0.014	-	-
HCM Control Delay (s)	8.9	-	-	64.9	13.5	69.3	16.1	9.9	-	-
HCM Lane LOS	A	-	-	F	B	F	C	A	-	-
HCM 95th %tile Q(veh)	0	-	-	1	0.3	0.9	0.1	0	-	-

Intersection: 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	R	LT	R	L	L	TR
Maximum Queue (ft)	33	31	65	31	42	18	2
Average Queue (ft)	5	13	17	9	10	1	0
95th Queue (ft)	22	37	48	33	31	8	3
Link Distance (ft)		357	367				326
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	40			125	75	75	
Storage Blk Time (%)	0	1			0		
Queuing Penalty (veh)	0	0			0		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	R	LT	R	L	L
Maximum Queue (ft)	45	58	73	36	8	26
Average Queue (ft)	10	17	16	8	0	3
95th Queue (ft)	36	45	50	31	5	15
Link Distance (ft)		357	366			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	40			125	75	75
Storage Blk Time (%)	1	1	0			
Queuing Penalty (veh)	0	0	0			

Zone Summary

Zone wide Queuing Penalty: 1

## Summary of Warrants

Spot Number:	0		
Major Street:	Haggerty Road	Minor Street:	Heatherbrook Drive
Intersection:	Haggerty Road at Heatherbrook Drive		
City/Twp:	Novi, MI		
Date Performed:	2/20/2017	Performed By:	F&V
Date Volumes Collected:	2/14/2017		

Warrant	Condition	Is Warrant Met
<b>Data Has Been Validated</b>		<b>YES</b>
<b>WARRANT 1: Eight-Hour Vehicular Volume</b>		<b>NO</b>
	Condition A	NO
	Condition B	NO
	Condition A&B	N/A
<b>WARRANT 2: Four-Hour Vehicular Volume</b>	(70%)	<b>NO</b>
<b>WARRANT 3: Peak-Hour Vehicular Volume</b>	(70%)	<b>#N/A</b>
	Condition A	<b>#N/A</b>
	Condition B	<b>NO</b>
<b>WARRANT 4: Pedestrian Volume</b>	(70%)	<b>NO</b>
	Four Hour	N/A
	Peak Hour	N/A
	(Threshold) <b>HAWK</b>	<b>NO</b>
	(Threshold) <b>RRFB</b>	<b>NO</b>
<b>WARRANT 5: School Crossing</b>		<b>NO</b>
<b>WARRANT 6: Coordinated Signal System</b>		<b>NO</b>
<b>WARRANT 7: Crash Experience</b>		<b>NO</b>
	Condition A	NO
	Condition B	NO
<b>WARRANT 8: Roadway Network</b>		<b>NO</b>
<b>WARRANT 9: Intersection Near a Grade Crossing</b>		<b>#N/A</b>

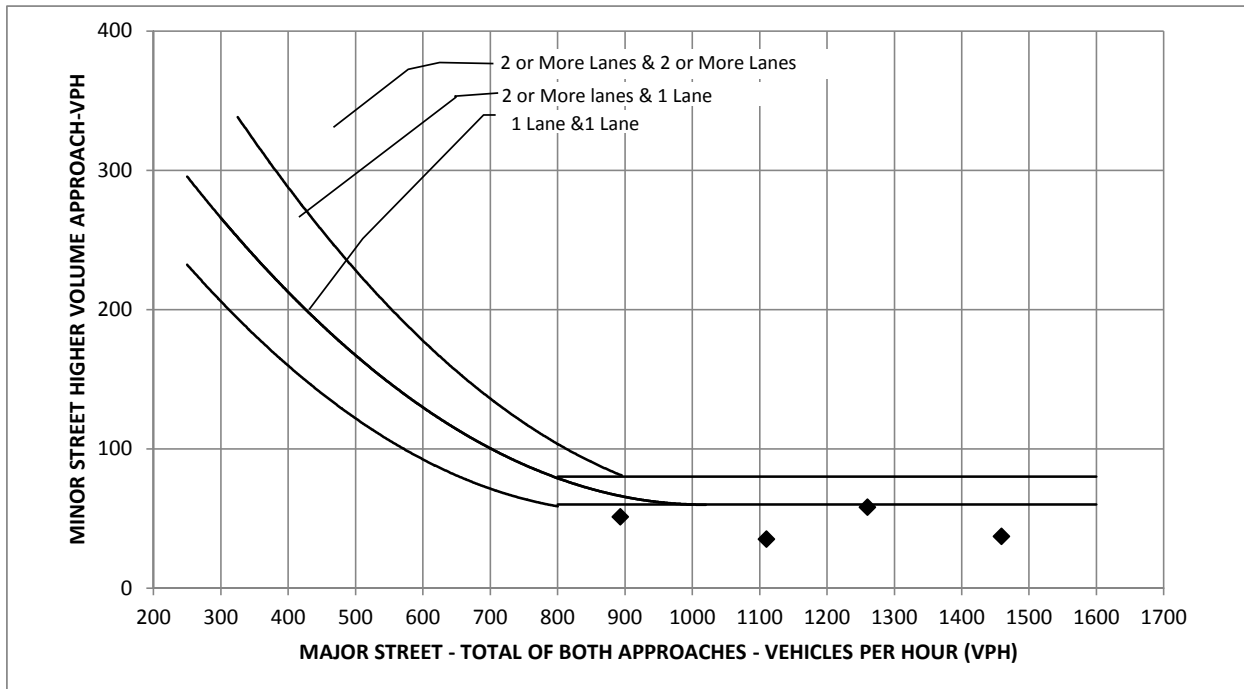
**Issue to Be Addressed by Signalization:**

0

**Michigan Manual of Uniform Traffic Control Devices  
Worksheet for Signal Warrants (Section 4C)  
WARRANT 2: Four-Hour Vehicular Volume**

Spot Number:	0		
Intersection:	Haggerty Road @ Heatherbrook Drive		
Date	2/20/2017	by	F&V

2	: No. of Lanes on Major St.
2	: No. of Lanes on Minor St.
45	: Speed limit or 85th Percentile? (MPH)
NO	: Is the intersection within an Isolated community?
0	: What is the of the population isolated community?

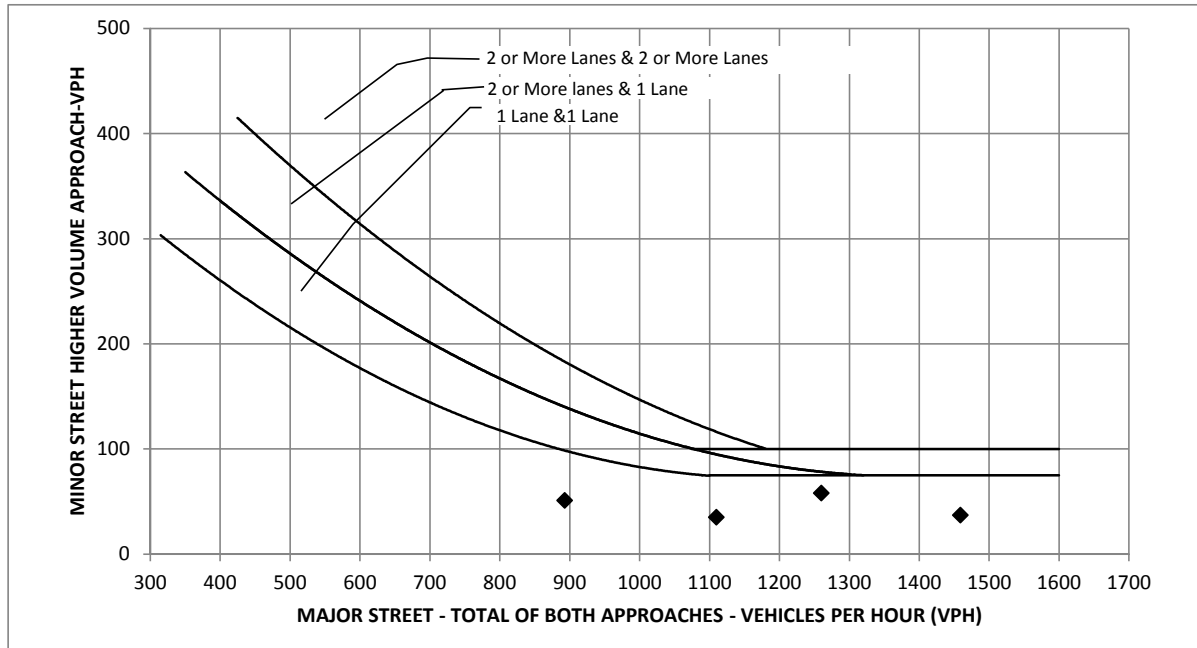


<b>How Many Hours Are Met</b>	<b>0</b>
<b>Is Warrant (70%) Met?</b>	<b>NO</b>

**Michigan Manual of Uniform Traffic Control Devices  
Worksheet for Signal Warrants (Section 4C)  
WARRANT 3 B(70%): Peak-Hour Vehicular Volume**

Spot Number:	0
Intersection:	Haggerty Road @ Heatherbrook Drive
Date	2/20/2017 by F&V

2	: No. of Lanes on Major St.
2	: No. of Lanes on Minor St.
45	: Speed limit or 85th Percentile? (MPH)
NO	: Is the intersection within an Isolated community?
0	: What is the of the population isolated community?



How Many Hours Are Met

0

Is Warrant (70%) Met?

NO

HCM 6th TWSC  
 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Background Conditions  
 AM Peak Hour

Intersection												
Int Delay, s/veh	1.9											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	3	1	11	25	0	11	25	375	13	3	725	24
Future Vol, veh/h	3	1	11	25	0	11	25	375	13	3	725	24
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	-	-	None	-	-	None	-	-	None
Storage Length	40	-	0	-	-	125	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	73	73	73	87	87	87	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	5	2	18	34	0	15	29	431	15	4	863	29

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1390	1390	878	1393	1397	439	892	0	0	446	0	0
Stage 1	886	886	-	497	497	-	-	-	-	-	-	-
Stage 2	504	504	-	896	900	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	121	144	350	120	142	622	756	-	-	1120	-	-
Stage 1	342	365	-	559	548	-	-	-	-	-	-	-
Stage 2	554	544	-	338	360	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	114	138	350	109	136	622	756	-	-	1120	-	-
Mov Cap-2 Maneuver	114	138	-	109	136	-	-	-	-	-	-	-
Stage 1	329	364	-	538	527	-	-	-	-	-	-	-
Stage 2	520	523	-	318	359	-	-	-	-	-	-	-

Approach	EB		WB		NB			SB		
HCM Control Delay, s	21.5		39.8		0.6			0		
HCM LOS	C		E							

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	756	-	-	119	350	109	622	1120	-	-
HCM Lane V/C Ratio	0.038	-	-	0.056	0.052	0.314	0.024	0.003	-	-
HCM Control Delay (s)	9.9	-	-	37	15.9	52.5	10.9	8.2	-	-
HCM Lane LOS	A	-	-	E	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.2	0.2	1.2	0.1	0	-	-

HCM 6th TWSC  
 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Background Conditions  
 PM Peak Hour

Intersection												
Int Delay, s/veh	2.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	13	0	25	13	0	8	2	846	19	10	652	3
Future Vol, veh/h	13	0	25	13	0	8	2	846	19	10	652	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	-	-	None	-	-	None	-	-	None
Storage Length	40	-	0	-	-	125	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	66	66	66	91	91	91	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	22	0	42	20	0	12	2	930	21	11	686	3

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1661	1665	688	1676	1656	941	689	0	0	951	0	0
Stage 1	710	710	-	945	945	-	-	-	-	-	-	-
Stage 2	951	955	-	731	711	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	78	98	450	76	99	322	915	-	-	726	-	-
Stage 1	428	440	-	317	343	-	-	-	-	-	-	-
Stage 2	315	339	-	416	439	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	74	96	450	68	97	322	915	-	-	726	-	-
Mov Cap-2 Maneuver	74	96	-	68	97	-	-	-	-	-	-	-
Stage 1	427	433	-	316	342	-	-	-	-	-	-	-
Stage 2	302	338	-	372	432	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	34		54.7		0		0.2	
HCM LOS	D		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	915	-	-	74	450	68	322	726	-	-
HCM Lane V/C Ratio	0.002	-	-	0.293	0.093	0.29	0.038	0.014	-	-
HCM Control Delay (s)	8.9	-	-	72.7	13.8	78.2	16.6	10	-	-
HCM Lane LOS	A	-	-	F	B	F	C	B	-	-
HCM 95th %tile Q(veh)	0	-	-	1.1	0.3	1	0.1	0	-	-



Intersection: 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	R	LT	R	L	L
Maximum Queue (ft)	34	31	55	31	37	13
Average Queue (ft)	4	11	18	12	9	1
95th Queue (ft)	22	34	48	37	29	7
Link Distance (ft)		357	367			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	40			125	75	75
Storage Blk Time (%)	0	1			0	
Queuing Penalty (veh)	0	0			0	

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Movement	EB	EB	WB	WB	NB	SB
Directions Served	LT	R	LT	R	L	L
Maximum Queue (ft)	38	48	56	40	12	22
Average Queue (ft)	9	17	11	8	1	3
95th Queue (ft)	33	44	40	31	6	15
Link Distance (ft)		357	366			
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)	40			125	75	75
Storage Blk Time (%)	1	1				
Queuing Penalty (veh)	0	0				

Zone Summary

Zone wide Queuing Penalty: 1

HCM 6th TWSC  
 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Future Conditions  
 AM Peak Hour

Intersection												
Int Delay, s/veh	2.7											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↖	↗	↖	↗		↖	↗	
Traffic Vol, veh/h	6	1	25	25	0	11	30	390	13	3	769	25
Future Vol, veh/h	6	1	25	25	0	11	30	390	13	3	769	25
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	-	-	None	-	-	None	-	-	None
Storage Length	40	-	0	-	-	125	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	73	73	73	87	87	87	84	84	84
Heavy Vehicles, %	0	0	0	0	0	0	3	3	3	1	1	1
Mvmt Flow	10	2	42	34	0	15	34	448	15	4	915	30

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	1469	1469	930	1484	1477	456	945	0	0	463	0	0
Stage 1	938	938	-	524	524	-	-	-	-	-	-	-
Stage 2	531	531	-	960	953	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.13	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.227	-	-	2.209	-	-
Pot Cap-1 Maneuver	107	129	327	104	127	609	722	-	-	1104	-	-
Stage 1	320	346	-	540	533	-	-	-	-	-	-	-
Stage 2	536	529	-	311	340	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	100	122	327	86	121	609	722	-	-	1104	-	-
Mov Cap-2 Maneuver	100	122	-	86	121	-	-	-	-	-	-	-
Stage 1	305	345	-	515	508	-	-	-	-	-	-	-
Stage 2	498	504	-	269	339	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	23.5		53.5		0.7		0	
HCM LOS	C		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	722	-	-	103	327	86	609	1104	-	-
HCM Lane V/C Ratio	0.048	-	-	0.113	0.127	0.398	0.025	0.003	-	-
HCM Control Delay (s)	10.2	-	-	44.4	17.6	72.2	11.1	8.3	-	-
HCM Lane LOS	B	-	-	E	C	F	B	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0.4	1.6	0.1	0	-	-

HCM 6th TWSC  
2: Haggerty Road & Site Drive

Future Conditions  
AM Peak Hour

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	26	44	15	392	753	9
Future Vol, veh/h	26	44	15	392	753	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	87	87	84	84
Heavy Vehicles, %	0	0	3	3	1	1
Mvmt Flow	28	48	17	451	896	11

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1387	902	907	0	-	0
Stage 1	902	-	-	-	-	-
Stage 2	485	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	159	339	746	-	-	-
Stage 1	399	-	-	-	-	-
Stage 2	623	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	154	339	746	-	-	-
Mov Cap-2 Maneuver	154	-	-	-	-	-
Stage 1	387	-	-	-	-	-
Stage 2	623	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	23.4	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	746	-	154	339	-	-
HCM Lane V/C Ratio	0.023	-	0.184	0.141	-	-
HCM Control Delay (s)	9.9	0	33.6	17.4	-	-
HCM Lane LOS	A	A	D	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	0.5	-	-

HCM 6th TWSC  
 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive

Future Conditions  
 PM Peak Hour

Intersection												
Int Delay, s/veh	3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔	↔	↔	↔		↔	↔	
Traffic Vol, veh/h	15	0	33	13	0	8	15	884	19	10	676	7
Future Vol, veh/h	15	0	33	13	0	8	15	884	19	10	676	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	-	-	None	-	-	None	-	-	None
Storage Length	40	-	0	-	-	125	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	66	66	66	91	91	91	95	95	95
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	1	1	1
Mvmt Flow	25	0	55	20	0	12	16	971	21	11	712	7

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1758	1762	716	1779	1755	982	719	0	0	992	0	0
Stage 1	738	738	-	1014	1014	-	-	-	-	-	-	-
Stage 2	1020	1024	-	765	741	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.11	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.209	-	-
Pot Cap-1 Maneuver	67	85	434	65	86	305	892	-	-	701	-	-
Stage 1	413	427	-	290	319	-	-	-	-	-	-	-
Stage 2	288	315	-	399	426	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	63	82	434	55	83	305	892	-	-	701	-	-
Mov Cap-2 Maneuver	63	82	-	55	83	-	-	-	-	-	-	-
Stage 1	406	420	-	285	313	-	-	-	-	-	-	-
Stage 2	272	309	-	343	419	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	39.8		70.5		0.1		0.1	
HCM LOS	E		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	892	-	-	63	434	55	305	701	-	-
HCM Lane V/C Ratio	0.018	-	-	0.397	0.127	0.358	0.04	0.015	-	-
HCM Control Delay (s)	9.1	-	-	95.6	14.5	103.3	17.3	10.2	-	-
HCM Lane LOS	A	-	-	F	B	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	1.5	0.4	1.3	0.1	0	-	-

HCM 6th TWSC  
2: Haggerty Road & Site Drive

Future Conditions  
PM Peak Hour

Intersection						
Int Delay, s/veh	1.3					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	23	24	38	869	669	35
Future Vol, veh/h	23	24	38	869	669	35
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	100	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	91	91	95	95
Heavy Vehicles, %	0	0	0	0	1	1
Mvmt Flow	25	26	42	955	704	37

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	1762	723	741	0	-	0
Stage 1	723	-	-	-	-	-
Stage 2	1039	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	94	430	875	-	-	-
Stage 1	484	-	-	-	-	-
Stage 2	344	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	84	430	875	-	-	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	435	-	-	-	-	-
Stage 2	344	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	39	0.4	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT	SBR
Capacity (veh/h)	875	-	84	430	-	-
HCM Lane V/C Ratio	0.048	-	0.298	0.061	-	-
HCM Control Delay (s)	9.3	0	65.1	13.9	-	-
HCM Lane LOS	A	A	F	B	-	-
HCM 95th %tile Q(veh)	0.1	-	1.1	0.2	-	-

**Intersection: 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	R	LT	R	L	L	TR
Maximum Queue (ft)	38	36	77	31	46	21	2
Average Queue (ft)	6	18	25	10	11	1	0
95th Queue (ft)	25	43	63	33	32	10	0
Link Distance (ft)		357	367				326
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	40			125	75	75	
Storage Blk Time (%)	0	1	0		0		
Queuing Penalty (veh)	0	0	0		0		

**Intersection: 2: Haggerty Road & Site Drive**

Movement	EB	EB	NB
Directions Served	L	R	LT
Maximum Queue (ft)	49	57	104
Average Queue (ft)	20	27	13
95th Queue (ft)	48	53	55
Link Distance (ft)	363		326
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		100	
Storage Blk Time (%)			
Queuing Penalty (veh)			

**Zone Summary**

Zone wide Queuing Penalty: 0
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**Intersection: 1: Haggerty Road & Infinity Medical Drive/Heatherbrook Drive**

Movement	EB	EB	WB	WB	NB	SB	SB
Directions Served	LT	R	LT	R	L	L	TR
Maximum Queue (ft)	50	56	60	35	28	29	25
Average Queue (ft)	15	23	16	9	7	5	1
95th Queue (ft)	44	51	48	32	23	21	16
Link Distance (ft)		357	366				376
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	40			125	75	75	
Storage Blk Time (%)	5	2					0
Queuing Penalty (veh)	2	0					0

**Intersection: 2: Haggerty Road & Site Drive**

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	TR
Maximum Queue (ft)	53	44	179	9
Average Queue (ft)	18	20	36	0
95th Queue (ft)	48	46	123	5
Link Distance (ft)	351		376	681
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		100		
Storage Blk Time (%)				
Queuing Penalty (veh)				

**Zone Summary**

Zone wide Queuing Penalty: 2
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## Summary of Warrants

Spot Number:	Future Conditions		
Major Street:	Haggerty Road	Minor Street:	Heatherbrook Drive
Intersection:	Haggerty Road at Heatherbrook Drive		
City/Twp:	Novi, MI		
Date Performed:	2/20/2017	Performed By:	F&V
Date Volumes Collected:	2/14/2017		

Warrant	Condition	Is Warrant Met
<b>Data Has Been Validated</b>		<b>YES</b>
<b>WARRANT 1: Eight-Hour Vehicular Volume</b>		<b>NO</b>
	Condition A	NO
	Condition B	NO
	Condition A&B	N/A
<b>WARRANT 2: Four-Hour Vehicular Volume</b>	(70%)	<b>NO</b>
<b>WARRANT 3: Peak-Hour Vehicular Volume</b>	(70%)	<b>#N/A</b>
	Condition A	<b>#N/A</b>
	Condition B	<b>NO</b>
<b>WARRANT 4: Pedestrian Volume</b>	(70%)	<b>NO</b>
	Four Hour	N/A
	Peak Hour	N/A
	(Threshold)	<b>HAWK</b> NO
	(Threshold)	<b>RRFB</b> NO
<b>WARRANT 5: School Crossing</b>		<b>NO</b>
<b>WARRANT 6: Coordinated Signal System</b>		<b>NO</b>
<b>WARRANT 7: Crash Experience</b>		<b>NO</b>
	Condition A	NO
	Condition B	NO
<b>WARRANT 8: Roadway Network</b>		<b>NO</b>
<b>WARRANT 9: Intersection Near a Grade Crossing</b>		<b>#N/A</b>

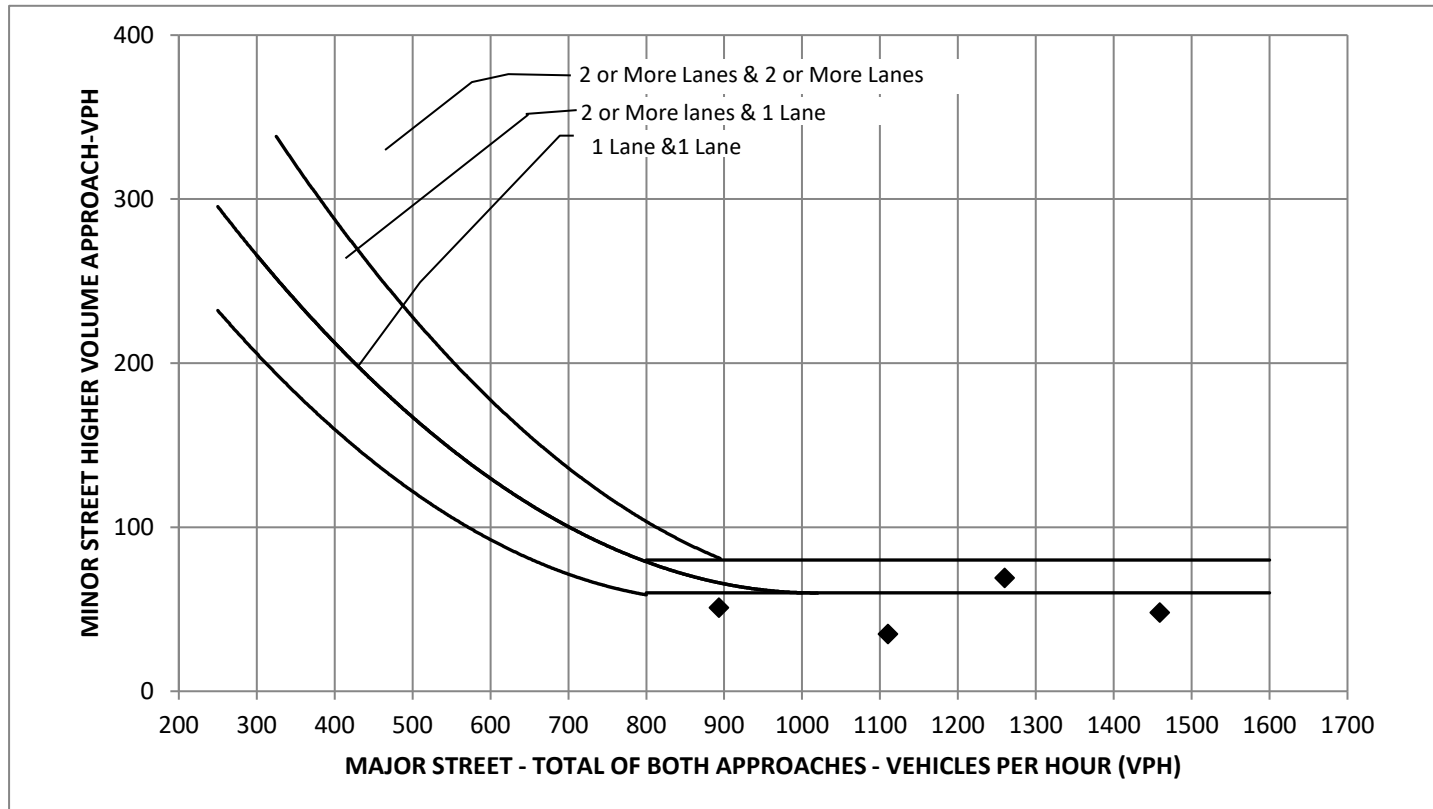
**Issue to Be Addressed by Signalization:**

0

**Michigan Manual of Uniform Traffic Control Devices  
Worksheet for Signal Warrants (Section 4C)  
WARRANT 2: Four-Hour Vehicular Volume**

Spot Number:	Future Conditions		
Intersection:	Haggerty Road @ Heatherbrook Drive		
Date:	2/20/2017	by:	F&V

2	: No. of Lanes on Major St.
2	: No. of Lanes on Minor St.
45	: Speed limit or 85th Percentile? (MPH)
NO	: Is the intersection within an isolated community?
0	: What is the of the population isolated community?

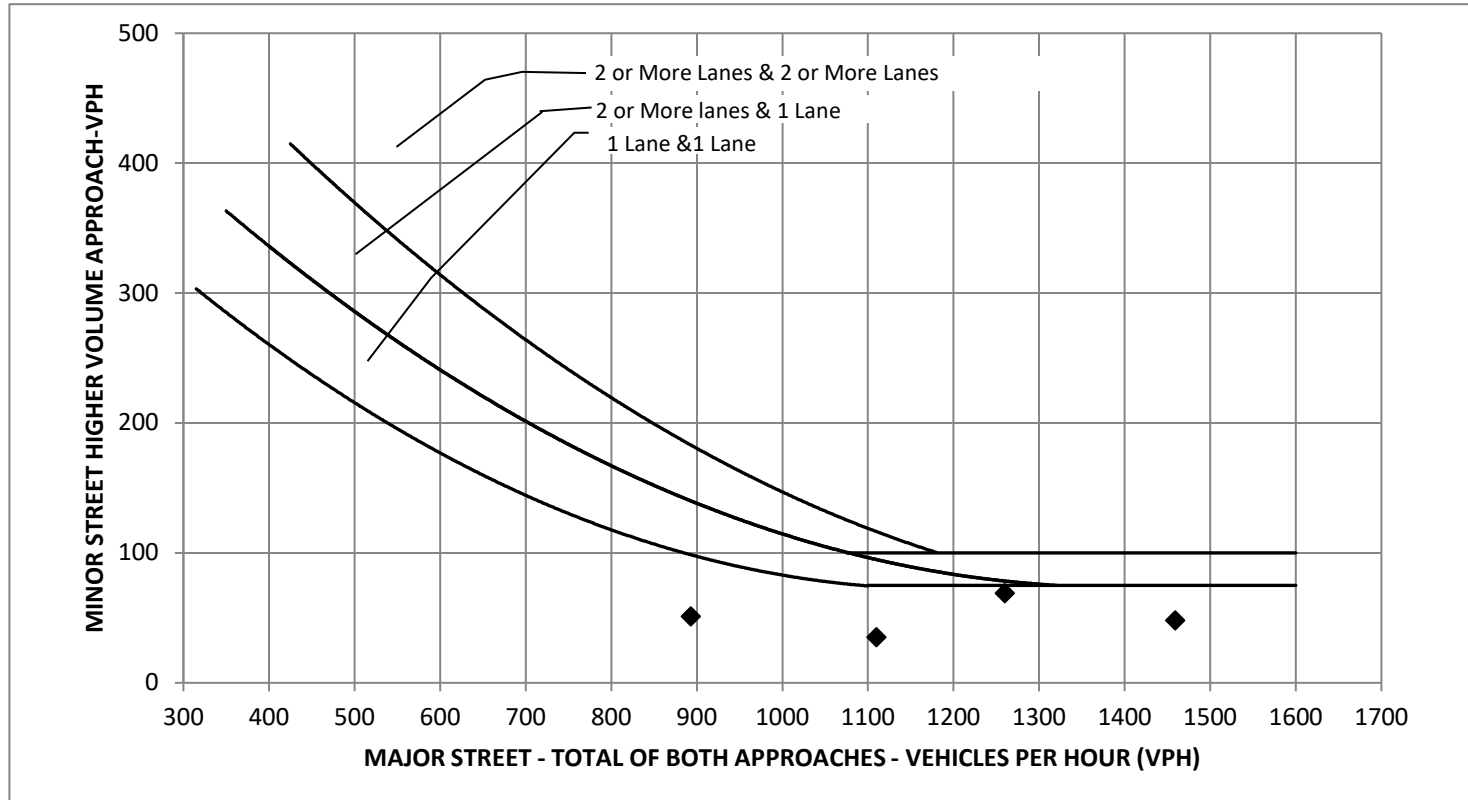


How Many Hours Are Met	0
Is Warrant (70%) Met?	NO

**Michigan Manual of Uniform Traffic Control Devices  
Worksheet for Signal Warrants (Section 4C)  
WARRANT 3 B(70%): Peak-Hour Vehicular Volume**

Spot Number:	Future Conditions		
Intersection:	Haggerty Road @ Heatherbrook Drive		
Date	2/20/2017	by	F&V

2	: No. of Lanes on Major St.
2	: No. of Lanes on Minor St.
45	: Speed limit or 85th Percentile? (MPH)
NO	: Is the intersection within an Isolated community?
0	: What is the of the population isolated community?

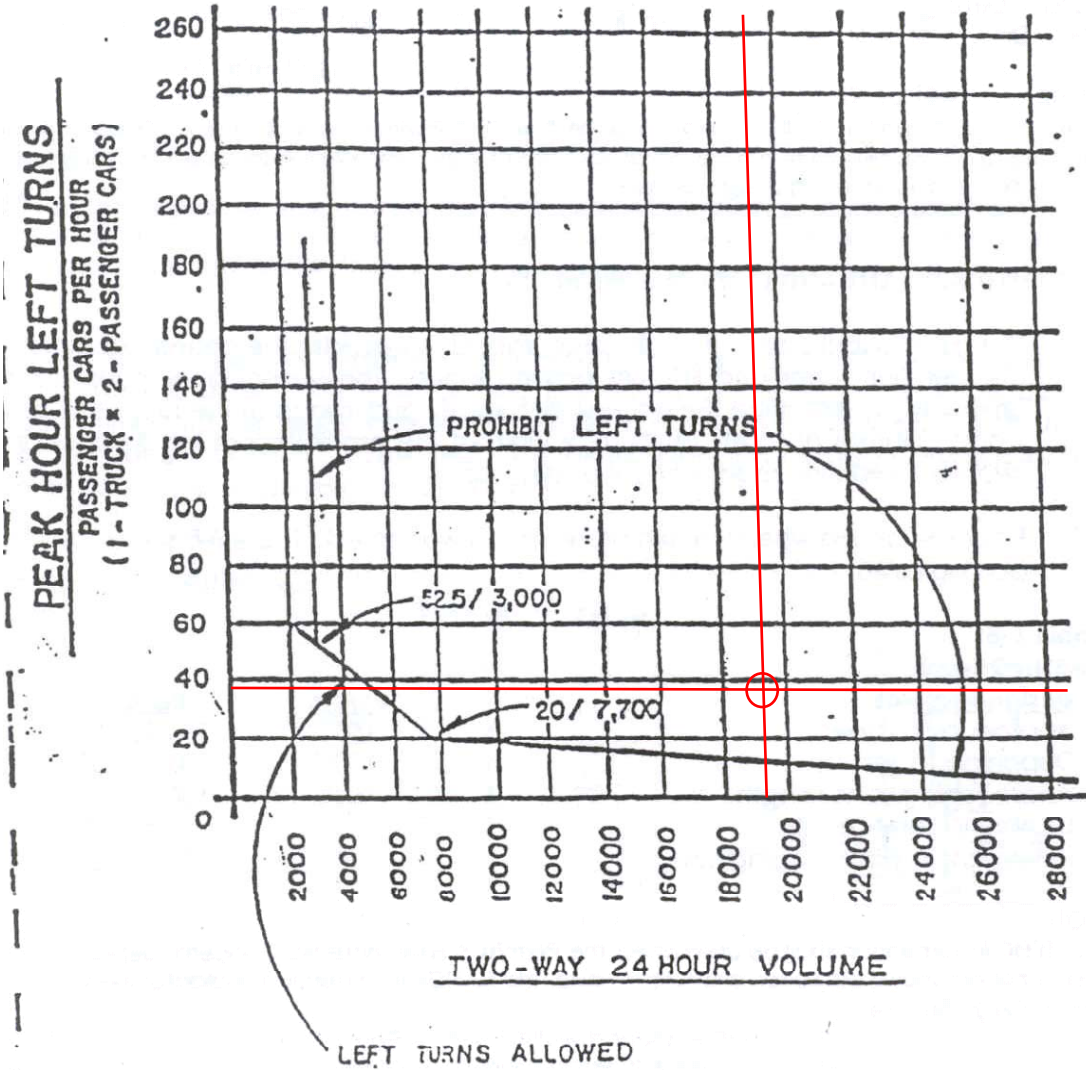


How Many Hours Are Met	0
Is Warrant (70%) Met?	NO

HAGGERTY ROAD & SITE DRIVE LT LANE WARRANT

WARRANT FOR PERMITTING  
LEFT TURNS

(BASED ON TOTAL DEVELOPMENT)



AM: 15  
PM: 38

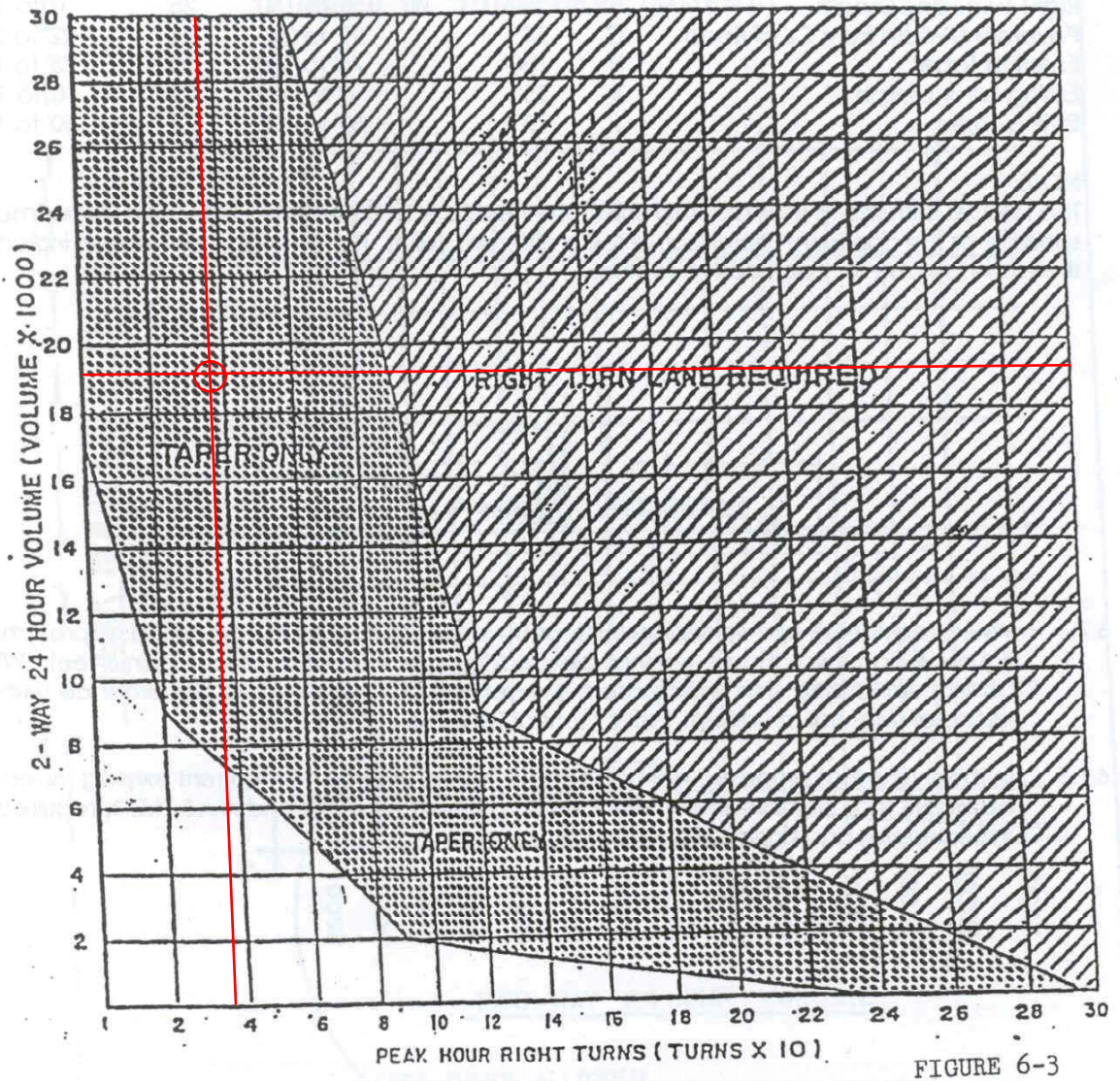
FIGURE 6-2  
REVISED 8-6-79

2017 AADT = 16,320  
 + 1% per year to 2022 = 17,152  
 + 2,015 new daily trips  
 = 19,167 2022 two-way 24 hour volume

**LT TREATMENT  
RECOMMEND**

# HAGGERTY ROAD & SITE DRIVE RT LANE WARRANT

## WARRANTS FOR RIGHT TURN DECELERATION LANE OR TAPER



AM: 9  
PM: 35

**RT DECELERATION  
TAPER RECOMMENDED**

2017 AADT = 16,320  
 + 1% per year to 2022 = 17,152  
 + 2,015 new daily trips  
 = 19,167 2022 two-way 24 hour volume

**APPLICANT RESPONSE MATERIALS**

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# Novaplex Apartments (BC Novaplex LLC)

31731 Northwestern Highway, Suite 250W, Farmington Hills, MI 48334

March 16, 2020

Ms. Barbara McBeth, AICP, City of Novi Planner  
City Development Department  
47175 Novi Road  
Novi, MI 48375

**Re: Novaplex Apartments Submittal for Planning Commission review  
Response to March 9, 2020 Review comments**

West side of Haggerty Road, North of 12 Mile Road, from OST to RM-2 with a  
Planned Rezoning Overlay (PRO).

Dear Ms. McBeth,

Attached please find our PRO submittal package for Planning Commission review. It is the same plans we submitted February 3<sup>rd</sup>, plus these responses and accompanying additional project details.

It is important to reiterate to City Staff and state for the benefit of the Planning Commissioners that Novaplex is being reviewed in the context of a multifamily residential development on a multifamily residential site in a multifamily residential district, with a basic separation of uses contemplated by most zoning ordinances. Many communities are now recognizing that separating uses is not necessarily the best approach. We are asserting is that housing at this location will be beneficial to the area businesses in the community in general. We are also asserting that using the multi-family standards to develop the site is very inefficient and will make this new development stick out instead of helping it fit in. The number of proposed deviations is primarily because we want this Use to fit into the OST context. We are asking that an RM-2 Use be allowed in the OST district, using OST-like development standards so that it fits within the appropriate context. We are asking that the Planning Commission look at this development more as approving this Use within the context of the uses and buildings around it. We don't want to stick out. We want Novaplex to fit in.

With that being stated, we offer the following responses to specific items in the 3/9/2020 review letter:

*Approval of the **PRO Concept plan is currently not recommended for approval** for the reasons stated below and rest of the letter.*

1. *The new rezoning category requested by the applicant is currently not supported by the Future Land Use Map. The applicant should provide exhibits that indicate the connectivity with surrounding residential service uses such as schools, daycare, grocery store and shopping etc.*

*Response: Please see the attached Description of Neighborhood and Community Connectivity.*

2. *There are number of deviations that are identified in the staff and consultant review letters. Staff requests the applicant revise the design to reduce the number of deviations requested. The applicant should either revise or provide additional information for the deviations which are currently not supported.*

Response: Over the course of numerous reviews by City Staff and resubmittals, we have significantly reduced many of the deviations. Further reductions, if possible, will occur during the detailed design phase of the project.

3. *The applicant should provide additional information to evaluate and quantify the current proposed public benefits. The applicant should also reconsider the public benefits being offered to meet the objective of the PRO ordinance. Typically, any detrimental impact from a change of use to something that is not foreseen in the Master Plan for land use is outweighed by benefits occurring from the proposed development.*

Response: Many of the deviations are layout issues and/or do not impact the general public. Some that affect the public, like trading industrial/office traffic for residential traffic, may be a benefit to the public.

4. *The applicant is seeking approval of reduction in minimum parking requirements. The applicant should provide parking demand statement from their existing communities similar in style to justify the request.*

Response: The proposed parking deviation does not impact the general public. Please see the attached Project Planner's letter regarding parking and the analysis of our other developments' parking needs.

5. *The applicant should provide all the missing information regarding existing wetland boundaries, proposed impacts and required mitigation.*

Response: Our Wetland Consultant has reviewed the concerns regarding the amount of disruption and mitigation, and will address it fully at the Planning Commission meeting. We

## **MASTER PLANNING AND ZONING COMMITTEE COMMENT SUMMARY**

1. *Reduce the density because if the density of the development comes down, then the scale of the issues will also come down. **The total number of units is reduced from 332 to 272. The percentage of one bedroom units is reduced from 39% to 36%. The total number of rooms is reduced from 902 to 734.***

Response: The number of Units was significantly reduced. The percentage of 1 bedroom units was reduced to the low-end of the range based on Market demand.

2. *Reduce the significant impact to wetlands and woodlands on site. **Entire layout appears to be outside the regulated woodland boundary to the west and north. Impacts to the high quality woodlands are significantly reduced.***

Response: We will continue to work with City Staff to make sure what few disruption may remain are appropriate and approvable.

3. *Consider reducing the long list of deviations that were requested. **Few of the deviations are reduced. A complete review will be performed when a complete submittal is made.***

Response: Over the course of numerous reviews by City Staff and resubmittals, we have significantly reduced many of the deviations. Further reductions, if possible, will occur during the detailed design phase of the project. We believe the latest submittal was complete.

4. *Demonstrate connectivity with surrounding residential service uses such as schools, daycare, grocery store and shopping etc. Information is not provided. **The applicant should provide information prior to Planning Commission meeting.***

Response: Please see the attached Description of Neighborhood and Community Connectivity.



5. Address the limited amount of sanitary sewer capacity. **Information is provided. Refer to review comments for more details.**

Response: The Engineering Department agreed that the information provided shows the sewer system has more than enough capacity to accommodate this development.

6. ALSO, The Committee asked the staff to check with Novi schools transportation department whether they would service the site if any kids from this development registered.

Response: The Novi Schools Transportation Director confirmed that the subject property falls within their jurisdiction. If any children register at the school, they will be included in a bus route. There is currently a bus route serving a residential development on Haggerty Road just south of 12 Mile.

**The plan also made these changes with this submittal that addresses two of staff's comments.**

1. A secondary access to Infinity Medical development to the South is provided.
2. Building cross-section is revised to eliminate the basement style design

## REVIEW COMMENTS

1. **Supporting Documentation:** The applicant has provided the following studies as part of their application packet with the original submittal. **The following documents may need to be updated prior to Planning Commission meeting based on the new density.**

- a. **Community Impact Statement:** The statement concludes that the proposed Rezoning allows for development of an otherwise very difficult parcel to develop. **Staff does not agree with this statement. The parcel has been cleared for development as part of previous plan approvals. The site does not pose any significant challenges for development.** The applicant notes some market challenges that may restrict office development at this time; however, that is not typically a consideration in the development of a property as master-planned.

Response: We do not agree with Staff. At one time, about 20 years ago, the site was designed and subsequently approved for development. We marketed that plan, along with the potential for a build-to-suit site for 20 years. Over that 20 years, the type of development favored by the Market has changed and the Zoning Ordinance and Design Standards have also changed. Narrow and steep, with a larger pond at the front means buildings behind it are less visible. Single story buildings are preferred, so less square footage is available without more tree clearing, etc. The result is a site that is much more difficult to develop and market.

- b. The statement also noted that this development would provide a 150 feet wide wildlife corridor across its westerly end for wildlife movement, sheltering and food gathering. **It should be noted that the 150 feet corridor is only what would be remaining after the additional proposed woodland removals. This is an existing wildlife corridor that will be reduced by the proposed development.**

Response: That issue was revised/resolved with the submittal in November 2019. The development area was removed from the existing westerly treeline.

- c. **Traffic Impact Study:** The City's review of the submitted study notes that the change of use does not create significant impacts despite the flip in peak hour peak direction traffic. **Both a right turn deceleration taper and some form of a left turn treatment are warranted along Haggerty Road to address proposed impacts for the site plan.**

Response: Both road improvements are proposed as indicated on the plans.

- d. **Sign Location Plan:** Please change 'OST to RM-2' to 'OST to RM-2 with a PRO'. Location and other text are acceptable.

Response: The sign was changed and is currently in place on the site.

e. **Soil boring report:** *This dates back to 1999. Refer to Engineering review for more details.*

Response: New soil borings are premature until the acceptability of the proposed use and layout are established. We will provide new borings with submittal of the Preliminary Site Plan.

f. **Wetland boundary determination:** *The Plan does not include all of the Wetland 'A' area as determined by MDEQ's Wetland Identification Review (letter dated July 5, 2018). Refer to Wetland review for more details.*

Response: Our Wetland consultant has reviewed the question of wetland acreage and mitigation quantities and will address them at the planning commission meeting.

g. **Market Study:** no comment to respond to.

h. **Sanitary sewer capacity calculations:** Issue resolved. There is sufficient capacity in the system

i. **Planning Narrative by CIB planning:** The narrative summarizes findings that support the proposed change of use from Office to Multiple Family Residential using various studies. The narrative also provides a letter of supports from the developer of the neighboring office development, Haggerty Corridor Corporate Park. The narrative includes three exhibits. More comments are provided later in this review.

- i. Exhibit A- List of Project Benefits
- ii. Exhibit B-List of Requested Deviations
- iii. Exhibit C- Project Information

2. **Deviations:** The applicant should provide reasonable justification to meet the intent of the Ordinance with the next submittal. Please refer to the list of deviations on page 11 for more detail. Justification has been provided.

3. **Secondary access for Infinity Medical:** It has been provided

4. **Height of the Buildings:** *The plan proposes a mix of different heights listed below:*

- a. *Yellow buildings: These are attached town style buildings which are three stories tall.*
- b. *Green buildings: Three stories tall.*
- c. *Red buildings: Four stories tall.*

Response: It is our opinion that the buildings with a 4 story and a 3 story component are 4 story buildings. The Novi Building Department also considers them 4 story buildings.

For RM-2 development, densities and room count differ based on number of stories for the development. **As the majority of the units are three stories, staff determined that all requirements for RM-2 development for 'less than four stories' would apply. However, based on the recent changes to the layout and the building design, staff is supporting the deviation for room count. Please refer to the list of deviations on page 11 for more detail.**

5. **Major and Minor Drives:** Section 5.10, relating to major and minor driveways in a multiple family residential development would apply to the proposed development. The revised plan currently does not meet a majority of requirements for this section. Please refer to Traffic review letter for more details and comments requested to provide a reasonable justification for this deviation. Traffic suggested some traffic calming measures and reconsider dumpster locations as a start.

*Compatibility with Surrounding Land Use*

*The subject property is located along eastern boundary of the City of Novi, west of Haggerty Road.*

The City of Farmington Hills is to the east. It is surrounded by existing office development to all sides in Novi with single family residential across Haggerty Road to the east in Farmington Hills. Within Novi, the proposed use is not compatible with the surrounding uses. All surrounding properties are developed and have established office uses. The likelihood of redevelopment is almost none. The proposed use is not consistent with the surrounding existing uses based on current Zoning requirements.

**Response:** The proposed Use is compatible with surrounding land uses. Multifamily is quite often used as a buffer between OST-type uses and other residential uses, so having it next to an OST Use is completely acceptable by planning standards. Also, there are many communities around the country that have recognized or are looking closely at all the benefits of putting housing very close to employment.

### **DEVELOPMENT POTENTIAL**

The land is currently vacant. Development under current OST zoning could result in significant amount of space. For example, a Preliminary site plan was initially approved for this subject property on August 16, 2000 for development of Office buildings. At that time, the site plan proposed two 68,500 square feet, three-story, multiple tenant buildings along with parking and other improvements. In 2018, the applicant proposed a mixed-use development consisting of seven residential buildings with 242 units and two single story office buildings totaling 70,000 square feet (which was not pursued by the applicant at that time following staff's initial review).

**Response:** We originally proposed a mixed use development in order to, in part, to keep an OST use immediately visible to the public. We chose to change to an all-residential plan based on comments by the City and an apparent difficulty with presenting a mixed use development on this site.

### **2016 MASTER PLAN FOR LAND USE: GOALS AND OBJECTIVES**

**Response:** Please see the attached and previously submitted "Conformance with the Master Plan"

### **MAJOR CONDITIONS OF PLANNED REZONING OVERLAY AGREEMENT**

**The applicant is seeking to rezone to RM-2. However, the height and number of rooms is closer to RM-1 standards. The applicant can consider the proposed height and design standard as the conditions of the agreement. The benefits to the public of the rezoning and the extensive deviations are not apparent from the applicant's submission. The applicant should submit a list of PRO Conditions that they are seeking to include with the PRO agreement.**

**Response:** Many of the deviations are layout-related and there are no tangible impacts on the public, as discussed in other areas in this response letter.

### **ORDINANCE DEVIATIONS**

#### **STAFF SUPPORTED**

1. Planning deviation from section 3.8.2.C. for exceeding the maximum allowable length of buildings (180 feet, maximum allowed, a range of 185 feet to 295 feet proposed). **This is supported as the buildings meet the qualifying criteria for City Council's approval for this deviation per section 3.8.2.C.**

**Response:** Variations in the front and rear facades of the buildings along with variations of the colors and materials reduce the massing and appearance in the length of the buildings.

2. Planning Deviation from section 3.8.2.D for not meeting the minimum orientation for all buildings along an outer perimeter property line (45 degrees required, 0 degrees proposed); **All buildings**

**are abutting non-residential districts and orientation is compatible to existing office development.**

Response: The orientation of the proposed buildings fits into the context of the overall OST district and with the adjacent buildings.

3. *Planning Deviation from section 5.16. for exceeding the maximum distance from the bike parking to entrance being served (120 ft. maximum required, varied distance greater than 120 ft. are proposed). **It is supported as the bike parking locations are suitably placed throughout the development.***

Response: Bike parking is spread out across the site and provides suitable access to all residents. If further review during the detailed design of this project identifies a better location for some of the bike racks, we will work with City Staff to relocate the racks as needed.

4. *Planning Deviation from section 5.16. for not meeting the minimum width requirements for the access path to bike parking (six feet required, 5 feet proposed); **This is supported as the plan maintains a consistent five foot width for all internal sidewalks and because it is a residential development.***

Response: The plans submitted show the internal walkways at 5' wide, however, the walks and bike parking pad will be sized to provide ample room to access the bike racks

5. *Landscape deviation from Sec. 5.5.3.B.ii and iii for lack of berms between the site and the properties on the north, south and west. **This is supported as the existing woodlands and proposed landscaping provides sufficient screening.***

Response: If further review during the detailed design of this project identifies a need for some additional landscape/screening, we will work with City Staff to improve screening as needed.

6. *Landscape deviation from 5.5.3.F.ii 5.5.3.B.ii and iii for lack of required street trees along Haggerty road. **This is supported due to conflict with the existing overhead electrical lines and an underground gas line along Haggerty Road which make planting street trees impossible.***

Response: Existing condition prevent landscaping in the Haggerty Road R.O.W.

7. *Landscape deviation from 5.5.3.F.ii to allow the usage of sub-canopy trees for up to 25% of the required multifamily unit trees. **This is supported by staff due to the mix of trees proposed.***

Response: A variety of tree type and sizes provides visual interest.

#### **SUPPORTED BY STAFF WITH CONDITIONS**

1. *Planning Deviation from section 5.16. for lack of covered bike parking areas (25% of parking, 14 spaces should be covered when proposed parking exceeds 20, 0 spaces are covered); The applicant should provide reasons for not meeting this requirement;*

Response: Some Bike storage will be designed into common areas in the buildings.

2. *Planning Deviation from section 3.1.8.D. for not meeting the minimum requirement for usable open space area. A minimum of 54,400 square feet is required. **The applicant should provide the right calculations to verify conformance. The response letter refers to an exhibit which is not included.***

Response: The included Open Space Calculation did not include all open spaces in the development such as lawn areas and patios. This development will meet or exceed the Open Space requirement.

3. *Planning deviation from section.5.2.12.A & B for a 30% reduction in the minimum requirements for parking. A minimum of 619 spaces required, 433 proposed. **The current plan proposes a total***

**of 433 spread across the site, including attached/detached garages and surface parking. Following comments are provided in this regard:**

- a. *The applicant also refers to additional 120 apron spaces in front of attached garages to count towards the minimum required. Apron spaces may provide additional guest parking for certain units with access to garage parking, but not necessarily required parking for others. Apron spaces are currently not counted towards minimum required parking. Provide information about if the apron spaces are reserved for people renting the garage. If yes, indicate how that will be enforced.*

Response: Apron Spaces in front of garages will be reserved for the resident(s) renting the garage. This will be identified in the lease agreements signed by every resident. Persons parked illegally and/or in someone else's assigned spaces will be towed. If the vehicle in question has a parking permit for the site, we will try to contact that person before their vehicle is towed. Please see the letter from the Project Planner plus the calculations for our other sites showing our parking needs.

- c. ***The applicant should provide a parking study or existing parking demand calculations from similar development in similar cities. Sheet C 2.1 justifies 571 parking spaces. The explanation should be provided for 433 spaces.***

Response: Please see the revised calculation on Sheet C-2 plus see the letter from our planner and the calculations for our other sites showing our parking needs.

4. *Traffic deviation from section 5.10 for not meeting the minimum width requirements for a major road. A minimum of 28 feet required, 24 feet proposed. **This can be supported if appropriate traffic calming techniques along the major drive loops are proposed to encourage slower speeds.***

Response: We have added Stop signs at key points along the driveway. We can include additional signs for pedestrian crossings as well.

5. *Traffic deviation from section 5.10 for allowing angled and perpendicular parking on a major drive; **On-street perpendicular parking is proposed on all major drives. This can be supported if appropriate traffic calming techniques along the major drive loops are proposed to encourage slower speeds.***

Response: We have added Stop signs at key points along the driveway. We can include additional signs for pedestrian crossings as well.

6. *Traffic deviation from section 5.10 for not meeting the minimum requirements for major drive centerline radius. **A minimum centerline radius of 100 feet is required for Major Drives. Provide the radii proposed. This can be supported if appropriate traffic calming techniques along the major drive loops are proposed to encourage slower speeds.***

Response: The smaller radii at the westerly end of the loop drives act as traffic calming devices. Larger radii allow for greater speeds. We have also added Stop signs at key points along the driveway. We can include additional signs for pedestrian crossings as well.

7. *Planning deviation from section 5.7 is most likely required. A lighting and photometric plan is not provided at this time. **The applicant indicated that all requirements will be met at the time of site plan. Given the proximity to the adjacent property lines, it is recommended to provide a photometric plan at this time.***

Response: It is our responsibility to meet the lighting requirements. Given the number of lighting style options available, plus pole heights and lamp lumens, we have no doubt we can provide a photometric plan that meets the City's requirements as part of our Preliminary Site Plan submittal.

8. *Planning deviation from section 4.19.1.J for exceeding the maximum number of accessory buildings for properties more than 21, 780 square feet. **A maximum two can be proposed; six***

**garages and 20 carports are proposed. The applicant should provide related information to verify conformance. This can be supported if the elevations comply with the Ordinance requirements or acceptable alternatives are proposed.**

Response: The total number is due to the need to spread the garages and carports around the site to serve all the proposed buildings. The garage facades are designed to compliment the buildings. The carports are standard carports of colors to compliment the buildings.

9. A section 9 waiver for not meeting the minimum requirements for canopy is most likely required for the proposed carports. **The applicant should provide related information to verify conformance.**

Response: Walls are not necessary and do not serve a significant function for a carport. We can vary post and roof colors if desired, but no walls are proposed.

10. Landscape deviation from 5.5.3.F.ii for deficiency in perimeter canopy trees along west sides of parking lots A and E. This is not supported. **That area should be widened and planted with perimeter trees that can serve as both interior drive and parking lot perimeter trees.**

Response: We will widen the area as much as possible and add the recommended trees, provided it can be done without causing encroachments to the westerly woodland.

11. Traffic deviation from figure IX.3 of the City's Code of Ordinances for not meeting the design standards for the entrance boulevard island. **The dimensions of the divided entrance are generally within the ranges provided in figure IX.3 of the City's Code of Ordinances. The island length dimension is not within the ranges in the figure and would require a variance if not revised to meet City standards.**

Response: The length of the boulevard is, in part, due to the need to place the detention basins at the front of the site. Its length is also because we believe extending the boulevard to the main intersection in front of the clubhouse is aesthetically pleasing. We are willing to add a crossover at a point in the boulevard that conforms with the City's island length requirement and pursue the necessary variance.

## **SUBJECT TO THE COUNCIL DETERMINATION/PLANNING COMMISSION RECOMMENDATION**

1. Planning deviation from section 3.8.1.A.ii.b for exceeding the maximum percentage of one bedroom units. A maximum of 20% is allowed. 36% is proposed. **The applicant notes that it fits the target renters who would be young professionals. A market study is provided.**

Response: We are proposing an RM-2 zoning. In the RM-2 district, 33% of units may be 1-bedroom. It will still be a deviation, but a significantly smaller one.

2. Parking, maneuvering lanes, service drives or loading areas within the side and rear yards. A maximum of 30% allowed, 41 % proposed. **The overage is a result of the proposed density. If council approves the density, the requirement for the parking is supported.**

Response: This issue was previously resolved with our 11/19 submittal. parking, drives and loading make up less that 30% of our side and rear yards.

3. Planning deviation from section 3.8.1.B for exceeding the maximum allowable number of rooms for this development. A maximum of 458 rooms is allowed, 734 rooms are proposed. **Staff provides the following comments:**

*In the RM-2 district, total number of rooms dictates the maximum density that can be attained for a specific site. The current ordinance provides clear guidelines if the development contains*

*only one type of bedroom units. This development proposes a mix of 1, 2 and 3 bedroom units. In RM-2 with unit less than four stories, maximum allowable rooms is calculated by*

taking the area of the parcel in square feet, divided by a factor of 2,000. For the subject parcel, the maximum number of rooms allowed for this property is 458 rooms (21.04 acres = 916, 502 sq. ft. /2,000). In this case, the DUA does not define the development as much as the total number of rooms does. The table below lists the Ordinance maximum and proposed.

	Maximum Allowable	Proposed
<b>Dwelling Units Per Acre (DUA)</b>	8 *	13
<b>Total Number of Units</b>	165 *	272 (63% more)
<b>Total Number of Rooms</b>	458	734 (60 % more)
<b>% of 1 Bedroom Units</b>	20	36 (80% more)

\* This number is calculated based on the site acreage of 21.04 acres; the percentage of unit mix the applicant is proposing (36% 1 BR units, 56% 2 BR units and 8% 3 BR units). Please note that the total number of units may differ from 165 (and the corresponding density), if the percentage mix is revised.

**RM-2 would allow a maximum of 1309 rooms for this site size. It would also allow up to 5 story buildings. The applicant is proposing a less intense development for RM-2 zoning proposing only 45% of total number of rooms that would have been allowed for a RM-2 development. Due to the reduction of impacts to the regulated woodlands and changes to building design, staff is willing to support this deviation because**

- The development will be developed with the density and heights as shown on the PRO plan. They will be conditions of approval.
- There is a good mix of three vs four stories. From the internal courtyards, it appears to be a four story development.
- As the proposed building section clearly differentiates the four stories and three stories sections.
- Building department recommendation that the buildings with mixed height are considered four story for permit review purposes.
- This is also contingent on applicant providing a high-quality façades. The proposed elevations meet the requirements of the façade ordinance. Per our façade consultant, the buildings are well designed with interesting overall composition and high attention to detail.

Response: It appears that this comment does not consider blending the calculation between 4 story buildings and 3 story buildings. If the 4 story buildings are calculated as such (and not split in half for the calc.), and the 3 story buildings are considered as such, then this site meets the room requirements.

**ITEM: The applicant shall also update narrative addressing “each Zoning Ordinance provision sought to be deviated would, if the deviation were not granted, prohibit an enhancement of the development that would be in the public interest, and that approving the deviation would be consistent with the Master Plan and compatible with the surrounding areas.”**

Response: Each deviation that is not granted leaves Novaplex farther from fitting into the OST context.

**ITEM: PUBLIC BENEFITS TO PUBLIC UNDER PRO ORDINANCE**

The applicant provided Exhibit B along with the Planning Narrative which purports to identify the project benefits and the detriments. The list included nine items. Of them, eight appear to describe the prominent characteristics of the development, such as providing rental opportunities and adding to the tax base, etc. While these can be perceived as positive subsequent features of the development, they do not provide any measurable benefits to the public, and are not the sorts of things that the ordinance contemplates when it talks about benefits to the public. The one substantive benefit that appears to fit what the ordinance does contemplate is listed below.

“We will complete the sidewalk connections in the Haggerty Corridor Corporate Park, as shown on the map exhibit, to ensure that the Master Plan goal of providing non-motorized connectivity is met;”

Response: First, many of the items on our list are goals of the City set forth in the Master Plan and similar documents. Helping to achieve these goals is definitely to the benefit to the City and its residents. Also, our offer to fill 600' of gaps in the Haggerty Road pathway is a substantial survey, design, permitting and construction project. In addition, we are proposing pocket park with shaded seating at approximately the halfway point between 12 mile and 13 mile Roads. We will make the sidewalk connections in Haggerty Road prior to requesting occupancy for any of the proposed buildings, provided the property owners at each connection point are willing to provide the required easements. If not, and "in kind" donation shall be made to the City to allow for pedestrian improvements elsewhere in the City. We cannot provide a connection to Cabot Drive. Crossing the onsite woodland would require additional tree removals. In addition, due to the layout of development along Cabot, a path can't physically connect without going very far north or south in the ITC Corridor before continuing west to reach a connection point. ITC generally allows pathways to cross perpendicular to the corridor, but not to run parallel within the corridor.

**Please feel free to call or email me with any questions you may have regarding our responses. We look forward to discussing our plans with you and the Planning on the next available agenda**

Thank you,



**Mark Highlen – Land Development Project Manager  
for Novaplex (The Beztak Companies)**

**248-737-6175 (direct), 248-506-9398 (mobile), [mhighlen@beztak.com](mailto:mhighlen@beztak.com) (email)**

Copy: File



## **Conformance with the Master Plan**

### **GOAL: Light industrial and residential developments that are compatible when adjacent to each other**

Designing the new residential use next to existing OST uses allows for a unified appearance and implementation of proper safeguards between the neighboring uses:

- Building styles will be compatible
- Apartment residents will move in with the full knowledge of the neighboring Use.
- The residential site is higher than much of the surrounding area
- Wooded areas on this site and adjacent sites provide a great buffer
- Setback plus proposed landscaping will be used to enhance buffering

### **GOAL: Enhance Novi's reputation as an attractive community in which to live**

Our luxury apartments will be safe, attractive housing with high-quality materials, state of the art wiring and connectivity. The buildings will have fresh look and a timeless style that is a little different than most residential developments in the area. As part of the surrounding OST district, these apartments offer a different type of housing that is becoming more and more desirable; residences very conveniently located in major employment centers.

This mix of uses in the area also promotes a higher level of safety for both businesses and residents. With businesses and business traffic during the day, apartment residents' traffic during the evening/nighttime, and pedestrian/bicycle traffic for much of the day and evening, there will likely be someone around to notice unusual activity in the area..

### **GOAL: Protect Novi's remaining woodlands and wetlands**

It would seem that proposed tree clearing goes against the goal to preserve natural features, but in this case, this residential development decreases the amount of tree clearing that would otherwise be necessary. There is a certain amount of floor area/units required to make a development viable. Previous development plans for this site had 3-story office buildings and single story office/research buildings. 3 story buildings are not practical for new process-related or design/manufacture research businesses. 1-story buildings are more efficient for these Users, but more site coverage would be needed to obtain the same amount of floor area. The 3+ story apartments have smaller footprints which allows greater grading flexibility with less earthwork and less clearing. Whether the proposed development is all OST or all Apartments, more clearing is necessary, but the apartment use will cause less overall disruption. The remaining wooded area can be protected by a conservation easement.

### **GOAL: Maintain adequate infrastructure in an environment of limited federal and state funding**

Apartments will reduced potential impact of this parcel on the future infrastructure needs of the community. A residential use generally has less impact than a larger research/office/industrial use. Apartments usually require less water and generate less effluent, leaving more service capacity available in existing water mains and sanitary sewers, and residential in the OST district will have a different peak water-use time, freeing up a little more capacity in the systems. Residential developments generally have more lawn/landscaped areas than OST uses, with more absorption and less storm water runoff. Residential developments can reduce the number of vehicle trips on local thoroughfares. Residential developments in the OST district also spread out traffic to lessen peak traffic. Novaplex will also improve walkability by creating a direct connection to Cabot Drive to the west.

**GOAL: Promote interconnectivity between neighborhoods to reduce vehicle trips on main roads**

Novaplex improves walkability by taking advantage of the opportunity to connect Haggerty Road and the neighborhood to the east with Cabot Drive and the businesses to the west, as well as filling in the Haggerty Road sidewalk across its frontage.

**GOAL: promote active living and healthy lifestyles in the City of Novi**

Novaplex helps make this area of the City more “Bikeable” and “Walkable” by filling in the Haggerty Road sidewalk across its frontage and providing a pathway across the ITC corridor to Cabot Drive. The site plan also includes bike racks and bike storage, plus a Pocket Park along Haggerty Road for pedestrians and cyclists.

**GOAL: Ensure that Novi continues to be a desirable place for business investment**

Approval of Novaplex fosters a favorable business climate and supports development in Novi’s Office Service Technology district by permitting uses within the OST district that businesses find desirable, which attracts and maintains quality businesses in a regionally competitive marketplace. Many companies are looking at more than just financial and logistical concerns when considering where to expand or relocate their offices. They want to locate in areas with many different uses nearby to provide convenience for local employees, and not just food and services. They want housing nearby too (see attached support letters) *(Text in blue below are excerpts copied from the cited source)*

An article titled “6 Things Leaders Should Consider When Relocating Their Firm’s Offices”, published January 19, 2017 By Lauren Dixon, Associate Editor for Talent Economy notes that “... Many companies in recent years have opted to relocate their headquarters back into the city, as more workers express interest in urban living. In 2014, Nielsen’s data shows that U.S. city growth outpaced other areas for the first time since the 1920s” and goes on the state “Increasingly, labor and considerations around talent are really what’s driving real estate decisions these days for all types of different operations,” said Mark Seeley, senior vice president of the labor analytics team at CBRE Group Inc., a commercial real estate company based in Los Angeles. Companies are being much more thoughtful than in the past about locations and how that can enable their ability to acquire talent. “Market conditions are forcing companies to be much more strategic,” Seeley said. “They can’t just assume that if they’re a large company with a great brand, they can just plop a building anywhere and they’re going to be able to get the applicant pools that they need.”

Of the 6 considerations for leaders when relocating, 2 speak directly to idea that companies can benefit when they consider conveniences for their employees.

4. Examine trends around the employee lifecycle. “... There’s an entire lifecycle of workforce that people need to be thinking about as they’re being strategic about where they locate”.

Although younger generations tend to move to major cities, they might migrate to the suburbs if they chose to start families later on. Seeley advised leaders to think more holistically about all generations in the talent pool.

5. Convenience is a differentiator. Employees in some competitive sectors have the ability to be picky when choosing employers, Seeley said. And for some, their choice isn’t only about the amount on their paycheck; it’s more about the company’s environment and location. Amenities available in and around the office building — cafes, gyms, etc. — are part of this consideration.

In an article titled “Facebook’s Employee Community Solves Relocation Housing Issues” posted by Mike Armstrong on Oct 9, 2013, Mr. Armstrong notes “One of the trickiest parts of moving to a new city for work is finding a home. It’s hard enough moving to an area that you’re familiar with...”. “A large number of transferees and new employees end up searching for housing

options in places they've never even been, and a blind relocation is stressful and often results in housing that leaves something to be desired. Facebook recently announced a plan that could alleviate the issue altogether. Facebook is planning a housing community ... which will be strictly used by their employees. This is a definite perk in many ways for Facebook's employees. The idea is to free up employee time and add convenience to their lives, which usually translates to more productivity."

There are many more articles and studies that reach the same conclusion: The benefits of housing very near work are many. A 25 minute one-way commute (average per SEMCOG) = 208 hrs/person/ year.

- The time saved could go towards more important things like family, hobbies or sleep.
- Living close to work makes an active commute (biking/walking) possible most days.
- Employees can go home during their lunch break to take care of chores, let the dog out, or visit their young kids.

Fewer long-distance commuters means fewer miles driven

- Less wear-and-tear on roadways
- Less gasoline used
- Less pollution

Shorter commutes result in less stress and more worker productivity

Many companies recognize the impacts of commutes on employees and productivity, and they have programs or stipends to encourage living near work. Facebook and Harley Davidson are a couple of the better-known ones. Compuware, Marketing Associates and Strategic Staffing Solutions are local companies that offer incentives for employees to live near their offices in Downtown Detroit. Even without employer participation, employees recognize the benefits of living near work. When we broke ground on our apartment project Five Points of Auburn Hills, one of our first calls was from a professor working across the street at Oakland University.

By allowing certain service-related uses in the OST district, Novi has already taken a step towards attracting new companies and retaining current ones, recognizing that employee convenience is of growing importance to businesses. Allowing for well-designed multi-family housing within appropriate areas of the OST District will help further promote Novi's reputation as a business-friendly community that cares for residents and employees, and allows for growth in an environmentally responsible manner.

**This proposed development is consistent with many of the Goals of the City**

March 6, 2020

Ms. Barb McBeth, AICP, City Planner  
 City of Novi Development Department  
 47175 10 Mile Road  
 Novi, MI 48375

Subject: **Parking Supply Review for the Novaplex Rezoning Request, located on the west side of Haggerty Road, north of 12 Mile Road and south of Lewis Drive**, (parcel #22-12-400-009, 010, & 011), from OST, Office Service Technology to RM-2, Multiple-Family with a Planned Rezoning Overlay (PRO).

Dear Ms. McBeth:

We have reviewed the staff comments regarding ordinance parking requirements for the above project and the actual demand that would be generated by the proposed development and associated 570 parking spaces. Based upon the experience of Beztak Companies owning and operating similar complexes across the country, as well as in very close proximity to the subject property, they are of the opinion that ordinance parking requirements are greater than needed. We have been asked to look at the ordinance requirements, evaluate the standards of other communities in the area, and review industry standards/trends and provide an opinion regarding the proposed parking numbers as well as parking type.

**Ordinance Requirements**

Section 5.2.12, *Off-Street Parking Spaces*, of the ordinance requires two (2) parking spaces for each dwelling unit two (2) or less bedrooms and two and one-half (2 1/2) for each dwelling unit having three (3) or more bedrooms. Four (4) additional parking spaces are also required for the club house. The following table shows the unit breakdown and associated required parking:

Parking Required			
Unit Type	# of units	Spaces Required Per Unit	Total Spaces Required
1 Bedroom	98	2	196
2 Bedrooms	150	2	300
3 Bedrooms	24	2.5	60
Clubhouse	272	4	68
			<b>624</b>

**ITE Parking Generation Standards**

Most zoning ordinances require too much parking, especially in light of recent changes in household size and composition. To more properly gauge how much parking is actually needed for specific land uses, the Institute of Transportation Engineers (ITE) Parking Generation Manual is considered the “bible” for calculating actual parking needs. It is a compilation of parking demand studies for various land uses and provides information on peak parking periods as well as anticipated number of spaces that will be needed. This can be used to provide an idea of what the actual demand for parking will be, since the data is based upon parking studies for similar developments. This use falls under Land Use category 221, Low/Mid-Rise Apartment at a suburban location.

The ITE Low/Mid-Rise Apartment land use classification indicates that on a typical weekday peak parking demand begins at 12:00 am and extends through 5:00 am. This time frame generally coincides with when most people are at home and their vehicles are parked overnight. The Period Parking Demand ranges from 0.59 to 1.94 vehicles per apartment unit with an average of 1.23 vehicles per apartment unit. At 272 units, the average peak parking demand would be 335 spaces, and the studies indicate an overall range of 160 to 528 parking spaces. The Novaplex development provides 570 parking spaces and is well above the ITE standard of 335 spaces. Even if the apron parking spaces are discounted, there is still an excess supply of 115 parking spaces. There is an excess supply above the upper end of the study range as well.

### ***Neighboring Communities***

A review of neighboring communities indicates a wide range of parking standards for multi-family residential developments. Some have taken a more aggressive approach and require fewer parking spaces for apartment complexes. For example, the City of Wixom requires 1.5 spaces for 1-bedroom units and 2 spaces for 2 bedroom units and greater; leading to a requirement of 544 spaces while 570 are provided. Likewise, Commerce Township requires 2 spaces per unit, regardless of bedroom numbers, for a total of 540 parking spaces.

### ***Apron Parking Spaces***

There was also a question concerning whether apron parking spaces behind the garages can be counted towards the parking calculations. Practically speaking, residents with two vehicles are more likely to park one in front of the garage door rather than another parking space on the property and then walk. While it is possible that at times this might happen when schedules conflict, it would be the exception and not the norm. It should also be noted that residents are not allowed to use garage space for storage and as a result are more likely to park inside, leaving the apron available for a second vehicle. It should also be noted that many townhouse developments with single-loaded garages use the apron for the second parking space and it works quite well. Furthermore, the use of apron parking does not present a health, safety issue for the City and meets the intent of the parking ordinance.

### ***Conclusion***

We are of the opinion that the proposed 570 parking spaces will adequately serve the proposed Novaplex development. The subject's target market is young professional households who choose to live close to work and either do not need or do not desire to have two cars. Since the site abuts the Haggerty Corridor Corporate Park, this will be an attractive option for those young professionals. This is further supported by the fact that Millennials are less likely to purchase automobiles than previous generations and the advent of self-driving vehicles is just around the corner.

Requiring additional parking would unnecessarily increase stormwater runoff and maintenance costs. Objective 12 in the City of Novi Master Plan is to "Protect and maintain the City's woodlands, wetlands, natural water features, and open space" while corresponding action item Z.12.1. is to "Explore ordinance changes to lower parking requirements or consider alternate paving materials to reduce the amount of impervious surfaces in new developments." Here the City recognizes the importance of minimizing the amount of paved area in projects like Novaplex. When combined with the ITE Parking Generation data above it is clear that the ordinance parking requirements for this use are greater than what is needed to serve the development.

Mr. Barb McBeth, Novi City Planner  
Novaplex PRO Rezoning Application – Parking Analysis  
March 6, 2020

Respectfully submitted,

**CIB PLANNING**

A handwritten signature in cursive script, reading "Carmine P. Avantini", enclosed within a thin black rectangular border.

Carmine P. Avantini, AICP  
President

**Analysis of Parking at Existing Beztak Properties**

3/9/20

<u>Site</u>	<u>Community</u>	<u>Units</u>	<u>Spaces</u>	<u>Space/unit</u>
Citation Club	Farmington Hills	600	1159	1.93
Saddle Creek	Novi	400	821	2.05
Town Court	West Bloomfield	192	298	1.55
Uptown Ann Arbor	Pittsfield	197	382	1.94
Briar Cove	Ann Arbor	272	416	1.53
Five Points	Auburn Hills	178	352	1.98
	Average	1839	3428	1.86

**Novaplex Comparison**

Novalplex	Novi	272	450	1.65
Novaplex w/ Aprons	Novi	272	570	2.10

prepared by M.Highlen / Beztak Companies for parking calculation discussions.

# BC Novaplex LLC

31731 Northwestern Hwy, Suite 250W  
Farmington Hills, MI 48334

**Neighborhood and Community Connectivity** - City of Novi Planning Staff requested information about how the Property fits into the surrounding area and describe the neighborhood and community services available to the residents once the Property is constructed. The following analysis shows that the Property is very well positioned to take advantage of a variety of services in the immediate area. This site has similar connectivity as some residential areas in the City, including recently constructed Encore at Manchester apartments. Most residential areas and uses require some vehicular travel for goods and services. A description of some options for neighborhood and community services within a 2-mile radius (5-7 minute drive) of Novaplex is included below.

## **Proximity to Retail (2 mile radius)**

- 12 Oaks Mall, including Macy's, JC Penney, Lord+Taylor and Nordstrom, et.al
- Costco
- Target
- Nordstrom Rack, DSW, Marshalls on West Oaks Dr.-
- Home Depot
- Petsmart
- Michael's
- Staples

There is also a Meijer located 3 miles from the Property.

## **Proximity to Grocery / Restaurant / Entertainment (2 mile radius)**

- 2 Krogers
- Gordon Food Service
- Cheesecake Factory
- United Artists Commerce Theater
- Steven Lelli's Inn on the Green
- Applebee's
- Tropical Smoothie Café
- Ruby Tuesday
- Pho Lucky
- Carrabba's Italian Grill
- Deli Unique
- Toasted Oak Grill and
- Multiple Panera Breads
- Multiple Starbucks

As well as the previously mentioned Costco and Target, and the Meijer 3 miles away

## **Proximity to Employment (2 mile radius)**

- 12-Mile/Haggerty / M-5 Corridor
- Nissan Technical Center
- Bosch Group
- ITC Transmission
- Henry Ford Medical Center
- Dana Corporation



- Harman International
- Paychex
- Magna Seating
- Mercedes Benz Financial Services
- ... and many more.

Plus there are also many places of daily importance to residents, such as financial advisors, insurance agencies, medical and dental facilities and various business services in close proximity.

**Proximity to Child Care / Schools (2 mile radius)**

- Kindercare
- Childtime
- Great Beginnings Day Care Centers
- Novi Woods Montessori
- Train Station Preschool

The property is located in the Novi Community Schools District (NCSD) and is in the area served by Orchard Hills Elementary. The school is approximately 3.5 miles (9-minutes) from Novaplex. According to the NCSD Department of Transportation, a school bus line currently has a stop 1 mile south of Novaplex. We were told that bus lines are subject to change, but any child registered with the school system will be picked up. There are other properties in Novi that are 3 miles or more from their designated elementary school, like 13-Mile Road / Old Novi Road and Parkside Elementary School (4 miles, 10-minutes).

**Proximity to Religious Facilities (2 mile radius)**

- Brightmoor Christian Church,
- Crosspointe Meadows Church
- Hope Lutheran Church
- North Congregational Church
- Novi Christian Academy
- Chabad Jewish Center of Novi
- Islamic Cultural Association

**Proximity to Recreation (2 mile radius)**

- The M-5 Metro Trail
- Robert Long Park
- Copper Creek Golf Course
- Lifetime Fitness
- Title Boxing
- Maples Golf Course
- Farmington Hills Golf Club

The list above clearly shows Novaplex has ample access to all goods, services, employment and education. In fact, it is well –placed at a strategic intersection that is close to the needs of everyday life.

PLANNED RE-ZONING OVERLAY (PRO) PLAN FOR

# NOVAPLEX

PART OF THE SE 1/4 OF SECTION 12, T. 01N., R. 08E.,  
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

**OWNER/APPLICANT/DEVELOPER:**

BEZTAK COMPANIES  
31731 NORTHWESTERN HWY, SUITE 250W  
FARMINGTON HILLS, MI 48334  
CONTACT: MARK HIGHLEN  
EMAIL: MHIGHLEN@BEZTAK.COM  
PHONE: 248.737.6175

**ARCHITECT:**

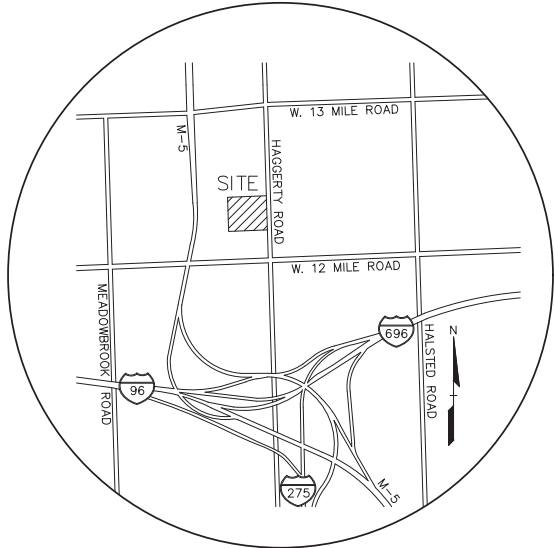
ALEXANDER V. BOGAERTS & ASSOCIATES, PC  
2445 FRANKLIN ROAD  
BLOOMFIELD HILLS, MI 48302  
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EMAIL: MABANATHA@BOGAERTS.US  
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**CIVIL ENGINEER:**

PEA, INC.  
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TROY, MI 48063  
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FAX: 248.689.1044  
EMAIL: JTHOMPSON@PEAINC.COM

**LANDSCAPE ARCHITECT**

PEA, INC.  
7927 NEMCO WAY, SUITE 115  
BRIGHTON, MI 48116  
CONTACT: JEFF SMITH, RLA  
PHONE: (517) 546-8583  
FAX: (517) 546-8973



LOCATION MAP  
NO SCALE

**LEGAL DESCRIPTION:**  
(Per Professional Engineering Associates)  
The North 22 acres of the Northeast 1/4 of the Southeast 1/4 of Section 12, Town 1 North, Range 8 East, Township of Novi, Oakland County, Michigan being more particularly described as: Beginning at the East 1/4 Corner of said Section 12; thence SOUTH, 697.70 feet along the East line of Section 12; thence S89°11'20"W, 1373.45 feet; thence N0°04'21"W, 697.69 feet to the East-West 1/4 line of said section; thence along said line N89°11'20"E, 1374.33 feet to the East line of said Section 12 and the Point of Beginning. Containing 22.003 acres of land more or less and subject to the rights of the public over the easterly 33 feet known as Haggerty Road.

**INDEX OF DRAWINGS:**

- C-1.0 COVER SHEET
- C-2.0 TOPOGRAPHIC SURVEY
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- C-2.1 SITE DATA TABLES
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- C-5.0 PRELIMINARY UTILITY PLAN
- C-6.0 STORM WATER MANAGEMENT PLAN
- C-7.0 SANITARY SEWER DISTRICT
- C-8.0 FIRE TRUCK ROUTE
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- L-1.0 PRELIMINARY LANDSCAPE PLAN
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- L-1.2 LANDSCAPE DETAILS
- T-1.0 PRELIMINARY TREE PRESERVATION PLAN
- T-1.1 PRELIMINARY TREE LIST
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- A1 BLDG. 100 + 250 PLANS
- A2 BLDG. 100 + 250 ELEVATIONS
- A3 BLDG. 255 PLANS
- A4 BLDG. 255 ELEVATIONS
- A5 BLDG. 275 PLANS
- A6 BLDG. 275 ELEVATIONS
- A7 BLDG. 300 + 350 PLANS (TOWNHOUSE)
- A8 BLDG 300 ELEVATIONS (TOWNHOUSE)
- A9 NOT USED
- A10 COMMUNITY BUILDING PLAN
- A11 COMMUNITY BUILDING ELEVATIONS
- A12 COMMUNITY BUILDING ELEVATIONS
- A13 COMMUNITY BUILDING ELEVATIONS
- A14 GARAGES PLANS
- A15 GARAGES ELEVATIONS

**NOTE:**  
ALL WORK SHALL CONFORM TO THE CURRENT CITY OF NOVI STANDARDS AND SPECIFICATIONS

**NOT FOR CONSTRUCTION**

NO.	DATE	DESCRIPTION	BY	CHKD.
1	7/26/19	ISSUED FOR PERMITTING	JTB	MB
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100	7/26/19	ISSUED FOR PERMITTING	JTB	MB

**REVISIONS**

**CAUTION!**  
This drawing was prepared by the contractor and is not to be used for construction without the approval of the architect. The contractor is responsible for the accuracy of the information shown on this drawing. The architect is not responsible for the accuracy of the information shown on this drawing.

**3 FULL WORKING DAYS BEFORE YOU DIG CALL**

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2430 Rochester Ct, Ste. 100  
Troy, MI 48063-1872  
T: 248.689.9090  
F: 248.689.1044  
www.peainc.com

**BEZTAK COMPANIES**  
31731 NORTHWESTERN HWY., SUITE 250W  
FARMINGTON HILLS, MI 48334

**COVER SHEET**  
**NOVAPLEX**  
PART OF THE SE 1/4 OF SECTION 12, T. 01N., R. 08E., CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DES: JTB  
CHKD: JTB  
SUR: JTB  
QR: JTB  
P. M.: JTB

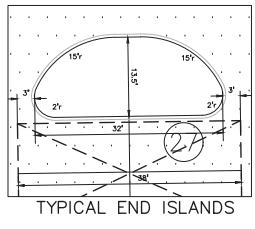
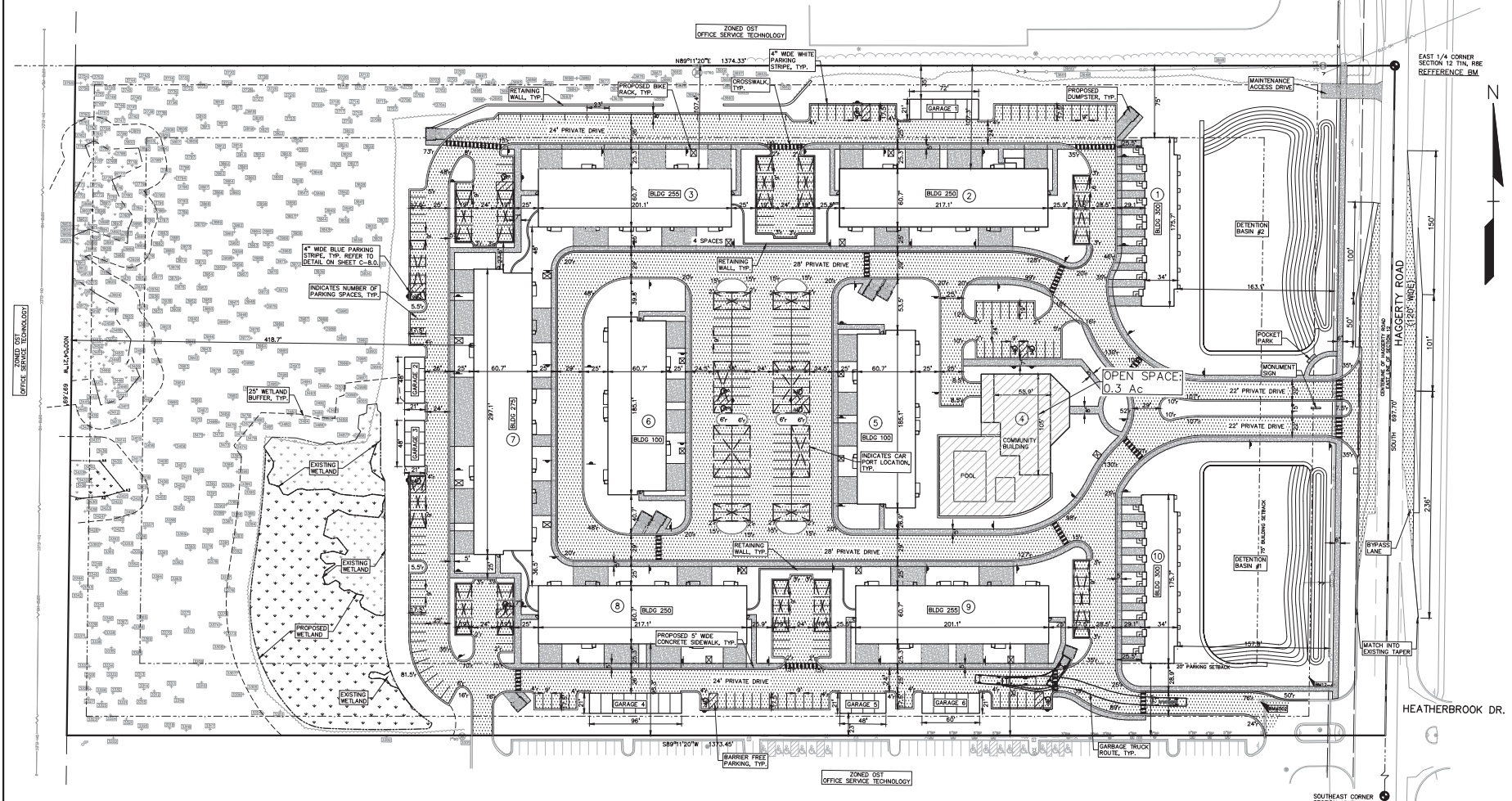
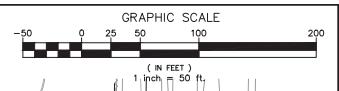
ORIGINAL ISSUE DATE:  
JULY 26, 2019

PEA JOB NO. 2019-298

SCALE: N.T.S.

DRAWING NUMBER:  
**COVER**

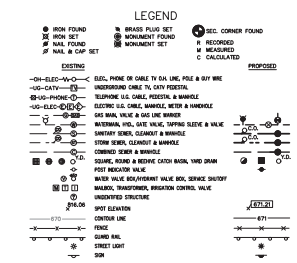




- GENERAL NOTES:**  
THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.
1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
  2. ON-SITE ROADS WILL BE PRIVATE.
  3. HAGGERTY ROAD IS UNDER THE JURISDICTION OF ROAD COMMISSION OF OAKLAND COUNTY AND A ROAD PERMIT WILL BE SECURED FOR ANY WORK WITHIN THE RIGHT-OF-WAY.
  4. ALL PAVING WITHIN THE HAGGERTY ROAD R.O.W. SHALL BE COORDINATED WITH ROCO.
  5. ALL SIDEWALKS SHALL COMPLY WITH BARRIER FREE DESIGN STANDARDS. REFER TO CONSTRUCTION PLANS FOR ON-SITE SIDEWALK RAMP DETAILS.
  6. NO PARKING-FIRE LANE SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100 FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.

7. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH CITY OF NOVI CURRENT STANDARDS AND REGULATIONS.
8. ANY WORK WITHIN THE STREET OR HIGHWAY RIGHT-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
9. PROVIDE 4\"/>

**REFERENCE BENCHMARKS**  
CITY OF NOVI BM #12-41  
\*4\"/>



**NOT FOR CONSTRUCTION**

**REVISIONS**

NO. 1	DATE	DESCRIPTION

**CAUTION!**  
THIS IS A PRELIMINARY SITE PLAN. IT IS NOT TO BE USED FOR CONSTRUCTION. ANY CHANGES TO THIS PLAN MUST BE APPROVED BY THE DESIGNER. THE USER OF THIS PLAN ASSUMES ALL LIABILITY FOR ANY DAMAGE OR INJURY RESULTING FROM THE USE OF THIS PLAN.

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**BEZAK COMPANIES**  
3100 PARKWAY DRIVE, SUITE 200  
PARKINGTON HILLS, MI 48364

**PRELIMINARY SITE PLAN  
NOVAPLEX**  
PART OF THE SE 1/4 OF SECTION 12, T. 0 N., R. 6 E.,  
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

ORIGINAL ISSUE DATE: JULY 26, 2019  
PEA JOB NO. 2015-296  
SCALE: 1" = 50'  
DRAWING NUMBER: **C-2.0**

**LOT AREA / DENSITY**

Gross Ac.	22.00	59320 of
- wetland	n/a - under 2 acres regulated	
- r.a.w	0.96	41862 of
Net Ac.	21.04	591458 of
Rooms (1 per 700sf)	required	provided
Open Space	n/a	286308
Useable Open Space (200/1)	54000	66400
Lot Coverage	<8%max.	11.93%

**BUILDING SPECIFICATIONS**

Building	depth, ft	length, ft	height, ft	area (envelope)	Units	Stories	Total area	1-bed	2-bed	3-bed	"rooms" garages
1 (type 300)	34	175.7	43	5844	10	3	17532	0	0	9	36
2 (type 250)	60.7	217.1	43	13170	36	3	46095	4	32	0	104
3 (type 255)	60.7	201.1	46	12199	36	4	39024.5	20	16	0	88
4 (Club)	58.9	305	46	7381	n/a	1	25335.5	0	0	0	0
5 (type 100)	60.7	185.1	46	10990	30	4	38465	22	6	2	70
6 (type 100)	60.7	185.1	43	10990	30	3	38465	22	6	2	70
7 (type 175)	60.7	291.1	46	17785	48	4	62875.5	6	42	0	138
8 (type 250)	60.7	217.1	46	13170	36	4	42423	4	32	0	104
9 (type 255)	60.7	201.1	43	12199	36	3	42695.5	20	16	0	88
10 (type 300)	64	175.7	43	5844	10	3	17532	0	0	9	36
<b>Totals</b>				<b>109072</b>	<b>272</b>		<b>309614</b>	<b>98</b>	<b>150</b>	<b>22</b>	<b>734</b>

Note: The Planning Commission can modify the allowed length of a building if:  
 - common space with 50 person capacity, for recreation, dining or social activities, AND the building is set back 1 more foot for every 7' of additional length.  
 Note: These buildings have multiple entrances, but no common hallways serving all units.  
 Building 2 through 11 will have space on the ground floor dedicated to storage lockers and bicycle storage for residents.  
 There is ample room and amenities at the clubhouse. We want to encourage people to gather together, not to gather in groups of 50 or less.  
 Adding a room suitable for 50 people gather in each of 10 buildings would add thousands of sq ft. (more disruption) to the project.  
 The building lengths are proportionate to other buildings in the area, plus they have articulated facades and a variety of materials and colors that reduce the appearance of mass.

Total Units	270										
% of total	36.30%	1%	55.56%	2%	8.15%	3%					
Note: all units meet or exceed the minimum required sq ft. Market supports more 1-bedroom units + keeps community impacts down + smaller buildings and less pavement											

Building	depth, ft	length, ft	height, ft	area (envelope)	Spaces
garage 1	21	48	14	1008	4
garage 2	21	48	14	1008	4
garage 3	21	48	14	1008	4
garage 4	21	48	14	1008	4
garage 5	21	48	14	1008	4
garage 6	21	60	14	1260	5
Total detached: 31					
Total attached: 130					
<b>Total Covered Parking: 161</b>					

**BUILDING SETBACKS & ALIGNMENT**

Building	front	side	rear	angle to Pt.	
1	n/a	163	75	n/a	90
2	n/a	107	n/a	n/a	90
3	n/a	107	n/a	n/a	0
4	n/a	n/a	n/a	n/a	0
5	n/a	n/a	n/a	n/a	90
6	n/a	n/a	n/a	n/a	90
7	n/a	n/a	413	0	parallel or perpendicular fits better with the character of the area.
8	n/a	95	n/a	0	parallel or perpendicular fits better with the character of the area.
9	n/a	95	n/a	90	parallel or perpendicular fits better with the character of the area.
10	158	75	n/a	90	parallel or perpendicular fits better with the character of the area.
Club	n/a	n/a	n/a	n/a	middle of site
garage 1	n/a	36	n/a	0	
garage 2	n/a	36	n/a	0	
garage 3	n/a	36	n/a	0	
garage 4	n/a	24	n/a	0	
garage 5	n/a	24	n/a	n/a	
garage 6	n/a	24	n/a	0	
garage 7	n/a	24	n/a	0	

**BUILDING TO BUILDING SETBACKS** (to nearest adjacent building(s))

Building	to Building	provided
1	2	99.6
2	3	113
3	95	
4	club	112
5	4	53
6	club	85
7	5	70
8	6	70
9	6	156
10	7	70
11	7	70
12	club	215
13	8	53
14	club	161
15	9	95
16	10	132
17	club	112

based on max. building height. Average bldg height so side is 41'

based on max. building height. Average bldg height so side is 41'

**PARKING & DRIVES**

only 30% side yard can be used for parking & drives

Prosperity Depth	1374 ft
Front & rear yard Setback	75 ft
Property Depth remainder	1224 ft
side yard Setback	75 ft
Side Yard parking/drives	40.83%

Note: Parking is allowed in side yard in DST. Part of the goal of fitting into the adjacent sites is not to use drastically different design/layout standards (don't look like spot zoning)

Buildings must have frontage on an approved private drive constructed to private road standards

parking & drives must be 25' from living space w/ doors/windows. Drive aprons do not conform  
 Note: Attached garages w/ aprons means some parking will be adjacent to building with windows above/next to

Parking Required			
1 bed	98	2	196
2 bed	150	2	300
3 bed	22	2.5	55
Club	272	4	68
<b>Total</b>	<b>619</b>		<b>2,275.95</b> per unit

**Parking Provided**  
 Garages, att. 120  
 Garages, det. 31  
 Aprons 120  
 Carports  
 Surface 283  
**total 433**  
 Additional parking could be provided with an additional 15' of tree clearing, but is not needed in our extensive experience  
 83 parking spaces for the clubhouse is not needed  
 the furthest apartment is roughly 825' from the clubhouse, the closest is 80', and the majority are less than 500' away.  
 (reference: walking across a Meijer store is about 130')

An apron parking space is in front of attached garages. The ordinance doesn't count it, the residents will definitely use it.  
**Parking Necessary (Justification)**  
 1 bed 98 1.5 147  
 2 bed 150 2 300  
 3 bed 22 2.25 49.5  
 guest 270 0.2 54  
 Club (Staff + visitors) 20 20  
**Total 571**  
 12960 of space eliminated  
 Most 1 bedroom units will have only 1 resident  
 Many, but not all 2 bedroom units will have 2 residents, and not all 3-resident units will have 3 cars  
 Almost all 3 bedroom units will only have 2 residents. The 3rd room is usually an office or storage  
 Most residents don't get visitors frequently, and especially not on weekdays (think of your own number of visitors)  
 Residents using the clubhouse will very likely walk. There will be about 5 Staff, and usually 4-5 visitors at most at any time  
 Including only the parking and adjacent drives needed reduces impervious area and minimizes disruption (grading & trees)  
 48 spaces omitted  
 12960 of space eliminated

Building	Units	Spaces per	Spaces	length	Entrance	Backs
1	9	1/5	1.8 + 2	176	10	2
2	36	1/5	7.2 + 8	218	10	3
3	36	1/5	7.2 + 8	201	8	5
Club	0	10% of 83	8.3 + 9	105	2	2
5	30	1/5	6 + 6	186	8	4
6	30	1/5	6 + 6	186	8	3
7	48	1/5	9.6 + 10	290	12	5
8	36	1/5	7.2 + 8	218	10	2
9	36	1/5	7.2 + 8	201	8	3
10	9	1/5	1.8 + 2	176	10	2

May need waiver for 120' maximum distance to the entrances it serves. We have numerous entrances

off wide drive loop Provided  
 with direct access to public road Provided  
 Setbacks off Major/Minor Drives Deviation Not a standards private road, so no internal front setbacks. Just meeting 25' setback from buildings to drive/parking  
 25' Parking/drive setback from building Provided

Zoning & Use Requirements	Allowed	proposed	comments
Master Plan	Office/research/tech	Multi-family	Does not conform, but will conform with PRO approval
Zoning	DST	RM-2 with PRO	Does not conform, but will conform with PRO approval
Uses Permitted	Office / Service	Multi-family	Does not conform, but will conform with PRO Approval

Site Plan			
Dwelling Unit Density	33% max. 1-bed	36.30% 1-bed	The market supports a larger number of 1-bedroom units
Building 1 Side Setback	75'	75'	
Parking Setback Screening	no		Does not conform, but will conform with PRO approval
Structure Fronts Public Road or Approved Private Dr	no		Does not conform, but this development doesn't have an internal "road"
Parking space Screening	no		Does not conform, but will conform with PRO approval
Perimeter Berm	no		Would require removal of more trees in some areas. Grade diff. w/ neighbor too great in others

In general, we are trying to make the multi-family use fit in with the surrounding developments. Using a completely different set of design standards will make it less likely to fit in.

condensed development to the south to increase the northerly buffer. Saved 20 Trees and makes larger buffer adjacent to industrial use  
 Condensed development to east to provide largest buffer on the west (existing tree line)

NO. OF REVISIONS	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		
8		
9		
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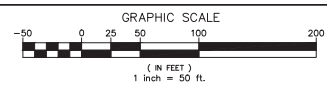
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**BEZAK COMPANIES**  
 310 W. WASHINGTON ST. SUITE 200  
 ANN ARBOR, MI 48106  
**SITE DATA TABLES**  
 NOV/APR/EX  
 PART OF THE SE 1/4 OF SECTION 12, T. 0 N., R. 6 E.,  
 CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

ORIGINAL ISSUE DATE:	JULY 26, 2019
PEA JOB NO.:	2015-296
SCALE:	N.T.S.
DRAWING NUMBER:	C-2.1

**NOT FOR CONSTRUCTION**

C-2.1



- LEGEND**
- IRON FOUND
  - ⊕ BRASS PLUG SET
  - ⊕ MONUMENT FOUND
  - ⊕ MONUMENT SET
  - ⊕ RECORDED
  - ⊕ MEASURED
  - ⊕ CALCULATED
- NOTES**
- OH-ELEC-CON-C- ELEC. PHONE OR CABLE IN OIL LINE, POLE & GUY WIRE
  - US-CATV- UNDERGROUND CABLE TV, CABLE PRESTRA.
  - US-PROP-C- TELEPHONE OR CABLE PRESTRA. & MANDIBLE
  - US-ELEC- ELEC. UG. CABLE, MINOR, METERS & MANDIBLE
  - GAS- GAS MAIN, VALVE & GAS LINE MANDIBLE
  - WATER- WATER MAIN, VALVE, HYDRANT, SERVICE & VALVE
  - SEWER- SANITARY SEWER, CLEANOUT & MANDIBLE
  - STONE- STONE SEWER, CLEANOUT & MANDIBLE
  - CONCRETE- CONCRETE SEWER & MANDIBLE
  - SIGNAL, POND & SERVICE CATCH BASIN, VHS BOX
  - POST INDICATOR VALVE
  - WATER VALVE, BOUNDARY VALVE, SOLE, SHUT OFF
  - METER, TRANSFORMER, METER CONTROL VALVE
  - UNIDENTIFIED STRUCTURE
  - SPOT ELEVATION
  - CONTOUR LINE
  - FENCE
  - DRIVE PAL
  - STREET LIGHT
  - SIGN
- REMARKS**
- ① 671
  - ② 671

- SIGN LEGEND:**
- "NO PARKING FIRE LANE" SIGN
  - "STOP" SIGN
  - "BARRIER FREE PARKING" SIGN
  - "VAN ACCESSIBLE" SIGN
  - REFER TO DETAIL SHEET FOR SIGN DETAILS

**REVISIONS**

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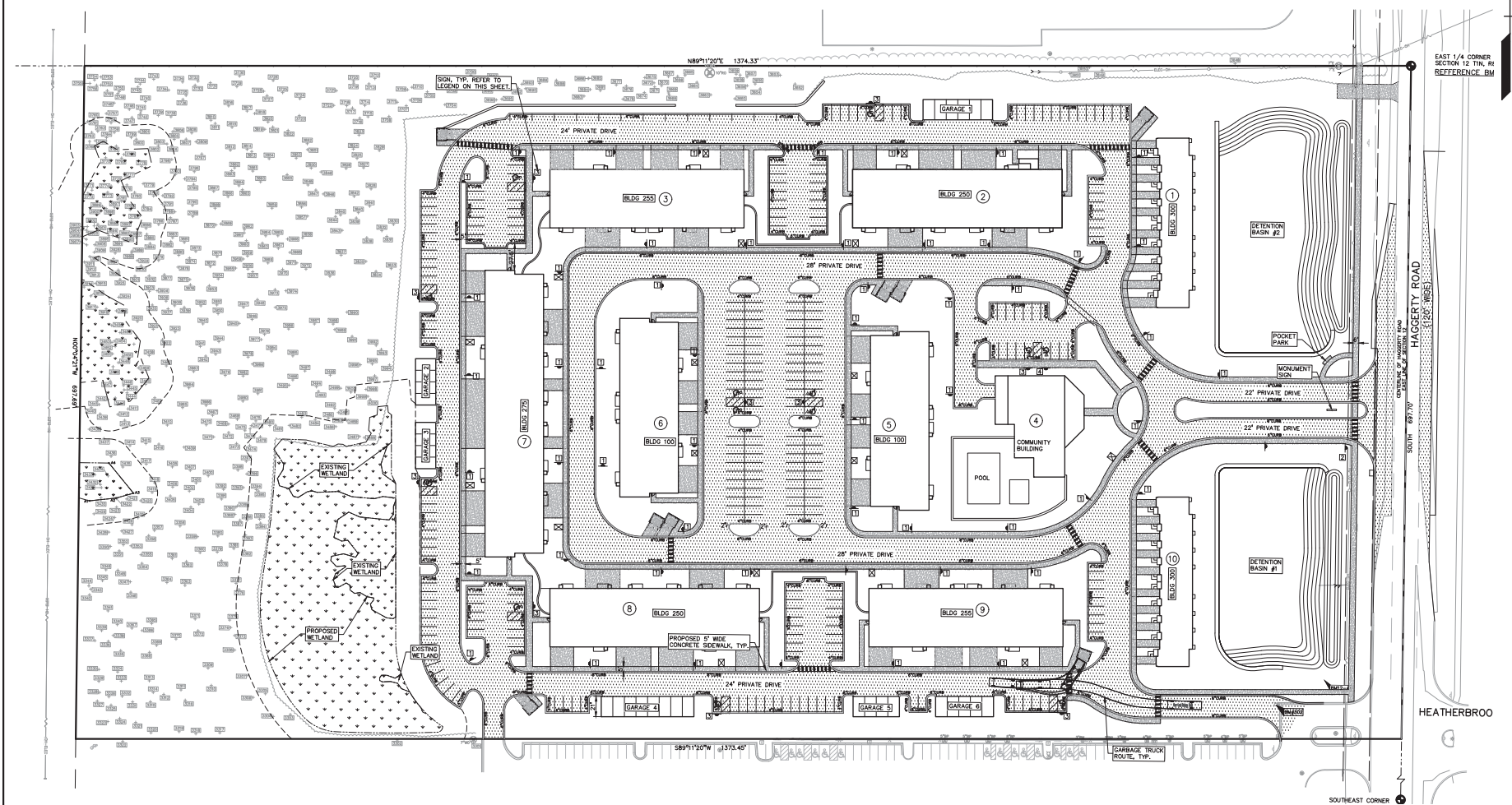
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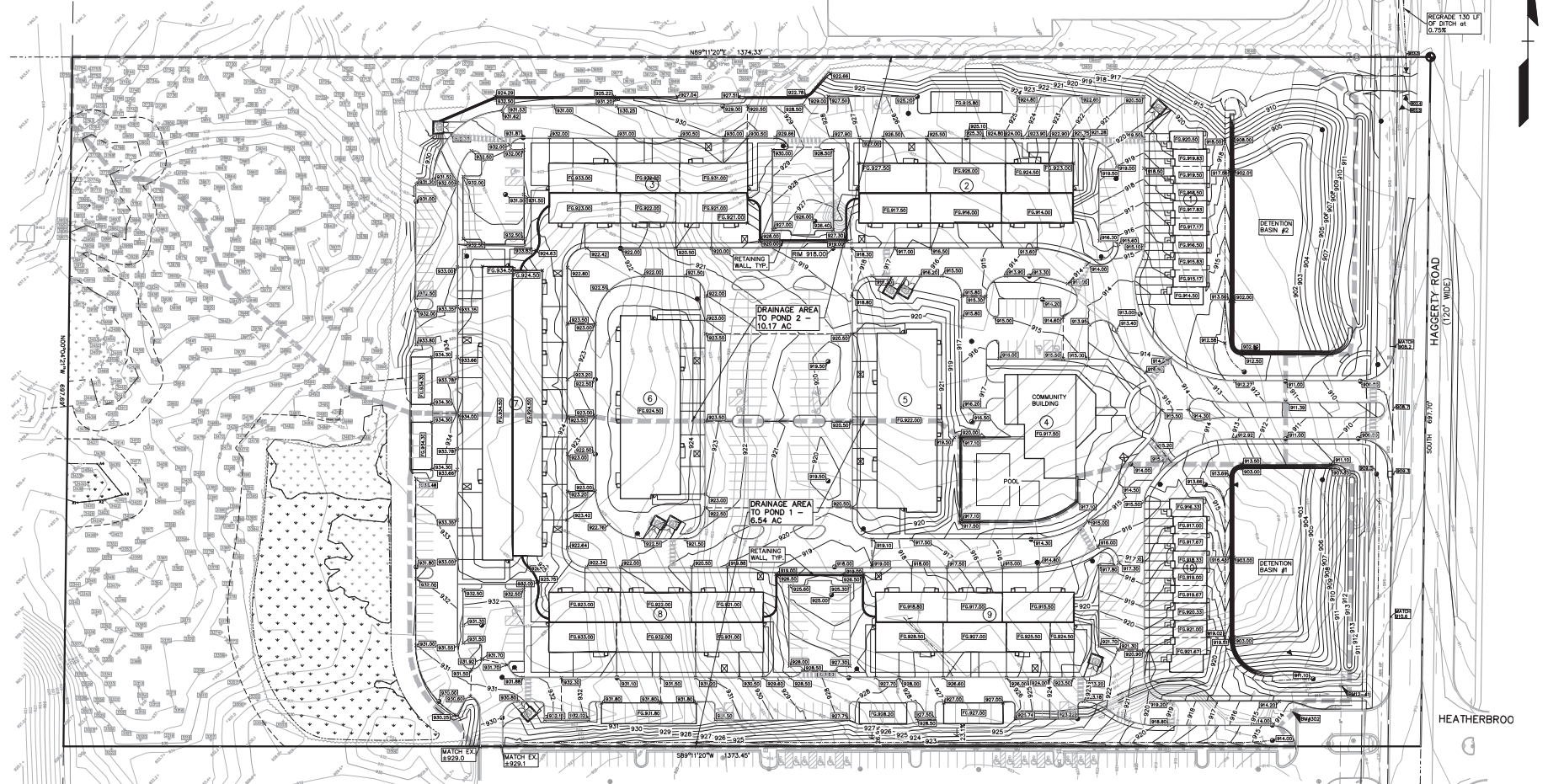
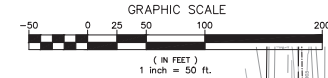
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 FARMINGTON HILLS, MI 48334  
**SIGN PLAN / CURB HEIGHTS**  
 PART OF THE SE 1/4 OF SECTION 12, T. 0 N., R. 6 E.,  
 CITY OF NOVI, OAKLAND COUNTY, MICHIGAN  
 EX-105 EX-106 EX-107 EX-108 EX-109 EX-110 EX-111 EX-112 EX-113 EX-114 EX-115 EX-116 EX-117 EX-118 EX-119 EX-120

ORIGINAL ISSUE DATE:  
 JULY 26, 2019  
 PEA JOB NO. 2015-296  
 SCALE: 1" = 50'  
 DRAWING NUMBER:  
**C-3.0**

**NOT FOR CONSTRUCTION**



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REGRADE 1.50' OF DITCH at 0.75%

HAGGERTY ROAD (120' WIDE)

HEATHERBROO

**GENERAL GRADING AND EARTHWORK NOTES:**  
 THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

- CONTRACTOR TO FIELD VERIFY ALL EXISTING TREES AND BRUSH AND REMOVE ALL THAT ARE NECESSARY TO GRADE SITE.
- ALL GRADES ARE TO TOP OF PAVEMENT OR GUTTER UNLESS OTHERWISE NOTED.
- THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE BOUNDARIES SHALL BE AT THE SOLE RESPONSIBILITY AND RISK OF THE CONTRACTOR.
- ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF THE CITY OF NOV. AN EROSION CONTROL PLAN MUST BE SECURED FROM THE CITY PRIOR TO CONSTRUCTION.
- ALL EARTHWORK AND GRADING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS INVESTIGATION AND REPORT TO BE PREPARED PRIOR TO CONSTRUCTION.
- REFER TO CONSTRUCTION PLANS FOR ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND NOTES.
- SIDE SLOPES EXCEEDING 1:6 MUST BE STABILIZED BY SODDING OR BY PLACING A MULCH BLANKET PLACED IN PLACE OVER SEED.
- ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SOODED IN ACCORDANCE WITH THE LANDSCAPE PLANS. PROVIDE A MINIMUM OF 3" OF TOPSOIL IN THESE AREAS UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE OR UNSUITABLE BACKFILL MATERIAL IN THE OPINION OF THE GEOTECHNICAL ENGINEER, THAT ARE TO BE WITHIN THE ZONE OF INFLUENCE OF PROPOSED BUILDINGS OR PAVEMENT SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.

**SYMBOLS: GRADING**

PROPOSED SPOT GRADE ELEVATION, ALL GRADES INDICATED ARE TO TOP OF PAVEMENT OR GUTTER (IF LOCATED IN CURB LINE) UNLESS OTHERWISE NOTED. ADD 0.33' FOR 4" CURB OR 0.50' FOR 6" CURB) TO CUTTER GRADE TO OBTAIN TOP OF CURB ELEVATION.

PROPOSED CONTOUR LINE — 930 —

**REFERENCE BENCHMARKS**  
 CITY OF NOV BM #23-41  
 7' OF NORTH RIM OF SANITARY MH  
 ELEV. = 915.00 (MEASURED)  
 CITY OF NOV BM #23-14  
 NORTH RIM OF SOUTHERLY MON. BOX  
 ELEV. = 905.13

BENCHMARK IN ARROW ON A HYDRANT LOCATED ON THE WEST SIDE OF HAGGERTY RD., OPPOSITE OF HEATHERBROOK DR.  
 ELEV. = 916.00

**EARTHWORK BALANCING NOTE:**  
 THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

**LEGEND**

- IRON FOUND
- WOOD SET
- PAV FOUND
- BRASS PILE SET
- MOMENT FOUND
- MOVEMENT SET
- SEC. CORNER FOUND
- RECORDED
- MEASURED
- CALCULATED

**SYMBOLS:**

- 0-0-ELEV-M-0-0: ELEC. PILE OR CABLE TO DA. LINE, POLE & GUY WIRE
- 0-0-CATV: UNDERGROUND CABLE TV, GUY TOWER
- 0-0-0-0-0-0: TELEPHONE USE CABLE, FIBER, & MESSAGE
- 0-0-ELEC-0-0: ELEC. USE CABLE, MESSAGE, WIRE & MESSAGE
- 0-0-0-0-0-0: GAS MAIN, VALE & GAS LINE MESSAGE
- 0-0-0-0-0-0: NATURAL GAS, VALE, VALE, SPRING, SLOPE & VALE
- 0-0-0-0-0-0: SHOWER, SLOPE, SLOPE & MESSAGE
- 0-0-0-0-0-0: STORM SEWER, CEMENT & MESSAGE
- 0-0-0-0-0-0: COMB. SEWER & MESSAGE
- 0-0-0-0-0-0: GRADE, MAIN & BENCH, CATCH BASIN, 100' DIA. POOL
- 0-0-0-0-0-0: POST RECEPTOR VALE
- 0-0-0-0-0-0: WATER VALE, BROWNING VALE BOX, SERVICE DRIFT
- 0-0-0-0-0-0: WALKWAY, WALKWAY, MESSAGE, MESSAGE, VALE
- 0-0-0-0-0-0: UNDESIGNED STRUCTURE
- 0-0-0-0-0-0: SPOT ELEVATION
- 0-0-0-0-0-0: CONTOUR LINE
- 0-0-0-0-0-0: FENCE
- 0-0-0-0-0-0: DRIVE WAY
- 0-0-0-0-0-0: STREET LIGHT
- 0-0-0-0-0-0: SIGN

**NOT FOR CONSTRUCTION**

**REVISIONS**

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**CAUTION!**  
 THIS IS A PRELIMINARY GRADING PLAN. IT IS NOT TO BE USED FOR CONSTRUCTION. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES AND CONDITIONS PRIOR TO CONSTRUCTION. ANY CHANGES TO THIS PLAN SHALL BE MADE BY THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF NOV. THIS PLAN IS THE PROPERTY OF PEAK COMPANIES AND SHALL BE RETURNED TO THE ENGINEER UPON COMPLETION OF THE PROJECT. ANY REPRODUCTION OR DISTRIBUTION OF THIS PLAN WITHOUT THE WRITTEN PERMISSION OF PEAK COMPANIES IS STRICTLY PROHIBITED.

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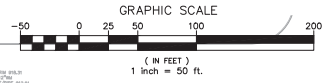
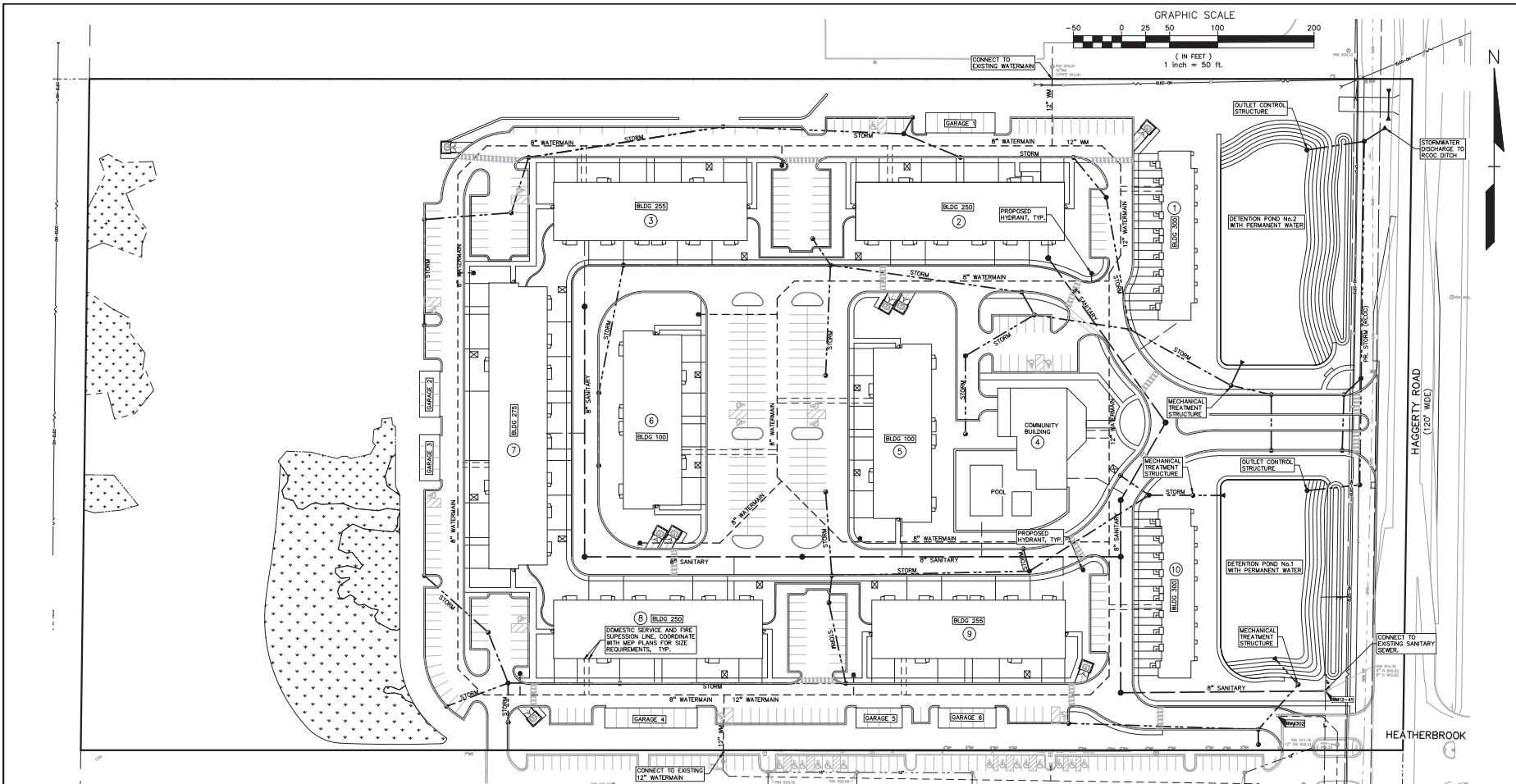
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**BETAK COMPANIES**  
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**PRELIMINARY GRADING PLAN**  
**NOVAPLEX**  
 PART OF THE SW 1/4 OF SECTION 12, T. 0 N., R. 0 E.,  
 CITY OF NOV, CLAWSON COUNTY, MICHIGAN  
 DATE: 07/26/2019  
 TIME: 11:21 AM

ORIGINAL ISSUE DATE:  
 JULY 26, 2019  
 PEA JOB NO. 2015-296  
 SCALE: 1" = 50'  
 DRAWING NUMBER:

**C-4.0**



- GENERAL UTILITY NOTES:**
- ALL UTILITY LINES, STRUCTURES AND TRENCHES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARDS AND REQUIREMENTS OF THE CITY OF NOVI.
  - NO PHYSICAL CONNECTION TO THE EXISTING WATER MAIN CAN BE MADE UNTIL ALL NEW WATER MAIN PASSES PRESSURE AND BACTERIOLOGICAL TESTS TO THE SATISFACTION OF THE CITY.
  - ALL WATER MAIN AND FITTINGS (3" DIAMETER AND LARGER) SHALL BE DUCTILE IRON, CLASS 54.
  - WATER MAIN SERVICE LEADS SHALL BE TYPE "M" ANNEALED SEAMLESS COPPER WITH FLARED FITTINGS, UNLESS OTHERWISE NOTED.
  - ALL WATER MAIN SHALL BE PROVIDED WITH 6" OF COVER UNLESS OTHERWISE NOTED.
  - ALL FIRE HYDRANTS SHALL BE EFW "WATERMASTER" #58R MODEL #250 PER CITY OF NOVI STANDARDS.
  - ALL HYDRANTS TO BE A MINIMUM OF 5' FROM BACK OF CURB OR PROVIDE BOLLARD PROTECTION.
  - ALL NECESSARY FITTINGS, THRUST BLOCKS, RESTRAINING GLANDS, BLOW OFFS, ETC. FOR WATER MAIN ARE CONSIDERED INCIDENTAL TO THIS PROJECT. THE CONTRACTOR SHALL INSTALL THESE ITEMS AS NECESSARY AND AS REQUIRED BY THE CITY OF NOVI.
  - THE WATER MAIN CONTRACTOR SHALL NOTIFY THE INSPECTION SECTION OF THE DETROIT WATER AND SEWER DEPARTMENT AT (313) 833-4662 AT LEAST THREE WORKING DAYS IN ADVANCE OF STARTING CONSTRUCTION.

- ALL SANITARY SEWER 8" OR LARGER SHALL BE POLYVINYL CHLORIDE (PVC) SDR 26 PIPE AND FITTINGS. ALL JOINTS TO BE ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
- ALL SANITARY SEWER LEADS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 23.5 PIPE AND FITTINGS. ALL JOINTS TO BE ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
- SANITARY LEADS SHALL BE PROVIDED WITH CLEANOUTS EVERY 100 FEET AND AT EVERY BEND AS SHOWN. ALL CLEANOUTS TO BE PROVIDED WITH E.J.I.M. #1565 BOX OR EQUAL.
- SANITARY LEADS SHALL BE AT LEAST 5 FEET DEEP WHERE UNDER THE INFLUENCE OF PAVEMENT.
- ALL STORM SEWER 12" DIAMETER OR LARGER SHALL BE REINFORCED CONCRETE PIPE (RCP C-70) CLASS IV WITH MODIFIED TONGUE AND GROOVE JOINT WITH RUBBER GASKETS.
- ALL STORM SEWER LEADS SHALL BE PVC SDR 26 WITH PUSH-ON JOINTS UNLESS OTHERWISE NOTED.
- PIPE LENGTHS ARE GIVEN FROM CENTER OF STRUCTURE AND TO END OF FLARED END SECTION UNLESS NOTED OTHERWISE.
- THE CITY OF NOVI STANDARD DETAIL SHEETS ARE INCORPORATED INTO AND MADE A PART OF THESE PLANS. CONTRACTOR TO REFER TO THE CITY OF NOVI STANDARD DETAIL SHEETS FOR ALL STRUCTURE, PIPE MATERIALS, BEDDING, TESTING, ETC. NOTES AND DETAILS.

**SANITARY SEWER BASIS OF DESIGN:**  
(Unit Factors based on Oakland County Unit Assignment Factors)

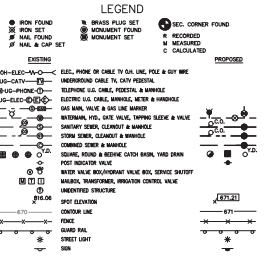
Multi-Family Residence	Unit Factor	REU
1 Bedroom Units	98	38.8
2 Bedroom Units	150	112.5
3 Bedroom Units	22	22.0
Clubhouse (Swimming Pool)	7,180 s.t.	18.5
<b>TOTAL</b>	<b>269.8</b>	<b>172.8</b>
Population (P) (3.2 PEOPLE/REU)	871 People	
Average Flow (150 GPCPD)	67,100 G.P.D.	
	6,104 C.F.S.	
	0.871	
Peaking Factor (PF)	3.91	
PF = (18+sqrt(P)) / (14+sqrt(P))		
Peak Flow (C.F.S.)	262,031 G.P.D.	
Peak Flow (C.F.S.)	0.405 C.F.S.	
8" Pipe at 0.40% Capacity Provided =	0.778 C.F.S.	

**WATER MAIN BASIS OF DESIGN:**  
(Unit Factors based on Oakland County Unit Assignment Factors)

Multi-Family Residence	Unit Factor	REU
1 Bedroom Units	98	38.8
2 Bedroom Units	150	112.5
3 Bedroom Units	22	22.0
Clubhouse (Swimming Pool)	7,180 s.t.	18.5
<b>TOTAL</b>	<b>269.8</b>	<b>172.8</b>
Population (P) (3.2 PEOPLE/REU)	871 People	
Average Flow (150 GPCPD)	100,850 G.P.D.	
	9,156 C.F.S.	
	0.161 M.G.D.	
Design Max. Flow = (2" avg)	201,300 G.P.D.	
	0.311 C.F.S.	
	0.261 M.G.D.	

**SAND BACKFILL NOTE:**  
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3" OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.G.D.T. CLASS B GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

**PUBLIC UTILITY EASEMENTS:**  
ALL SANITARY SEWERS 8" AND LARGER IN DIAMETER ARE TO BE PUBLIC AND SHALL BE LOCATED IN A 20' WIDE EASEMENT. ALL WATER MAIN SHALL BE LOCATED IN A 20' WIDE EASEMENT.



**REVISIONS**

NO.	DATE	DESCRIPTION
1	07/26/2019	ISSUED FOR PERMIT
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3	07/26/2019	REVISIONS TO PERMIT
4	07/26/2019	REVISIONS TO PERMIT
5	07/26/2019	REVISIONS TO PERMIT
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16	07/26/2019	REVISIONS TO PERMIT
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**BETAK COMPANIES**  
3705 PARKWAY DRIVE, SUITE 200  
FARMINGTON HILLS, MI 48334

**PRELIMINARY UTILITY PLAN**  
**NOVAPLEX**

PART OF THE SE 1/4 OF SECTION 12, T. 0 N., R. 0 E.,  
CITY OF NOVI, OAKLAND COUNTY, MICHIGAN

DATE: 07/26/2019  
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JULY 26, 2019

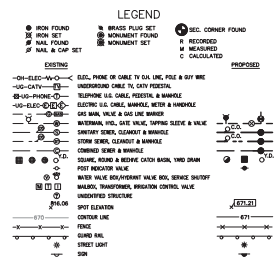
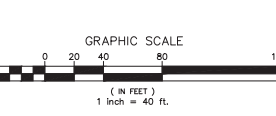
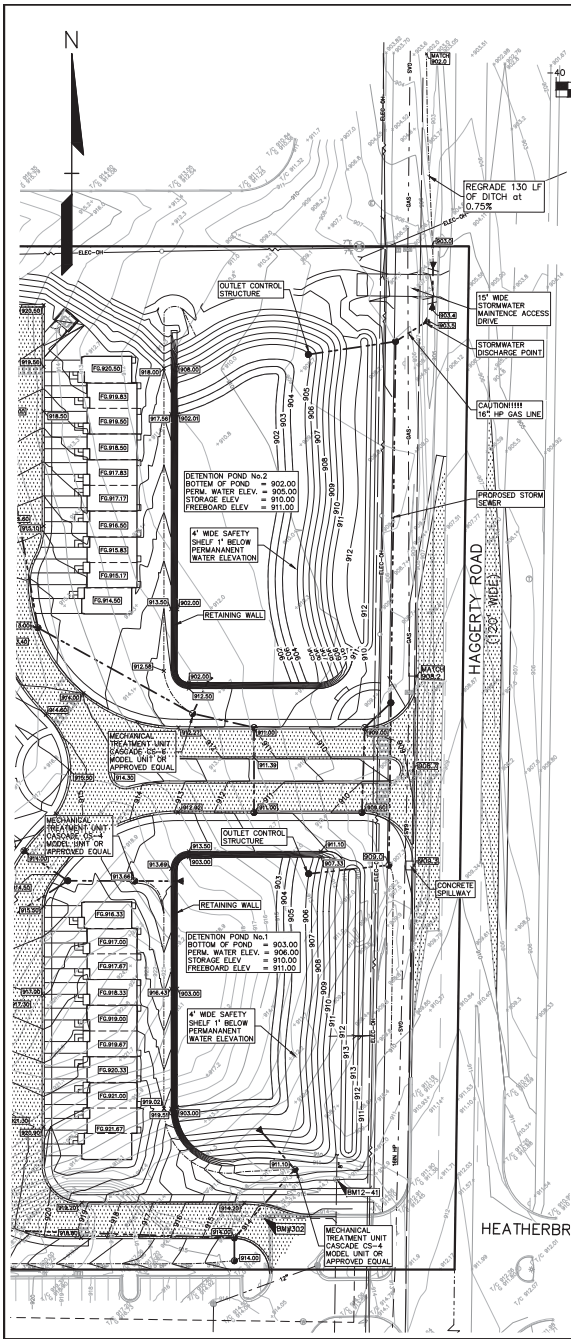
PEA JOB NO. 2015-296

SCALE: 1" = 50'

DRAWING NUMBER:  
**C-5.0**

**NOT FOR CONSTRUCTION**





(NOTE: REFER TO SHEET C-4.0 FOR DRAINAGE AREAS TO PONDS)

30 YEAR STORM DETENTION DESIGN - POND 1  
(PER OAKLAND COUNTY DESIGN METHOD)

Drainage Data	0.94 acft
Contributing Area (A)	0.94 acft @ 15% impervious
Allowable Discharge (Qd)	164.976 C = 0.95
Runoff (R)	93.252 C = 0.28
Perv. Water (P)	20.716 C = 1.00
Proposed Coefficient of Runoff (C)	0.74

1 hr Design Storm Calculations for Sediment Basin Volume Requirement

Drainage Area (A)	0.94 acft
Volume (V)	10,922 cu ft
Retention Time (T)	2.00 minutes
Retention Volume (Vr)	10,922 cu ft
Retention Basin Volume (Vb)	10,922 cu ft

Stormwater Pre-Treatment

Drainage Area No. 1 (A)	0.71 acres
Impervious Area (Ai)	0.000 ac ft
Pervious Area (Ap)	1.32 acres
Runoff Curve Number (CN)	60
Impervious CN	71
Pervious CN	71
Time of Concentration (Tc)	24 min
Pond and Swamp Areas	0.00 acres
Frequency	1 yr
Retention 1 yr, 24 hr (P)	2.13 in
Initial Abstraction (Ia)	0.247 in
Compu (Ia / P)	0.12
Unit Peak Discharge (Qu)	600 cpm/in
Runoff (R)	0.90 in
Pond & Swamp Adjustment Factor (Fp)	1.00
Peak Discharge (Qp)	4.8 cfs

CS-6 Provides SWFT for up to 0.6 cfs

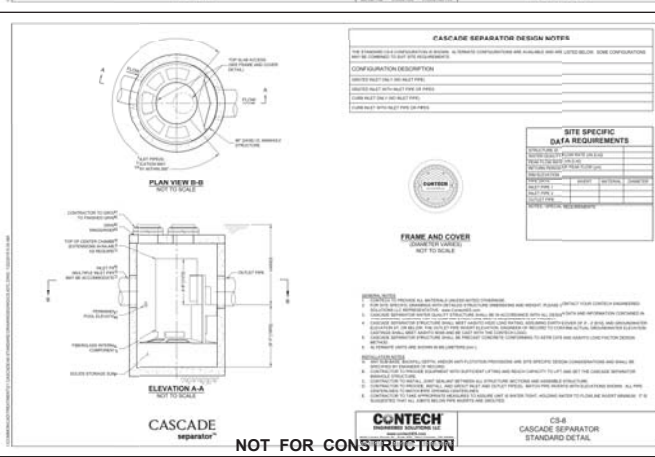
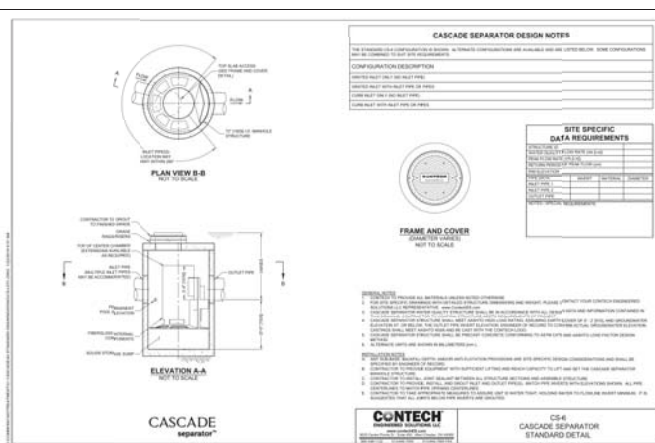
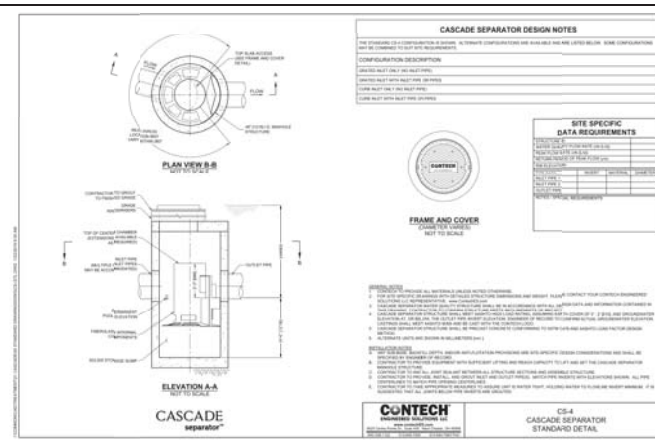
Drainage Area No. 2 (A)	10.17 acres
Impervious Area (Ai)	0.216 ac ft
Pervious Area (Ap)	6.13 acres
Runoff Curve Number (CN)	67
Impervious CN	71
Pervious CN	71
Time of Concentration (Tc)	24 min
Pond and Swamp Areas	0.00 acres
Frequency	1 yr
Retention 1 yr, 24 hr (P)	2.13 in
Initial Abstraction (Ia)	0.273 in
Compu (Ia / P)	0.13
Unit Peak Discharge (Qu)	600 cpm/in
Runoff (R)	0.90 in
Pond & Swamp Adjustment Factor (Fp)	1.00
Peak Discharge (Qp)	6.0 cfs

CS-8 Provides SWFT for up to 12.0 cfs

Drainage Area No. 3 (A)	0.80 acres
Impervious Area (Ai)	0.001 ac ft
Pervious Area (Ap)	0.27 acres
Runoff Curve Number (CN)	78
Impervious CN	71
Pervious CN	71
Time of Concentration (Tc)	30 min
Pond and Swamp Areas	0.00 acres
Frequency	1 yr
Retention 1 yr, 24 hr (P)	2.13 in
Initial Abstraction (Ia)	0.188 in
Compu (Ia / P)	0.09
Unit Peak Discharge (Qu)	700 cpm/in
Runoff (R)	0.90 in
Pond & Swamp Adjustment Factor (Fp)	1.00
Peak Discharge (Qp)	8.8 cfs

CS-4 Provides SWFT for up to 2.0 cfs

Drainage Area No. 4 (A)	0.50 acres
Impervious Area (Ai)	0.001 ac ft
Pervious Area (Ap)	0.27 acres
Runoff Curve Number (CN)	78
Impervious CN	71
Pervious CN	71
Time of Concentration (Tc)	30 min
Pond and Swamp Areas	0.00 acres
Frequency	1 yr
Retention 1 yr, 24 hr (P)	2.13 in
Initial Abstraction (Ia)	0.188 in
Compu (Ia / P)	0.09
Unit Peak Discharge (Qu)	700 cpm/in
Runoff (R)	0.90 in
Pond & Swamp Adjustment Factor (Fp)	1.00
Peak Discharge (Qp)	8.8 cfs



**REVISIONS**

NO.	DATE	DESCRIPTION
1	07/26/2019	ISSUED FOR PERMITS
2	07/26/2019	REVISIONS TO PERMITS
3	07/26/2019	REVISIONS TO PERMITS
4	07/26/2019	REVISIONS TO PERMITS
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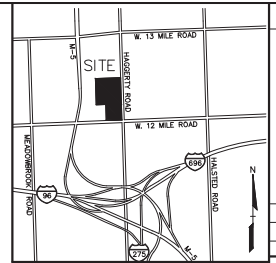
**NOVAPLEX**  
PART OF THE SE 1/4 OF SECTION 12, T. 0 N., R. 6 E.,  
CITY OF NOVATO, OAKLAND COUNTY, MICHIGAN

**STORMWATER MANAGEMENT PLAN**

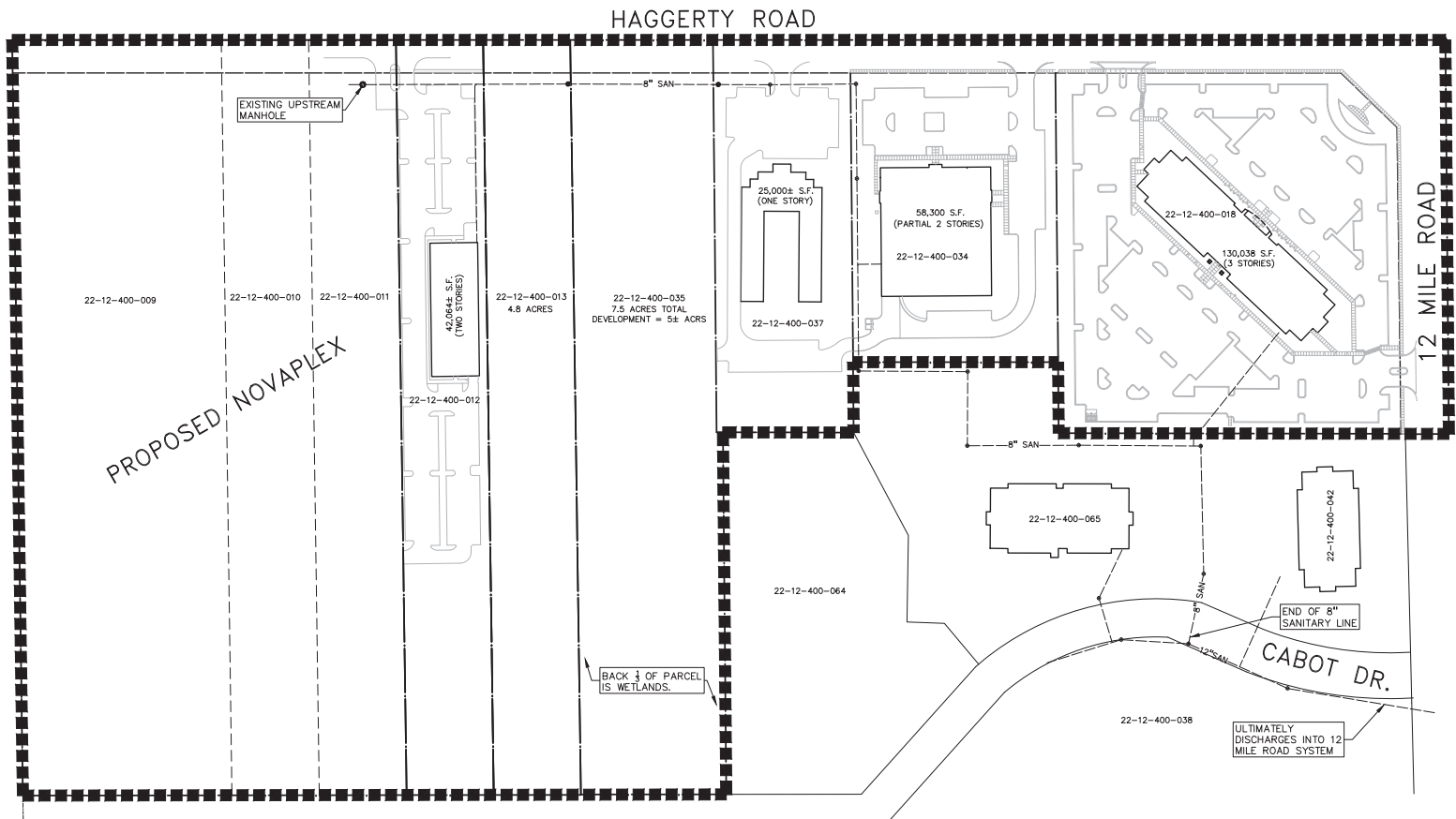
ORIGINAL ISSUE DATE: JULY 26, 2019  
PEA JOB NO. 2015-296  
SCALE: 1" = 40'  
DRAWING NUMBER: C-6.0

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# HAGGERTY ROAD SANITARY SEWER DISTRICT



NO.	DATE	REVISION
1	07/26/2019	ISSUE FOR PERMITS
2	07/26/2019	ISSUE FOR PERMITS
3	07/26/2019	ISSUE FOR PERMITS
4	07/26/2019	ISSUE FOR PERMITS
5	07/26/2019	ISSUE FOR PERMITS
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10	07/26/2019	ISSUE FOR PERMITS
11	07/26/2019	ISSUE FOR PERMITS
12	07/26/2019	ISSUE FOR PERMITS
13	07/26/2019	ISSUE FOR PERMITS
14	07/26/2019	ISSUE FOR PERMITS
15	07/26/2019	ISSUE FOR PERMITS
16	07/26/2019	ISSUE FOR PERMITS
17	07/26/2019	ISSUE FOR PERMITS
18	07/26/2019	ISSUE FOR PERMITS
19	07/26/2019	ISSUE FOR PERMITS
20	07/26/2019	ISSUE FOR PERMITS



SANITARY SEWER BASIS OF DESIGN	
<b>NOVAPLEX (20-22-12-400-009, 010, 011)</b>	
Multi-family units	98 units
1 Bedroom units	0.8 per bedroom
Unit Factor	38.8
2 Bedroom units	1.50 units
Unit Factor	0.75 per bedroom
REU	112.3
3 Bedroom units	22 units
Unit Factor	1.0 per bedroom
REU	22.0
Clubhouses	
Size of building	7180 S.F.
Unit Factor	2.3 / 1000 of REU
REU	16.5
Total REU for Novaplex	208.8
<b>99-22-12-400-012</b>	
Medical Offices/Clinics (2 stories)	42,064 S.F.
Usable Building Percentage	100 %
Unit Factor	0.19 / 1000 of REU
REU	8.0
<b>99-22-12-400-013</b>	
Current: 1 single family home	4.8 Acres
Master Planned: CDT	
Development Area	25 % of Dev.
Building coverage	52,272 S.F.
Usable Building Percentage	80 %
Unit Factor	0.4 / 1000 of usable REU
REU	18.7
<b>99-22-12-400-035</b>	
Vicent (7.5 Ac. +/- 5 Ac. development)	2.800 CDT
Development Area	5.0 Acres
Building coverage	25 % of Dev.
Size of Building	54,400 S.F.
Usable Building Percentage	80 %
Unit Factor	0.4 / 1000 of usable REU
REU	17.4
<b>99-22-12-400-017</b>	
Size of Building (Scanned from google earth)	25,000 S.F.
Usable Building Percentage	80 %
Unit Factor (offices)	0.4 / 1000 of usable REU
REU	8.0
<b>99-22-12-400-034</b>	
Offices (2 stories)	24,660 S.F.
Unit Factor (offices)	0.4 / 1000 of usable REU
REU	9.9
<b>Shop / Manufacturing</b>	
Unit Factor	33,640 S.F.
Unit Factor	1.38 / facility
Unit Factor	1.4 / People
Unit Factor	11.2
<b>99-22-12-400-018</b>	
Size of Building	130,038 S.F.
Usable Building Percentage	100 %
Unit Factor (medical clinics)	0.19 / 1000 of usable REU
REU	24.7
<b>TOTAL</b>	<b>REU: 296.9</b>
	<b>847 People</b>
Average Flow (100 GPCFD)	94,700 G.P.D.
	8,147 C.F.S.
P (1000s)	0.947
Resolving Factor (RF)	3.82
RF = (18 mph / 100 mph)	
Peak Flow (G.P.D.)	361,292 G.P.D.
Peak Flow (C.F.S.)	3,099 C.F.S.
8" at 0.40% Pipe Capacity Provided =	0.778 C.F.S.
Conclusion	Minor (slight) overcapacity. 8" sanitary capacity: 138 %

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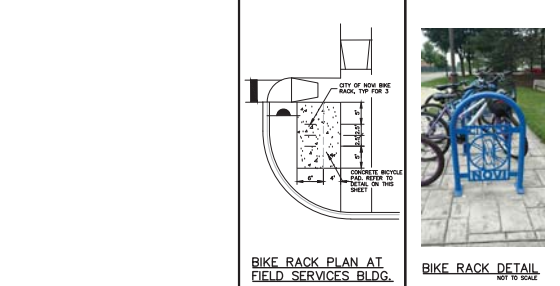
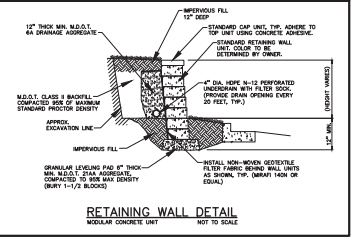
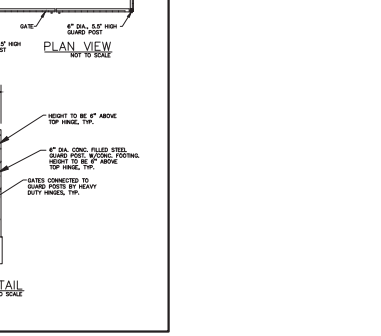
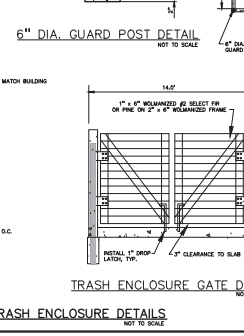
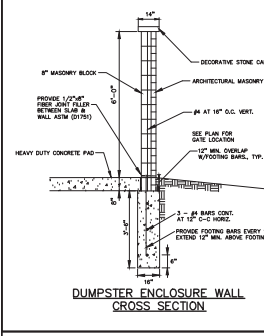
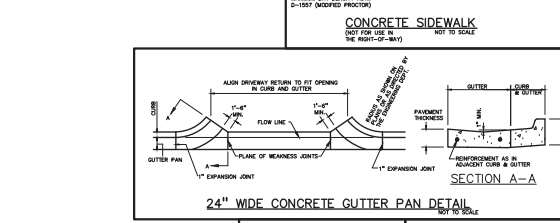
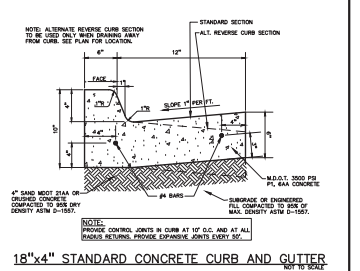
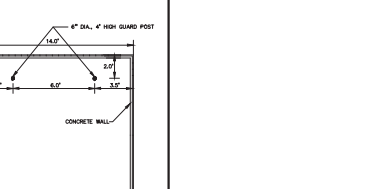
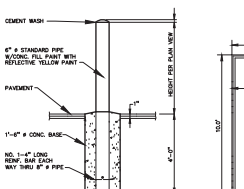
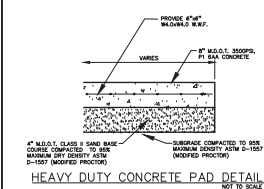
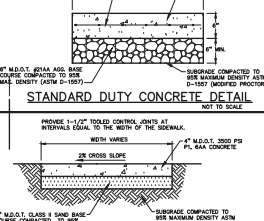
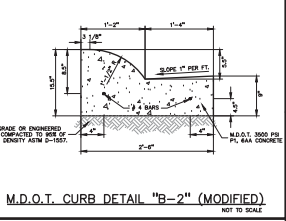
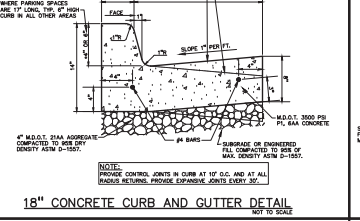
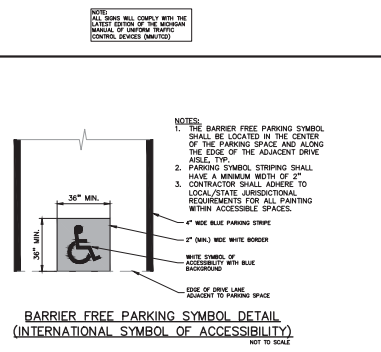
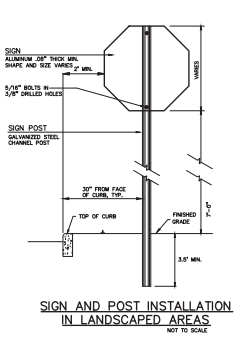
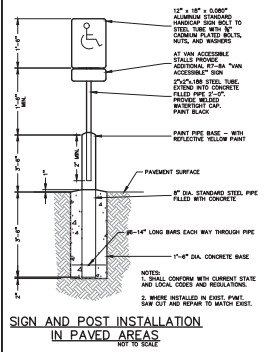
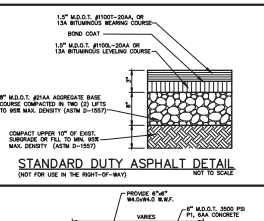
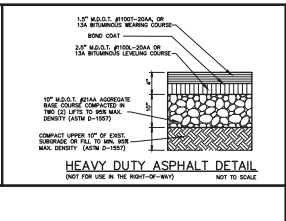
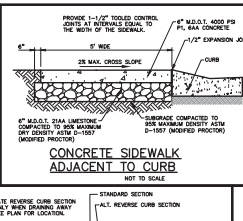
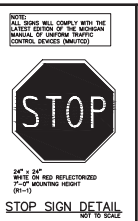
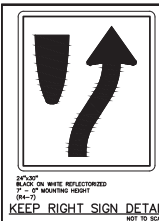
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CITY OF NOVI, OAKLAND COUNTY, MICHIGAN  
DESIGNED BY: [Signature] SURVEYED BY: [Signature] P.M.  
DRAWN BY: [Signature] CHECKED BY: [Signature] P.M.

ORIGINAL ISSUE DATE:  
JULY 26, 2019  
PEA JOB NO. 2015-298  
DRAWING NUMBER:  
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**STANDARD DETAIL SHEET**  
PART OF THE **NOVAPLEX** PLAN, S.D. SHEET  
CITY OF NOVATO, CALIFORNIA COUNTY, MICHIGAN

DWG. NO. 2015-298

ORIGINAL ISSUE DATE:  
JULY 26, 2019

PEA JOB NO. 2015-298

SCALE: NONE

DRAWING NUMBER:  
**C-9.0**

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QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
22	AK3	Red Maple	<i>Acer rubrum</i>	2" Cal.	B&B	Native	No	4%	
8	AS3	Sugar Maple	<i>Acer saccharum</i>	2" Cal.	B&B	Native	No	2%	7%
13	B44	Yellow Birch	<i>Betula alleghaniensis</i>	8-12" Ht.	B&B	Native	No	2%	4%
29	CB3	Columnar Hornbeam	<i>Carpinus betulus 'Fastigiata'</i>	2" Cal.	B&B	Non-Native	No	6%	8%
5	F03	American Beech	<i>Fagus grandifolia</i>	2" Cal.	B&B	Native	No	1%	2%
12	F31	Red Chinquapin	<i>Fagus sylvatica 'Red Chinquapin'</i>	2" Cal.	B&B	Non-Native	No	2%	2%
19	GB3	Garage	<i>Ginkgo biloba</i>	2" Cal.	B&B	Non-Native	No	2%	2%
40	GT1	Skyline Honeylocust	<i>Gleditsia triacanthos</i>	2" Cal.	B&B	Native	No	2%	2%
18	LS1	Slender Silhouette Sweetgum	<i>Liquidambar styraciflua 'Slender Silhouette'</i>	2" Cal.	B&B	Native	No	4%	4%
17	LT1	Tulip Tree	<i>Liriodendron tulipifera</i>	2" Cal.	B&B	Native	No	2%	2%
13	MO3	Tupelo	<i>Nyssa sylvatica</i>	2" Cal.	B&B	Native	No	2%	2%
14	PO1	American Sycamore	<i>Platanus occidentalis</i>	2" Cal.	B&B	Native	No	2%	4%
36	QR3	Red Oak	<i>Quercus rubra</i>	2" Cal.	B&B	Native	No	7%	7%
15	QD3	Scarlet Oak	<i>Quercus coccinea</i>	2" Cal.	B&B	Native	No	2%	2%
7	QW3	Swamp White Oak	<i>Quercus bicolor</i>	2" Cal.	B&B	Native	No	1%	13%
41	TR3	American Basswood	<i>Tilia americana</i>	2" Cal.	B&B	Native	No	8%	8%
28	UA3	American Elm	<i>Ulmus americana</i>	2" Cal.	B&B	Native	No	2%	2%

REPLACEMENT TREE PLANT LIST	QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
1	AS3	Sugar Maple	<i>Acer saccharum</i>	2" Cal.	B&B	Native	Yes	1%	7%	
5	BA3	Paperbark Birch	<i>Betula papyrifera</i>	8-12" Ht.	B&B	Native	Yes	2%	4%	
8	PO3	American Sycamore	<i>Platanus occidentalis</i>	2" Cal.	B&B	Native	Yes	2%	4%	

SUBCANOPY TREE PLANT LIST	QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
11	AA3	Dewey Serviceberry	<i>Amelanchier arborea</i>	8-12" Ht.	B&B	Native	No	2%		
6	AL3	Allegheny Serviceberry	<i>Amelanchier laevis</i>	8-12" Ht.	B&B	Native	No	1%	2%	
13	CC3	Eastern Redbud	<i>Cercis canadensis</i>	8" Ht.	B&B	Native	No	2%	2%	
18	CF3	Flowering Dogwood	<i>Cornus florida</i>	7" Ht.	B&B	Native	No	2%	2%	
7	MA3	Merrill Crab	<i>Malus 'Merrill'</i>	2" Cal.	B&B	Non-Native	No	1%	1%	
14	MP3	Prairie Crab	<i>Malus 'Prairie Crab'</i>	2" Cal.	B&B	Non-Native	No	2%	2%	
6	NR3	Japanese Tree Lilac	<i>Syringa reticulata</i>	2" Cal.	B&B	Non-Native	No	1%	1%	

EVERGREEN PLANT LIST	QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
23	PG3	White Spruce	<i>Picea glauca</i>	7" Ht.	B&B	Native	No	2%	2%	
14	PH3	Blue Spruce	<i>Picea mariana</i>	7" Ht.	B&B	Native	No	2%	2%	
14	PI3	Eastern White Pine	<i>Pinus strobus</i>	7" Ht.	B&B	Native	No	2%	2%	
19	TC3	Canada Hemlock	<i>Tsuga canadensis</i>	7" Ht.	B&B	Native	No	2%	2%	

SHRUB PLANT LIST	QTY	SYM	COMMON NAME	SCIENTIFIC NAME	SIZE	SPEC	COMMENT	REPLACE	SPECIES %	GENUS %
7	AM3	Black Chokeberry	<i>Aronia melanocarpa (gracilis?)</i>	36" Ht.	Cont.	Native	No			
53	CB3	Red Twig Dogwood	<i>Cornus sericea</i>	36" Ht.	Cont.	Native	No			
46	VC3	Varied Whitebush	<i>Hemodesmia versata</i>	36" Ht.	Cont.	Native	No			
55	VN3	Common Lilac	<i>Syringa vulgaris</i>	36" Ht.	Cont.	Native	No			
7	PO3	Winebar	<i>Physocarpus opulifolius</i>	36" Ht.	Cont.	Native	No			
18	RA3	Frugent Buxart	<i>Rhus glabra</i>	36" Ht.	Cont.	Native	No			
41	VD3	American Viburnum	<i>Viburnum dentatum</i>	36" Ht.	Cont.	Native	No			

**NOTES**

SEE SHEET L-1.1 FOR LANDSCAPE CALCULATION AND LANDSCAPE CALCULATION AREA PLAN.

PLANT MATERIAL SHALL BE PLANTED A MINIMUM OF 4' OFF OF PROPERTY LINES.

ALL TREES ARE TO BE A MINIMUM OF 10' FROM HYDRANTS AND UTILITY STRUCTURES.

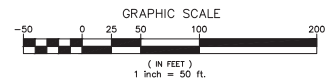
8400 CREDIT WILL BE PAID INTO THE TREE FUND FOR EACH TREE CREDIT THAT CANNOT BE REPLACED ON SITE.

WETLAND CONSERVATION EASEMENT NOTES: REPLACEMENT TREES GUARANTEED TO BE PLANTED AND PLANTING CONSERVATION EASEMENT OF LANDSCAPE EASEMENT TO BE GRANTED TO THE CITY.

REPLACEMENT MATERIAL SHOULD NOT BE WITHIN 10' OF BUILT STRUCTURES OR UTILITY EASEMENTS AND OVER UNDERGROUND STRUCTURES/UTILITY EASEMENTS.

**WAIVERS REQUESTED**

1. 16" GAS MAIN BETWEEN SIDEWALK AND CURB, NO TREE PLANTINGS WITHIN 20' REQUESTING WAIVER TO OMIT REQUIRED ROW TREES BETWEEN SIDEWALK AND CURB.



**KEY**

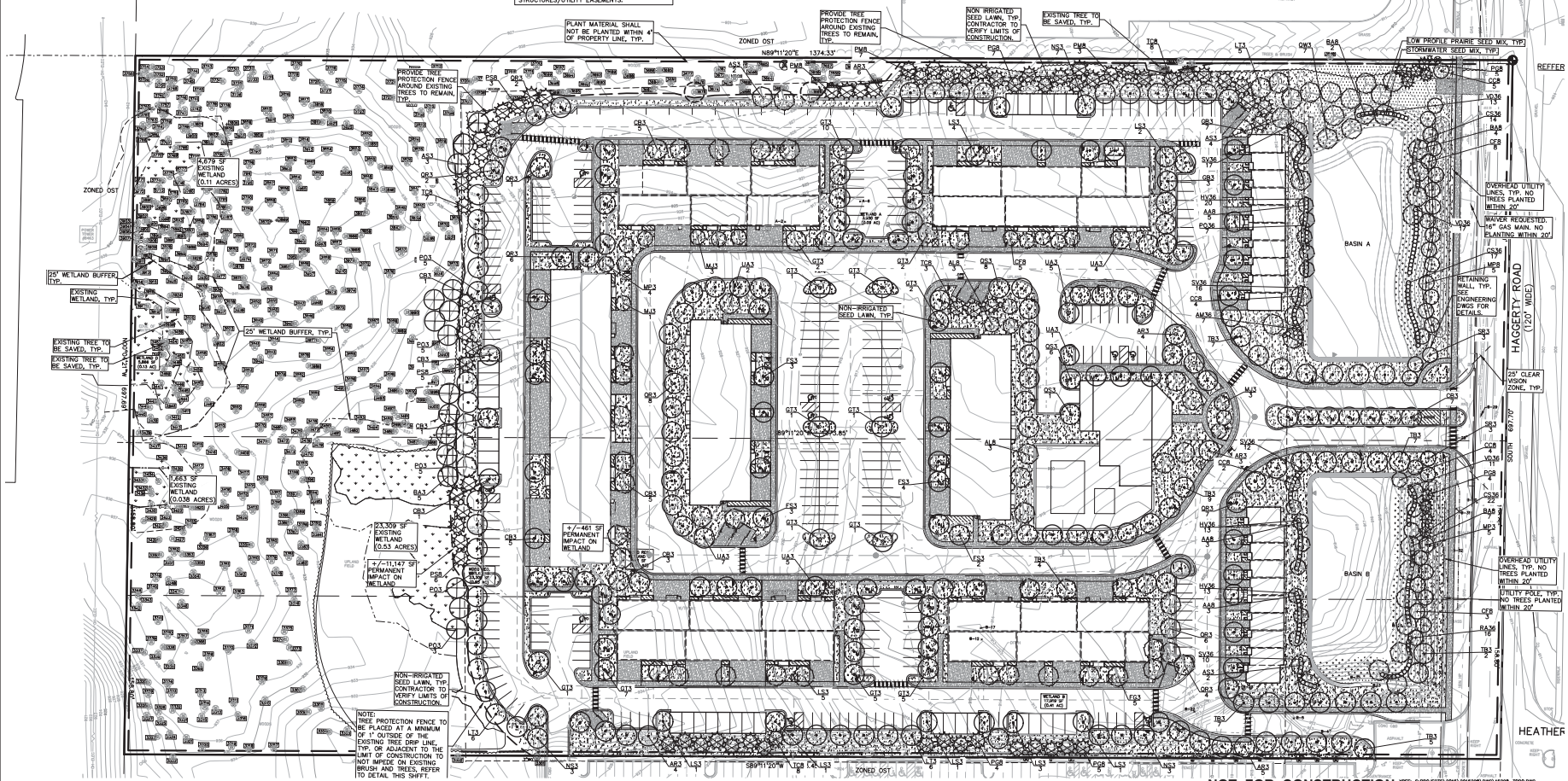
- = INTERIOR PARKING LOT TREES
- = INTERIOR ROADWAY PERIMETER PARKING LOT TREES
- = ROW TREES
- = MULTI FAMILY LANDSCAPE TREES
- = INTERIOR PARKING TREES COUNTING AS MULTI FAMILY TREES
- = REPLACEMENT TREES
- = EXISTING TREE COUNTING AS PERIMETER ROADWAY TREE
- = BASIN SHRUBS
- = STORMWATER SEED MIX & STAKED EROSION MAT BY CARENDO NATIVE PLANT NURSERY PHONE: 574-589-2432
- = IRRIGATED SEED LAWN
- = FOUNDATION SHRUBS
- = EXISTING TREES TO BE REMOVED
- = TREE PROTECTION FENCING
- = EXISTING TREES TO REMAIN

**WETLAND BUFFER TREE PLANTING NOTES PER CITY OF NOVA**

1. PROJECT RECOMMENDATIONS THAT ALL WORK BE DONE WITH HAND-HELD EQUIPMENT WHERE POSSIBLE AND THAT ALL VEHICLES BE KEPT OUT OF THE WETLAND TO PREVENT UNAUTHORIZED SOIL DISTURBANCE. DISTURBANCE OF 20-FOOT BUFFER NEAR THE 30' BUFFER SHALL BE MINIMIZED AND AVOIDED THROUGH THE USE OF SMALL RUBBER TRACKED EQUIPMENT.

2. THE PROPOSED PLANTING LOCATIONS WITHIN THE 25-FOOT SETBACK SHALL ALL BE STAKED ON-SITE. PLEASE INDICATE THE TREE OF PROTECTION TO BE PLANTED BY WRITING IT ON EACH STAKE.

3. PROPOSED PLANTING LOCATIONS SHALL BE APPROVED BY THE CITY OF NOVA LANDSCAPE ARCHITECT OR CITY ENVIRONMENTAL CONSULTANT PRIOR TO PLANTING. APPLICANT SHALL CALL FOR AN INSPECTION OF THE STAKED LOCATIONS AT LEAST 48-HOURS PRIOR TO THE PROPOSED PLANTING.



**REVISIONS**

NO.	DATE	DESCRIPTION
1	08/18/2017	ISSUE FOR PERMIT

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**BEZAK COMPANIES**  
3173 NORTHWESTERN HWY., SUITE 200W  
TROY, MI 48063-1872

**PRELIMINARY LANDSCAPE PLAN**  
PART OF THE NOVALEX  
CITY OF NOVA, OAKLAND COUNTY, MICHIGAN

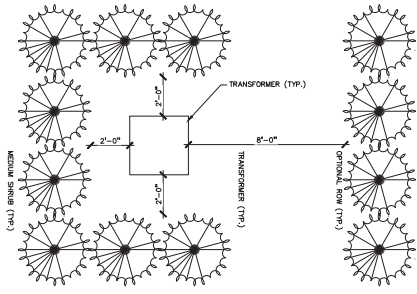
DES: LAW, DN, LAW, SUR, KR, P, M, JTS  
DWS, LAW, DN, LAW, SUR, KR, P, M, JTS

ORIGINAL ISSUE DATE: AUGUST 18, 2017  
PEA JOB NO: 2015-298  
SCALE: 1" = 50'  
DRAWING NUMBER: L-10.0

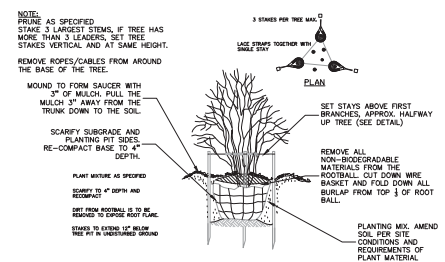
**HEATHER**

NOT FOR CONSTRUCTION

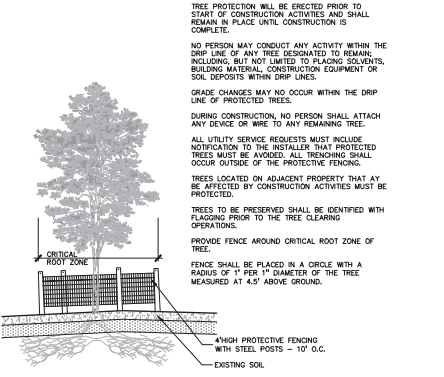




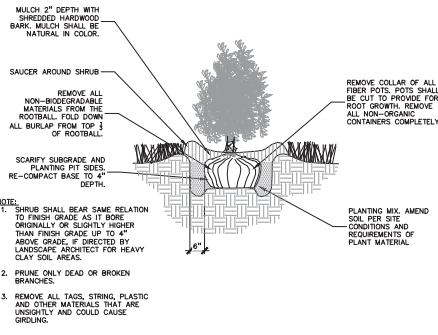
**9 TRANSFORMER SCREENING DETAIL**  
SCALE: 1" = 3'-0"



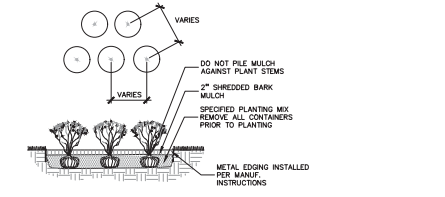
**6 MULTI-STEM TREE PLANTING DETAIL**  
SCALE: 1" = 2'-0"



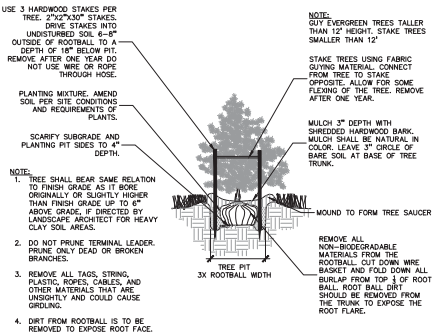
**3 TREE PROTECTION DETAIL**  
SCALE: 1" = 3'-0"



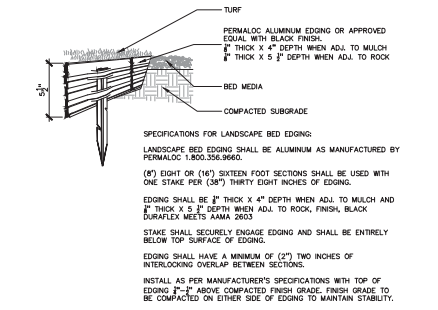
**8 SHRUB PLANTING DETAIL**  
SCALE: 1" = 2'-0"



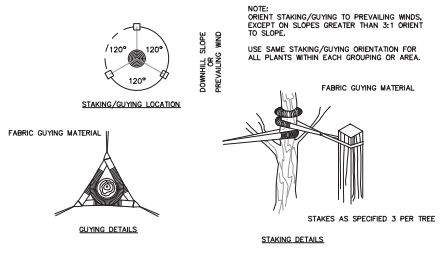
**5 PERENNIAL PLANTING DETAIL**  
SCALE: 1" = 2'-0"



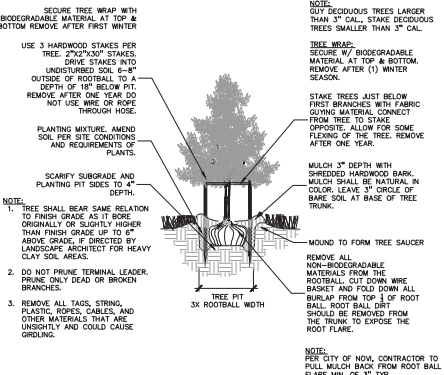
**2 EVERGREEN TREE PLANTING DETAIL**  
SCALE: 1" = 3'-0"



**7 ALUMINUM EDGE DETAIL**  
SCALE: 1/2" = 1'-0"



**4 TREE STAKING DETAIL**  
SCALE: 3/4" = 1'-0"



**1 DECIDUOUS TREE PLANTING DETAIL**  
SCALE: 1" = 3'-0"

**NOT FOR CONSTRUCTION**

**REVISIONS**

NO.	DATE	DESCRIPTION
1	10/11/17	ISSUE FOR PERMITS
2	10/11/17	ISSUE FOR PERMITS
3	10/11/17	ISSUE FOR PERMITS
4	10/11/17	ISSUE FOR PERMITS
5	10/11/17	ISSUE FOR PERMITS
6	10/11/17	ISSUE FOR PERMITS
7	10/11/17	ISSUE FOR PERMITS
8	10/11/17	ISSUE FOR PERMITS
9	10/11/17	ISSUE FOR PERMITS
10	10/11/17	ISSUE FOR PERMITS

**STATE OF MICHIGAN**  
**LYNN A. WHITFIELD**  
**LANDSCAPE ARCHITECT**  
**NO. 0000000000**

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**LANDSCAPE DETAILS**  
**NOVAPLEX**  
PART OF THE  
CITY OF NOY, OAKLAND COUNTY, MICHIGAN

DIST. LAW EN. LAW SUR. AR. JT  
DES. LAW EN. LAW SUR. AR. JT

ORIGINAL ISSUE DATE:  
AUGUST 18, 2017

PEA JOB NO. 2015-298

SCALE: SEE DWG

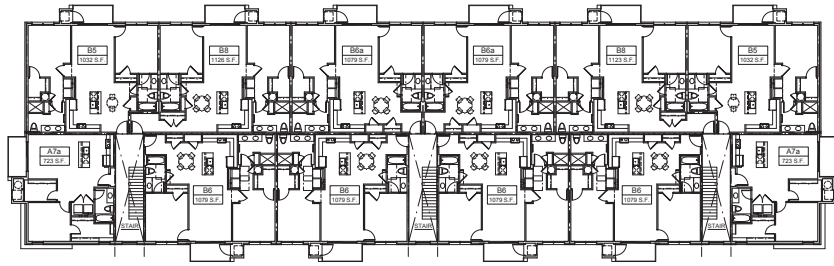
DRAWING NUMBER:  
**L-1.2**



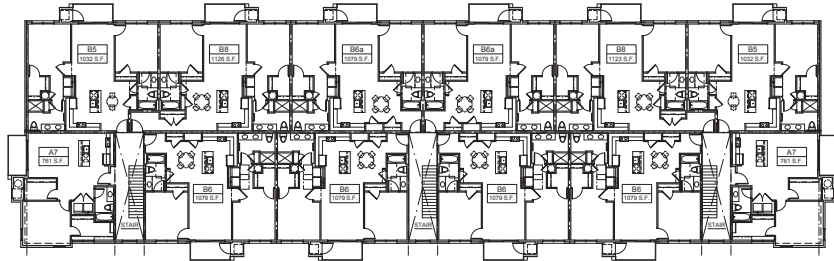


TAGNO	CODE	DBH	COMMON NAME	LATIN NAME	COND	COMMENT	EXEMPT?	SAVE/REMOVE	CRENTS	TAGNO	CODE	DBH	COMMON NAME	LATIN NAME	COND	COMMENT	EXEMPT?	SAVE/REMOVE	CRENTS
3301	WO	8	White Oak	Quercus alba	GOOD			SAVE		3488	SU	18	Sugar Maple	Acer saccharum	GOOD			SAVE	
3302	SU	21	Sugar Maple	Acer saccharum	FAIR			SAVE		3489	SM	19	Sliver Maple	Acer saccharum	GOOD			SAVE	
3303	WH	6	White Willow	Salix alba	GOOD		- EXEMPT-SIZE	SAVE		3490	SM	7	Tilia americana	Tilia americana	FAIR			REMOVE	
3304	AS	21	Quaking Aspen	Populus tremuloides	GOOD		- EXEMPT-SIZE	SAVE		3491	SM	19	Sliver Maple	Acer saccharum	POOR			REMOVE	
3305	SU	23	Sugar Maple	Acer saccharum	GOOD			SAVE		3492	S	13	Basswood	Tilia americana	GOOD			SAVE	
3306	SU	20	Sugar Maple	Acer saccharum	FAIR			SAVE		3493	RO	6	Red Oak	Quercus rubra	FAIR	X2	- EXEMPT-SIZE	SAVE	
3307	SU	17	Sugar Maple	Acer saccharum	FAIR			SAVE		3494	BE	16	American Beech	Fagus grandifolia	GOOD			SAVE	
3308	SU	18	Sugar Maple	Acer saccharum	GOOD			SAVE		3495	BE	22	American Beech	Fagus grandifolia	GOOD			SAVE	
3309	B	9	Basswood	Tilia americana	GOOD			SAVE		3496	I	8	Ironwood	Ostrya virginiana	GOOD			SAVE	
3310	SU	21	Sugar Maple	Acer saccharum	FAIR			SAVE		3497	BE	15	American Beech	Fagus grandifolia	GOOD			SAVE	
3311	SU	16	Sugar Maple	Acer saccharum	GOOD			SAVE		3498	SU	13	Sugar Maple	Acer saccharum	GOOD			SAVE	
3312	SU	11	Sugar Maple	Acer saccharum	FAIR			SAVE		3499	BE	23	American Beech	Fagus grandifolia	GOOD			SAVE	
3313	SU	17	Sugar Maple	Acer saccharum	FAIR			SAVE		3500	SM	19	Sliver Maple	Acer saccharum	GOOD			SAVE	
3314	SU	13	Sugar Maple	Acer saccharum	FAIR			SAVE		3501	SU	22	Sugar Maple	Acer saccharum	GOOD			SAVE	
3315	SU	16	Sugar Maple	Acer saccharum	FAIR			SAVE		3502	RO	7	Red Oak	Quercus rubra	POOR			REMOVE	1
3316	RO	14	Red Oak	Quercus rubra	POOR		EXEMPT-COOND.	SAVE		3503	SU	11	Sugar Maple	Acer saccharum	POOR			REMOVE	1
3317	SU	14	Sugar Maple	Acer saccharum	GOOD			SAVE		3504	BE	11	American Beech	Fagus grandifolia	POOR			REMOVE	1
3318	BE	18	American Beech	Fagus grandifolia	GOOD			SAVE		3505	SU	6	Sugar Maple	Acer saccharum	GOOD			REMOVE	1
3319	BE	25	American Beech	Fagus grandifolia	GOOD			SAVE		3506	SU	13	Sliver Maple	Acer saccharum	GOOD			REMOVE/EXEMPT-COOND.	
3320	BE	18	American Beech	Fagus grandifolia	GOOD			SAVE		3507	SU	9	Sugar Maple	Acer saccharum	FAIR			REMOVE	1
3321	BE	8	American Beech	Fagus grandifolia	GOOD			SAVE		3508	BE	16	American Beech	Fagus grandifolia	POOR			REMOVE	1
3322	BE	19	American Beech	Fagus grandifolia	GOOD			SAVE		3509	B	6	Basswood	Tilia americana	GOOD			REMOVE/EXEMPT-SIZE	
3323	SU	14	Sugar Maple	Acer saccharum	GOOD			SAVE		3510	SM	10	Sliver Maple	Acer saccharum	GOOD			REMOVE/EXEMPT-SIZE	
3324	BE	22	American Beech	Fagus grandifolia	POOR		EXEMPT-COOND.	SAVE		3511	SM	10	Sliver Maple	Acer saccharum	GOOD			REMOVE/EXEMPT-SIZE	
3325	BE	8	American Beech	Fagus grandifolia	POOR		- EXEMPT-SIZE	SAVE		3512	SM	8	Sliver Maple	Acer saccharum	GOOD			REMOVE/EXEMPT-SIZE	
3326	BE	29	American Beech	Fagus grandifolia	GOOD			SAVE		3513	SM	6	Sliver Maple	Acer saccharum	POOR			REMOVE	2
3327	RO	8	Red Oak	Quercus rubra	FAIR		- EXEMPT-SIZE	SAVE		3514	SM	10	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3328	RO	8	Red Oak	Quercus rubra	GOOD			SAVE		3515	SM	20	Sugar Maple	Acer saccharum	FAIR			REMOVE	2
3329	RO	12	Red Oak	Quercus rubra	FAIR		- EXEMPT-SIZE	SAVE		3516	SM	20	Sugar Maple	Acer saccharum	FAIR			REMOVE	2
3330	RO	12	Red Oak	Quercus rubra	FAIR			SAVE		3517	SM	20	Sugar Maple	Acer saccharum	FAIR			REMOVE	2
3331	RO	7	Red Oak	Quercus rubra	GOOD		- EXEMPT-SIZE	SAVE		3518	SM	11	Sliver Maple	Acer saccharum	GOOD	X2		REMOVE	2
3332	SM	11	Sliver Maple	Acer saccharum	GOOD			SAVE		3519	SM	7	Bliternus Hickory	Carya cordifolia	GOOD	X2	- EXEMPT-SIZE		
3333	BE	28	American Beech	Fagus grandifolia	GOOD			SAVE		3520	WH	7	Bliternus Hickory	Carya cordifolia	GOOD			REMOVE	2
3334	BE	14	American Beech	Fagus grandifolia	GOOD			SAVE		3521	WH	8	White Oak	Quercus alba	GOOD			REMOVE	2
3335	SU	24	Sugar Maple	Acer saccharum	GOOD			SAVE		3522	WH	8	White Oak	Quercus alba	GOOD			REMOVE	2
3336	RO	16	Red Oak	Quercus rubra	FAIR			SAVE		3523	WH	8	White Oak	Quercus alba	GOOD			REMOVE	2
3337	RO	14	Red Oak	Quercus rubra	FAIR			SAVE		3524	SM	14	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3338	BE	8	American Beech	Fagus grandifolia	GOOD			SAVE		3525	SM	12	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3339	B	8	Basswood	Tilia americana	FAIR			SAVE		3526	SM	12	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3340	SU	11	Sugar Maple	Acer saccharum	FAIR			SAVE		3527	SM	14	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3341	RO	11	Red Oak	Quercus rubra	POOR		EXEMPT-COOND.	SAVE		3528	SM	14	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3342	RO	6	Red Oak	Quercus rubra	POOR		- EXEMPT-SIZE	SAVE		3529	SM	13	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3343	RO	11	Red Oak	Quercus rubra	POOR		- EXEMPT-SIZE	SAVE		3530	SM	13	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3344	RO	8	Red Oak	Quercus rubra	POOR		- EXEMPT-SIZE	SAVE		3531	SM	13	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3345	RO	8	Red Oak	Quercus rubra	POOR		- EXEMPT-SIZE	SAVE		3532	SM	9	Sliver Maple	Acer saccharum	POOR			REMOVE	2
3346	SM	14	Sliver Maple	Acer saccharum	GOOD			SAVE		3533	SM	11	Sliver Maple	Acer saccharum	POOR			REMOVE	2
3347	BE	22	American Beech	Fagus grandifolia	GOOD			SAVE		3534	SM	12	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3348	BE	22	American Beech	Fagus grandifolia	POOR		EXEMPT-COOND.	SAVE		3535	B	13	Basswood	Tilia americana	GOOD			REMOVE	2
3349	CT	7	Cottonwood	Populus deltoides	POOR		- EXEMPT-SIZE	SAVE		3536	SM	18	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3350	RO	9	Red Oak	Quercus rubra	GOOD			SAVE		3537	SU	16	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3351	RO	12	Red Oak	Quercus rubra	GOOD		- EXEMPT-SIZE	SAVE		3538	SU	12	Sliver Maple	Acer saccharum	GOOD			REMOVE	2
3352	RO	7	Red Oak	Quercus rubra	GOOD		- EXEMPT-SIZE	SAVE		3539	BE	12	American Beech	Fagus grandifolia	GOOD			REMOVE	2
3353	SU	16	Sugar Maple	Acer saccharum	POOR		EXEMPT-COOND.	SAVE		3540	RO	12	Red Oak	Quercus rubra	GOOD			REMOVE	2
3354	BE	15	American Beech	Fagus grandifolia	GOOD			SAVE		3541	SM	22	American Beech	Fagus grandifolia	GOOD			REMOVE	2
3355	BE	8	American Beech	Fagus grandifolia	GOOD			SAVE		3542	SM	19	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3356	BE	22	American Beech	Fagus grandifolia	GOOD			SAVE		3543	SU	21	American Beech	Fagus grandifolia	GOOD			REMOVE	2
3357	BE	22	American Beech	Fagus grandifolia	GOOD			SAVE		3544	SU	19	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3358	SU	20	Sugar Maple	Acer saccharum	POOR		EXEMPT-COOND.	SAVE		3545	BE	23	American Beech	Fagus grandifolia	POOR	X2	EXEMPT-COOND.		
3359	B	14	Basswood	Tilia americana	GOOD			SAVE		3546	BE	19	American Beech	Fagus grandifolia	GOOD			REMOVE	2
3360	B	8	Basswood	Tilia americana	GOOD			SAVE		3547	BE	23	American Beech	Fagus grandifolia	GOOD			REMOVE	2
3361	SU	13	Sugar Maple	Acer saccharum	GOOD			SAVE		3548	RO	15	Red Oak	Quercus rubra	GOOD			REMOVE	2
3362	SU	19	Sugar Maple	Acer saccharum	GOOD			SAVE		3549	RO	8	Red Oak	Quercus rubra	GOOD			REMOVE	2
3363	BE	24	American Beech	Fagus grandifolia	FAIR			SAVE		3550	SU	7	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3364	SU	19	Sugar Maple	Acer saccharum	FAIR			SAVE		3551	BE	9	American Beech	Fagus grandifolia	GOOD			REMOVE	2
3365	BE	24	American Beech	Fagus grandifolia	GOOD			SAVE		3552	BE	7	American Beech	Fagus grandifolia	GOOD			REMOVE	2
3366	BE	13	American Beech	Fagus grandifolia	FAIR		EXEMPT-COOND.	SAVE		3553	BE	10	American Beech	Fagus grandifolia	GOOD			REMOVE	2
3367	BE	16	American Beech	Fagus grandifolia	POOR			SAVE		3554	B	7	Basswood	Tilia americana	FAIR			REMOVE	2
3368	SU	24	Sugar Maple	Acer saccharum	GOOD			SAVE		3555	RO	14	Red Oak	Quercus rubra	GOOD			REMOVE	2
3369	BE	13	American Beech	Fagus grandifolia	GOOD			SAVE		3556	B	8	Basswood	Tilia americana	GOOD			REMOVE	2
3370	SU	12	Sugar Maple	Acer saccharum	GOOD			SAVE		3557	B	23	Basswood	Tilia americana	FAIR			REMOVE	2
3371	BE	24	American Beech	Fagus grandifolia	GOOD			SAVE		3558	SU	17	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3372	SU	22	Sugar Maple	Acer saccharum	GOOD			SAVE		3559	RO	14	Red Oak	Quercus rubra	GOOD			REMOVE	2
3373	SU	11	Sugar Maple	Acer saccharum	FAIR			SAVE		3560	SU	14	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3374	BE	19	American Beech	Fagus grandifolia	POOR		EXEMPT-COOND.	SAVE		3561	SU	9	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3375	BE	17	American Beech	Fagus grandifolia	GOOD			SAVE		3562	SU	19	Sugar Maple	Acer saccharum	GOOD			REMOVE	2
3376	BE	27	American Beech	Fagus grandifolia	GOOD			SAVE		3563	SU	14	Sugar Maple	Acer saccharum	FAIR			REMOVE	2
3377	B	6	Basswood	Tilia americana	POOR		- EXEMPT-SIZE	SAVE		3564	B	14	Basswood	Tilia americana	GOOD			REMOVE	2
3378	CT	19	Cottonwood	Populus deltoides	GOOD			SAVE		3565	B	15	Basswood	Tilia americana	POOR			REMOVE	2
3379	CT																		

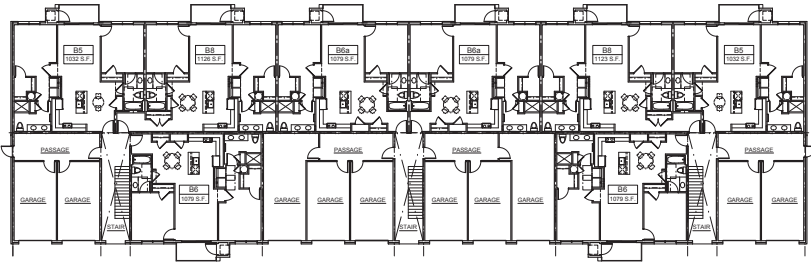
TAG NO.	CODE	DBH	COMMON NAME	LATIN NAME	COND	COMMENT	EXEMPT	SAVE	REMOVE	CREDIT	TAG NO.	CODE	DBH	COMMON NAME	LATIN NAME	COND	COMMENT	EXEMPT	SAVE	REMOVE	CREDIT	TAG NO.	CODE	DBH	COMMON NAME	LATIN NAME	COND	COMMENT	EXEMPT	SAVE	REMOVE	CREDIT	
3739	B	13	Basswood	Tilia americana	GOOD		-EXEMPT-SIZE	SAVE	-	-	3871	RD	10	Red Oak	Quercus rubra	GOOD			SAVE	-	-	3883	SU	18	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	
3740	B	13	Basswood	Tilia americana	GOOD		-EXEMPT-SIZE	SAVE	-	-	3872	SU	10	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	3884	SU	18	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	
3741	WD	7	White Oak	Quercus alba	GOOD		-EXEMPT-SIZE	SAVE	-	-	3873	RD	13	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	3885	SU	18	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	
3742	WD	11	White Oak	Quercus alba	GOOD		-EXEMPT-SIZE	SAVE	-	-	3874	RD	14	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	3886	SU	24	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	
3743	SM	12	Silver Maple	Acer saccharinum	POOR	X2	EXEMPT-COHD.	SAVE	-	-	3875	RD	8	American Beech	Fagus grandifolia	GOOD			SAVE	-	-	3887	BE	25	American Beech	Fagus grandifolia	GOOD			SAVE	-	-	
3744	SM	7	Silver Maple	Acer saccharinum	POOR		-EXEMPT-SIZE	SAVE	-	-	3876	SU	12	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	3888	BE	11	American Beech	Fagus grandifolia	GOOD			SAVE	-	-	
3745	SM	11	Silver Maple	Acer saccharinum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3877	SU	6	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	3889	BE	22	American Beech	Fagus grandifolia	GOOD			SAVE	-	-	
3746	B	11	Basswood	Tilia americana	POOR		-EXEMPT-SIZE	SAVE	-	-	3878	RD	16	Red Oak	Quercus rubra	GOOD			SAVE	-	-	3890	B	6	Basswood	Tilia americana	POOR			SAVE	-	-	
3747	RD	15	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3879	SU	9	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	3891	B	9	Basswood	Tilia americana	POOR			SAVE	-	-	
3748	RD	16	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3880	RD	10	Red Oak	Quercus rubra	GOOD			SAVE	-	-	3892	B	7	Basswood	Tilia americana	POOR			SAVE	-	-	
3749	RD	7	Red Oak	Quercus rubra	FAIR		-EXEMPT-SIZE	SAVE	-	-	3881	RD	13	Red Oak	Quercus rubra	GOOD			SAVE	-	-	3893	B	21	Basswood	Tilia americana	FAIR			SAVE	-	-	
3750	RD	15	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3882	SU	6	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	3894	B	6	Basswood	Tilia americana	POOR			SAVE	-	-	
3751	B	6	Basswood	Tilia americana	POOR		-EXEMPT-SIZE	SAVE	-	-	3883	RD	11	Sugar Maple	Acer saccharum	FAIR			SAVE	-	-	3895	B	8	Basswood	Tilia americana	FAIR			SAVE	-	-	
3752	RD	17	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3884	SU	9	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	3896	SU	18	Sugar Maple	Acer saccharum	POOR			EXEMPT-COHD.	SAVE	-	-
3753	RD	13	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3885	RD	8	Red Oak	Quercus rubra	GOOD			SAVE	-	-	3897	SU	18	Sugar Maple	Acer saccharum	POOR			EXEMPT-COHD.	SAVE	-	-
3754	RD	6	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3886	RD	7	Red Oak	Quercus rubra	GOOD			SAVE	-	-	3898	SU	13	Sugar Maple	Acer saccharum	GOOD			SAVE	-	-	
3755	SU	4	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3887	SM	14	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-	3899	SU	6	Sugar Maple	Acer saccharum	POOR	X2	EXEMPT-COHD.	SAVE	-	-	
3756	RD	8	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3888	SM	11	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-	4000	SU	7	Sugar Maple	Acer saccharum	POOR			-EXEMPT-SIZE	SAVE	-	-
3757	RD	12	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3889	SM	12	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3758	SU	18	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3890	SM	14	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3759	SU	22	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3891	RD	15	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3760	SU	8	Sugar Maple	Acer saccharum	POOR		-EXEMPT-SIZE	SAVE	-	-	3892	RD	8	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3761	RD	18	Red Oak	Quercus rubra	FAIR		-EXEMPT-SIZE	SAVE	-	-	3893	SM	7	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3762	RD	12	Red Oak	Quercus rubra	FAIR		-EXEMPT-SIZE	SAVE	-	-	3894	SM	8	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3763	SU	14	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3895	SM	9	Silver Maple	Acer saccharinum	FAIR			SAVE	-	-												
3764	SU	6	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3896	CT	14	Cottonwood	Populus deltoides	GOOD			SAVE	-	-												
3765	SU	14	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3897	SM	7	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3766	BE	12	American Beech	Fagus grandifolia	GOOD		-EXEMPT-SIZE	SAVE	-	-	3898	SM	7	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3767	SU	17	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3899	SM	11	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3768	SU	15	Sugar Maple	Acer saccharum	FAIR		-EXEMPT-SIZE	SAVE	-	-	3900	SM	9	Silver Maple	Acer saccharinum	FAIR			SAVE	-	-												
3769	RD	17	Red Oak	Quercus rubra	FAIR		-EXEMPT-SIZE	SAVE	-	-	3901	CT	20	Cottonwood	Populus deltoides	GOOD			SAVE	-	-												
3800	MH	12	Blarney History	Carya cordifolia	GOOD		-EXEMPT-SIZE	SAVE	-	-	3902	SM	7	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3801	SU	12	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3903	RD	9	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3802	RD	19	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3904	B	10	Basswood	Tilia americana	GOOD			SAVE	-	-												
3803	B	8	Basswood	Tilia americana	FAIR		-EXEMPT-SIZE	SAVE	-	-	3905	RD	8	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3804	SU	18	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3906	RD	10	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3805	RD	18	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3907	RD	8	Red Oak	Quercus rubra	FAIR			SAVE	-	-												
3806	SU	8	Basswood	Tilia americana	POOR		-EXEMPT-SIZE	SAVE	-	-	3908	RD	7	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3807	SU	12	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3909	RD	7	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3808	SU	15	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3910	B	7	Basswood	Tilia americana	GOOD			SAVE	-	-												
3809	SU	18	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3911	B	10	Basswood	Tilia americana	GOOD			SAVE	-	-												
3810	B	12	Basswood	Tilia americana	GOOD		-EXEMPT-SIZE	SAVE	-	-	3912	RD	8	Red Oak	Quercus rubra	FAIR			SAVE	-	-												
3811	SU	17	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3913	RD	7	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3812	SU	20	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3914	B	7	Basswood	Tilia americana	GOOD			SAVE	-	-												
3813	SU	14	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3915	B	7	Basswood	Tilia americana	GOOD			SAVE	-	-												
3814	SU	7	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3916	B	5	Basswood	Tilia americana	GOOD			SAVE	-	-												
3815	SU	12	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3917	SM	8	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3816	BE	24	American Beech	Fagus grandifolia	GOOD		-EXEMPT-SIZE	SAVE	-	-	3918	SM	8	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3817	RD	23	Red Oak	Quercus rubra	GOOD		-EXEMPT-SIZE	SAVE	-	-	3919	RD	21	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3818	MH	7	Blarney History	Carya cordifolia	GOOD		-EXEMPT-SIZE	SAVE	-	-	3920	RD	17	Red Oak	Quercus rubra	GOOD			SAVE	-	-												
3819	SU	22	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3921	SM	10	Silver Maple	Acer saccharinum	GOOD			SAVE	-	-												
3820	SU	12	Sugar Maple	Acer saccharum	GOOD		-EXEMPT-SIZE	SAVE	-	-	3922	SU																					



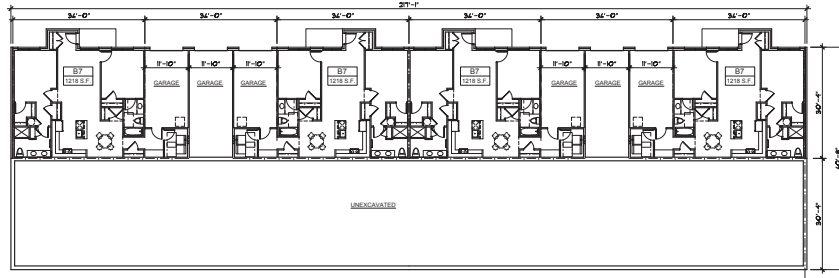
THIRD FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

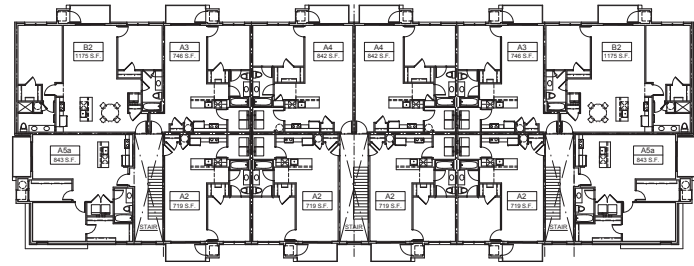


WALK-OUT LEVEL PLAN

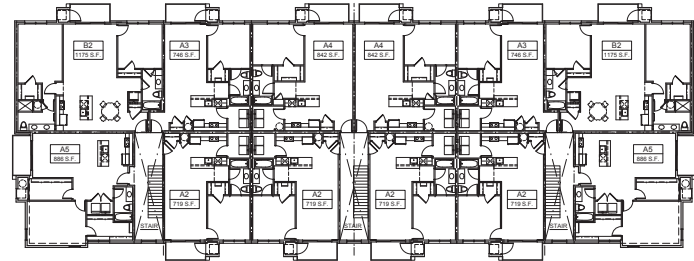
**BUILDING 250**

(2) BUILDING 250'S ON-SITE  
BUILDINGS WILL STEP TO FOLLOW FINAL GRADE - SEE CIVIL DRAWINGS

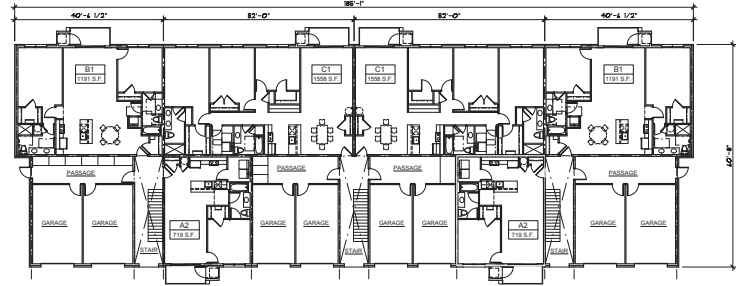
SCALE: 1/16" = 1'-0"



THIRD FLOOR PLAN



SECOND FLOOR PLAN



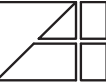
FIRST FLOOR PLAN

**BUILDING 100**

(2) BUILDING 100'S ON-SITE

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

PROPOSED UNIT MIX			FOR OVERALL SITE
1 BEDROOM UNITS	2 BEDROOM UNITS	3 BEDROOM UNITS	
36% +/-	55%	9%	



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NOVAPLEX  
BLDG. 100 & 250 PLANS

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01-31-20

PERMITS

CONSTRUCTION

DESIGNED BY

AMM

CAD FILENAME

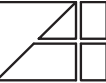
BEZTAK-NOV...

CHECKED BY

1909

SHEET NUMBER

A1



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NOVAPLEX  
BEZTAK PROPERTIES  
NOVI, MICHIGAN

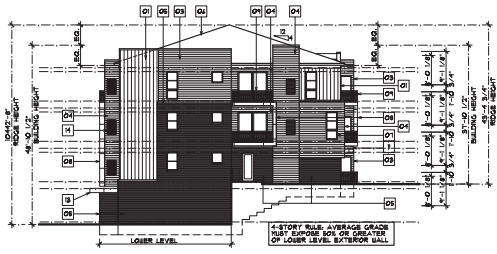
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NOVAPLEX  
BEZTAK PROPERTIES  
NOVI, MICHIGAN

NOVAPLEX  
BEZTAK PROPERTIES  
NOVI, MICHIGAN

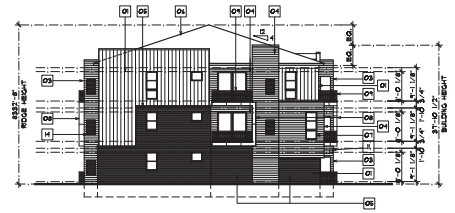
NOVAPLEX  
BEZTAK PROPERTIES  
NOVI, MICHIGAN

NOVAPLEX  
BEZTAK PROPERTIES  
NOVI, MICHIGAN



**LEFT SIDE ELEVATION BLDG 250**  
RIGHT SIDE SIM. / OPP. HAND  
SCALE: 1/16" = 1'-0"

- COLOR AND MATERIAL KEYNOTES**
- 1 VERTICAL SIDING, WOOD-GRAIN  
SHIMON WILLIAMS 6" X 12" HIGH  
REFLECTIVE WHITE
  - 2 VERTICAL SIDING, WOOD-GRAIN  
SHIMON WILLIAMS 6" X 12" HIGH  
REFLECTIVE WHITE
  - 3 HORIZONTAL SIDING, WOOD-GRAIN  
SHIMON WILLIAMS 6" X 12" HIGH  
REFLECTIVE WHITE
  - 4 HORIZONTAL SIDING, WOOD-GRAIN  
SHIMON WILLIAMS 6" X 12" HIGH  
REFLECTIVE WHITE
  - 5 HORIZONTAL SIDING, WOOD-GRAIN  
SHIMON WILLIAMS 6" X 12" HIGH  
REFLECTIVE WHITE
  - 6 BRICK - GENERAL SHALE BOWENSTON  
CHERRY SAGE VELVET
  - 7 ASPHALT SHINGLES  
CERTAINTED LANDMARK  
GEORGTOWN GREY
  - 8 WINDOW/DOOR FRAMES  
BLACK
  - 9 METAL FACED CANTILEVERED  
BALCONY FRAMES - SHIMON WILLIAMS  
6" X 12" HIGH REFLECTIVE WHITE
  - 10 METAL RAILING  
BLACK
  - 11 GARAGE DOOR - SHIMON WILLIAMS 6" X  
12" HIGH REFLECTIVE WHITE
  - 12 METAL FACED CANTILEVERED ENTRY  
CANOPY - SHIMON WILLIAMS 6" X 12"  
HIGH REFLECTIVE WHITE
  - 13 OPEN METAL GRILLE AT STAIR  
BLACK
  - 14 METAL FACED ROOF OVERHANG AT  
STAIRS - SHIMON WILLIAMS 6" X 12"  
HIGH REFLECTIVE WHITE
  - 15 MECHANICAL VENT



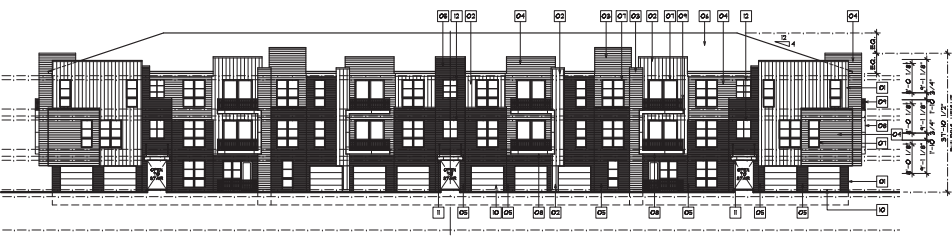
**LEFT SIDE ELEVATION BLDG 100**  
RIGHT SIDE SIM./OPP. HAND  
SCALE: 1/16" = 1'-0"



**REAR ELEVATION BUILDING 250**  
BUILDINGS WILL STEP TO FOLLOW FINAL GRADE - SEE CIVIL DRAWINGS  
SCALE: 1/16" = 1'-0"



**REAR ELEVATION BUILDING 100**  
SCALE: 1/16" = 1'-0"



**FRONT ELEVATION BUILDING 250**  
BUILDINGS WILL STEP TO FOLLOW FINAL GRADE - SEE CIVIL DRAWINGS  
SCALE: 1/16" = 1'-0"



**FRONT ELEVATION BUILDING 100**  
SCALE: 1/16" = 1'-0"

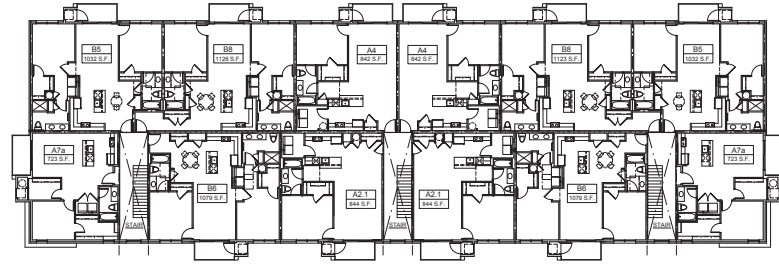
MATERIALS	1/2 REAR	1 SIDE	1/2 FRONT	BUILDING 250 AVERAGED
B R I C K 30% to 100%	1124 30%	800 33%	490 30%	31% B R I C K
*SIDING, VERTICAL 25% MAX	410 14%	445 19%	715 21%	19% *SIDING, VERTICAL
SIDING, HORIZONTAL 50% MAX	104 30%	830 35%	783 24%	30% SIDING, HORIZONTAL
ASPHALT SHINGLES 50% MAX	763 21%	205 9%	748 22%	17% ASPHALT SHINGLES
METAL 50% MAX	14 3%	413 100%	87 3%	3% METAL
	3722 100%	2384 100%	3323 100%	100%

\*SIDING, VERTICAL = PATTERNED ACCENT

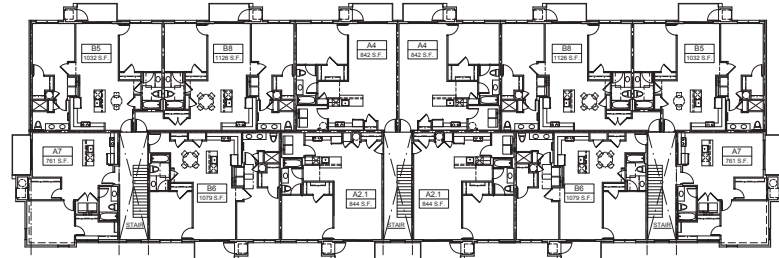
MATERIALS	1/2 REAR	1 SIDE	1/2 FRONT	BUILDING 100 AVERAGED
B R I C K 30% to 100%	780 30%	498 31%	897 30%	30% B R I C K
*SIDING, VERTICAL 25% MAX	444 17%	411 27%	400 22%	22% *SIDING, VERTICAL
SIDING, HORIZONTAL 50% MAX	453 25%	440 28%	731 24%	24% SIDING, HORIZONTAL
ASPHALT SHINGLES 50% MAX	414 24%	205 9%	574 20%	18% ASPHALT SHINGLES
METAL 50% MAX	12 4%	14 1%	88 3%	4% METAL
	2407 100%	2249 100%	2832 100%	100%

\*SIDING, VERTICAL = PATTERNED ACCENT

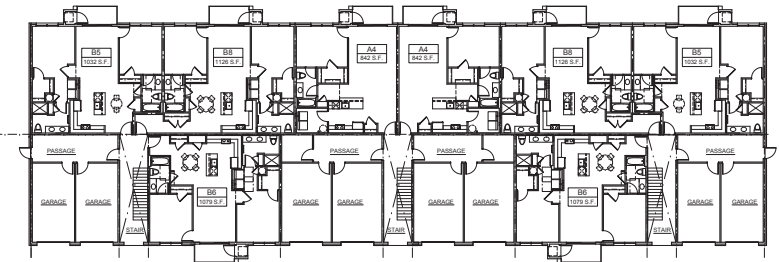




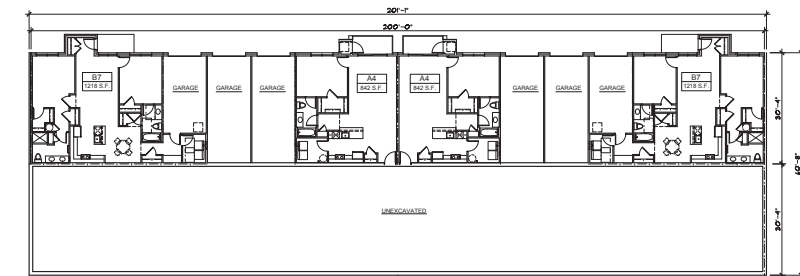
THIRD FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

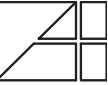


WALK-OUT LEVEL PLAN

**BUILDING 255**

(2) BUILDING 255 - ON-SITE  
 BUILDINGS WILL STEP TO FOLLOW FINAL GRADE - SEE CIVIL DRAWINGS

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



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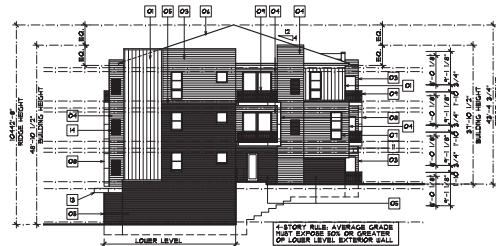
BLDG. 255 PLANS

NOVAPLEX  
 BEZTAK PROPERTIES  
 NOV. MICHIGAN

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 BEZTAK PROPERTIES  
 NOV. MICHIGAN

PRELIMINARY  
 07-24-19

DESIGNED BY  
 AMM  
 CAD FILENAME  
 BEZTAK-NOV...  
 CHECKED BY  
 JOB NUMBER  
 1909  
 DATE  
 SHEET NUMBER  
 A3



**LEFT SIDE ELEVATION** BLDG. 250  
RIGHT SIDE SIM. / OPP. HAND  
SCALE: 1/16" = 1'-0"

- COLOR AND MATERIAL KEYNOTES**
- 1 VERTICAL SIDING, WOOD-GRAIN  
SHERRIN WILLIAMS 60 1/2" HIGH  
REFLECTIVE WHITE
  - 2 VERTICAL SIDING, WOOD-GRAIN  
SHERRIN WILLIAMS 60 1/2" HIGH  
REFLECTIVE WHITE
  - 3 HORIZONTAL SIDING, WOOD-GRAIN  
SHERRIN WILLIAMS 60 1/2" HIGH  
REFLECTIVE WHITE
  - 4 HORIZONTAL SIDING, WOOD-GRAIN  
TEXTURED FIBROUS CONCRETE SIDING  
SHERRIN WILLIAMS 60 1/2" HIGH  
REFLECTIVE WHITE
  - 5 BRICK - GENERAL SMALL BOWERSTON  
CHERRY SAGE VELVET
  - 6 ASPHALT SHINGLES  
OPTANTERED LANDMARK  
GEORGETOWN GREY
  - 7 WINDOW/DOOR FRAMES  
BLACK
  - 8 METAL-FACED CANTILEVERED  
BALCONY FRAMES - SHERRIN WILLIAMS  
60 1/2" HIGH REFLECTIVE WHITE
  - 9 METAL SIDING  
BLACK
  - 10 GARAGE DOOR - SHERRIN WILLIAMS 60  
1/2" HIGH REFLECTIVE WHITE
  - 11 METAL-FACED CANTILEVERED ENTRY  
CANOPY - SHERRIN WILLIAMS 60 1/2"  
HIGH REFLECTIVE WHITE
  - 12 OPEN METAL GRILLE AT STAIR -  
BLACK
  - 13 METAL-FACED ROOF OVERHANG AT  
ENTRANCE - SHERRIN WILLIAMS 60 1/2"  
HIGH REFLECTIVE WHITE
  - 14 MECHANICAL VENT



**REAR ELEVATION** BUILDING 250  
BUILDINGS WILL STEP TO FOLLOW FINAL GRADE - SEE CIVIL DRAWINGS  
SCALE: 1/16" = 1'-0"



**FRONT ELEVATION** BUILDING 250  
BUILDINGS WILL STEP TO FOLLOW FINAL GRADE - SEE CIVIL DRAWINGS  
SCALE: 1/16" = 1'-0"

MATERIALS	1/2 REAR	1 SIDE	1/2 FRONT	BUILDING 250 AVERAGED BLDG. 255 SIMILAR
B R I C K 30% to 100%	1129 30%	800 33%	990 30%	3% B R I C K
*SIDING, VERTICAL 25% MAX	410 16%	445 18%	715 21%	1% *SIDING, VERTICAL
SIDING, HORIZONTAL 50% MAX	104 30%	830 35%	783 24%	30% SIDING, HORIZONTAL
ASPHALT SHINGLES 50% MAX	163 21%	205 9%	148 22%	17% ASPHALT SHINGLES
METAL 50% MAX	16 3%	1133(101) 4%	67 3%	3% METAL
	3122 100%	2384 100%	3323 100%	100%

\*SIDING, VERTICAL = PATTERNED ACCENT

NOTE:  
BUILDING 250 SHOWN FOR REFERENCE - 255 TO BE SIMILAR



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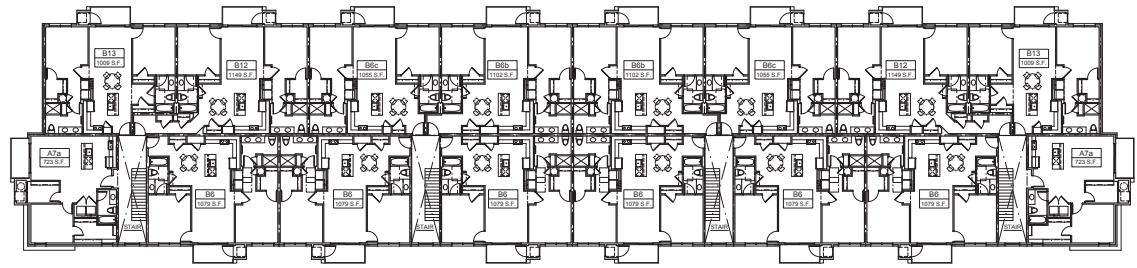
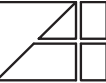
METAL ELEVATION

NOVAPLEX  
 BEZTAK PROPERTIES  
 NOVI, MICHIGAN

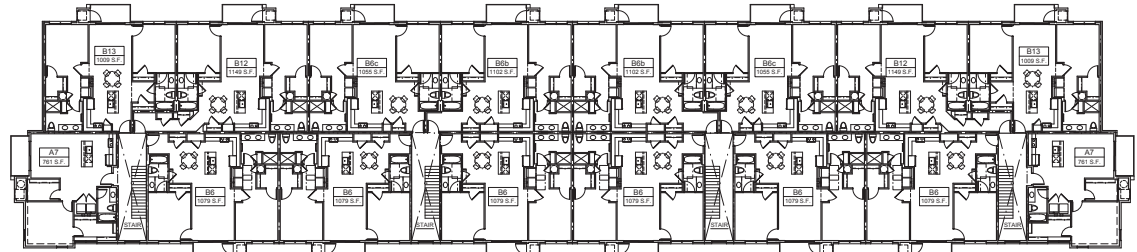
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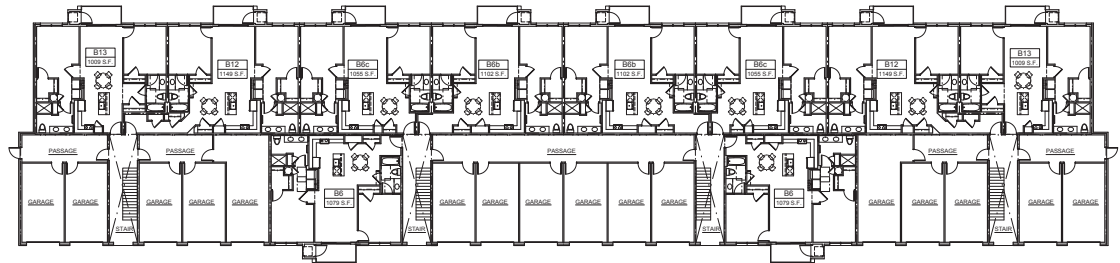




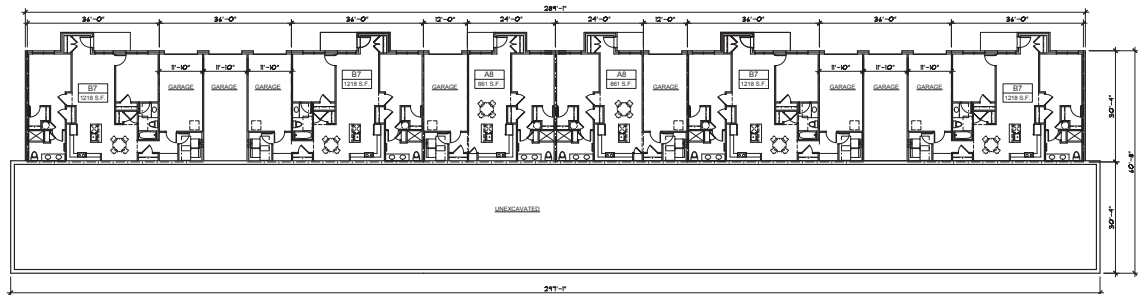
THIRD FLOOR PLAN



SECOND FLOOR PLAN



FIRST FLOOR PLAN

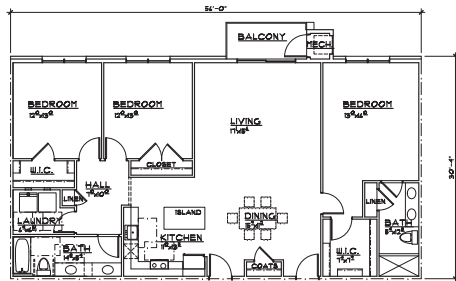


WALK-OUT LEVEL PLAN

**BUILDING 275**

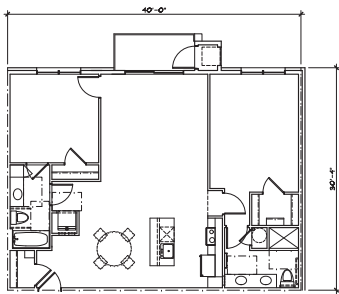
(1) BUILDING 275 ON-SITE

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



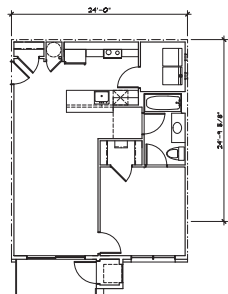
'C3' 3-BEDROOM UNIT

1678 S.F.  
SCALE: 1/8" = 1'-0"



'B1' 2-BEDROOM UNIT

1198 S.F.  
SCALE: 1/8" = 1'-0"



'A2' 1-BEDROOM UNIT

719 S.F.  
SCALE: 1/8" = 1'-0"

NOVAPLEX  
BEZTAK PROPERTIES  
NOV. MICHIGAN

NOVAPLEX  
BEZTAK PROPERTIES  
NOV. MICHIGAN

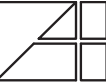
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BEZTAK PROPERTIES  
NOV. MICHIGAN

NOVAPLEX  
BEZTAK PROPERTIES  
NOV. MICHIGAN

NOVAPLEX  
BEZTAK PROPERTIES  
NOV. MICHIGAN

NOVAPLEX  
BEZTAK PROPERTIES  
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 BEZTAK PROPERTIES  
 NOVIL, MICHIGAN

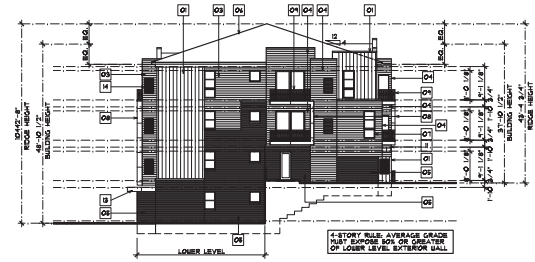
NOVAPLEX  
 BEZTAK PROPERTIES  
 NOVIL, MICHIGAN

NOVAPLEX  
 BEZTAK PROPERTIES  
 NOVIL, MICHIGAN

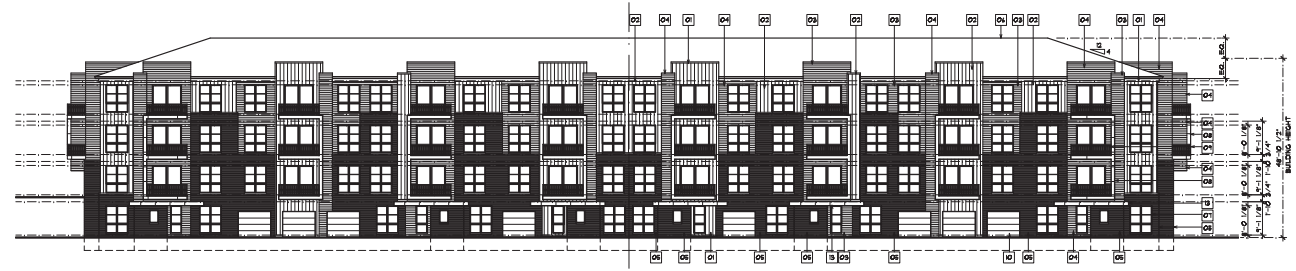
NOVAPLEX  
 BEZTAK PROPERTIES  
 NOVIL, MICHIGAN

COLOR AND MATERIAL KEYNOTES

- 01 VERTICAL SIDING, WOOD-GRAIN  
TEXTURED FINISH, CONCRETE SIDING  
SHERWIN WILLIAMS BU 7151  
"HIGH REFLECTIVE WHITE"
- 02 VERTICAL SIDING, WOOD-GRAIN  
TEXTURED FINISH, CONCRETE SIDING  
SHERWIN WILLIAMS BU 4248 "JUBILEE"
- 03 HORIZONTAL SIDING, 2000S-GRAIN  
TEXTURED FINISH, CONCRETE SIDING  
SHERWIN WILLIAMS BU 7151  
"HIGH REFLECTIVE WHITE"
- 04 HORIZONTAL SIDING, WOOD-GRAIN  
TEXTURED FINISH, 2000S-GRADE  
SIDING SHERWIN WILLIAMS BU 4248 "JUBILEE"
- 05 BRICK - GENERAL SHALE SOBERSTON  
"DESERT SAGE 'VELVET'"
- 06 ASPHALT SHINGLES  
"CORONA/STAIN"
- 07 BRICK - GENERAL SHALE SOBERSTON  
"CORONA/STAIN"
- 08 METAL-PAVED CANTILEVERED  
BALCONY FRAMES - SHERWIN WILLIAMS  
BU 7151 "HIGH REFLECTIVE WHITE"
- 09 METAL RAILING  
"BLACK"
- 10 GARAGE DOOR - SHERWIN WILLIAMS BU  
7151 "HIGH REFLECTIVE WHITE"
- 11 METAL-PAVED CANTILEVERED ENTRY  
CANOPY - SHERWIN WILLIAMS BU 7151  
"HIGH REFLECTIVE WHITE"
- 12 OPEN METAL GRILLE AT STAIR -  
"BLACK"
- 13 METAL-PAVED ROOF OVERHANG AT  
VESTIBULE - SHERWIN WILLIAMS BU 7151  
"HIGH REFLECTIVE WHITE"
- 14 MECHANICAL VENT



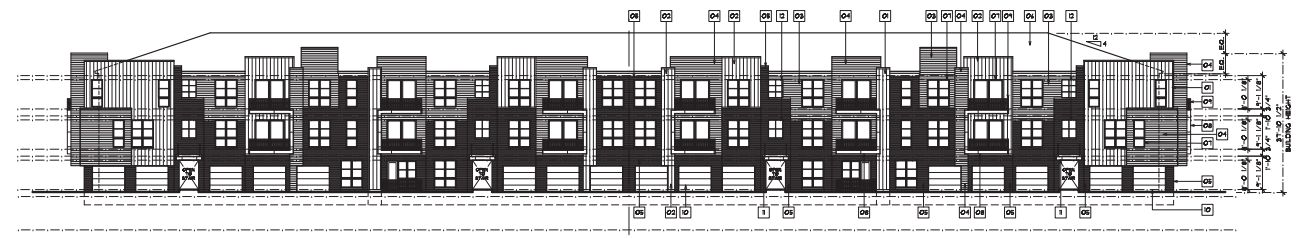
LEFT SIDE ELEVATION BLDG 275  
 RIGHT SIDE SIM. / OPP. HAND  
 SCALE: 1/16" = 1'-0"



REAR ELEVATION

BUILDING 275

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



FRONT ELEVATION

BUILDING 275

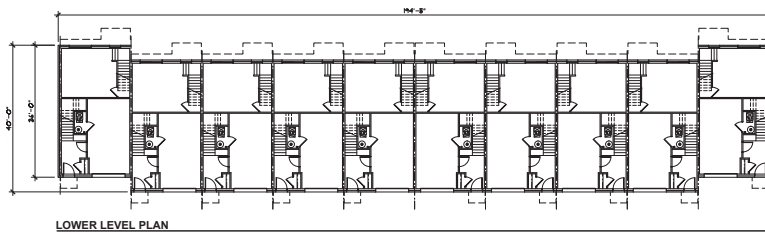
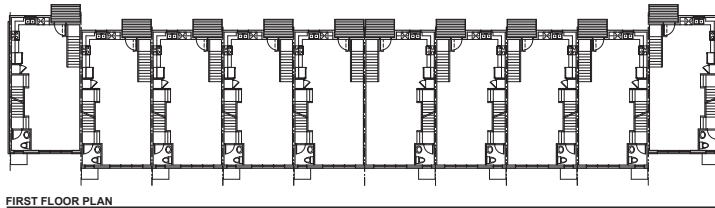
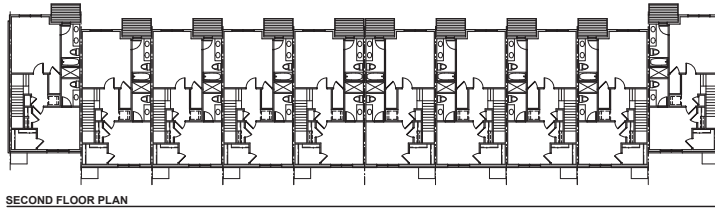
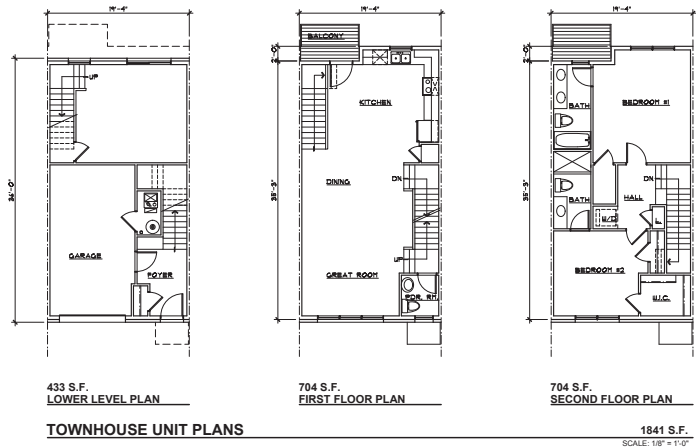
SCALE: 1/16" = 1'-0"

MATERIALS	1/2 REAR	1 SIDE	1/2 FRONT	BUILDING 275 AVERAGED
BRICK 30% to 100%	1580 30%	800 31%	1320 30%	30% BRICK
*SIDING, VERTICAL 25% MAX	923 17%	520 21%	851 19%	14% *SIDING, VERTICAL
SIDING, HORIZONTAL 50% MAX	1284 24%	871 34%	1044 24%	28% SIDING, HORIZONTAL
ASPHALT SHINGLES 50% MAX	1190 23%	240 10%	1050 24%	1% ASPHALT SHINGLES
METAL 50% MAX	312 4%	413(2)(04) 4%	125 2%	4% METAL
	5291 100%	2547 100%	4418 100%	100%

\*SIDING, VERTICAL = PATTERNED ACCENT







**10-UNIT TOWNHOUSE** **BUILDING 300**  
 BUILDINGS WILL STEP TO FOLLOW FINAL GRADE - SEE CIVIL DRAWINGS  
 SCALE: 1/16" = 1'-0"



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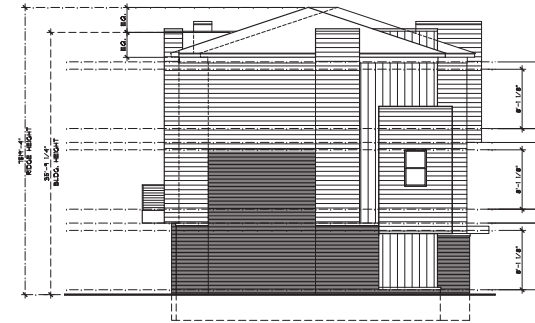
NOVAPLEX  
BEZTAK PROPERTIES  
NOVI, MICHIGAN

TOWNHOUSE PLANS

MATERIALS	1/2 REAR		1 SIDE		1/2 FRONT		BUILDING 300 AVERAGED	
BRICK 30% to 100%	453	30%	830	30%	31%	BRICK		
*SIDING, VERTICAL 25% MAX	512	19%	500	18%	14%	*SIDING, VERTICAL		
SIDING, HORIZONTAL 50% MAX	151	31%	1048	31%	91%	SIDING, HORIZONTAL		
ASPHALT SHINGLES 50% MAX	424	14%	403	14%	12%	ASPHALT SHINGLES		
METAL 50% MAX	120	4%	18	1%	2%	METAL		
	3021	100%	2621	100%	100%			

\*SIDING, VERTICAL = PATTERNED ACCENT

\*\*PANEL BRICK ABOVE CANTILEVERED BALCONIES



SIDE ELEVATION BUILDING 300

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

COLOR AND MATERIAL KEYNOTES

- 01 VERTICAL SIDING, WOOD-GRAIN TEXTURED THROUGH CONCRETE SIDING (SHERRIN GULLANS BU 129" JABLES) REFLECTIVE WHITE
- 02 VERTICAL SIDING, WOOD-GRAIN TEXTURED THROUGH CONCRETE SIDING (SHERRIN GULLANS BU 129" JABLES) REFLECTIVE WHITE
- 03 HORIZONTAL SIDING, WOOD-GRAIN (SHERRIN GULLANS BU 129" JABLES) REFLECTIVE WHITE
- 04 HORIZONTAL SIDING, WOOD-GRAIN (SHERRIN GULLANS BU 129" JABLES) REFLECTIVE WHITE
- 05 BRICK - GENERAL SHALE BOLEBRYTON (DEBERT SAGE VELVET)
- 06 ASPHALT SHINGLES (DEBERT SAGE VELVET)
- 07 METAL-FACED CANTILEVERED BALCONY FRAME - SHERRIN GULLANS BU 129" HIGH REFLECTIVE WHITE
- 08 METAL RAILING (BLACK)
- 09 GARAGE DOOR - SHERRIN GULLANS BU 129" HIGH REFLECTIVE WHITE
- 10 METAL-FACED CANTILEVERED ENTRY CANOPY - SHERRIN GULLANS BU 129" HIGH REFLECTIVE WHITE
- 11 OPEN METAL GRILLE AT STAIR - BLACK
- 12 METAL-FACED ROOF OVERHANG AT VERANDA - SHERRIN GULLANS BU 129" HIGH REFLECTIVE WHITE



REAR ELEVATION

BUILDING 300

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

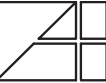


FRONT ELEVATION

BUILDING 300

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

NOTE: BUILDINGS WILL STEP TO FOLLOW FINAL GRADE - SEE CIVIL DRAWINGS



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NOVAPLEX  
ELEVATIONS - BLDG. 300  
TOWNHOUSES

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BEZTAK PROPERTIES  
NOVIL, MICHIGAN

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BEZTAK PROPERTIES

PRELIMINARY  
07-24-19

REVISIONS

CONSTRUCTION

PRO SUBMITTAL  
01-31-20

DESIGNED BY  
AMM

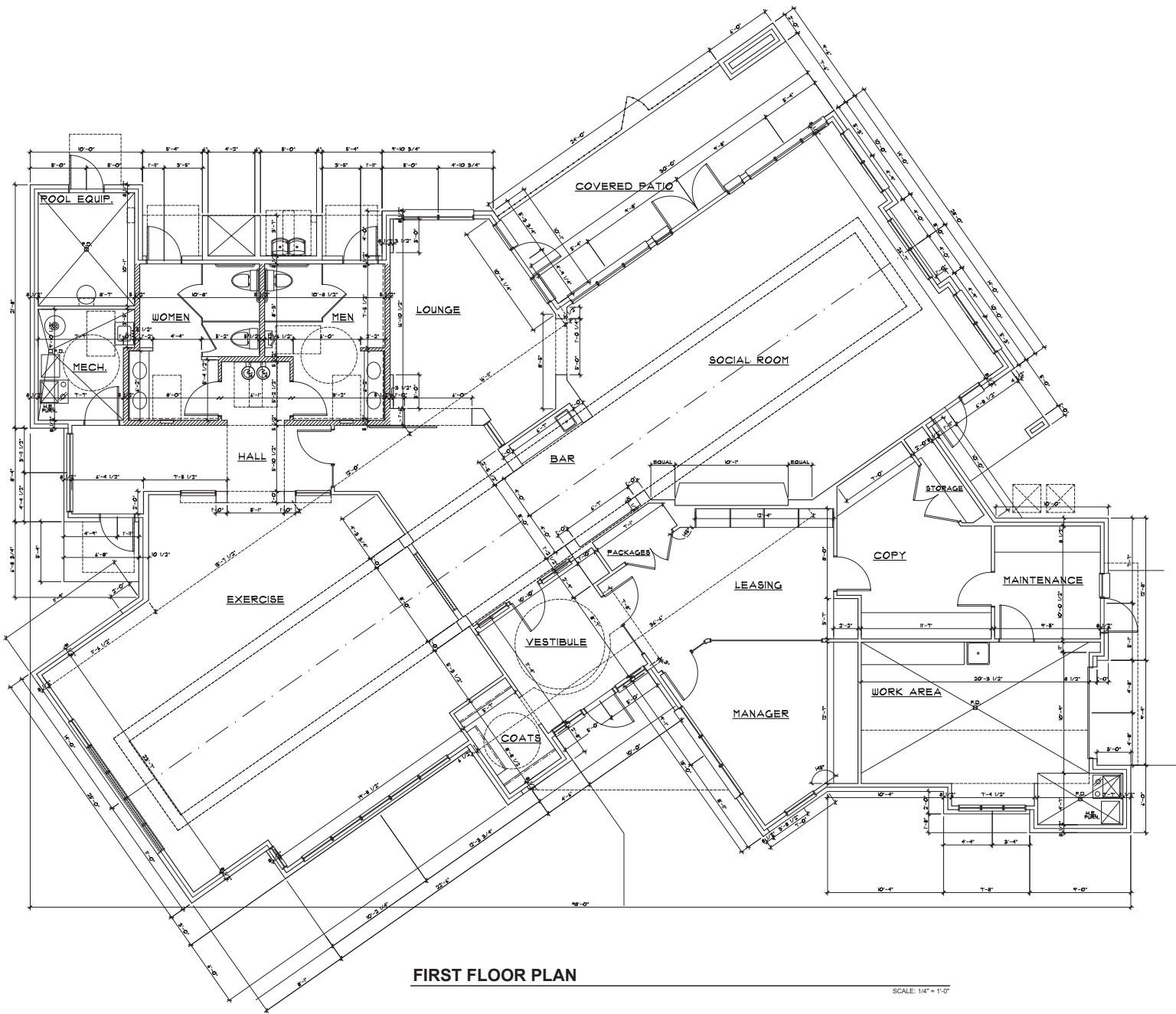
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BEZTAK-NOVIL

CHECKED BY

DATE  
1909

SHEET NUMBER  
AB





ALL INTERIOR PARTITION DIMENSIONS ARE 3/4" UNLESS NOTED OTHERWISE.

BEFORE CONSTRUCTION OBTAIN WINDOW & DOOR ROUGH OPENING SIZES FROM WINDOW/DOOR SUPPLIER.

DO NOT SCALE THESE DRAWINGS. USE CALCULATED DIMENSIONS. IF VARIATIONS OCCUR CONTACT ARCHITECT.

ALL METAL THRESHOLDS TO BE ADA COMPLIANT.



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NOVAPLEX  
 BESTAK PROPERTIES  
 COMMUNITY BUILDING  
 NOVI, MICHIGAN

NOVAPLEX  
 BESTAK PROPERTIES  
 COMMUNITY BUILDING  
 NOVI, MICHIGAN

NOVAPLEX  
 BESTAK PROPERTIES  
 COMMUNITY BUILDING  
 NOVI, MICHIGAN

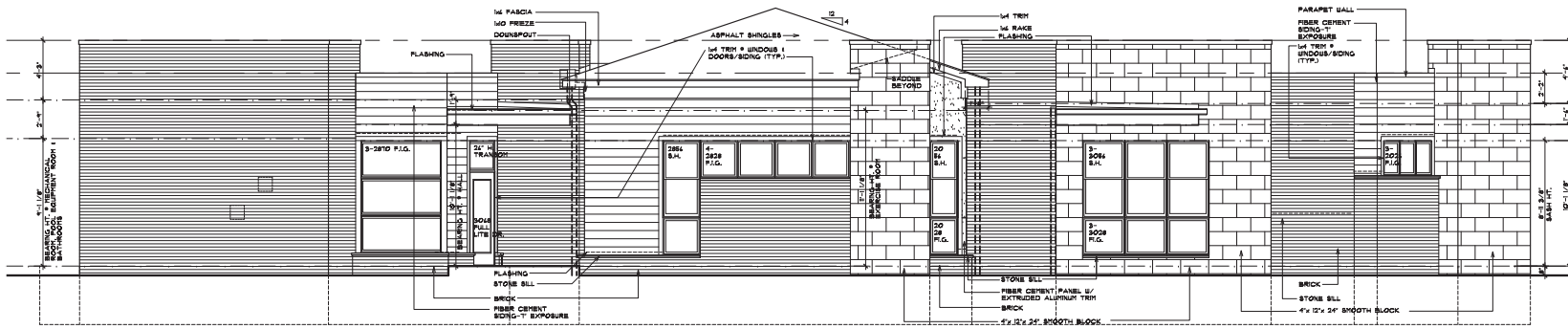
NOVAPLEX  
 BESTAK PROPERTIES  
 COMMUNITY BUILDING  
 NOVI, MICHIGAN

**FIRST FLOOR PLAN**

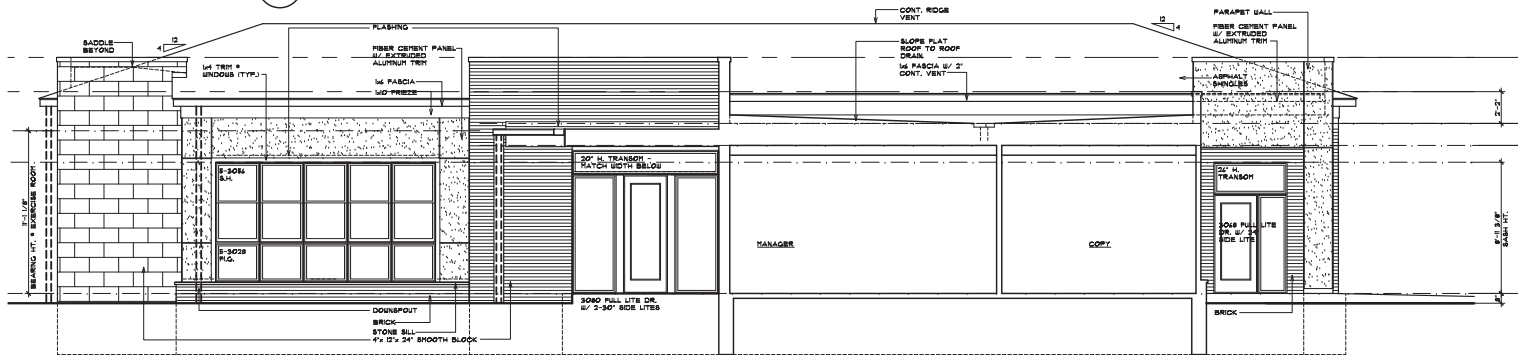
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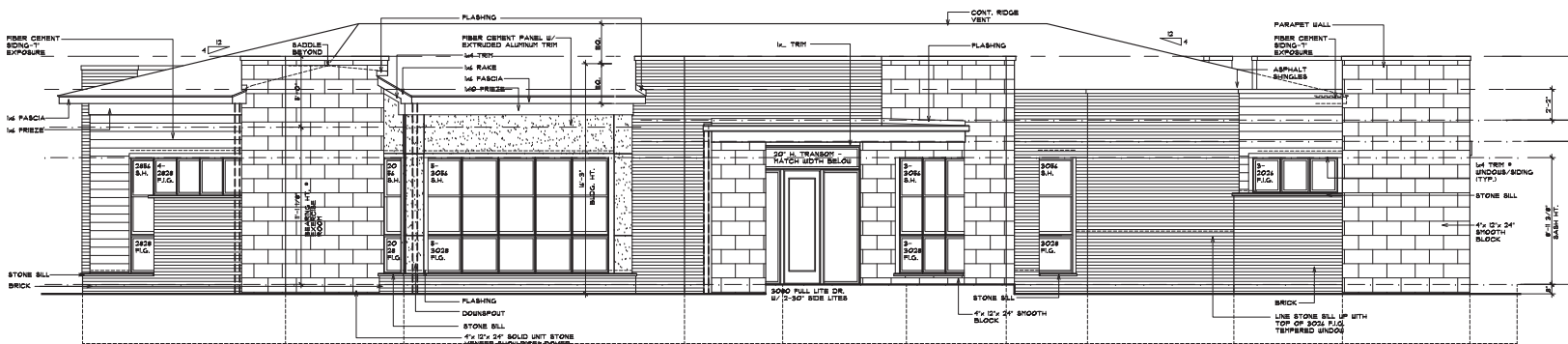
NOTE: SUBMITTALS ONLY. THIS DRAWING IS NOT VALID UNLESS THE SIGNATURE AND SEAL ARE IN BLUE INK.



503 LEFT SIDE ELEVATION



502 FRONT ELEVATION



501 FRONT ELEVATION

MATERIALS	REAR	LEFT SIDE	FRONT	RIGHT	COMMUNITY BUILDING AVERAGED
B R I C K 30% to 100%	530 42%	740 54%	468 35%	431 37%	42% B R I C K
SMOOTH BLOCK 50% MAX	203 14%	345 27%	458 34%	230 20%	24% SMOOTH BLOCK
*SIDING, HORIZONTAL 25% MAX	16 1%	174 13%	85 6%	171 15%	1% *SIDING, HORIZONTAL
CEMENT PANELS 25% MAX	141 11%	11 0%	71 5%	241 22%	10% CEMENT PANELS
ASPHALT SHINGLES 25% MAX	248 22%	73 6%	254 19%	44 4%	13% ASPHALT SHINGLES
	1251 100%	1345 100%	1338 100%	1154 100%	100%

\* WOOD-GRAIN TEXTURED FIBROUS CONCRETE SIDING

**OVERHANGS/DRAINAGE**  
 PROVIDE GUTTERS & DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE CONNECTED TO THE STORM WATER SYSTEM.  
 UNLESS NOTED OTHERWISE OVERHANG DIMENSIONS ARE 1".  
 RAKE DIMENSIONS ARE 1".

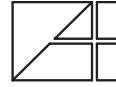
**WINDOW DESIGNATION**  
 GENERAL REFERENCE FOR WINDOW SIZES: SEE WINDOW SCHEDULE FOR WINDOW SIZES & REQUIREMENTS.

ALL INTERIOR PARTITION DIMENSIONS ARE 3/4" UNLESS NOTED OTHERWISE.

BEFORE CONSTRUCTION OBTAIN ENDOUR L DOOR RUGH OPENING SIZES FROM WINDOW/DOOR SUPPLIER.

DO NOT SCALE THESE DRAWINGS. USE CALCULATED DIMENSIONS. IF VARIATIONS OCCUR CONTACT ARCHITECT.

ALL P.I.G. AT FLOOR LEVEL SHALL BE TEMPERED SAFETY GLASS.



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NOVAPLEX  
 BOZTAK PROPERTIES  
 COMMUNITY BUILDING  
 NOV. 1, MICHIGAN

NOVAPLEX  
 BOZTAK PROPERTIES  
 COMMUNITY BUILDING  
 NOV. 1, MICHIGAN

PRELIMINARY  
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 0 CONSTRUCTION  
 05-31-20

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 AMM  
 CAD FILENAME  
 CHECKED BY  
 1909  
 SHEET NUMBER  
 A11



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703 BUILDING SECTION

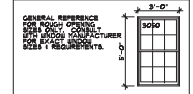
SCALE: 1/4" = 1'-0"

OVERHANGS/DRAINAGE

PROVIDE GUTTERS & DOWNSPOUTS FOR DRAINAGE OF ROOF WATER. DOWNSPOUTS ARE TO BE CONNECTED TO THE STORM SEWER AT THE LOT.

UNLESS NOTED OTHERWISE OVERHANG DIMENSIONS ARE 1/2" FROM FINISH. RAISE DIMENSIONS ARE 1".

WINDOW DESIGNATION

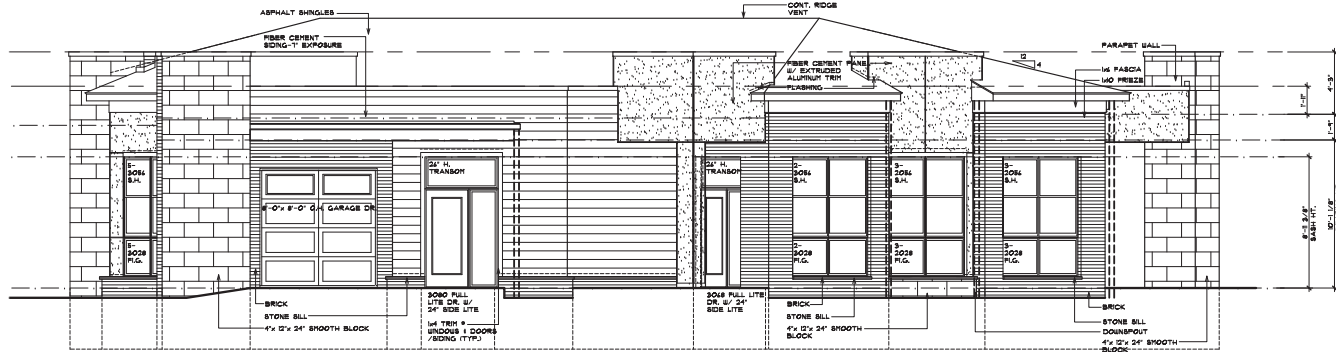


ALL INTERIOR PARTITION DIMENSIONS ARE 3/4" UNLESS NOTED OTHERWISE.

BEFORE CONSTRUCTION OBTAIN ENDOU I DOOR ROUGH OPENING SIZES FROM WINDOW/DOOR SUPPLIER.

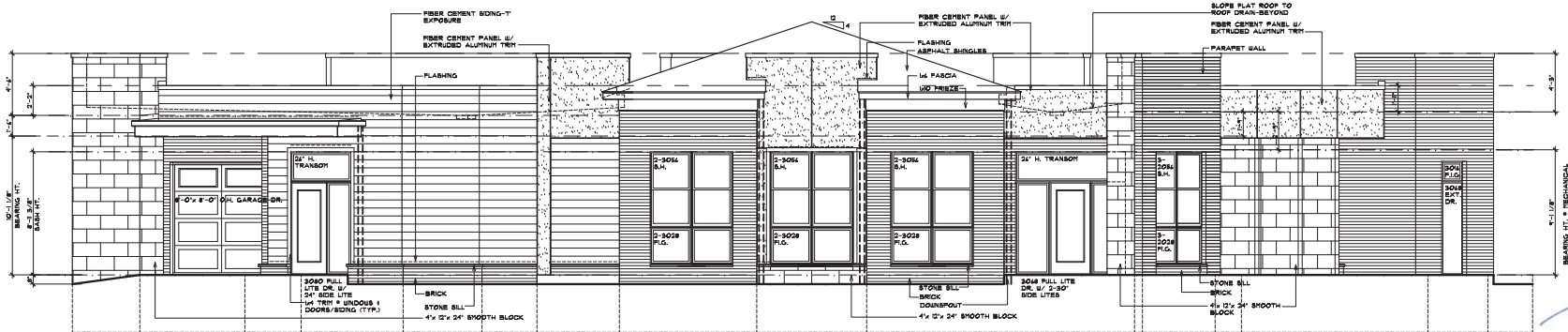
DO NOT SCALE THESE DRAWINGS. USE CALCULATED DIMENSIONS. IF VARIATIONS OCCUR CONTACT ARCHITECT.

ALL P.L.G. AT FLOOR LEVEL SHALL BE TEMPERED SAFETY GLASS.



702 RIGHT SIDE ELEVATION

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



701 RIGHT SIDE ELEVATION

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



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NOVAPLEX  
BZZTAK PROPERTIES  
COMMUNITY BUILDING  
NOVI, MICHIGAN  
PRELIMINARY

NOVAPLEX  
BZZTAK PROPERTIES  
COMMUNITY BUILDING  
NOVI, MICHIGAN

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PRO SUBMITTAL  
01-31-20

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CHECKED BY

DATE

SCALE

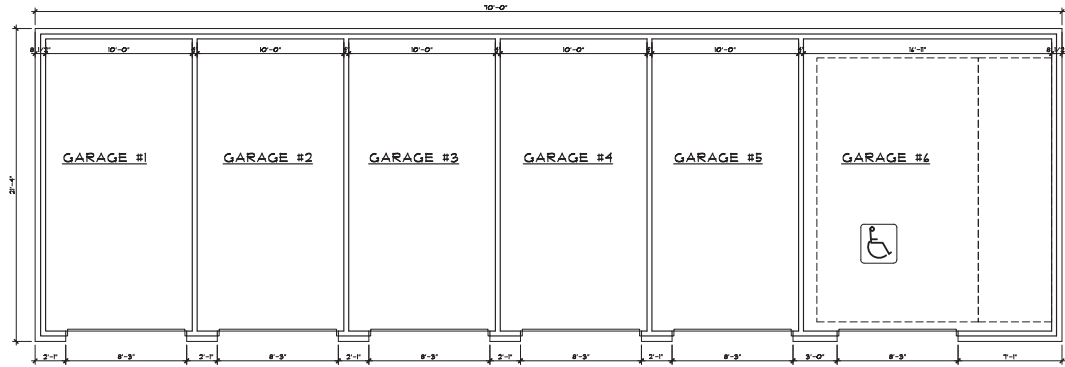
SHEET NUMBER

NOVI, MICHIGAN



NOTE: THIS DRAWING IS UNLESS THE SCALE AND SEAL ARE IN BLUE INK.

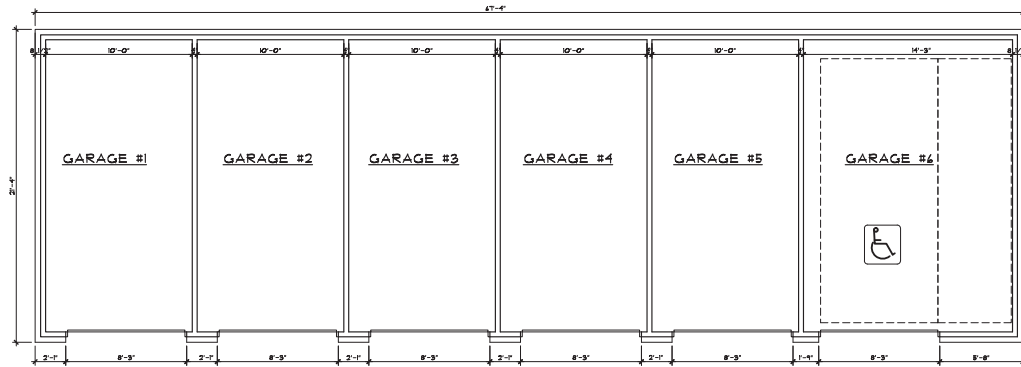
A13



**FIRST FLOOR PLAN**

(1) GARAGE BUILDING WITH (1) VAN ACCESSIBLE SPACE

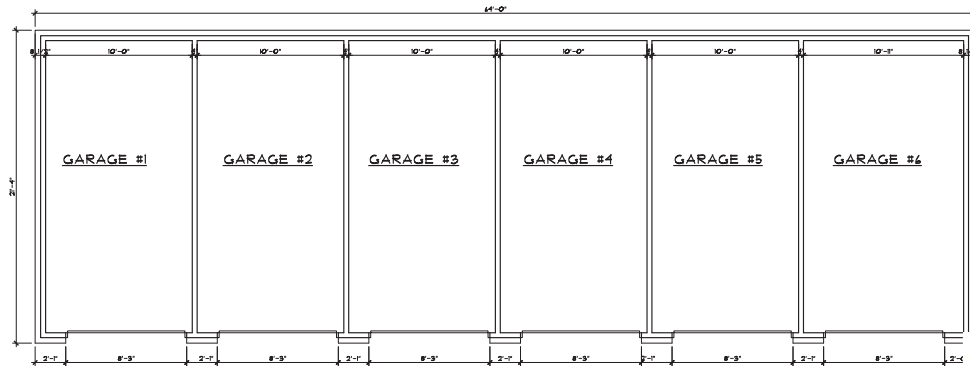
SCALE: 1/4" = 1'-0"



**FIRST FLOOR PLAN**

(2) GARAGE BUILDINGS WITH (1) ACCESSIBLE SPACE

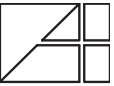
SCALE: 1/4" = 1'-0"



**FIRST FLOOR PLAN**

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

NOTE TO BUILDING DETAIL: THIS DRAWING IS NOT VALID UNLESS THE SIGNATURE AND SEAL ARE IN BLUE INK.



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NOVAPLEX  
 BEZTAK PROPERTIES  
 DETACHED GARAGES  
 NOV, MICHIGAN

CLIENT/PROJECT  
 NOVAPLEX  
 BEZTAK PROPERTIES  
 DETACHED GARAGES  
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- CONSTRUCTION

REVISIONS  
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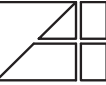
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 1909

DATE

SHEET NUMBER  
**A14**



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NOVAPLEX  
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 BETZAK PROPERTIES  
 DETACHED GARAGES  
 NOVI, MICHIGAN

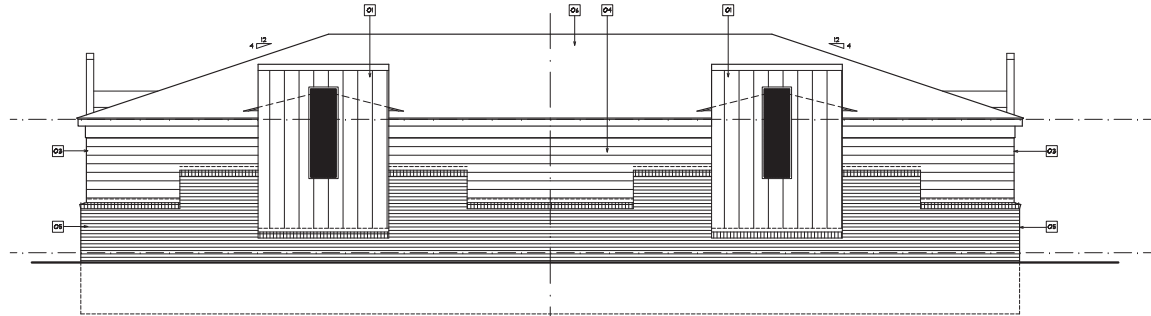
NOVAPLEX  
 BETZAK PROPERTIES  
 DETACHED GARAGES  
 NOVI, MICHIGAN

NOVAPLEX  
 BETZAK PROPERTIES  
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 NOVI, MICHIGAN

NOVAPLEX  
 BETZAK PROPERTIES  
 DETACHED GARAGES  
 NOVI, MICHIGAN

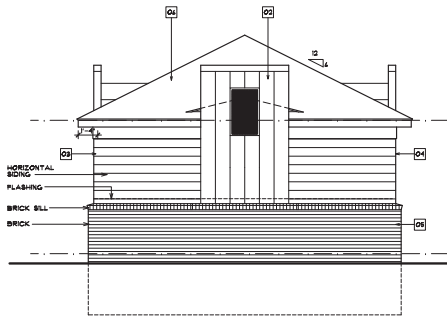
COLOR AND MATERIAL KEYNOTES

- 01 VERTICAL SIDING, WOOD-GRAIN  
TEXTURED FINISH, CONCRETE SIDING  
SHERWIN WILLIAMS SW 7151 HIGH  
REFLECTIVE WHITE
- 02 VERTICAL SIDING, WOOD-GRAIN  
TEXTURED FINISH, CONCRETE SIDING  
SHERWIN WILLIAMS SW 7151 HIGH  
REFLECTIVE WHITE
- 03 HORIZONTAL SIDING, WOOD-GRAIN  
TEXTURED FINISH, CONCRETE SIDING  
SHERWIN WILLIAMS SW 7151 HIGH  
REFLECTIVE WHITE
- 04 HORIZONTAL SIDING, WOOD-GRAIN  
TEXTURED FINISH, CONCRETE SIDING  
SHERWIN WILLIAMS SW 7151 HIGH  
REFLECTIVE WHITE
- 05 BRICK - GENERAL SHALE BOWERSTON  
DESBAT SAGE VELVET
- 06 ASPHALT SHINGLES  
CERTAINTED LANDMARK  
"GEORGETOWN GREY"
- 07 WOOD/DOOR FINISHES  
"BLACK"
- 08 METAL-FACED CANTILEVERED  
BALCONY FENCE IN SHERWIN WILLIAMS  
SW 7151 HIGH REFLECTIVE WHITE
- 09 METAL RAILING  
"BLACK"
- 10 GARAGE DOOR - SHERWIN WILLIAMS SW  
7151 HIGH REFLECTIVE WHITE
- 11 METAL-FACED CANTILEVERED ENTRY  
"HIGH REFLECTIVE WHITE"
- 12 OPEN METAL GRILLE AT STAIR -  
"BLACK"
- 13 METAL-FACED ROOF OVERHANG AT  
VESTIBULE - SHERWIN WILLIAMS SW 7151  
HIGH REFLECTIVE WHITE
- 14 MECHANICAL VENT



REAR ELEVATION

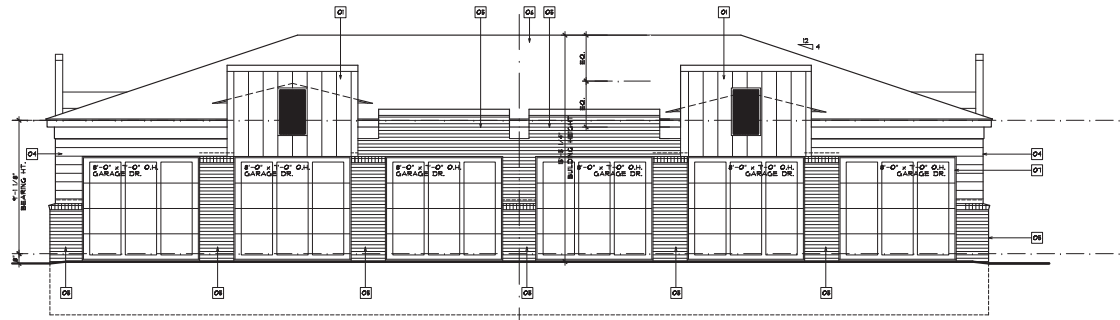
SCALE: 1/4" = 1'-0"



LEFT SIDE ELEVATION

RIGHT SIDE - SIM.

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



FRONT ELEVATION

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

MATERIALS	REAR	LEFT	FRONT	RIGHT	6-CAR GARAGE AVERAGED
BRICK 30% to 100%	213 31%	81 32%	154 31%	81 32%	31% BRICK
*SIDING, VERTICAL 25% MAX	192 22%	54 20%	104 20%	54 20%	20% *SIDING, VERTICAL
SIDING, HORIZONTAL 50% MAX	181 21%	74 28%	42 8%	74 28%	22% SIDING, HORIZONTAL
ASPHALT SHINGLES 50% MAX	230 26%	50 19%	208 41%	50 19%	21% ASPHALT SHINGLES
	882 100%	247 100%	510 100%	247 100%	100%

\*SIDING, VERTICAL = PATTERNED ACCENT



NOVAPLEX BETZAK PROPERTIES DETACHED GARAGES, THIS DRAWING IS NOT VALID UNLESS THE SIGNATURE AND SEAL ARE IN BLUE INK.

A15