EAST LANSING AGENDA

Planning Commission Meeting

6:30 PM - Wednesday, June 24, 2026

Hannah Community Center - 819 Abbot Road, East Lansing, MI 48823
Public Comment - Email: coelplanningcommission@cityofeastlansing.com or Call in: 312-626-6799, Toll free: 888-788-0099,
Meeting ID: **836 0276 8592** No participant ID needed.

Page

1. **OPENING**

"The City of East Lansing occupies the ancestral, traditional and contemporary lands of the Anishinaabeg – Three Fires Confederacy of Ojibwe, Odawa and Potawatomi peoples land ceded in the 1819 Treaty of Saginaw"

1.1. Roll Call

1.2. Approval of the agenda

1.3. Approval of the minutes 3 - 7
6-10-26 PC Draft Meeting Minutes

2. **COMMITTEE REPORTS**

2.1. Data Centers Staff Workgroup (Putz, Greening)

3. **STAFF REPORTS**

3.1. Council-Manager Reports since 6/10/2026 Planning Commission meeting 8 - 24
20260612 - Council Manager Report 23-2026
Council Manager Report 6.18.26

4. **COMMISSIONER ANNOUNCEMENTS**

4.1. DISCLOSURE OF CONFLICTS OF INTEREST

5. **COMMUNICATIONS FROM CITIZENS**

5.1. Written Communications

5.2. Verbal from Audience

6. **PUBLIC HEARINGS**

7. **UNFINISHED BUSINESS**

8. **NEW BUSINESS**

8.1. A request from Cody Dietrich on behalf of TDP Acquisitions, LLC, for approval of a Site Plan for a 10-story mixed use development consisting of one-, two- and three-bedroom dwelling units and ground floor commercial space located at 530 Albert Avenue. The property is zoned B-3 City Center Commercial Business District. 25 - 450
Agenda Item Report - Pdf

8.2. Consideration of a request from Kesava Kunapareddy on behalf of Brightwell Group LLC for approval of a Site Plan for a 37,748 square foot addition to the existing Brightwell Behavioral Facility at 3512 451 - 517

Coolidge Rd. The property is zoned B-1 General Office Business District.

Agenda Item Report - Pdf

8.3. Consideration of proposed Ordinance 1575, amendments to Chapter 50 of the City Code, the Zoning Ordinance, and to Chapter 4 of the City Code to modify requirements related to electric vehicles and charging stations; parking ratios for automobiles and bicycles; landscaping, green space, & trees; and the keeping of bees and chickens. 518 - 601

Agenda Item Report - Pdf

8.4. Change October 28, 2026 meeting date to October 21, 2026

9. **COMMISSIONER CONCERNS**

10. **ADJOURNMENT**

PLANNING COMMISSION MEETING MINUTES

June 10, 2026 – 6:30 p.m.

East Lansing Hannah Community Center
819 Abbot Road

MEMBERS

Chair
Joseph Sullivan

Vice Chair
Ed Wagner

David Chapin
Chelsea Denault
Lorna Greening
Lauren LaPine-Ray
Chuck Overbey
Ryan Putz
Josh Ramirez-Roberts

City Council Liaison
Erik Altmann

Staff Liaison
Landon Bartley, AICP
(517) 319-6930

City of East Lansing
DEPARTMENT OF PLANNING, BUILDING AND HOUSING
410 Abbot Road
East Lansing, MI 48823

(517) 319-6930
www.cityofeastlansing.com

Present:	Chapin, Denault, Greening, Overbey, Putz, Ramirez-Roberts, Wagner and Sullivan
Absent:	LaPine-Ray
Staff Members:	Bartley, McCarthy, Reiten, and DeGarmo

1. OPENING

Chair Sullivan called the meeting to order at 6:30 p.m.

1.1 Roll Call

At the taking of the roll, LaPine-Ray was absent.

1.2 Approval of Agenda

Motion: Overbey moved to approve the agenda as presented. Second by Denault.

Vote: All yeas. Motion passed unanimously.

1.3 Approval of Minutes

Motion: Putz moved to approve the May 27, 2026 meeting minutes as presented. Second by Ramirez-Roberts.

Vote: All yeas. Motion passed unanimously.

2. COMMITTEE REPORTS –

The data center committee met for the first time on June 9, 2026. Putz and Greening are on the committee. The next meeting will be June 23, 2026.

At the June 3rd ZBA meeting, the single agenda item was deferred to the July meeting at the request of the applicant.

3. STAFF REPORTS

3.1 Council-Manager Reports since 5/27 PC meeting were included in the packet.

Bartley informed the board that the City Council meeting scheduled for June 9, 2026 had been canceled. The next council meeting will be next week, then July 21, 2026.

Next week, Council will have a public hearing for Ordinance 1559 which is the diverse housing ordinance that the Planning Commission recommended adoption. They will consider the application at 401-427 E. Grand River, the Howard, for which the Planning Commission recommended approval. Council will also consider the Graduate's proposed rooftop expansion which this board saw last July.

The July 21 2026 Council meeting will have several public hearings on the agenda.

4. COMMISSIONER ANNOUNCEMENTS

4.1 DISCLOSURE OF CONFLICTS OF INTEREST - None

5. COMMUNICATIONS FROM CITIZENS

5.1 Written Communications were included in the meeting packet.

5.2 Verbal from Audience

- Matt Hagan, 927 E. Grand River Ave., spoke.
- Tim Mrozowski, 619 Grove St., spoke.

6. PUBLIC HEARINGS

6.1 A public hearing to receive comments on a request from Cody Dietrich on behalf of TDP Acquisitions, LLC, for approval of a Site Plan for a 10-story mixed use development consisting of one-, two- and three-bedroom dwelling units and ground floor commercial space located at 530 Albert Avenue. The property is zoned B-3 City Center Commercial Business District.

Reiten presented the staff report. This is a ten (10) story mixed use development. It includes 205 units with 436 beds. The commercial component on the first floor, which allows for eight stories by right, is a coffee shop. They are also proposing LEED certification which is an incentive to allow an additional two stories by right. It is not a special use requirement.

Cody Dietrich on behalf of TDP Acquisitions, LLC, explained how they went from the original proposal to what is now proposed. The project is now zoning compliant. To be compliant, they took off three (3) stories of the building, they took off the rooftop amenity level and put all the amenities on the first floor. They took off one (1) residential level and the second level parking. They cut the occupancy from 505 sown to 445.

Sullivan opened the public hearing at 7:41 pm.

- Jeff Hurand, P.O. Box 310289, Flint spoke.
- Danita Brandt, 714 Linden St., spoke.
- Al Bay, 512 Albert Ave., spoke.

Sullivan closed the public hearing at 7:55 pm.

No action was taken. This item will be on the June 24, 2026 meeting agenda.

6.2 A public hearing by the Planning Commission to receive comments on proposed Ordinance 1575, amendments to Chapter 50 of the City Code, the Zoning Ordinance, and to Chapter 4 of the City Code to modify requirements related to electric vehicles and charging stations; parking ratios for automobiles and bicycles; landscaping, green space, & trees; and the keeping of bees and chickens.

McCarthy presented the staff report. This set of ordinance amendments came out of the Green Code Study Committee that met over the summer and fall of last year. The committee came out of the suggestion with the anticipation that it would be fine-tuned at the Planning Commission level prior to adoption.

Sullivan opened the public hearing at 8:33 pm.

- Mayor Erik Altmann, 702 Snyder Rd., spoke.

Sullivan closed the public hearing at 8:36 pm.

Motion: Ramirez-Roberts moved to recommend approval of Ordinance 1575 to City Council.

Second by Denault.

Vote: All yeas. Motion passed unanimously.

6.3 A public hearing by the Planning Commission to receive comments on proposed Ordinance 1576, amendments to Chapter 50 of the City Code, the Zoning Ordinance, to require special use approval for multiple-family residential units in certain business districts, clarify requirements for retail sales of alcohol for off-site consumption, and add requirements for use of certain building incentives.

Bartley presented the staff report. This ordinance originated from a concern about a loophole that opened up in December of 2024 when Ordinance 1536 was approved. One of the changes that 1536 made to the zoning ordinance was to allow upper story residential uses in all business districts by right with a site plan versus special use. The intent was to allow upper story residential uses by right especially if they were to be a conversion instead of new construction. By changing those uses from being a special use to site plan approval, the diverse housing requirement was essentially nullified because the diverse housing requirement is located within the special use section. The intent is to reverse that change to bring the diverse housing requirement back into force. It might be appropriate to change at least temporarily while diverse housing ordinances are still being considered changing upper story residential uses back to a special use within the B3 district.

Also, 1536 made some changes to how we approach alcohol. We have got some clarity since that time, especially for off-site consumption. This will be some minor wording adjustments to shore up how we approach alcohol sales in the zoning ordinance.

There was some discussion about the incentive structure that was introduced by Ordinance 1536. It was to allow and incentivize certain building elements, especially mass timber in all business districts. An incentive to allow LEED certification was added. However, at that time there wasn't a provision to confirm or enforce that incentive. This ordinance would require precertification at the time of approval. Staff also seeks a mechanism for addressing a scenario in which a building is constructed using this incentive but for whatever reason is ultimately *not* LEED certified.

Sullivan opened the public hearing at 8:52 pm.

No comments were received.

Sullivan closed the public hearing at 8:52 pm.

Main Motion: Ramirez-Roberts moved to recommend the approval of Ordinance 1576 to City Council with the amendment that the requirements for special us permitting apply only to the B3 zoning district when in reference to multifamily rental, with the additional amendment that the line under 50-806 building height incentive point

structure be changed to “from which points may” to be changed to “and which points may”.

Second by Putz.

Amendment: Denault moved to amend the motion to add language adding some sort of penalty for not meeting the requirements of LEED certification as promised by a developer.

Second by Wagner.

Vote on the amendment: All yeas. Motion passed unanimously.

Vote on the main motion as amended: All yeas. Motion passed unanimously.

7) UNFINISHED BUSINESS

8) NEW BUSINESS

8.1 Rescheduling of October 21, 2026 Commission meeting to October 28, 2026

Motion: Ramirez-Roberts moved to re-schedule the October 21, 2026 Planning Commission meeting to October 28, 2026.

Second by Putz.

Vote: Seven yeas. One nay. Motion passed 7/1.

9) COMMISSIONER CONCERNS

Confirmation that the retreat will be on July 11, 2026. Denault shared that her yes vote on the Howard proposal at the last meeting has weighed heavily on her since then. She felt that voting for approval didn’t align with the values that she has tried to bring to her work on this commission.

10) ADJOURNMENT

Motion: Wagner moved to adjourn the meeting.

Second by Overbey.

Vote: All yeas. Motion passed unanimously. Meeting adjourned at 9:04 pm.

CITY MANAGER

Quality Services for a Quality Community

MEMORANDUM

TO: **East Lansing City Council**

FROM: **John Newman, Acting City Manager**

DATE: **June 12, 2026**

SUBJECT: **Council/Manager Communication #23-2026**

City of East Lansing
OFFICE OF THE CITY MANAGER
410 Abbot Road
East Lansing,
MI 48823

(517) 319-6920
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Departmental Updates

City Manager's Office

Downtown Development Authority

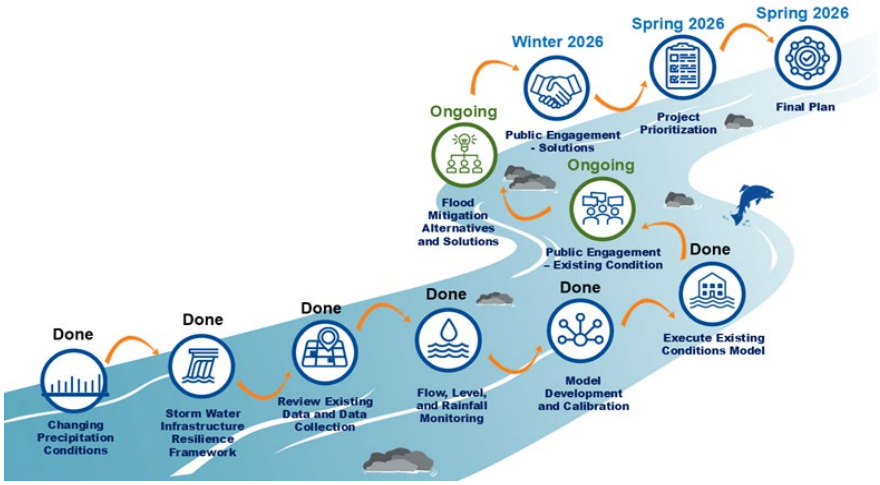
The DDA is continuing to support planning efforts to advance its goals for the downtown. One goal is to have a housing development program that creates a diverse mix of housing choices for everyone. In support of that goal, the ArtSpace Core Group met to continue planning for the ArtSpace site visit meetings to be held July 27-29. Site visit meetings will be focused on providing income-restricted housing aimed at attracting artists to live and possibly work in the downtown. Staff also continued to work toward a coordinated West Downtown Area Plan which would inform next steps for the Evergreen Properties, as well as other development opportunities and public space improvements in the DDA district west of Abbot Road.

Lori Mullins is participating in an International Downtown Association training on Friday, June 12, that is focused on Data-Based Storytelling, and looks forward to using the knowledge gained to support communication about downtown activities and investment.

Grants Coordinator

The Grants Coordinator worked with Engineering Administrator Stephen Clayton, Senior Project Planner Dani Stahlin, and Environmental Sustainability & Resiliency Manager Cliff Walls to move the city to the next stage in the grant application process for the Michigan State Police Emergency Management & Homeland Security Division FY24 and FY25 Building Resilient Infrastructure & Communities (FY25 BRIC) program. The City of East Lansing is proposing to conduct two flood mitigation activities in key areas of the city that are prone to flooding. These projects stemmed from the development of the city's Wet Weather Resiliency Plan. The figure below shows the 11 tasks that the city

implemented to develop an actionable plan (source: East Lansing Wet Weather Resiliency Plan Virtual Open House)



This is a U.S. Department of Homeland Security FEMA grant opportunity; the State of Michigan is the pass-through entity. At this stage, the Michigan State Police Emergency Management & Homeland Security Division will review the city's application and request revisions before final submission to the federal government.

This proposed project aligns with the following City of East Lansing Strategic Priority:

- Sound Infrastructure & Environmental Sustainability. Ensures access to a reliable utility infrastructure that delivers safe, clean water, manages wastewater and stormwater treatment and provides effective storm water management.

Community & Economic Development

This Saturday, June 13, 2026, is East Lansing PRIDE. The fifth annual East Lansing PRIDE will take place from 4pm - 9pm along Albert Avenue between Abbot Road and M.A.C. Avenue. The event will feature this year's open floor drag show pageant to determine the 2026 East Lansing PRIDE title holder, as well as live music, drag story time, 50 plus local vendors, free giveaways, community art activities, and more! CED staff anticipate this will be the biggest East Lansing PRIDE yet, with more vendors than ever before, a stage extension on Ann St. Plaza, expanded drag story time, and the addition of a keynote speaker (Bobby Hoffman from FOX 47 will be giving a brief address at 6PM). East Lansing PRIDE is hosted by the East Lansing Downtown Management Board in collaboration with the Spartan Housing Cooperative and is made possible by the generous support of Raising Cane's Chicken Fingers, MSU

Federal Credit Union, Dave's Hot Chicken, Consumers Energy, Splash of Color, and the Dr. Martin Luther King Jr. Commission of Mid-Michigan.

On Friday, June 12, 2026, from 5pm – 7pm, the East Lansing Downtown Management Board is partnering with SCENE Metrospace on a reception celebrating the Michigan Pride Juried Exhibition that is installed in SCENE June 11 – July 23. The event will feature two drag performers from East Lansing PRIDE as a teaser for what is to come the next day at East Lansing PRIDE.

Wendy Sylvester Rowan received four bids in response to the Skywalk Lighting Project RFP. The bids are being reviewed with Bryan Thomas, the City's Electrical Inspector, to choose the winning bid. Wendy is also working to determine a new interior location for the Honeycomb Microgallery that was previously installed in the 400 block E. Grand River Ave alley and is working with 508 Fab to create two new freestanding rotating art panels, that will be installed at Grove Pocket Park and Bill Sharp Park.

Community & Economic Development Director Heather Pope participated in the SmartZone Visioning Session #3 led by Public Sector Consultants. The sessions are to drive the conversation of the governance structure and program administration for the Lansing Regional SmartZone. Heather also attended the quarterly Lansing Economic Area Partnership (LEAP) Board of Directors meeting

Department of Public Works

Operations

Over the weekend, the Streets Division assisted with the closure and subsequent reopening of Albert Avenue for the GLAM JAM Summer Kickoff event. The crew has also been preparing for East Lansing PRIDE, which kicks off on Friday, June 12. In addition, Streets Division staff completed skip paving on Charles Street behind the Marriott hotel.



This week, the Sewer Division completed a manhole repair on Lantern Hill Drive.

The Water Division performed water service replacements at 251 Milford Street, 617 M.A.C. Avenue, 518 Gunson Street, 524 Gunson Street, and 544 Gunson Street. Staff continue to work with M.L. Chartier to complete water service line material verification across the City.

The Parks Division placed new flowerpots along Grand River at the intersections of M.A.C. and Abbot. There were several trees that fell in the most recent storm that required attention from the staff as well.

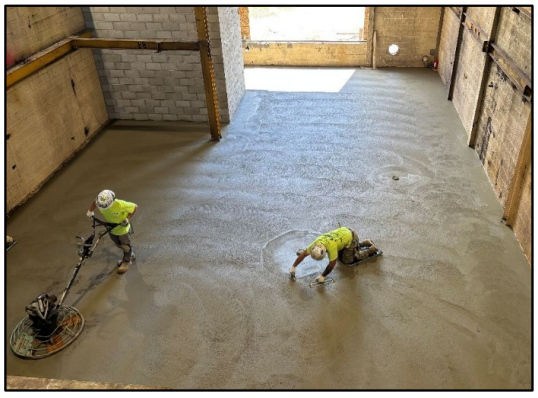
Engineering
Staff attended a pre-construction meeting for the Clinton County upcoming Chandler Road project.

Work continued with the Grants Coordinator to be able to submit for the Building Resilient Infrastructure and Communities (BRIC) grant milestone which has a deadline of June 10, 2026. The deadline for the final application will be July 23. The grant application is for a scoping work grant for the two upcoming projects of Taylor Drain Fire Station Basin Expansion and Charles Street Sewer Upsizing project. Both projects are geared toward reduction in and protection against flooding.

Staff met with police to coordinate the placement of radar signs throughout the City. Engineering currently has two to three signs available, and the Police Department has additional units that can be deployed where needed. Emma Wilkins, Neighborhood Resource Specialist with ELPD, will serve as the point person for coordinating the installation of all radar signs.

WRRF
The vacant WRRF Maintenance Specialist position has been offered and accepted with a tentative start date of June 22, 2026. An interview was conducted for the vacant electrician position, and we are hopeful for a final decision by end of week.

The Operational Facilities and Improvements project continues moving forward. Electrical and plumbing upgrades continue to materialize. The concrete slab is completed on the first floor for the new location of locker rooms. Exterior doors, windows, frames, and sheet metal have all been removed from the current Administration building.

The Monthly Operating Report was finalized and submitted to EGLE per reporting requirements. The WRRF continues to operate efficiently and in full compliance with the NPDES permit.

Library

The Library will be closed on June 19 in observance of Juneteenth. Sunday closures for the summer continue through August.

The Library launched its Summer Reading Challenge, "Unearth A Story," with a kickoff party on June 8 (photos below)! We had 828 attendees, a 65.6% increase from last year's 500 attendees. The party featured a dance party, glitter tattoos, free ice cream, a scavenger hunt, games and crafts. We also had WKAR and The Reading People in attendance! The reading challenge runs through August 8, with prizes including coupon packs to local businesses, free books, tote bags, and t-shirts for participants.



The Library will host the Black History 101 Mobile Museum on June 12 from 11am - 5pm as part of our America 250 celebration. This traveling exhibition features over 15,000 artifacts from the transatlantic slave trade to hip hop and was generously funded by the Friends of the East Lansing Public Library and a grant from MSUFCU.

On June 13, the Library will host Family Safety Day from 11am - 12:30pm, a summer safety event where the East Lansing Fire Department and Goldfish Swim School will teach water safety, fire safety, and common first aid needs. Later that day, the Library will have a resource table at the Downtown East Lansing PRIDE celebration from 4 - 9pm, where staff will host a drag story time for families.

On June 16, the Library will host Music at the Blissful, a high energy children's concert featuring award winning Boston musician Evan Haller, who will play songs from his new album "This" and lead the audience in singing, jumping, and laughing.

On June 17, the Library will host Stories in the Garden in partnership with the Michigan 4-H Children's Gardens. Volunteer readers will be scattered throughout the garden; families can explore the garden and stop to listen to stories as they go. This program is great for kids from 0 to 100 and features teen readers. The Library Board of Trustees will hold its regular monthly meeting on June 17 at 5:30pm in the Library's Large Meeting Room.

On June 18, the Library will host a Repair is Care mending workshop. Participants will explore the art of mending through patching, hemming, button replacement, and decorative hand stitching, reframing repair as both practical and beautiful. Participants are encouraged to bring garments with holes, stains, or loose seams; missing buttons (if available); and scrap fabric for patching. All experience levels are welcome. This workshop is presented in partnership with Of Her Hands, a community based sewing and upcycling workshop series designed to help women reconnect with creativity, extend the life of clothing, and build confidence through making.

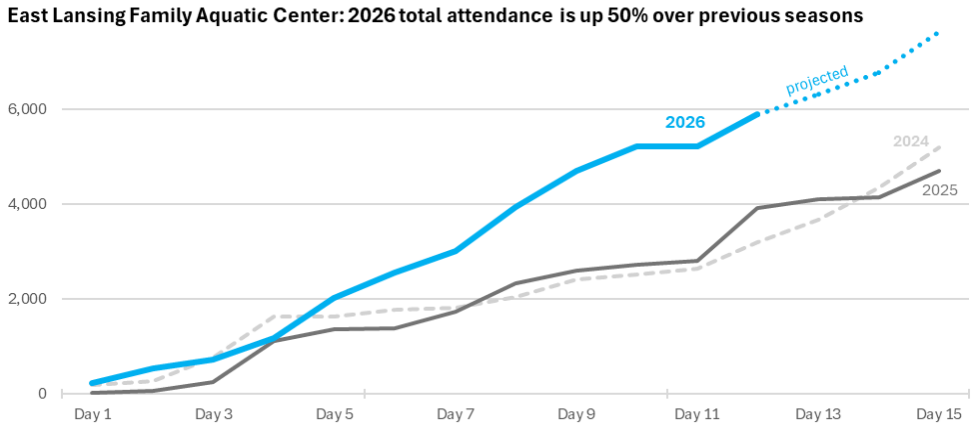


On June 20 at noon, the Library will celebrate the grand opening of the Children's Musical Garden, featuring outdoor musical instruments and sensory play elements for young children, paired with a meet and greet with the Library's new director. From 1 - 2:30pm, the Library will host a Toy Photography Workshop: Dinosaur Dioramas led by photographer Kevin Epling of SmallScalePics. Participants will learn beginning principles of photography including lighting, focus, composition, and more using modular dioramas and dinosaur models. Participants need not bring any toys but can bring a camera or smart device; iPads will also be available. This program is intended for patrons ages 8 and up (children should

have an accompanying adult). Also on June 20, the Birding Club will hold its monthly meeting for birdwatchers of all levels.

Parks, Recreations & Arts

The East Lansing Family Aquatic Center opened for the 2026 season on May 30, 2026 and attendance continues to outpace previous seasons. The facility has welcomed 5,899 visitors through June 10, an increase of 1,990 visitors (50.9%) from the beginning of 2025. The Aquatic Center will remain open through Sunday, August 23.



Several summer camps and programs started this week at the Hannah Community Center. Over 140 youth participated in the Andre Hutson Basketball Camp. 54 youth participated in the first week of summer drama camps. School-age childcare camps begin next week with 102 elementary-age children participating next week and 145 total participants enrolled throughout the summer. The school-age camps emphasize STREAM (science, technology, recreation, engineering, arts, and math) curriculum and this year's theme is "All Aboard the Hannah Express!"

The East Lansing Hannah Community Center is participating as a drop off site for the food waste compost pilot project. Community members can bring their food waste to the green bins located at the southeast end of the building along Evergreen Ave. Bins will be serviced weekly by MyGreenMichigan.

Capital Improvement Project Status

Status	Project
Design & Engineering	NTT Extension – Soccer Complex to Coolidge Road
	NTT Improvements – White Park Boardwalk
	Henry Fine Park – Replace Pedestrian Bridge

	ELHCC Sidewalk Replacement
Scheduled	ELHCC Lobby Elevator Modernization (starting June 22)

Planning, Building & Housing and Parking

Parking

Staff held a well-attended pre-bid meeting for the upcoming Parking Facility Repairs project for the six downtown parking garages. Project bids are due June 24th.

For maintenance activities, annual fire extinguisher certifications took place at all facilities. Albert Avenue garage fire suppression system had annual testing completed and the Charles Street garage fire suppression system was repaired. A welder was scheduled to repair a handrail damaged by a vehicle at Charles Street garage and a damaged sign was replaced in City Hall West Lot 15.

In addition, the 300 block DDA dumpster room was pressure washed and Division and Grove garage storage rooms were re-lamped with LED bulbs. A rebate was received for this energy saving upgrade. Elevator shaft HVAC systems in all garages have been set to cooling for the summer months.

Finally, signs were placed on EV chargers notifying users that a per hour electric usage fee is going into effect in July.

Planning

A data centers workgroup with staff from several departments and members of the Planning Commission and Commission on the Environment began meeting this week and will continue to meet through mid-July. That workgroup will ultimately recommend Zoning Ordinance amendments to provide an appropriate regulatory framework for data centers in East Lansing.

On Wednesday evening, the Planning Commission met and held several public hearings. Those were for a proposed mixed-use building at 530 Albert (no action), Ordinance 1575 zoning amendments recommended by the Green Code Study Committee in 2025 (Planning Commission unanimously recommended adoption by Council) and Ordinance 1576, zoning amendments intended to correct unintended consequences from late 2024 ordinance 1536 (Planning Commission unanimously recommended adoption by Council, with amendments). The Planning Commission will meet next on June 24, 2026.

On Thursday evening, the Historic District Commission met to consider several requests for changes to historic properties. They gave partial approval for a request for new roof & gutters at 640 Charles (College Grove Historic District), approved a request for a new chimney crown and garage repairs at 407 Marshall (Oakwood Neighborhoods Historic District), approved a request for

new chimney and gutters at 529 Charles (College Grove Historic District) and approved a request for new chimney and flue at 619 Grove (College Grove Historic District). A request for new siding at 647 Sunset (Oakwood Neighborhoods Historic District) was withdrawn.

Police Department

June 4 to June 10, 2026: ELPD Officers responded to 653 Calls for Service and Self-Initiated Activity (more than one officer may have responded to one call) and responded to or initiated 180 Traffic Stops (more than one officer may have been present at one traffic stop). Removing all duplicate calls, Officers responded to 369 Calls for Service and Self-Initiated Activity and responded to or initiated 128 Traffic Stops throughout the City.

June 6, 2026: Ofc. Wyatt Keith and Neighborhood Resource Specialist Emma Wilkins helped out with the Pinecrest Bicycle Rally and Parade.





June 7, 2026: Ofc. Konnor Iott gave Police vehicle tours and Neighborhood Resource Specialist Emma Wilkins staffed a table in Downtown East Lansing during GLAM JAM.





Have a great weekend!

CITY MANAGER

Quality Services for a Quality Community

MEMORANDUM

TO: **East Lansing City Council**

FROM: **John Newman, Acting City Manager**

DATE: **June 18, 2026**

SUBJECT: **Council/Manager Communication #24-2026**

City of East Lansing
OFFICE OF THE CITY MANAGER
410 Abbot Road
East Lansing,
MI 48823

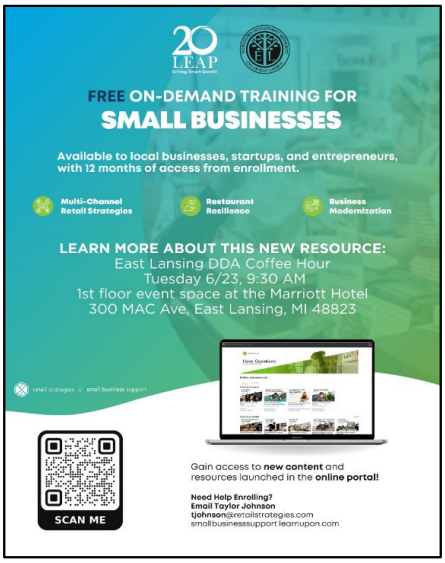
(517) 319-6920
www.cityofeastlansing.com

Departmental Updates

City Manager's Office

Downtown Development Authority

The DDA's goal of improving safety in the downtown is being advanced by their efforts to improve cameras and lighting in the downtown core. Lori Mullins, DDA Director, continued working to implement those projects and also met with administration and social workers from the ELPD to discuss summer and fall activities aimed at safety. Progress is also being made on the downtown ambassador program which will focus on fostering a welcoming and safe environment in the evenings downtown.



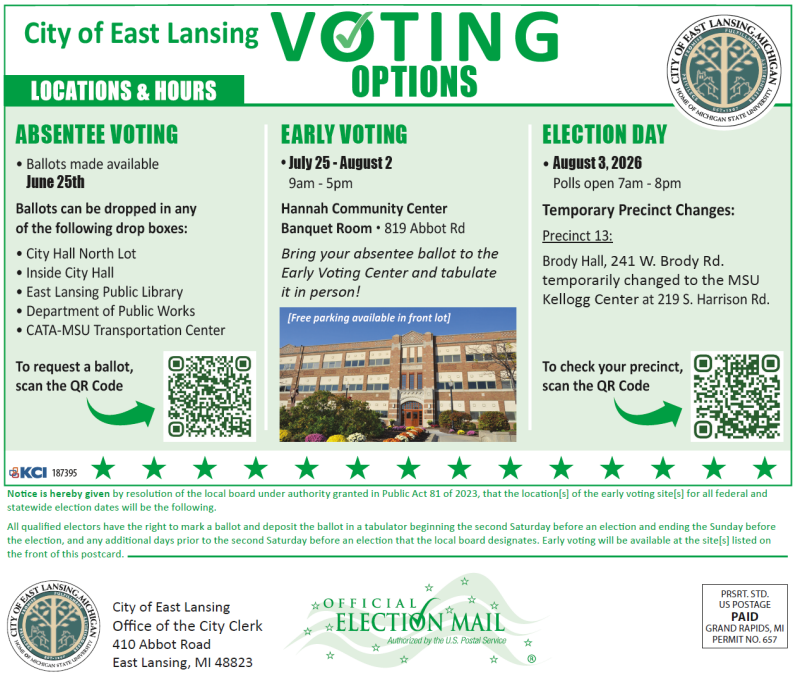
The DDA is reviewing proposals from brokers to provide professional marketing services in support of the DDA's efforts to sell the properties that they own on Evergreen and will consider a recommendation at the Board's meeting on June 25.

This upcoming Tuesday, June 23, the DDA Director will host a "Coffee Talk" from 9:30 to 10:30am in the first-floor event space at the Marriott. Engagement efforts of this type are anticipated to be held every other month. Please find the invitation above and to the right.

City Clerk

The Clerk's office will be sending out postcards to all homes in East Lansing containing Absentee Voting, Early Voting and Election Day Voting information. Voters are encouraged to check their registration address and information to ensure everything is up to date prior to Election Day and can do so by going to mi.gov/vote.

Military and Overseas ballots will be going out by the deadline, which is this Saturday, June 20. Absentee ballots are being mailed out next Thursday to voters who have either requested a ballot or are on the Permanent Mail Ballot List. Those ballots are expected to hit mailboxes on Saturday, June 27.



Communications

Please consider following the City on social media @CityofEastLansing. The City's Instagram following increased by 2% over last month with 152 new followers for a total of 8,908 followers. On all social media platforms, the more people engage by liking, commenting and sharing, the better it is for the algorithm, which helps more community members see news from the City. The Summer Dialog will be out soon!



Community & Economic Development

With the full closure of E. Grand River Avenue between Woodmere and Gunson going into effect on Monday, June 15, Community & Economic Development (CED) staff are partnering with the DDA and the City's Communications department to intentionally promote the businesses in that area to the public. On Wednesday, June 17, the CED staff collaborated with the Greater Lansing Area Moms to put out a blog and accompanying social media post explaining the closure and encouraging folks to support the businesses impacted by the closure. In the weeks ahead, the DMB and the Communications department will be collaborating to do a weekly highlight of different business within that area (highlights were offered to all businesses in the area and slots will be filled on a first-come, first-served basis). This highlight will be on the City of East Lansing and Downtown East Lansing social media accounts, as well as in the City's weekly eDialog.

CED staff wrapped up a very successful East Lansing PRIDE event this past weekend. CED are now working with our drag emcee to begin planning East Lansing PRIDE's next benefit show, which will likely be a drag night at Landshark on July 16.

Upcoming events including the annual Chalk Walk event will take place on Thursday, July 9 at Ann Street Plaza. The event will include a petting zoo along with face painting. 80's night will be held on Friday, July 17, from 5 p.m. – 10 pm., with Starfarm performing at 7 p.m.

CED staff are working with Trowbridge Business Association on the Trowbridge Thrift and Thrive event taking place in September. This is a community-focused event designed to activate the Trowbridge area and bring additional foot traffic to local businesses. The event would be held in partnership with MSU Upcycle, Seams Sewing and Mercantile, and other local thrift and resale vendors from around the area. Vendors would offer used clothing, upcycled goods, handmade items, and secondhand products in a small market setting. The event would support sustainability, local vendors, and community engagement while creating a fun and welcoming experience for residents, students, and visitors.

Department of Public Works

Operations

The Parks Division wrapped up seasonal mulching efforts at Patriarche Park. Staff also completed a thorough maintenance of the trees and landscaping along Grand River Avenue. Parks employees assisted with the preparation of the softball fields for a large softball tournament that was held at the Softball Complex. Despite significant rain over the weekend, staff worked hard to make the fields playable.

The Sewer Division and Water Division responded to and repaired a water main break at Fern and Abbot. Sewer Division staff also rebuilt a catch basin at 324 Center St. Sewer employees have been performing catch basin cleaning in the Flowerpot and Arbor Drive area.

The Water Division have continued their work with M.L. Chartier to verify water services around the City. Staff made service replacements at 544 Gunson, 139 Milford, 506 Gunson, and 262 Milford.

The Streets Division installed a new sign at Stoddard Park. Staff also completed the set up and tear down of traffic control for East Lansing PRIDE. Harrison/Mt. Hope were skip paved by the Streets Division. Additional speed limit signs were placed by staff on Coleman Rd.





Engineering

The full closure of Grand River Avenue took effect on Monday, June 15 and is scheduled through July 31. Staff quickly heard from residents, business owners, other employees, and personally observed that the initial traffic control layout established by the contractor was not clear to many motorists, had placed businesses within the closure that were not meant to be, and was resulting in drivers making atypical maneuvers and using businesses as turnarounds. Staff immediately began troubleshooting the layout and making adjustments as they were able. It was ultimately determined that the installed traffic control did not match the engineering plans and the contractor was instructed to correct any errors. Changes were made by Tuesday, June 16 at approximately 1:00 pm. Once the layout was corrected, staff were able to observe improved traffic patterns. Staff will continue to monitor the area for any trouble spots and/or improvements that could be made to the layout. Staff

will also continue working with businesses and residents to address any concerns they may bring forth.

For the Southeast Marble Local Streets Project, a ballot was sent out on Friday, May 8, to all residences in the project area for voting on the proposed solution in accordance with the Neighborhood Traffic Calming Action Plan. Proposed measures include six (6) traffic circles strategically placed throughout the neighborhood, raised crosswalks at the John R St. and Mt Vernon Ave. intersection near the school, and a pair of permanent radar signs along Cahill Dr. The voting period closed on May 22, and any ballots known or suspected to have been mailed by this date have been tallied. Of the 553 ballots that were mailed, 211 ballots were returned on time with 147 (70%) supporting the measures and 64 (30%) opposed. Based upon this response, the measures will be incorporated into the Local Streets Project(s) design(s). Ballots that arrived late (2 total) were still logged but did not change the overall percentage of support vs opposition.

Staff attended a statewide MWEA Conference to present on the topic of East Lansing's Wet Weather Resiliency Plan with HDR.



Staff attended a Grade Inspection (GI) meeting with MDOT for the Safe Routes to School project. The project is scheduled to be bid out later this year and constructed early 2027.

Staff attended a meeting between the developers for 530 Albert and the Ingham County Health Department regarding the concerns of constructing a geothermal heating system for the 530 Albert Avenue development within the footprint of the existing known contamination site. The concern is that the

installation of the wells will allow contaminants to leach into the groundwater. The developer has a plan of action that will provide additional safeguards during installation (additional 18-inch concrete encasement and grouting the annular space of the proposed well down the full 300ft depth).

Planning, Building & Housing and Parking

Building

The Building Division has a new Plan Reviewer that started on Monday. Robert Walling comes to us from Lansing where he spent the last three years working in their Code Compliance Department. The building team is now fully staffed after more than a year with a vacancy!

100 Lake Lansing Rd, Meijer gas station, continues to make steady progress. Rough inspections were conducted on the roof framing, they were approved and the roof will be installed at the first of the week.

1350 Lake Lansing Rd., Meijer, is rolling and is through phase 5. They are projected to finish up on time or shortly after their timeline.

Housing

Housing has made a conditional offer to a candidate for the Housing Administrator position, we hope to have an acceptance and start date soon.

Parking

The quarterly Parking Taskforce meeting was held on Wednesday, June 17. Items discussed included the bi-annual parking system utilization counts, upcoming facility repairs project, fall prevention fencing, and PACE enforcement. Staff met with Fishbeck to finalize updating our parking structure design criteria as well as with a vendor to discuss adding a separate cooling system for the parking office server room.

For maintenance activities, Albert Avenue garage annual deck-washing on all levels took place, the DDA 100 block dumpster room was pressure-washed, and bi-monthly stairwell pressure-washing was completed this week.

Looking ahead, parking garage window washing at all garages and the MAC garage entry ramp art mural lighting installation is scheduled for Monday. A couple of damaged fire alarm strobes at Albert garage and Division garage level 3 cracked drain piping are scheduled for repair Among the other items, the Center City development alley transformer fencing is scheduled for installation next week as well.

There will be FREE parking for the Juneteenth holiday.

Planning

On Monday evening Associate Planner Grace Whitney attended the meeting of the Commission on the Environment (COE) to discuss pending Ordinance 1575. That ordinance would amend our zoning code as recommended by the Green Code Study Committee, which met for several months in 2025. Amendments include (but are not limited to) changes to parking requirements, EV & EV charging standards, landscaping and green space, tree removal and replacement, keeping bees & chickens, and more. City Council has scheduled a public hearing for their review of that ordinance for July 21. Looking ahead to next week, on Wednesday June 24, the Planning Commission is expected to vote on a recommendation to Council for a proposed mixed-use building at 530 Albert, and the same for a proposed building expansion of the Brightwell medical facility at 3512 Coolidge Rd.

Police Department

June 11 through June 16, 2026: ELPD Officers responded to 558 Calls for Service and Self-Initiated Activity (more than one officer may have responded to one call) and responded to or initiated 114 Traffic Stops (more than one officer may have been present at one traffic stop). Removing all duplicate calls, Officers responded to 272 Calls for Service and Self-Initiated Activity and responded to or initiated 77 Traffic Stops throughout the City.

June 13, 2026: Det. Andy Ferguson and Neighborhood Resource Specialist Emma Wilkins gave a Safety Talk during Safety Night at the East Lansing Public Library.





Prime Time Senior Programs

Prime Time is working on finalizing a new agreement with Burcham Hills (BH) to pilot a collaboration in which residents from the BH community will be transported by BH to Prime Time programs. We hope this collaboration will provide increased programming opportunities for BH residents and continue to increase our participation in programs.

We are also piloting a “field trip” program with Red Cedar Lodge. Red Cedar will be providing transportation from Hannah Community Center to their senior living community. Participants will be served lunch and offered information on the services and amenities offered at Red Cedar Lodge.

We chose to pilot both of these programs with specific communities to determine the feasibility of offering each on a full-scale.

We completed a class audit last week, ensuring our processes are continuing to work and we are working hard on planning our fall programing.

Last week we had our first of six experiences at MSU. Participants made Oak Gall Ink at Beal Gardens. This week they will be visiting the “Darkness” exhibit at Broad Museum. We are very excited for this summer collaboration.

This past weekend Prime Time participated in EL Pride and the Farmers Market, advertising our programs to seniors in attendance.

Enjoy your weekend!!

Planning Commission

AGENDA ITEM REPORT

To:	Planning Commission
Subject:	A request from Cody Dietrich on behalf of TDP Acquisitions, LLC, for approval of a Site Plan for a 10-story mixed use development consisting of one-, two- and three-bedroom dwelling units and ground floor commercial space located at 530 Albert Avenue. The property is zoned B-3 City Center Commercial Business District.
Meeting:	Planning Commission - 24 Jun 2026
Department:	Planning, Building, and Housing
Staff Contact:	Alycia Reiten, Senior Planner

ATTACHMENTS:

530 Albert staff report PC 6.24.26
Sec 50-38 Standards of review for site plan approval
LT_530 Albert TIS Review_2026_0616 from Fishbeck 6.18.26
Geothermal Albert-Enviro Notes
Site plan review from city engineering 5-26-2026
PD comments re 530 Albert 5.20.26
Fire comments re 530 Albert 5.12.26
Parking department comments 5.21.26
Application Forms - Signed_Redacted
530 Albert - Planning Commission Follow-Up email from Cody D.
530 Albert - Clarifications from applicant compressed
2026-0615 530 ALBERT SWPPP
260504- 530 Albert Street, East Lansing - Renderings 11x17
26-0505_530 ALBERT AVE LAND USE SUBMITTAL 32x40 - Combined
530 Albert highlighted items compressed
Darcy - University of Minnesota Geothermal information
Darcy-p133-mayo-bed-tower-la-crosse-case-study
2026-0505 530 Albert Ave Stormwater Report 00018_Redacted compressed
530 Albert_Traffic Study_20260604 compressed
530 Albert TIS Review_2026_0603_Comment Responses
260604_A1-02 Egress Distances_530 ALBERT AVE LAND USE SUBMITTAL (002)
Survey
Public Art Exhibit
Photometric Plan
Photometric Plan - V2
Brandt email opposition 6.10.26
Krueger email letter opposition 6.8.26
Martin opposition 6.10.26

Winter email opposition 6.9.26
Martin opposition 6.23.26

Department of Planning,
Building & Development

STAFF REPORT

Address	530 Albert Avenue (parking lot behind Peanut Barrel)
Applicant	TDP Acquisitions, LLC
Zoning	B3 City Center Commercial District
Type of Case	Site Plan (10 story multi-family & 1st floor Commercial)
Staff person	Alycia Reiten
CASE Number	PSUP26-0003
PC hearing date	June 10, 2026
CC review date	

Overview

- The applicant request is to construct a 10-story mixed use development consisting of one- two- and three- bedroom multi-family dwellings, with ground floor commercial space. The property is zoned B3 City Center Commercial Business District.
- The zoning district allows multi-family dwelling units with three or fewer bedrooms per dwelling unit above the first floor, provided that one or more principal uses allowed in the district are located on the first floor, up to eight (8) stories.
- The proposed project targets LEED Gold certification. LEED Gold allows for two additional stories by right above eight (8) stories. The incentive applies to the entire building.

Existing Conditions

- The site consists of .69 acres (30,031 sf).
- The site is an existing paved surface parking lot, which will be removed for this development.
- The applicant has a purchase agreement pending with the property owner.

B3 City Center Commercial District

Sec. 50-591. - Purpose.

The purpose of this district is to provide for a wide range of commercial and high-density residential land uses designed to serve the residents and shoppers of the East Lansing City Center. Because of its proximity to the Michigan State University campus and nearby residential neighborhoods, a major characteristic of the City Center is its intense core of pedestrian activity. This activity helps to create a unique social environment where people can gather and enjoy the festive atmosphere of a university downtown, attractive landscaping and greenery, and the diversity of retail shops. The provisions of this district are intended to encourage the planned development of pedestrian amenities and public and private open space and closely regulate the need for direct automobile access to each establishment.

Also important in the future development of the City Center is the concept of mixed-use development promoted by this district and the East Lansing Comprehensive Plan. Mixed-use development for purposes of this district is defined as the combination of commercial and residential land uses within the same building. Since the City Center contains only limited geographic area for expansion, intensifying development through a mixture of uses within the same building is of major importance to the city's efforts to expand the tax base and broaden the housing and shopping opportunities available in the City Center.

Future Land Use
The 2018 Comprehensive Plan designates this site as M-3 Mixed Use. This land use category is shown on the future land use map primarily along major streets at the gateways to the city or University where there is a mix of commercial properties and single-family and multiplex rental properties. The category allows for mixed-use buildings with minimum heights of two (2) stories or thirty-five (35) feet but no higher than four (4) stories or fifty (50) feet by right or up to six (6) stories or eighty-four (84) feet with a bonus.
* Buildings allowed to increase height beyond four (4) stories or thirty-five (35) feet by right should step upper levels back where a transition is needed between abutting buildings or uses that are less dense. *The project is set back 10 feet on the west side*.

The intent of this land use category is to increase the number of housing opportunities in close proximity to the University and maintain or increase opportunities for commercial type uses through redevelopment. The Mixed-Use 3 Category is most analogous to the B2, Retail Sales Business Zoning District.

The Mixed-Use 3 Category, however, mandates that retail and service uses be located on the ground floor with residential uses allowed on the ground floor as a special use and a permitted use on the upper floors. A maximum building height of eighty-four (84) feet is suggested for Mixed-Use 3 Category, which is compatible with the height allowed in the B2 District.

Zoning
- B3 City Center Commercial District.
- In the B3 District, Multi-family dwelling units, which also contains one or more of the principal uses, require Site Plan approval by the City Council with a recommendation by the Planning Commission.

Surrounding Land Uses
North: Townhomes – RM32 City Center Multiple Family Residential District
South: Peanut Barrel, Kimchi Box – B3 City Center Commercial District
East: City of East Lansing surface parking lot, Albert Place condos – B3 City Center Commercial District
West: Wild Goose Inn – B3 City Center Commercial District



B3 City Center Commercial District



Building and Proposed Use

- The proposed building is a 10-story building, 114’6” tall with a gross floor area of 218,639 square feet.
- The proposed LEED Gold certification allows the building to go up to 10 stories, subject to site plan approval. The applicant has submitted their application for LEED Gold

precertification which is expected to be approved no later than July 3, 2026. Precertification is required prior to the city council vote.
- The proposed building height exceeds maximum allowable height of 112 feet; however, the LEED Gold incentive allows for the excess height.

Sec. 50-593. - Development standards
(g) Maximum building and ground coverage. The percentage of total site area allowed to be covered shall be determined according to the following schedule:

Base Ratio	**Base Allotment**	**Maximum Permitted**
Building coverage	80% + (*)	= 100%
Ground coverage	85% + (*)	= 100%

The project is under the base allotment for both building and ground coverage.

- The building includes 205 units consisting of one-, two- and three-bedroom units with an occupancy of 436 for the residential units.
- The project includes a geothermal system which is a closed-loop design, where no groundwater is extracted or discharged during operation. The purpose of geothermal energy is to capture the natural heat from within the Earth for two practical applications: generating electricity and direct heating/cooling**.**
- The drawings show amenities on levels one and ten. The amenities include the leasing office and on-site management services; a business center, co-working areas, club / game room; fitness center; wellness area; basketball court; bike workshop and storage; pet spa and a coffee shop in the lobby. There is also an outdoor courtyard that provides lawn area and grilling stations. The 10th floor amenities include a terrace and lounge. The drawings indicate a 6-8' railing on the 10th floor amenity deck.
- Several murals are proposed along the exterior of the first floor to comply with the public art requirements. A sculpture may also be included near the northeast corner of the development.
- Interior bike parking is proposed which meets the minimum standard.

Entrance
- The main entrance to the building is off Albert Avenue. Multiple secure entrance points are provided on the site. The elevator access is through the lobby / leasing area which are stretcher sized meeting the Fire Access elevator as required by code. The bike parking area is located off Albert Street.

Parking
- New parking is prohibited in the B3 district and no parking is offered for this project.
- Section 50-820(1) requires 218 bike parking spaces. The proposal provides 218 spaces.

Lighting
- The proposed building lights meet the minimum standards of Section 50-155: Exterior Lighting, by providing the required shielding and fixture height.

Landscaping
- The proposal includes the minimum six (6) street trees along Albert Avenue as well as several raised planter beds. The development is set back 10 feet from the western property line and is proposed to have no-mow turf. Several trees along the western boundary are being preserved with protective measures spelled out in the plan set.
- The proposal also includes a number of additional plantings throughout the site that include shrubs and planter boxes. The first-floor courtyard also has multiple plantings proposed.

Traffic
- A traffic study has been submitted. The engineering department has been working through the city's third-party traffic consultant reviewing the drawings and provided comments which have been addressed by the developer. The consultant approved the traffic study.

Stormwater Detention:
- The size of the site does not meet the threshold to be subject to the City's stormwater requirements.
- The minimum size to trigger stormwater requirements is one acre, however the applicant has volunteered that an interior stormwater detention / holding area will be provided for runoff mitigation.
  Stormwater calculations will be verified by the engineering department.
- A detailed soil erosion control plan is required. *This is noted in the applicant narrative.*

Signs
- Wall signage meets the ordinance standards. Signage will require a building permit and will be subject to the requirements of Chapter 32: Signs.

Art Requirement
- The applicant proposes several art murals and potentially a sculpture piece in the plans and has been in contact with the Arts Commission for approval of the final submission prior to installation.

Other Applicable Local Ordinances and State and Federal Regulations

- Prior to the approval of final plans and the issuance of any construction permits, the final plans will have to comply with all applicable local construction standards and specifications.

Review by Other Departments or Agencies

- The Planning Department routed a copy of the proposal to the Fire, Police, Building and Engineering Departments.
- The Building department did not have any comments.
- Engineering comments acknowledged the applicants' report and drawings satisfying requirements from previous review. A copy of their report is included with this packet. *Comments based on the submission include that the applicants report shows a reduction of overall impervious coverage by 834 sf. The only outstanding item is verification of the site utility sizes and the applicant has been working with the Engineering Department to address these items which will be finalized during the permitting process.*
- The Fire Department comments were related to the plans being preliminary. A copy of the Fire Marshal's comments are included with this packet. *The applicant is working with the Fire Marshal and items will be addressed with final plans which include clearances and account for emergency shutoffs for the proposed grills.*
- The Police Department comments are to provide enhanced safety measures related to the perimeter fence on the amenity deck. *The proposed fence will be 6-8 ft tall.*
- The Parking Department requested support measures to not block the alley. They also support that the development is providing nine temporary metered loading zone spaces on Albert Avenue.
- Environmental Sustainability and Resiliency staff requests support materials related to the geothermal energy proposal; verification of recycling services and tree diversity. *The narrative indicates that recycling is included in the proposal and the plans have been updated to reflect recycling. They will have co-mingled and cardboard collection. The plan set has been updated to show recycling.*

Process

Sec. 50-36. - Site plan approval.

(a) Purpose. Site plan approval is necessary to ensure that all land is used and developed in compliance with the requirements of this chapter and other applicable local ordinances and state and federal statutes. Site plan approval is also required to minimize adverse impacts on surrounding properties, public streets and public services and to protect the public health, safety and general welfare.

(b) When required. An approved site plan shall be required to establish, construct or reconstruct all uses as specified in the use district regulations of this chapter. Except as otherwise provided in the use district regulations or in paragraph (k) below, an approved site plan shall also be required to expand or convert such uses if the expansion or

conversion would result in an increased parking requirement as determined in accordance with section 50-812 of this chapter. No certificate of occupancy and no building permit for the erection, enlargement, or conversion of a building or structure shall be granted by the building official unless the required site plan has been approved in accordance with the requirements set forth in this section.

50-37. Application materials
3. A proposed landscape plan which, at a minimum, conforms to the requirements of section 50-840 of this chapter, drawn at the same scale as the site plan or larger, showing: the location and size of areas to be landscaped; the type, size and placement of plant materials to be installed. This is met.
4. Proposed preliminary engineering plans, drawn at the same scale as the site plan or larger, showing proposed conditions.

h. Type, height and placement of exterior light fixtures including fixtures mounted on poles and buildings. *This information is on the plan set and meets the standards of the ordinance.*

7. A descriptive text which addresses the following items*:*

a. The narrative indicates that the proposed building is consistent in scale, height and massing with both existing and planned redevelopment in the surrounding district.
b. ...for non-residential uses, the intended hours of operation and expected number of employees; non-residential uses, ...the period of leases and the approximate range of sale prices or rental rates of the proposed dwelling units is required. *The applicant has addressed this in their narrative that the retail component will operate from 7 am to 2 pm. Leases will have the standard lease term of 12 months and estimate lease rates subject to market conditions: Studios - ~$1,900; 1-Bedrooms - ~$2,500; 2-Bedrooms - ~$3,500; 3-Bedrooms - ~$4,400.*
c. land use statistics reflected in proposed plan against required conditions. *The applicant has addressed this in their plans.*
e. proposed construction schedule and staging of the development is required. *A draft schedule has been provided but a detailed schedule and staging plan are required. The applicant has addressed this in their plans.*

50-38. Standards of review for site plan approval shall be consistent with the objectives of the comprehensive plan.

1. General site conditions. The site shall be designed and developed to provide a logical relationship between functional elements, to effectively serve the purposes for which it is to be developed, and to be reasonably compatible with surrounding properties.

a. ..height reasonably compatible with surrounding properties – the HUB (11 + penthouse for rooftop amenities) is 4 blocks east, the Abbot (12 + penthouse for rooftop amenities) the Graduate (10 stories including the Rock Bar) are three blocks west, the Marriott (six

stories) is one block northwest. However, all other structures in the immediate area are much shorter than the proposed. *The applicant has addressed this in their narrative.*
b. ...designed for reasonable privacy of residents and employees on the site. *The project has a 10-foot setback from the western property line, four feet from the northern line and one foot from the east and south lines with additional space setback for an outdoor art-space at the northeast corner of the site. There is a first-floor interior courtyard for the residents as well as a 10th floor amenity deck.*
c. Yard areas on the site shall be arranged and improved to provide adequate light and ventilation; separation between buildings, roads and other activity areas; trees and other vegetation; passive and active recreational areas; and to improve the appearance of the property, ensure reasonable privacy and enjoyment for residents and employees and promote the public health, safety and welfare. *There are two outdoor areas on the ground level and one amenity deck on the 10th floor. There is an interior courtyard for the tenants which provides lawn and grilling stations and an art/landscaped area on the with an outdoor terrace and lounge on the 10th floor. The project includes multiple trees, shrubs and plantings that exceed the minimum requirements of the ordinance.*

2. Natural features. The site shall be designed and developed to minimize the disruption or loss of its desirable natural elements and to enhance its overall appearance by incorporating those elements into required open spaces and setbacks (zero setback required). *The project has a 10-foot setback from the western property line, four feet from the northern line and one foot from the east and south lines with additional space setback for an outdoor art-space at the northeast corner of the site. The project includes multiple trees, shrubs and plantings that exceed the minimum requirements of the ordinance.*

3. Traffic access. The site shall be designed and developed to provide safe and efficient access for all forms of travel and to minimize impacts on adjacent public facilities.
a. The site shall not overburden adjacent public streets nor cause significant hazards to public safety due to excessive traffic generation or inadequate traffic control. *Adequate bike parking is provided on site. The development is also adjacent to an existing surface parking lot and two buildings away from an existing parking structure.*
g. Secondary access may be required to adjacent public streets or alleys or through adjacent private parking areas to provide sufficient access for emergency vehicles. *The site can be accessed from the front public street and rear public alley.*
p. Bicycle parking and storage facilities shall be provided in accordance with the requirements of section 50-820. *The minimum number of bicycle spaces are provided.*
j. Sidewalks shall be installed to provide safe and convenient pedestrian and bicycle access to and within the site, including sidewalks along public street frontages and linkages between such sidewalks and all principal buildings, between the principal buildings and parking facilities on the site, and between adjacent sites, where practicable. *Sidewalks along the site meet the requirements.*

l. Sidewalks and ramps within the site shall be designed to provide safe and convenient barrier-free access. *Sidewalks along the site meet the requirements.*

4. Utilities and public services. The site shall be designed and developed to facilitate the efficient provision and maintenance of adequate public services.

a. Utilities are of adequate size and design. *The applicant is proposing the installation of a fire hydrant at the southeast corner of the building.*

b. Easements are not anticipated but will be provided as needed.

c. Site shall be designed and developed to afford adequate access for fire suppression and other emergency services. *The building will be fully sprinkled.*

d. Storm water plan – provide calculations for proposed basin. *Their report shows that the proposed plan will reduce the imperviousness on the overall site by 834 sf.*

e. Storm water mitigation – provide calculations for proposed basin. *The SWMP report also shows that the peak rate of discharge to both the alley sewer and the Albert Street sewer is reduced for the 2-year, 10-year, 25-year, and 100-year storm storms.*

j. Exterior lighting shall be designed and shielded – *The project complies with these standards.*

5. Environmental protection. The site shall be designed and developed to minimize any risk of pollution of natural resources and to protect the public health, safety and welfare.

c. General purpose floor drains shall be connected to a public sanitary or combined sewer system or an on-site holding tank (not a septic system) in accordance with state, county and municipal requirements, unless a groundwater discharge permit has been obtained from the Michigan Department of Environmental Quality. General purpose floor drains which discharge to the public stormwater system or into the groundwater are generally prohibited. *The project is served by existing municipal services.*

6. Public art requirement. Unless the project is exempt from this requirement pursuant to subparagraph (6)d. of this paragraph, the site shall be designed and developed to contain public art as defined by section 2-313 of the City Code. *The applicant proposes several art murals and potentially a sculpture piece in the plans and has been in contact with the Arts Commission for approval of the final submission prior to installation.*

50-104 A traffic study has been undertaken. A traffic study has been submitted. The engineering department has been working through the city's third-party traffic consultant reviewing the drawings and provided comments which have been addressed by the developer. The consultant approved the traffic study.

50-155. Exterior lighting. This section of the ordinance is met as the items are included in the applicant's application and plan set.

50-592. Permitted uses B-3

The following uses of buildings and premises, individually or in combination, shall be permitted in the B-3 district.

2. Principal uses permitted subject to an approved special use permit as provided for by article II, division 3 of this chapter.

f. Multiple-family dwelling units with three or fewer bedrooms per dwelling unit provided within a building which also contains one or more of the principal uses permitted in subsection (1) of this section. *A public coffee shop is proposed on the first floor.*

Sec. 50-593. Development standards.

Parking is prohibited in the B-3 district.

l. Applications for a building and/or occupancy permit to construct or expand a building or to convert or extend the use of a building which would result in an increased parking demand, as determined by the standards in section 50-812, shall first be submitted to the planning and zoning official for review.

3. If the application would result in an increase of more than ten spaces within a two-year period or would exceed the limit of 75 percent of available spaces described above, the applicant shall submit a parking plan to the planning commission for review at a public hearing. *The proposal does not exceed the 75 percent limit of available spaces.*

A parking agreement will be developed after approval of the land use which will be reviewed and approved by the city attorney and city council prior to execution of an agreement. The parking department has indicated that they can commit 110 spaces to the development.

The applicant has identified the number of employees and tenants as well as identified the number of anticipated spaces needed for the development. The applicant proposes a need for 111 parking spaces.

50-817. Parking and access plan
A plan showing all site improvements including building location, ingress and egress, parking spaces including bicycle parking, stacking spaces, loading zones, maneuvering areas, landscaping, sidewalks and patios, proposed grading (topography) at a maximum of two-foot contour intervals, fencing, curb cuts, and lighting, or other arrangements as may be required; and shall include surrounding existing conditions within 50 feet beyond the property lines so as to show existing grades and contours, vegetation, retaining walls, and other physical features which may affect the plan. *The proposed plans provide this information.*

50-818. Off-street commercial loading space.
One off-street loading space for commercial vehicles, the width of which shall be a minimum of ten feet, shall be provided on the premises of each building or structure which

exceeds 2,000 square feet in gross floor area or adjacent to such building or structure in that portion of a public alley which has been designated as a "loading zone" by the city engineer and approved by the city council. *A loading space is shown in the public alley.*

Sec. 50-819. Fire lane parking regulations.
The owners of all multiple-family dwellings, including existing multiple-family dwellings containing or renting more than 12 dwelling units, shall, as a condition of leasing or renting any of said dwelling units to any person, first obtain a certificate of compliance with fire lane parking regulations.

Sec. 50-840. Landscape Requirements.
Appropriate ground cover, trees and other vegetation shall be planted and maintained on the site to control stormwater runoff and prevent erosion, siltation and dust; to provide privacy between adjacent uses; to mitigate impacts from parking, noise and lights; and to enhance the appearance of the site.

1. Landscape screen requirements. Landscaping screen shall mean trees, shrubs, vines, fences, walls, or earth berms, or some combination thereof. When required, parking spaces and parking areas shall be effectively screened with perimeter landscaping on all sides adjacent to or visible from adjacent properties, streets, or alleys and interior landscape islands where larger areas of paving are needed. Landscaping shall address the visual impact and improve the heat radiation effect and air pollution impact of the paved area.

b. Design standards

7. At least one shade tree of a minimum 3½-inch caliper shall be planted within or adjacent to the public right-of-way for each 40 feet of lot frontage. *The minimum street tree requirement is met. Environmental Sustainability and Resiliency staff would like to see the proposed street trees be of varied species.*

Staff Review
A site plan application is required to substantially comply with the standards of review in Section 50-38.

(1) General site conditions *The applicant is proposing construction of a 10-story mixed-use building with one-two and three-bedroom units and commercial spaces on the first floor. The building will use LEED Gold certification incentive to allow the building to go up to 10 stories, subject to site plan approval. The existing parking lot will be demolished to construct the new building. The proposed project identifies protective measures for existing trees and paving restoration.*

(2) *Natural features* *The applicant is proposing a 10-foot side yard setback to the west, four feet to the north and one foot on the east and south sides of the building. The project also includes multiple trees, shrubs and plantings around the site including an interior courtyard*

and art/landscaped area on the northeast corner of the site. The proposed plan will reduce the imperviousness on the overall site by 834 sf. The proposed onsite stormwater basin SWMP report also shows that the peak rate of discharge to both the alley sewer and the Albert Street sewer is reduced for the 2-year, 10-year, 25-year, and 100-year storm storms.

(3) *Traffic access* *The proposed project does not provide any on-site parking. The proposed project does provide an additional seven spaces on Albert Street for short-term loading/unloading, which is an increase from the existing two spaces. The request will need to go before the Transportation Commission. The proposed site plan meets the minimum parking requirements for bike spaces.*

(4) *Utilities and public services* *The site is currently serviced by municipal water and sewer systems. The sewer system in this area is a combined storm and sanitary system.*

An underground stormwater detention basin is proposed and the proposed plan will reduce the imperviousness on the overall site by 834 sf. The proposed onsite stormwater basin SWMP report also shows that the peak rate of discharge to both the alley sewer and the Albert Street sewer is reduced for the 2-year, 10-year, 25-year, and 100-year storm storms.

(5) *Environmental protection* *The applicant proposes the site to be less than the base level of allowable coverages for building and impervious surface. The underground stormwater detention basin will reduce the peak rate of discharge for the sewers but provide an underground storage basin that they indicate show no greater discharge to both the alley sewer and the Albert Street sewer is reduced for the 2-year, 10-year, 25-year, and 100-year storms. There is no proposed storage of hazardous substances on site.*

The applicant proposes geo-thermal for the mechanical system. This is permitted through the Ingham County Health Department with support by EGLA, however City Environmental staff have concerns regarding the installation of the system as there is evidence of an old dry cleaner having used a nearby site in the past. The applicant and staff met and discussed the geo-thermal process, requirements and safety measures intended to prevent any ground water contamination.

A memo from City Environmental staff is included with the agenda item packet which includes requests of the applicant for plume delineation, third party review with cost borne by the applicant, long term financial assurances, accredited installer, decommissioning plan and permitting.

(6) *Public art requirement* *The applicant proposes several art murals and potentially a sculpture piece in the plans and has been in contact with the Arts Commission for approval of the final submission prior to installation.*

Project Summary and Next Steps
The Planning Commission held a public hearing for this request on June 10, 2026. The Commission did not vote on a recommendation for Council at that time. After a vote by the Planning Commission, the site plan goes before City Council for approval but no public hearing is required at the Council level.

SAMPLE MOTION
[Please note that the SAMPLE MOTION below calls for the Commissioner making the motion to include the facts and information that support or provide the reason for the determinations in the motion as to whether the various ordinance standards have been met. It is anticipated that those facts and information, generally, would be based on information provided in the applicant's submissions and representations, City staff reviews, Planning Commission reviews, consultant studies, City comprehensive plans and ordinances, Commission observations and other information or facts.]

[It should also be noted that for an approval motion, an applicant must meet all the requirements identified in the Zoning Ordinance for this type of development. An approval request and a denial motion may be based on a Commission determination/motion that the applicant has failed to satisfy one or more of the standards below.]

[Lastly, for an approval, the "Conditions" must be included in the motion, as well. The SAMPLE MOTION below includes suggested conditions, in the event Commission decides to recommend approval of this application.]

Motion
I move to recommend [approval *or* denial] by City Council of a Site Plan request from Cody Dietrich on behalf of TDP Acquisitions, LLC located at 530 Albert Avenue using LEED Gold Certification incentive in Section 50-806 of the City's Zoning Ordinance to add two stories above the eight stories allowed under Section 50-593 of the City's Zoning Ordinance for a total 10-story mixed use development consisting of one-, two- and three-bedroom dwelling units and ground floor commercial space.

Findings. This decision is based on the following findings and determinations as to each standard applicable to this site plan proposal under Section 50-38 of the City's Zoning Ordinance, with reference to and reliance on the applicant's application, plan submissions, public testimony, City staff analysis and review, and other submissions relative to its proposed development:

1. **Section 50-38(1)a-d requires the site be designed and developed to provide a logical relationship between functional elements, to effectively serve the purposes for which it is to be developed, and to be reasonably compatible with surrounding properties.** (*See copy of additional standards a-d attached*)

The proposed use [meets/does not meet] this requirement because the use aligns with the comprehensive master plan and matches the surrounding uses.

2. **Section 50-38(2)a-d requires the site to be designed and developed to minimize the disruption or loss of its desirable natural elements and to enhance its overall appearance by incorporating those elements into required open spaces and setbacks.** (*See copy of additional standards a-d attached*).
The proposed use [meets/does not meet] this requirement because few to no natural elements currently exist on the property and a new 10' vegetated side yard is provided along the entire western boundary of the property as well as additional landscaping on the northeast corner and interior courtyard. In addition, the site is less than the minimum one acre, which is exempt from the stormwater requirement standards, however the applicant has reduced the amount of pervious lot coverage by 834 sf and included an on-site retention basin, leading a reduction of stormwater runoff as compared to existing conditions. There is no proposed storage of hazardous substances on site.

3. **Section 50-38(3)a-q requires the site to be designed and developed to provide safe and efficient access for all forms of travel and to minimize impacts on adjacent public facilities.** (*See copy of additional standards a-q attached*).**The proposed use [meets/does not meet] this requirement because it meets the minimum requirements for bicycle parking and the traffic study commissioned and submitted by the applicant does not anticipate a significant traffic impact. In addition, there are approximately 700 total parking spaces in the public parking system within one block of the site (616 in Division garage, 67 in Bailey garage under Albert Place, & 35 'leftover' in Bailey lot 11 at the corner of Bailey & Albert. Also, there are stops for 5 bus lines one block away on Grand River.**

4. **Section 50-38(4)a-j requires the site to be designed and developed to facilitate the efficient provision and maintenance of adequate public services.** (*See copy of additional standards a-j attached*).

The proposed use [meets/does not meet] this requirement because the site is currently served by municipal water and sewer and includes trash removal and recycling.

_____
_____
_____

5. **Section 50-38(5)a-j requires the site to be designed and developed to minimize any risk of pollution of natural resources and to protect the public health, safety and welfare.** *(See copy of additional standards a-j attached).*
The proposed use [meets/does not meet] this requirement because the applicant has reduced the amount of pervious lot coverage by 834 sf and included an on-site retention basin, leading a reduction of stormwater runoff as compared to existing conditions.

_____
_____
_____

6. **Under Section 50-38(6)a-e, unless the project is exempt from this requirement pursuant to subparagraph 50-38(6)d, the site shall be designed and developed to contain public art as defined by Section 2-313 of the City Code. The applicant has included an art component in their proposal which fulfills this requirement.**

_____
_____
_____

If the motion is to approve, the mover should include the following conditions:

Approval Conditions. Pursuant to Zoning Ordinance Sections 50-36(d) and MCL 125.3504(4), the above approvals are subject to compliance with the following conditions of approval, which the Commission finds to be reasonable and necessary to ensure that the plan conforms to all applicable requirements and to otherwise comply with the requirements applicable to approval conditions under Section 50- 36(d) and MCL 125.3504(4):

1. **Approval is in accordance with the plans provided by the applicant and per testimony, subject to revisions as required.**

2. **All required permits shall be obtained from the Department of Planning, Building, and Housing for all construction, as well as for exterior signs.**

3. **The project shall be designed and developed in accordance with all applicable State and local statutes, codes and regulations.**

4. **Site lighting shall be installed in accordance with the requirements of section 50-155 of the City Code.**

5. **Water and sanitary sewer extensions and connections shall be approved by the City Engineer in accordance with all applicable State and local regulations.**

6. **Final grading, soil erosion control, paving and utility plans for the site shall be approved by the City Engineer in accordance with all applicable state and local requirements.**

7. **LEED Gold precertification shall be provided by the applicant, and reviewed and confirmed by staff, prior to City Council vote to allow for the use of the incentive for the additional two stories above eight stories.**

8. **LEED Gold certification shall be provided by the applicant and reviewed and confirmed by staff before occupancy of the two additional incentive stories shall be permitted.**

9. **Approval from the City of East Lansing Transportation Commission is required for the proposed Albert Avenue temporary loading area prior to undertaking any work.**

[If the Commission has any additional conditions, insert them here]

Sec. 50-388. - Standards of review for site plan approval.

A site plan application shall meet the development standards of the use district in which it is to be located and all other required conditions for development in this chapter, comply with other applicable local ordinances and state and federal statutes, and be consistent with the objectives of the comprehensive plan as approved and amended by the city. A site plan application shall also substantially comply with the standards of review specified below. A site plan may be approved subject to certain conditions or modifications necessary to bring the plan into conformance with these requirements, including the approval of any variance that may be granted by the zoning board of appeals.

(1) *General site conditions.* The site shall be designed and developed to provide a logical relationship between functional elements, to effectively serve the purposes for which it is to be developed, and to be reasonably compatible with surrounding properties.

a. The size, height, design and architectural treatment of buildings shall be reasonably compatible with surrounding properties, except, if the site is in an area which is expected to redevelop in accordance with the provisions of the comprehensive plan, the size, height, design and architectural treatment of buildings shall be consistent with the objectives in the comprehensive plan.

b. Buildings, including windows, balconies and other openings, shall be located and designed to provide reasonable privacy for residents and employees on the site and those adjacent to the site, buffers such as walls, fencing, landscaping, plantings or additional setbacks may be required to protect residents and employees from adverse impacts from adjacent uses or streets.

c. Yard areas on the site shall be arranged and improved to provide adequate light and ventilation, separation between buildings, roads and other activity areas, trees and other vegetation, passive and active recreational areas, and to improve the appearance of the property, ensure reasonable privacy and enjoyment for residents and employees and promote the public health, safety and welfare.

d. Outdoor activity areas, such as pools, playgrounds, courts, cooking or dining facilities, shall be located and screened sufficiently to minimize impacts on adjacent properties or dwelling units on the site and to provide appropriate security.

(2) *Natural features.* The site shall be designed and developed to minimize the disruption or loss of its desirable natural elements and to enhance its overall appearance by incorporating those elements into required open spaces and setbacks.

a. The design and placement of buildings, other site improvements and open spaces shall respect the natural topography of the site to minimize the extent of site grading, excavation and filling.

bb. Mature trees and significant clusters of trees and shrubs shall be retained where possible to provide shade for buildings and over parking areas and driveways, to maintain privacy between adjacent properties and to enhance the appearance of the site.

cc. Within a regulated wetland, no filling, grading, dredging, excavating, draining or construction shall be permitted unless the required permit is first obtained from the Michigan Department of Environmental Quality and/or the city in accordance with chapter 49 of the City Code. Existing wetland areas not regulated by the state or the city and surface drainageways shall be preserved to the maximum practicable extent to maintain storm water control, water quality, natural habitat and open space.

dd. Buildings and other site improvements shall be set back an appropriate distance from the perimeter of preserved natural features to protect them from encroachment, damage, degradation or pollution, both during and after construction, to preserve the aesthetic and functional values of the resources and to provide access to use and maintain the site improvements. All construction activities within the dripline of existing trees shall be minimized to avoid damage to their root systems. Buildings and other site improvements shall be set back from the edge of a wetland or other surface water feature the following minimum distances:

Setbacks from preserved wetlands and other surface water features:	Minimum distance
Principal buildings	25 feet
Accessory buildings and site features supported by frost footings	15 feet
Decks, stairways and other features supported by post footings	10 feet
Parking areas, driveways and curbing	15 feet
Sidewalks, patios and other flatwork	10 feet
Storm water collection, detention or retention facilities	10 feet

A vegetation strip at least ten feet wide, consisting of plant species that are consistent with a wetland habitat, shall be provided and maintained around the perimeter of a preserved wetland or surface water feature. Existing trees, shrubs and ground cover may be preserved within this strip or appropriate trees, shrubs and other perennial species native to a Michigan wetland habitat shall be installed to enhance the strip. Once established, this strip shall not be mowed or cleared, except for vegetation that requires cutting to remain healthy, such as trees and shrubs may be selectively pruned to maintain views of the wetland or water feature and to protect and maintain access to buildings and other site improvements. Pathways no more than ten feet in width may be cleared and maintained to provide access to the wetland or surface water feature. Observation decks or docks may also be permitted to allow viewing of the water feature or wetland.

These setback and vegetation strip requirements in this subsection may be increased or decreased if it is determined that a proposed activity is in the public interest. In determining whether the proposed activity is 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 activity, taking into consideration the local, state and national concern for the protection and preservation of the environmental feature in question. The following general criteria shall be applied in undertaking this balancing test:

1. The relative extent of the public and private need for the proposed activity.
2. The availability of feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity.
3. The extent and permanence of the beneficial or detrimental effects which the proposed activity may have on the public and private uses to which the area is suited, including the benefits the natural feature and/or natural feature open space provides.
4. The probable impact of the activity in relation to the cumulative effect created by other existing and anticipated activities in or near the natural feature to be protected.
5. The probable impact on recognized historic, cultural, scenic, ecological, or recreational values, and on fish, wildlife and public health.
6. The size and quantity of the natural feature open space being considered.
7. The amount and quantity of the remaining natural feature open space.
8. Proximity of the proposed activity in relation to the natural feature, taking into consideration the degree of slope and the soil type within and adjacent to the natural feature and the setback area, the quantity and speed of surface runoff expected and

the nature of the natural feature to be protected.

99. Economic value, both public and private, of the proposed activity and economic value, both public and private, if the proposed activity were not permitted.

ee. Development within designated floodplain areas shall be accomplished in a way that does not alter or obstruct storm water flow within a designated floodway, maintains the overall storm water storage capacity of the site and does not increase risks to persons and property.

ff. Appropriate ground cover, trees and other vegetation shall be planted and maintained on the site to control storm water run-off and prevent erosion, sitation and dust, to provide privacy between adjacent uses and mitigate impacts from noise and lights, and to enhance the appearance of the site.

gg. Parking and access facilities shall be landscaped in accordance with the requirements of section 50-836(8) of this chapter.

(3) *Traffic access.* The site shall be designed and developed to provide safe and efficient access for all forms of travel and to minimize impacts on adjacent public facilities.

aa. The site shall not overburden adjacent public streets nor cause significant hazards to public safety due to excessive traffic generation or inadequate traffic control.

bb. Existing and proposed public streets shall be designed and constructed in accordance with the requirements of chapter 40 of the City Code and applicable local standards and specifications.

cc. Roadway or driveway connections between the site and adjacent public streets shall be spaced sufficiently apart and may be limited in number to minimize congestion and delays in traffic flow along the adjacent public streets and to minimize conflicts with other turning movements on adjacent public streets or private driveways.

dd. Where practicable, principal access to and from the site shall be provided from major streets; access to local streets shall be designed to avoid excessive traffic volumes and speeds through adjacent neighborhoods.

ee. Appropriate curb radii and lane widths shall be provided and acceleration and deceleration lanes may be required at roadway or driveway openings to protect public safety and minimize congestion and delays along adjacent public streets.

ff. Separate turn lanes may be required at roadway or driveway openings to reduce on-site stacking and congestion and such lanes shall be clearly marked.

gg. Secondary access may be required to adjacent public streets or alleys or through adjacent private parking areas to provide sufficient access for emergency vehicles.

hh.

Where two or more adjacent sites may be developed for similar or complementary uses, the city may require the creation of shared or linked access facilities, which may be constructed in phases, to minimize turning movements on public streets and provide access between the adjacent uses.

ii. Roadways and driveways within the site shall be designed to provide safe and efficient access while minimizing speeds and safety risks; the placement of traffic control devices within the site may be required to regulate speeds and minimize safety risks.

jj. Sidewalks shall be installed to provide safe and convenient pedestrian and bicycle access to and within the site, including sidewalks along public street frontages and links between such sidewalks and all principal buildings, between the principal buildings and parking facilities on the site, and between adjacent sites, where practicable.

kk. Sidewalks and other pedestrian access pathways within the site shall be located to minimize conflicts with vehicular traffic and enhance safety; pavement markings and signs may be required at principal points where pedestrians would cross driveways within the site.

ll. Sidewalks and ramps within the site shall be designed to provide safe and convenient barrier-free access.

mm. Parking facilities shall be located and designed to provide safe and convenient access to the building(s) they are intended to serve and, where practicable, to separate maneuvering areas from principal routes of traffic flow through the site.

nn. Parking areas shall be located or sufficiently screened to avoid headlights projecting into windows of residential dwellings.

oo. Parking and access facilities shall be designed and constructed in accordance with the requirements of section 50-816 of this chapter.

pp. Bicycle parking and storage facilities shall be provided in accordance with the requirements of section 50-820 of this chapter.

qq. Parking facilities shall be designed to provide the required electric vehicle charging stations required by section 50-821.

(4) *Utilities and public services.* The site shall be designed and developed to facilitate the efficient provision and maintenance of adequate public services.

aa. Existing and proposed utility services to and within the site shall be of adequate size and design to serve the expected needs of the development.

bb. Appropriate easements shall be provided to the city to afford access to all existing, proposed and known future extensions of public utilities on or adjacent to the site.

cc.

The site shall be designed and developed to afford adequate access for fire suppression and other emergency services, fire hydrants, standpipes and similar water service connections may be required, designated fire lanes may also be required.

dd. Storm water collection and discharge facilities shall be provided and designed to minimize the risk of flooding or soil erosion, on or off the site, storm water detention or retention facilities may be required to regulate the rate of flow of storm water off the site to avoid flooding and to comply with the requirements of article IV, chapter 34, of the City Code.

ee. Storm water collection and discharge facilities and site grading shall be designed to avoid run-off onto adjacent properties and public streets and sidewalks.

ff. Storm water treatment facilities shall be provided as required by the city engineer to comply with the city's MDEQ Michigan Department of Environmental Quality NPDES Phase II Storm water Permit.

gg. Loading docks, loading spaces and other service areas and exterior mechanical equipment shall be located and screened to minimize noise, vibration, or visual impacts which may affect adjacent properties or residents within the development; walls or other solid screens may be required to attenuate noise impacts.

hh. Adequate containers or compactors shall be provided on the site to collect and store trash or other waste materials and recyclable materials; such containers or compactors shall be effectively screened to obscure them from view, prohibit materials from blowing away and to control access; such containers shall also be located as inconspicuously as possible on the site.

ii. In order to further the goal of the city to minimize the disposal of solid waste and to maximize waste diversion through recycling, every owner of a multiple dwelling approved for construction after January 1, 2007, shall construct, provide, and maintain adequate and safe facilities or containers for the collection, storage, and disposal of recyclable materials placed for collection by the inhabitants, unless such premises is approved by the director of public works for city curbside recycling services as provided in article III of chapter 36 of this Code.

jj. Exterior lighting shall be installed as necessary to provide adequate safety and security, all exterior lighting shall be designed and shielded to direct the light downward and to avoid projecting light onto adjacent properties or creating glare along public streets; pole-mounted lights shall be restricted in height to be in scale with the site and its environment and to avoid projecting light onto adjacent properties.

(5) *Environmental protection.* The site shall be designed and developed to minimize any risk of pollution of natural resources and to protect the public health, safety and welfare.

aa

The project and related improvements shall be designed to protect and enhance water resources from pollution, including pollution of soils, groundwater, rivers, streams, lakes, ponds, open drains and wetlands.

bb. Stormwater retention, detention, transport, and drainage facilities shall be designed to use or enhance the natural stormwater system on-site, including the storage and filtering capacity of wetlands, watercourses, and waterbodies, and/or the infiltration capability of the natural landscape. Stormwater facilities shall not cause flooding or the potential for pollution of surface or groundwater, on-site or off-site. Stormwater facilities shall not damage natural features by depositing pollutants in them, by draining them or by depriving them of sufficient stormwater runoff to maintain their natural condition.

cc. Generally, open drains shall be connected to a public sanitary or combined sewer system or an on-site holding tank (not a septic system) in accordance with state, county and municipal requirements, unless a groundwater discharge permit has been obtained from the Michigan Department of Environmental Quality. Generally, open drains which discharge to the public stormwater system or into the groundwater are generally prohibited.

dd. Sites at which hazardous substances, hazardous wastes, or potentially polluting materials are stored, used, or generated shall be designed to prevent spills and discharges of such materials to the air, surface of the ground, groundwater, lakes, streams, rivers or wetlands.

ee. Secondary containment facilities shall be provided for aboveground storage of hazardous substances, hazardous wastes, or potentially polluting materials in accordance with state and federal requirements. Aboveground secondary containment facilities shall be designed and constructed so that the potentially polluting material cannot escape from the unit by gravity through sewers, drains, or other means, directly or indirectly into a sewer system, or to the waters of the state (including groundwater).

ff. Underground storage tanks shall be registered, installed, operated, maintained, closed or removed in accordance with regulations of the Michigan Department of Environmental Quality.

gg. Aboveground storage tanks shall be certified, installed, operated, maintained, closed or removed in accordance with regulations of the Michigan Department of Environmental Quality.

hh. Bulk storage facilities for pesticides and fertilizers shall be in compliance with the requirements of the Michigan Department of Agriculture.

ii. Abandoned water wells (wells that are no longer in use or are in disrepair), abandoned monitoring wells, and cisterns shall be plugged in accordance with regulations and procedures of the Michigan Department of Environmental Quality.

jj. State and federal requirements for storage, spill prevention, recordkeeping, emergency response, transportation and disposal of hazardous substances, hazardous wastes, liquid industrial wastes or potentially polluting materials shall be met. No discharges to surface water or groundwater, including direct and indirect discharges of wastes, wastewater effluent, wastewater, pollutants, or cooling water, shall be allowed without approval from appropriate state, county and local agencies.

(6) *Public art requirement.* Unless the project is exempt from this requirement pursuant to subparagraph (6)d. of this paragraph, the site shall be designed and developed to contain public art as defined by section 22-333 of the City Code and in accordance with the following:

a. A budget for the public art required by this section shall be established based on the allocation of one percent of the total project cost up to $25,000,000 to be committed to the procurement and display of public art on the site.

b. The public art shall be a work of art as defined by section 22-333 of the City Code and shall be approved by the city's arts commission in accordance with the definition of public art and the standards set forth in section 22-315(a)(1) and (7) of the City Code and the city council prior to site plan approval. The approval by the arts commission and city council shall not be unreasonably withheld.

c. The total allocation as established pursuant to subparagraph (6)a. shall be expended on those items listed in section 22-314(a)(1) through (4) of the City Code and shall not include any other expenditures. Maintenance shall be the responsibility of the owner of the property in addition to the allocation established by subparagraph (6)a. Failure to install the public art as required by this subparagraph and in accordance with the approved site plan shall result in denial of a certificate of occupancy. Failure to properly maintain the public art in accordance with the approved site plan is a violation of the zoning code and subject to enforcement pursuant to the provisions of section 50-33. Prior to any enforcement action, a violation notice shall be sent to the responsible party. A failure to cure the violation within 30 days shall constitute a violation and each day thereafter that the violation remains uncured shall constitute a separate offense.

d. The following projects are exempt from the public art requirements of this section:

1. Projects where the application of this requirement would constitute a governmental taking or otherwise be contrary to law, as determined by the zoning administrator, under the particular facts and circumstances of that case as explained in detail by the applicant. The zoning administrator may request additional information from the applicant if sufficient information is not provided with the site plan to make a determination. The applicant has all appeal rights as would otherwise be applicable to any determination by the zoning administrator.

2. Projects where the total project cost is less than $500,000.00.

3. Residential projects containing less than four residential units.

4. Projects where, upon issuance of the building permit, the applicant donates an amount equivalent to the amount established pursuant to subparagraph (6)a of this paragraph to the public art fund established pursuant to section 2-332 of the City Code or donates a "work of art" approved by the art commission of equal value to the fund established pursuant to subparagraph (6)a of this paragraph.

e. A developer may choose to partially exempt a project from the public art requirement of this section to the extent the developer chooses to donate funds or works of art less than the amount established pursuant to subparagraph (6)a of this paragraph in which case the budget required for public art shall be reduced by a corresponding amount.

(Ord. No. 1066, 12-7-2006; Ord. No. 1163, 2-20-2007; Ord. No. 1333, 3-4-2014; Ord. No. 1339, 10-7-2014; Ord. No. 1445, 3-26-2019)

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June 16, 2026
Project No. 2500792

Stephen Clayton, PE
Engineering Administrator
City of East Lansing
1800 East State Road
East Lansing, MI 48823

530 Albert Avenue Residential
530 Albert Avenue, East Lansing, MI
Traffic Impact Study Review

At the request of the City of East Lansing (City), Fishbeck has reviewed the revised Traffic Impact Study (TIS), completed by Stantec, and dated June 4, 2026, for the proposed residential development located at 530 Albert Avenue. Based on our review, Fishbeck offers the following comments and findings:

1. Item 1 and Items 3–5 from our review letter dated April 14, 2026, have been addressed satisfactorily.
2. Item 2 from our review letter dated April 14, 2026, was partially addressed. While it is anticipated these will result in minimal differences in the analysis, the Michigan Electronic Traffic Control Device Guidelines (ETCDG) should be followed. If any revisions to the study are completed, the following items should be revised:
   a. Volume Imbalances:
      - The comment response letter indicated that the volume imbalances in the a.m. peak hour models were within the thresholds identified by the ETCDG (fewer than 20 vehicles or 10%). However, the ETCDG states that the intersections should balance up to the higher volume intersection with the additional volume dropped at the next available dummy node.
3. With the change in scale and use of the development, we agree the TIS provides conservative results and does not need to be re-analyzed with the removal of two floors and reduction in number of units. However, the City may consider that the applicant update the previously submitted parking study to reflect the removal of parking spaces from this development.

At this time, Fishbeck recommends approval of the TIS. If any further revisions to the TIS are completed, the items in teal should be addressed.

If you have any questions or require additional information, please contact me at 616.464.3793 or kreidsma@fishbeck.com.

Sincerely,

Kyle M. Reidsma, PE, PTOE
Vice President/Senior Traffic Engineer/Project Manager

By email
Copy: Alyssa Wambold, PE, PTOE, RSP1 – Fishbeck

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PUBLIC WORKS AND ENVIRONMENTAL SERVICES

Quality Services for a Quality Community

MEMORANDUM

TO: **East Lansing City Council, East Lansing Planning Commission, City Departments**

FROM: **Cliff Walls, Environmental Sustainability and Resiliency Manager**

SUBJECT: **530 Albert Geothermal**

City of East Lansing
PUBLIC WORKS AND ENVIRONMENTAL SERVICES
1800 E. State Road
East Lansing, MI 48823

Mailing Address:
410 Abbot Road
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This memorandum is intended to inform City Council, the Planning Commission, and other City Departments of environmental concerns staff has identified regarding the proposed geothermal system at 530 Albert Avenue. Staff wants to be clear at the outset that the applicant appears to be acting in good faith and has proactively offered to meet with City staff to discuss these concerns — an offer staff intends to take them up on. Unfortunately, the timing of this review coincides with staff's planned absence, and a substantive technical meeting has not yet been possible. This memo is therefore intended as a snapshot of where things stand at this moment, as project agendas and notices are being finalized, so that others have visibility into concerns that staff believes warrant attention before this component of the project is authorized. These concerns may well be quelled through further discussion with the applicant and their technical team, and that conversation is welcomed and expected. What follows is an assessment of what is currently known to staff, what is not yet known, and what staff believes needs to be answered before the City can feel confident in the proposed system.

Background

The 530 Albert Avenue development project, proposed by Tareen Development Partners, includes a geothermal heating and cooling system to support LEED certification. The geothermal system is proposed to be provided by Darcy Solutions and consists of what appears to be a hybrid open/closed loop design in which groundwater is actively pumped through a heat exchanger within the lower unit of the well casing and reinjected into the same aquifer..

The City became aware of the geothermal component of this project very recently. A Phase II Environmental Site Assessment (ESA) prepared by Stantec Consulting Services (February 2026) was recently provided to City staff a day prior to the development of this memo. Review of that document has significantly heightened staff's environmental concerns regarding the feasibility of safely installing a geothermal well system at this location. Staff genuinely welcomes the applicant's commitment to renewable energy and LEED certification, and views geothermal as a promising technology for projects of this

type. The concerns that follow are specific to this location and what lies beneath it, not to the technology, hybrid loop system, or the project itself.

Site Environmental Conditions

Wellhead Protection Area

The subject parcel is located within the Saginaw Aquifer's 20-year Time of Travel (TOT) wellhead protection area. This designation means that water entering the ground at this location is estimated to reach a municipal drinking water wellhead within 20 years under natural groundwater flow conditions. The 20-year TOT zone represents a relatively high-sensitivity area within the broader wellhead protection framework, where the limited travel time reduces the window for detection and response to a contamination event before it reaches the drinking water supply. Protection of this aquifer from any action that could accelerate or create a direct pathway for contamination is staff's highest priority concern with respect to this project.

Confirmed Groundwater Contamination

The Phase II ESA identified chlorinated solvent contamination in shallow groundwater at the subject property. These compounds are consistent with historical drycleaning operations at an adjacent parcel and were detected at each groundwater sampling location on the site. In three of the five sampling locations, detected concentrations exceeded EGLE residential drinking water cleanup criteria, with some compounds detected at roughly 13 times their respective standards. The full extent of this contamination is not known by staff to be spatially delineated.

The Core Concern

The City's concern is not with the geothermal loop fluid itself, but with the act of boring. These contaminants are Dense Non-Aqueous Phase Liquids (DNAPLs), meaning they are denser than water and will continue to migrate downward through the subsurface until reaching an impermeable layer. Staff believe that installing a borehole through a shallow zone of confirmed chlorinated solvent contamination creates two risks:

- **Drilling mobilization:** The boring/drilling/auguring process can physically push contaminated groundwater downward ahead of the bit, introducing contamination beyond confining layers and into deeper zones that are currently unaffected.
- **Preferential pathway:** The annular space between the borehole wall and the well casing, if not properly grouted, creates a permanent conduit from the surface to the aquifer. On a site with confirmed DNAPL contamination, an improperly sealed borehole represents a direct pathway to the Saginaw Aquifer. Staff are not familiar enough with geothermal installations to understand the extent a temporary preferential pathway is created *during* drilling prior to grouting.

Unlike surface contamination, which can take decades to migrate to the aquifer through natural pathways, a compromised borehole can introduce contamination to the aquifer immediately.

Regulatory Gap

Staff are not aware of a state or county regulatory body or statue that meaningfully governs geothermal well installation in Michigan in a way that would independently address the concerns raised here. The Ingham County Health Department administers well construction permits, but its standard review process was not designed to evaluate geothermal specifically. EGLE does not have a geothermal-specific permitting program. The BEA and Due Care Plan the developer is pursuing address the developer's liability as a property owner but they do not constitute regulatory approval of the geothermal installation or provide a proactive mechanism to protect the aquifer from the risks described above. Due Care Plans in particular are self-administered; and enforcement is reactive rather than preventive. They are an important liability protection instrument for property owners, but they are not a substitute for the kind of proactive technical review staff believe this project warrants.

In the absence of an external regulatory safeguard, it falls to the City to ask and obtain satisfactory answers to these questions before authorizing this installation. That is the basis for the requests made of the developer by staff, described below.

Conditions Requested of the Developer

Staff has requested the following from the project applicant. Council and the Planning Commission may wish to consider formally incorporating these as conditions of any project approval:

- **Plume Delineation:** A comprehensive delineation of the groundwater contamination plume must be conducted and submitted, defining its extent relative to proposed well locations.
- **Independent Third-Party Hydrogeological Review:** Given the significance of the risk, the City proposes retaining an independent, qualified hydrogeological consultant to review the project's viability, identify any additional subsurface investigation required, and specify installation precautions if the project is determined to be approvable. All costs for this review would be borne by the applicant.
- **Financial Assurance:** The applicant may be requested to secure a long-term financial assurance bond to cover potential cleanup, remediation, and water treatment costs should the Saginaw Aquifer be impacted by this project. The bonding would be determined based on the third-party risk assessment.

- **Previous requests:** Additional conditions regarding accredited installer qualifications, grouting specifications, as-built documentation, ELMWSA review, ICHD permitting, and a decommissioning plan have been communicated to the developer in writing previously, prior to staff receipt of the Phase II assessment.

A Note on Environmental Documentation

Staff wishes to clarify for Council and the Planning Commission that the environmental investigations and documentation the developer has performed - the Phase I ESA, Phase II ESA, Baseline Environmental Assessment, and Due Care Plan - are standard instruments of commercial real estate transactions involving contaminated properties. They document site conditions and can protect a new owner from liability for pre-existing contamination, and are an important tool that incentivizes development on contaminated properties rather than greenfields. While valuable, they do not constitute regulatory approval of the geothermal installation, do not address the specific risks of borehole drilling through shallow groundwater contamination, and should not be interpreted as State approval of the proposed geothermal system.

Staff Position

Staff does not have sufficient information at this time to conclude that the proposed geothermal installation can be accomplished safely at this location. Staff is not asserting that it cannot be done; there may be engineering approaches that can adequately manage the risks described, and that determination is precisely what the conditions above are designed to help answer. However, the presence of confirmed groundwater contamination and the location within a 20-year TOT wellhead protection area creates a level of risk that warrants careful, expert review before any authorization is granted. Staff's obligation is to be transparent about what is currently unknown and to ensure the City does not inadvertently authorize something that could compromise the Saginaw Aquifer — the regional drinking water supply for this community and Mid-Michigan. The conditions requested above reflect that obligation, and staff looks forward to working through them with the applicant and other Departments.

PUBLIC WORKS AND ENVIRONMENTAL SERVICES

Quality Services for a Quality Community

MEMORANDUM

TO: **Landon Bartley, Planning & Zoning Administrator**

FROM: **Stephen Clayton P.E., Engineering Administrator**

DATE: **May 26, 2026**

SUBJECT: Engineering Review 530 Albert Avenue

City of East Lansing
PUBLIC WORKS AND ENVIRONMENTAL SERVICES
1800 E. State Road
East Lansing, MI 48823

Mailing Address:
410 Abbot Road
East Lansing, MI 48823

(517) 337-9459
www.cityofeastlansing.com

The Engineering Staff have reviewed the updated plans for development located at 530 Albert Avenue. The plans were prepared by TDP and Stantec and dated 5-5-2026. Our review was confined to Drawings TS-01; G-001 through G-003; and C-001through C-805.

The following items were acknowledged in their submittal of February 13, 2026, as those awaiting inclusion in future submittals:

4. Sheet C-101 - Callout 1.4 calls out stamped concrete pavement on sheet C-802. The detail shown on sheet C-802 does not show a stamping pattern.
The stamping pattern has not been decided upon at this time but will be provided to the city for approval as part of a permit submittal.

6. Sheet C-201 - Additional details and information will be required before issuing a SESC Permit.
Memo Acknowledged, additional information can be provided upon request. Additional perimeter controls in the form of additional bioroll was added to the plans for this submittal.

9. Sheet C-401 - Calculations must be provided to verify adequate pressure and flow.
Acknowledged. If acceptable, this will be provided during the permit review stage by the building engineer.

15. The following City of East Lansing permits will be required for this project. These can be obtained from the Department of Public Works Engineering Division

- **a. Water and Sewer Connection and Water Tap Permit.**
- **b. Grading and Soil Erosion Sedimentation Control Permit**
- **c. Occupation and Use of Street/Alleys Rights-of-Way Permit**
- **d. A tree survey is required prior to any site clearing**

Acknowledged. A tree survey has been submitted on sheet L-101. The permits will be obtained by ownership or their representative prior to construction.

17. Upon project final approval, the East Lansing Engineering Department shall receive a project bid set that includes all related specifications, plans and addendums.
Acknowledged.

The following additional comments are as follows:

Stormwater Management Plan Report:
As noted, the site is under one acre and is not required to meet the city's current stormwater criteria. Their report shows that the new site plan will actually reduce the imperviousness on the overall site by 834 sf. In addition, the enhanced landscaping will be beneficial. The underground storage chamber with its controlled outlet will allow the 24" alley sewer to surcharge 1.41' before ever reaching the invert elevation of the chamber outlet and over 8' before reaching the overflow weir of the chamber. The SWMP report also shows that the peak rate of discharge to both the alley sewer and the Albert Street sewer is reduced for the 2-year, 10-year, 25-year, and 100-year storm storms.

Site Utilities:
Sheet C-401 shows two 6" Fire Protection Services off the SW and SE corners of the building and a PIV on the north side of the building. These need to be verified and corrected.

A separate traffic study is being prepared and will be presented to the Transportation Commission at a later date. The City is okay with the conceptual changes to the plans as mentioned in the developer email dated May 18th, 2026:

Stantec will update the TIS to meet as many of the teal comments from Fishbeck's April 14th 2026 comment letter as we can
Stantec will not change the trip generation underpinning the TIS – instead, we will include a cover letter describing how the intensity of use has dropped from the first study to the current plan. The city finds this approach acceptable.

Any necessary site plan changes as a result of that review will be included during the permit review process.

All other previous issues identified have been satisfied.

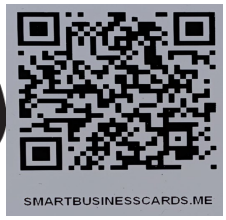
From: Adrian Ojerio
To: Alycia Reiten; Caleb Sharrow
Subject: Re: 530 Albert New Site Plan proposal
Date: Wednesday, May 20, 2026 4:29:09 PM
Attachments: Outlook-tmn4hnz2.png
Outlook-nj5yrzd5.png

For the 530 Albert's elevated patios and publicly accessible rooftop area, an enhanced safety suggestion would be to increase the height of the glass / clear exterior safety rail.

Additionally, the police would like to echo Caleb's suggestion that some amount of parking be provided to accommodate residents in special circumstances.

Capt. Adrian Ojerio #149
East Lansing Police Department
409 Park Ln East Lansing MI 48823
aojerio@cityofeastlansing.com





From:	Blake Holt
To:	Alycia Reiten; Stephen Clayton; Ronald Lacasse; Bob Scheuerman; Tim Schultz; Bryan Thomas; John Pomaville; Joseph Hardin; Cliff Walls; Blake Harrity; Adrian Ojerio; Heather Majano; Caleb Sharrow
Cc:	Stephen Darling; Jennifer Lacasse; Thomas Shafer
Subject:	RE: 530 Albert New Site Plan proposal
Date:	Tuesday, May 12, 2026 2:53:00 PM
Attachments:	image002.png

Alycia,

I have one comment to add to those previously provided and answered.

This will likely be included with the code plans for permitting, but they will need to include clearances and account for emergency shutoffs for the proposed grills and firepits. The installation of these appliances shall be in accordance with chapters 58 and 61 of the 2015 IFC, section 307 of the 2015 IFC, NFPA 54, and any other applicable codes or standards.

Thanks,

Blake Holt
Fire Marshal
City of East Lansing Fire Department
Email: bholt@cityofeastlansing.com
Phone: 517-319-6968 | Mobile: 517-643-5397
1700 Abbot Rd., East Lansing, MI 48823

From:	Caleb Sharrow
To:	Alycia Reiten; Stephen Clayton; Ronald Lacasse; Bob Scheuerman; Tim Schultz; Bryan Thomas; John Pomaville; Joseph Hardin; Cliff Walls; Blake Harrity; Blake Holt; Adrian Ojerio; Heather Majano
Cc:	Stephen Darling; Jennifer Lacasse; Thomas Shafer; Aleece Hodges
Subject:	RE: 530 Albert New Site Plan proposal
Date:	Thursday, May 21, 2026 11:35:39 AM

Hi Alycia.
Here are notes from the downtown parking team:
-No onsite parking provided – they should provide some on-site parking for special residential or business parking accommodations, like ADA or other special needs. I understand a variance would be required for this.
-We can commit approximately half of the 215 parking spaces we are comfortably willing to offer to this development throughout the downtown parking system, at market rate. Developer will be responsible to pay for all the permits in bulk regardless of residential occupancy rate. Developer will manage disbursement, tracking and replacement permits. New and replacement permit cards will be charged at the market rate. Agreement for up to 30 years with re-evaluation of the agreement every 5 years.
-They will be going from 2 metered on street loading zone spaces to 9, which is good. Developer should maximize metered loading zone spaces along the street.
-Angled recessed delivery area in the alley should be planned for so one delivery vehicle does not block the alley. Width of alley should be sufficient for delivery vehicles to pass one another.

Thanks,
Caleb
EL Downtown Parking

CITY OF EAST LANSING
LAND USE DEVELOPMENT APPLICATION

PROPERTY ADDRESS: 530 Albert Avenue **PARCEL ID(S):** 33-20-02-18-167-010

PROPERTY OWNER: Fabian Enterprises, LLC and Metzger Revocable Trusts
(Or legal representative)
Mailing Address: 827 Huntington Road, East Lansing, MI 48823

Contact Person: Kristin Metzger **E-mail Address:** [redacted]

Office/Cell/Fax: NA | Upon Request | NA

APPLICANT: TDP Acquistions LLC
(If not property owner)
Mailing Address: 2720 Fairview Ave N, Suite 200, Roseville, MN 55113

Contact Person: Cody Dietrich **E-mail Address:** [redacted]

Office/Cell/Fax: NA | 507-440-5702 | NA

LEGAL STANDING: Good Standing - Have a site control through Purchase Agreement
(If non-owner applicant)

DESIGN CONSULTANT: ESG Architecture and Design

Mailing Address: 350 N. 5th Street, Suite 400 Minneapolis, MN 55401

Contact Person: Christine Pecard **E-mail Address:** [redacted]

Office/Cell/Fax: 612-373-4677 | Upon Request | NA

Note: **The property owner, applicant and design consultant; as identified above will be mailed copies of meeting agendas, staff reports and other official communications related to this application. If co-applicants or additional consultants are involved and should also receive these materials, please list their name and mailing address on the back of this form.**

PROPOSED ACTION(S): To construct a new residential development with ground floor commercial.
(Describe proposed development)
The development will be a 10-story residential building with LEED Gold, processing under a site plan approval.

I (we) hereby grant permission for members of the East Lansing City Council, its Planning Commission, its staff and its consultants the right to enter onto the property described in this application in my (our) absence for the purpose of gathering information, including but not limited to the taking and use of photographs.

Please check one: ■ **Yes** ☐ **No**

By the signature(s) below, I (we) certify that the information provided in this application, including the accompanying plans and other documentation is, to the best or my (our) knowledge, true and accurate.

Owner (mandatory)	Date	Applicant	Date
	5/5/2026		5/5/2026

SUBMIT TO:
Department of Planning, Building & Development
City of East Lansing, Room 217, 410 Abbot Road, East Lansing, MI 48823
Phone: (517) 319-6930 Fax: (517) 337-1607 E-mail: coelplanningcommission@cityofeastlansing.com

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CO-APPLICANTS OR ADDITIONAL CONSULTANTS:

Name: Stantec **Role:** Civil/Landscape/Survey

Mailing Address: 2321 Club Meridian Drive, Suite E, Okemos, MI 48864

Contact Person: John Penshorn **E-mail Address:** [redacted]

Office/Cell/Fax: 517-249-4398 Upon Request NA

Name: _____ **Role:** _____

Mailing Address: _____

Contact Person: _____ **E-mail Address:** _____

Office/Cell/Fax: _____ _____ _____

For Office Use:

APPROVAL NEEDED: ☐ **Site Plan** ☐ **Special Use Permit** ☐ **Other:** _____

Wetlands*: Y N **Flood Plain: Y N** **Historic District: Y N** **DDA: Y N**

Note: If the application involves property which falls within any of the above designated special areas, review by one or more other City boards or commissions will likely be required and may affect the overall review schedule.

MATERIALS SUBMITTED:

_____ 1 Reduced Set Drawings (11" x 17" or smaller)	_____ Descriptive Text (8 ½" x 14" or smaller)	_____ Public Art Requirement Supplement
_____ Topographic Survey	_____ Parking Plan	_____ Wetland Verification*
_____ Proposed Site Plan	_____ Building Floor Plan(s)	_____ Draft Mitigation Plan
_____ Landscape Plan	_____ Building Elevations	_____ Environmental Checklist
_____ Preliminary Utility Plan	_____ Land Use Summary	
		Other: _____

*Wetland Assessments and Boundaries must be verified by the City Engineer

Fee Total: $_____ **Check No:** _____ **Date:** _____ **Received By:** _____

PRELIMINARY REVIEW SCHEDULE

The schedule below reflects the standard review process outlined in the Zoning Code and in the Planning Commission's By-laws. It may be necessary for the Planning Commission and/or the City Council to defer action on the application to one or more subsequent meetings to gather further information or to accommodate additional review and debate. Where wetlands are present, the Planning Commission cannot take final action until the Commission on the Environment has first reviewed it. The owner, applicant and their design assistants will be advised in advance of any change(s) in the meeting schedule on the application.

Wednesday:	**Tuesday:**
Planning Commission Hearing: _____	**City Council Receipt:** _____
Planning Commission Action: _____	**City Council Action:** _____

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Land Use Summary Information

(Required to be submitted as part of application)

Application: 530 Albert Avenue

Existing Site Conditions	**Acreage**	**Square Footage**
Total Site Area	0.69	30,024
Net Site Area	0.69	30,024
Wetland Area	0	0

Proposed Site Conditions	**Square Footage**	**Percent of Site**
Building Coverage (all structures)	22,035	73.4%
Roads, driveways and parking spaces	0	0%
Sidewalks, patios, other impervious surfaces	3,437	2.3%
Total Ground Coverage	25,472	84.8%
Wetland area to be preserved	0	0
Wetland area to be filled or drained	0	0
Proposed wetland mitigation area	0	0

Proposed Development Parameters

Nonresidential Uses	**Gross Floor Area**	**Net Floor Area**
Total Floor Area	218,639	
Basement	0	
First Floor	21,322	
Second Floor	22,035	
Other Floors	175,282	
Other Elements		

Residential Uses	**Total Number**	**Average Floor Area**
Efficiency Units	27	399
One-Bedroom Units	36	572
Two-Bedroom Units	53	847
Three-Bedroom Units	89	1,047
Other Units		

Total Number Parking Spaces Provided

Total Spaces 0 Small Car Spaces 0 Barrier-Free Spaces 0

Prepared by: Cody Dietrich **Date:** 5/4/2026

Rev. 09/22

CITY OF EAST LANSING
ENVIRONMENTAL PERMITS CHECKLIST
(To be submitted as part of application as applicable)

PROPERTY ADDRESS:	530 Albert Avenue	**PARCEL ID(S):**	33-20-02-18-167-010
PROPERTY OWNER: (Or its legal representative) **Mailing Address:**	Fabian Enterprises, LLC and Metzger Revocable Trusts		
	827 Huntington Road, East Lansing, MI 48823		
Contact Person:	Kristin Metzger	**E-mail Address:**	[redacted]
Office/Cell/Fax Nos.:	NA	Upon Request	NA
APPLICANT: (If not property owner) **Mailing Address:**	TDP Acquistions LLC		
	2720 Fairview Ave N, Suite 200, Roseville, MN 55113		
Contact Person:	Cody Dietrich	**E-mail Address:**	[redacted]
Office/Cell/Fax Nos.:	NA	507-440-5702	NA
Signature:	Cody S. Dietrich	**Date:**	5/4/2026

Instructions: *Circle (Y/N) the items that may pertain to your project or facility; then contact the office(s) listed to determine specific requirements. Return a copy of this checklist to the Department of Planning & Community Development as part of your project or development submittal – even if the approvals have not yet been obtained. This list includes the most common permits and approvals related to waster, water quality, and air quality. Other permits and approvals, including City approvals may also be necessary.*

1. Y (N) Will the project involve the discharge of any type of wastewater to a storm sewer, drain, lake, wetland, or other surface water? **Contact**: MDEQ/Water Bureau @ (517) 335-4176.
2. Y (N) Will the project involve the direct or indirect discharge of waste, waste effluent, wastewater, pollutants, and/or cooling water into the groundwater or on the ground? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
3. Y (N) Will the project involve construction or alteration of any sewage collection or treatment facility? **Contact**: MDEQ/Water Bureau @ (517) 335-4176. For *facilities discharging to surface waters*, **Contact**: MDEQ/Water Division @ (517) 335-4176. For *facilities discharging to groundwater*, Contact: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
4. (Y) N Will the project or facility store or use chemicals, petroleum products, or salt? Depending on the type of substance, secondary containment and a Pollution Incident Prevention Plan (PIPP) may be required. **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690 and Ingham County Health Department/ Environmental Health Division @ (517) 887-4312.
5. Y (N) Will the project involve the installation, operation, or removal of an underground or above ground storage tank containing a petroleum product or hazardous substance? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
6. Y (N) Will the project involve liquefied petroleum gas storage tanks or container filling stations? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
7. Y (N) Does the project involve the installation of a compressed natural gas dispensing station with storage? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
8. Y (N) Will the project involve the generation of hazardous waste? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
9. Y (N) Will the project involve the on-site treatment, storage, or disposal of hazardous waste? **Contact**: MDEQ/Waster & Hazardous Materials Division @ (517) 335-2690.

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10. Y (N) Will the project involve the transport of hazardous waste or non-hazardous liquid industrial waste? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

11. Y (N) Will the project involve landfilling, transferring or processing solid non-hazardous wastes on site? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

12. Y (N) Will the project involve the installation, construction, reconstruction, relocation, or alteration of any process or process equipment (including air pollution control equipment) which has the potential to emit air contaminants? **Contact**: MDEQ/Air Quality Division @ (517) 373-7023.

13. Y (N) Will the project or facility involve the storage, mixing, or distribution of pesticides or fertilizers in bulk quantities? **Contact**: Michigan Department of Agriculture/Region 6 Pesticide & Plant Pest Management Division @ (517) 335-1830.

14. (Y) N Will the project involve a manmade change in the natural cover (land clearing) and/or topography of land, such as cut/fill activities that may contribute to soil erosion/sedimentation? **Contact**: Ingham County Drain Commissioner @ (517) 676-8395; City of East Lansing Engineering Department @ (517) 337-9459; and MDEQ/Land & Water Management Division @ (517) 373-1170.

15. Y (N) Will the project involve dredging, filling, or construction in, across, or under a river, stream, creek, ditch, drain, lake, pond, swamp, wetland(s), or floodplain? **Contact**: MDEQ/Land & Water Management Division @ (517) 373-1170; City of East Lansing Engineering Department @ (517) 337-9459; and Federal Emergency Management Agency @ (800) FEMA-MAP.

16. Y (N) Will the project involve any dredging proposed within 500 feet of a lake, river, stream, creek, or ditch? **Contact**: MDEQ/Land & Water Management Division @ (517) 373-1170.

17. Y (N) Will an on-site wastewater treatment system or septic system be installed?

    For *subsurface sanitary sewage disposal in quantities equal to or greater than 10,000 gallons per day*. **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

    For *subsurface disposal of sanitary sewage in quantities of 6,000 to 10,000 gallons per day*: In addition to obtaining a construction permit from the Ingham County Health Department, submit a state wastewater discharge notification form. Flow monitoring and reporting are required. **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

    For *industrial or commercial wastewater (other than sanitary sewage) in any quantity*. **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

18. Y (N) Will the project involve construction of a water supply well or extension of a water supply service from an existing water system? **Contact**: MDEQ/Water Bureau @ (517) 335-4176.

19. Y (N) Are there out-of-service wells, abandoned wells, or cisterns on the site? (drinking water, irrigation & monitoring wells). **Contact**: MDEQ/Water Bureau @ (517) 335-4176; Ingham County Health Department/Environmental Health Division @ (517) 887-4312; and City of East Lansing Engineering Department @ (517) 337-9459.

20. Y (N) Will the project involve a subdivision or site condominium project utilizing individual on-site subsurface disposal systems or individual wells? **Contact**: Ingham County Health Department/Environmental Health Division @ (517) 887-4312.

21. Y (N) Will the project involve the on-site storage of sanitary sewage prior to transport and disposal off-site (pump and haul)? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

22. (Y) N Has the site/facility ever been subject to a remedial action, limited closure, or other environmental cleanup response under Part 201, Natural Resources and Environmental Protection Act (NREPA)? Is the property currently subject to a response action? Has a Baseline Environmental Assessment (BEA) been completed for the property? **Contact**: MDEQ/Remediation & Redevelopment Division @ (517) 373-9837 and/or MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

23. Y (N) Will the project involve the installation of a seawall or bulkhead? **Contact**: MDEQ/Land & Water Management Division @ (517) 373-1170 and City of East Lansing Engineering Department @ (517) 337-9459.

Notes:

a. For assistance with permits and approvals from the Michigan Department of Environmental Quality (MDEQ), including coordination among MDEQ divisions, contact the Permit Coordination Unit at (517) 373-1323.
b. For assistance on environmental issues at the MDEQ, contact the Environmental Assistance Center at (800) 662-9278
c. For Spill/Release Reporting to the MDEQ, call (517) 373-8481.
d. For pollution emergencies, call the MDEQ at (800) 292-4706 in Michigan and (517) 373-7660 outside of Michigan.

East Lansing Zoning Code, Section 50-37
Application Materials for Site Plan Approval

(To be submitted as part of application as applicable)

Each application shall include sufficient information and detail to determine if the proposed development meets applicable standards of review under the Zoning Code and other applicable standards. The information shall be prepared by persons with applicable competencies so that the city may rely on its accuracy and feasibility. Applications shall be submitted to the Department of Planning and Community Development.

Plan submission requires **one (1) full set** of plans reduced to 11" x 17" or smaller. Plan documents must be accurate and legible, drawn to a designated scale and dimensioned as appropriate to enable staff to determine compliance with relevant Code standards. Plans depicting the overall site should be prepared at the largest scale possible, a scale of one inch equal to no more than 100 feet. Floor plans and building elevations shall be drawn at no less than one-eighth inch equal to one foot.

Each submission also must include a completed application form, the required written information, a signed copy of this checklist, a signed copy of the environmental permits checklist, and the required application fee, made payable to the City of East Lansing. Any variations from these submission requirements must be approved by the Zoning Administrator. The application shall typically include the following drawings and information, as may be relevant to the nature of the application and the city's review requirements:

☒ (1) **A site plan**, as defined in section 50-9 of the Zoning Code, showing:

the proposed size and location of buildings, parking and access facilities, free-standing signs and other improvements to be constructed or installed on the site, and the proposed use and treatment of other areas on the site. The site plan shall be clearly dimensioned to show the setbacks of buildings and parking areas, the separation between buildings and parking areas, the height of buildings, the width of roadways and driveways, the size of parking spaces, and other elements of the site plan as necessary to ensure the site plan complies with the applicable dimensional standards of the Code.

a. Lot frontage meets the minimum for the zoning district.
b. Does the lot include multiple parcels? If so, it will need to be combined into one parcel.
c. Lot meets the minimum required acreage for the zoning district.
d. Has the required accessible parking spaces and accessible signage been provided.
e. Has the required electric vehicle charging stations been provided (see section 50-821).
f. Bicycle parking provided and meets requirement (see section 50-820).
g. Dumpster provided on site (see section 50-147).

☒ (2) **An existing topographic survey and boundary description** of the site, drawn at the same scale as the site plan, showing the following existing conditions:

☒ a. Exact dimensions and size of the site and any easements, rights-of-way or other physical encumbrances on the site;

☒ b. Location, size, and composition of all existing buildings, paved areas and other improvements;

☒ c. Existing ground contours at two-foot intervals or less, indicating the direction of surface drainage flow, and the type of surface soils present;

☒ d. Location and species of all existing individual trees which have a diameter (d.b.h.) of four inches or more, or where significant clusters of trees and shrubs are present, the location and general composition of such clusters, and an indication of which individual trees or tree clusters will be removed or retained;

☒ e. Location and boundaries of water bodies, including, but not limited to rivers, streams, lakes, ponds, marshes, city or county drains and manmade surface drainage ways;

☐ f. Where wetland of any size may be present, as indicated on the city's wetland inventory

Not Applicable

map, a report prepared by a qualified wetland consultant which verifies the presence of any wetland, establishes the boundary of any wetland, describes the character and quality of any wetland, and indicates if any wetland may be regulated by the state or protected by Chapter 49 of the City Code (this requirement may be waived by the city engineer where it is clearly evident that the proposed site changes would not disturb any wetland on the property);

☒ g. The boundary and elevation of areas of special flood hazard and floodways, as defined in chapter 18 of the City Code;

☒ h. Location and size of all existing utility lines, manholes, catch basins, and fire hydrants on or near the site which may be used to serve the site;

☒ i. Delineation of areas on the site which are known or suspected to be environmentally contaminated, together with a report on the status of cleanup or closure.

☒ (3) **A proposed landscape plan** which, at a minimum, conforms to the requirements of section 50-840 of the Zoning Code, drawn at the same scale as the site plan or larger, showing: the location and size of areas to be landscaped; the type, size and placement of plant materials to be installed; the type, size and location of existing trees and significant clusters of trees or shrubs to be preserved; the location and height of proposed earth berms; and the size and design of fences or other screens to be erected. For clarity, detailed plans drawn at a larger scale than the site plan may be submitted to show the typical design and treatment of similar landscaped areas and fencing. Must be sealed by a Registered Landscape Architect.

☒ (4) **Proposed preliminary engineering plans**, drawn at the same scale as the site plan or larger, showing the following proposed conditions:

☒ a. Ground contours at two-foot intervals or less, indicating the direction of surface drainage flow;

☒ b. Ground and floor elevations of buildings and other site improvements drawn to two decimal places;

☒ c. Location, dimensions and composition of roadways, driveways, curb cuts, parking and access facilities, curbing and sidewalks;

☒ d. Location and size of public utility connections, fixtures and easements;

☒ e. Stormwater management plan including the design of sewers, outlets, and retention or detention ponds, with sufficient data regarding site runoff estimates and off-site drainage patterns to permit review of the feasibility and permanence of drainage detention and/or retention as well as the impact on local surface and groundwater;

☒ f. Location and delineation of any wetland that would be disturbed and the location, existing character and proposed treatment of any proposed mitigation sites;

☒ g. Location and screening of exterior trash storage facilities;

☒ h. Type, height and placement of exterior light fixtures, including fixtures mounted on poles and on buildings;

☒ i. Location and status of any floor drains in existing or proposed structures on the site, indicating the point of discharge for all drains and pipes;

☒ j. Location of any on-site wastewater collection, treatment and disposal system;

☒ k. Location of existing and proposed public and private drinking water wells, monitoring wells, irrigation wells, test wells or wells used for industrial processes;

☒ l. Inventory of hazardous substances to be stored, used or generated on-site, in a format acceptable to the local fire marshal (including CAS numbers);

☒ m. Descriptions of type of operations proposed for the property with drawings showing size,

location, and description of any proposed interior or exterior areas for storing, using, loading or unloading hazardous substances, hazardous wastes, and/or polluting materials;

☒ n. Description and location for any existing or proposed above ground and below ground storage facilities;

☒ o. **Completed environmental permits checklist** on the form provided by the planning and zoning official.

☐ (5) **A traffic impact study** if so required under the provisions of division 4 of article II.
Not Applicable

☒ (6) **Proposed preliminary building plans**, drawn at an accurate scale, including:

☒ a. Interior floor plans showing the arrangement and use of rooms for each floor, maximum occupancy and seating plans where applicable;

☒ b. Building elevations showing the size, height, architectural style, and exterior materials to be used, and areas intended to be used for wall mounted signage.

☒ (7) **A descriptive text** which addresses the following items:

☒ a. The design principles followed in preparing the plans and how the plans address the objectives and criteria specified in section 50-38;

☒ b. The type of occupants anticipated and the market the project is intended to serve; for nonresidential uses, the intended hours of operation and the expected number of employees; for residential uses, the expected occupancy, the period of leases, and the approximate range of sale prices or rental rates of the proposed dwelling units;

☒ c. The land use statistics reflected in the proposed plans as measured against the required conditions in the applicable zoning district;

☒ d. A rationale for any variances from the requirements of this chapter which may be requested as part of the application;

☒ e. The proposed construction schedule and staging of the development.

☒ (8) **Public art requirement**, which addresses the following items:

☒ a. This application is to be completed by the Land Use Development Applicant for the above mentioned project. Please complete this application as thoroughly as possible. The information requested is necessary to properly perform a public art review and ensure compliance with section 50-36-8(6) of the City Code. Questions regarding the supplement can be directed to the Planning and Zoning Department, 517-319-6941.

☒ (9) **Downtown Development Design Guidelines**, if the proposed project is located within the Downtown Development Authority it must meet the requirements of the "East Lansing Development Guidelines".

☒ (10) **Lighting,** at a minimum, a photometric plan, including light fixture details and pole height, shall be provided to demonstrate that section 50-155 is met.

☒ (11) **Universal Design Standards**, at a minimum, provide a narrative describing how the proposal will fulfill the requirements of section 50-361 thru 50-365 of the City Code, if developing multiple-family housing.

Cody S. Dietz

Applicant's Signature _____ Date _____

Rev. 09/22

City of East Lansing
Public Art Requirement Supplement

Date: 5/4/2026 Project Name: 530 Albert

Property Address: 530 Albert Avenue

Total Project Cost: TBD x 1% = Value of Art Greater than $25,000 (Max $25,000)

Applicant Name: Cody Dietrich Signature: Cody S. Dietrich

This application is to be completed by the Land Use Development Applicant for the above-mentioned project. Please complete this application as thoroughly as possible. The information requested is necessary to properly perform a public art review and ensure compliance with section 50-38(6) of the City Code. Questions regarding this supplement can be directed to the department of Parks, Recreation and Arts, 517- 319-6940.

Project is exempt from Public Art Requirement (check appropriate box if applicable):

- ☐ The application of this requirement would constitute a governmental taking or otherwise be contrary to law. Please contact the Zoning Administrator for further instructions.
- ☐ A detailed narrative of the basis for an exemption from requirement pursuant to section 50-38(6)d.
- ☐ The project cost is less than $500,000.
- ☐ The project is a residential project containing fewer than four (4) residential units.
- ☐ The applicant intends to donate an amount equivalent to the value of art shown above to the public art fund. **(Donation is due upon submission of the building permit)**
- ☐ The project is a renovation of an existing building and has a total project cost less than $2.5 million.

For office use only:

☐ Approved by Zoning Administrator: _____ Date: _____

☐ Donation received. Date: _____ Check#: _____ Accepted by: _____

Public Art information (select one option below):

- ☐ Applicant intends to donate a piece of public art to the City of East Lansing, OR
- ☐ Applicant intends to install a piece of public art on its property

  Location: ☐ Interior - Attach floor plan showing location of art
  ☐ Exterior - Attach site plan showing location of art

Art Format:

☐ Sculpture ☐ Painting ☐ Mosaic ☐ Mixed Media ☐ Performing Art ☐ Digital ☐ Architecture

☐ Other: Murals

Artist information:

Name: TBD Phone: _____

Address: _____

Email: _____ Website: _____

Required attachments:

☐ Floor or Site Plan ☐ Full color rendering of art piece, to scale ☐ Documentation to demonstrate the value of the art piece

For office use only:

Received by: _____ Date: _____

Art Commission Action: ☐ Approved ☐ Denied

Rev. 09/22

From: Cody Dietrich
To: Alycia Reiten
Subject: 530 Albert - Planning Commission Follow-Up
Date: Monday, June 15, 2026 2:51:46 PM
Attachments: image001.png
2026-0615 530 ALBERT SWPPP.pdf
3. 26-0505_530 ALBERT AVE LAND USE SUBMITTAL 32x40 - Revise Metal and Trash.pdf
darcy-p133-mayo-bed-tower-la-crosse-case-study.pdf
Darcy - University of Minnesota.pdf

Hi Alycia,

In response to the Planning Commission last week, please see the attachments with notes below.

- SWPPP Plan
  - Although this was an item to come at permitting, we were able to complete this for you now
- Architectural Plans – the following updates
  - TS-01 - Zoning Table previously shared, added to the metrics area
  - A1-01 – Added "Recycling" to trash room and made a trash/recycling note on top
  - A1-02/03 – Added trash and recycling note on top
  - Elevation Sheets
    - Upgraded tan material from Stucco to metal panel for ease of constructability. Exterior Finish table updated note and changed STC-1 tag to MTL-4 tag to denote.
- Geothermal
  - As requested by Commissioner Denault, I have attached two case studies by our geothermal provider for a Mayo Clinic Building in Wisconsin and a building at the University of Minnesota. Additionally, I was able to get a few local geothermal projects from our other drilling partner who will likely be our geothermal partner on a project for us in Ann Arbor.
  - East Lansing Area Examples
    - East Lansing Public School District
      - Donley, Glencairn, Pinecrest & White Hills Elementary Schools
      - Completed in 2019
      - Combined total of 198 bores x 400 ft deep
    - Michigan State Capitol Building
      - Completed in 2017
      - 222 bores x 500 ft deep
  - Ann Arbor Area Examples
    - Ann Arbor Public School District

        - Clague, Forsythe Middle Schools (Completed in 2022)
        - Mitchell Elementary, Slauson Middle School, Logan Elementary, Dicken Elementary (systems currently under construction)
    - University of Michigan - South 5th Housing (Completed in 2023)
        - 84 bores x 800 ft deep
- Trash Notes
    - Trash and Recycling will be collected separately per our narrative. Recycling will be comingled and we also provide a cardboard dumpster in our main trash/recycling room
    - Our trash/recycling room has been oversized to provide space to appropriately move the dumpsters with 8 4-yard dumpsters. We anticipate 3 pick-ups per week of trash and 2-3 pick-ups for recycling.
    - There are no containers on the residential floors, and the floors utilize recycling and trash chutes that connect to the main trash/recycling room. Oversized cardboard would go into the main room on the grade level
    - Trash/recycling will be taken onto the screened pad for pick-ups. The screening doors are set back to not swing over the property line. The hauler would then pick them up in the alley as they do for the city enclosure and private dumpsters that are not screened.

If you have any questions, please let me know.

Thank you,

Cody

TAREEN DEVELOPMENT PARTNERS
Cody Dietrich
Vice President of Development
Cody@tdpmn.com | (507) 440-5702
tdpmn.com

From: Cody Dietrich
To: Alycia Reiten
Subject: 530 Albert - Clarifications
Date: Thursday, June 4, 2026 9:58:27 AM
Attachments: image001.png
Pages from 3. 26-0505_530 ALBERT AVE LAND USE SUBMITTAL 32x40.pdf

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Hi Alycia,

Thank you for the phone call this morning. Attached please find a mark-up of our submitted plan with the following notes for clarifications, and items coming shortly.

- Bike Parking
  - The cover sheet shows how many bedrooms we have, and I copied in the code section that requires 1 bicycle stall per 2 bedrooms.
- Setbacks
  - Highlighted the setback table on the Site Plan and circled the dimensions around the plan.
- Paths of Egress
  - I highlighted our egress distance on the first floor from the stair that does not exit directly outside
- Statement for Operations, Leasing and Rates
  - For the development, we anticipate the retail component to operate from 7 am to 2 pm daily and the apartment building from 9 am to 5 pm Monday through Friday with reduced hours within that time frame on Saturday's. The development will not include short term residential leases with the standard lease term being 12 months. We estimate the following lease rates subject to market conditions.
    - Studios - ~$1,900
    - 1-Bedrooms - ~$2,500
    - 2-Bedrooms - ~$3,500
    - 3-Bedrooms - ~$4,400
- Zoning Code Table
  - Per your request, we are creating this table to show that the project is in full compliance with the zoning standards
- Egress Distance – Residential Floors
  - Our team is updating a sheet to show these distances and will have over still today.

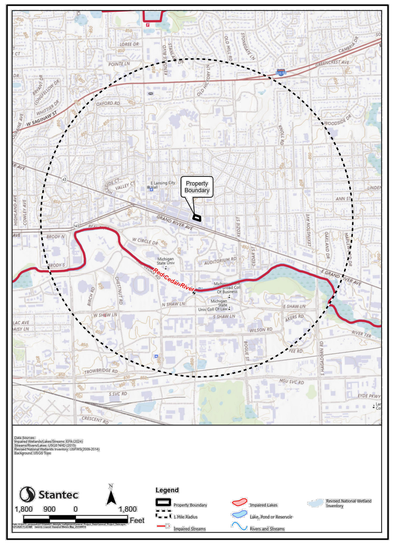
Thank you,

Cody

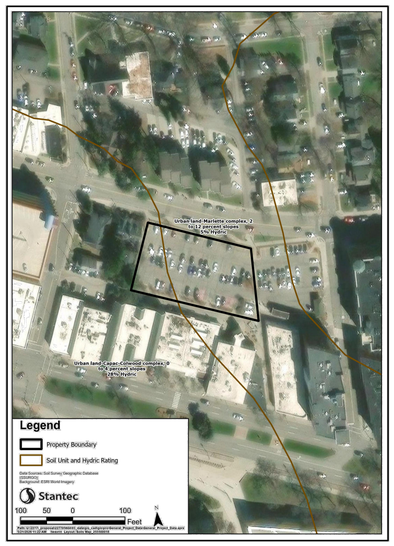
TAREEN DEVELOPMENT PARTNERS

Cody Dietrich
Vice President of Development
Cody@tdpmn.com | (507) 440-5702
tdpmn.com

IMPAIRED WATERS MAP



SOIL MAP



PROJECT INFORMATION

PROJECT NAME: 530 ALBERT
PROJECT LOCATION: 530 ALBERT AVENUE, EAST LANSING MI 48823
PROJECT TYPE: MULTIFAMILY RESIDENTIAL BUILDING
TOTAL AREA DISTURBED BY CONSTRUCTION: APPROXIMATELY 0.79 ACRES. THE TOTAL SITE AREA IS APPROXIMATELY 0.68 ACRES.

ESTIMATED CONSTRUCTION DATES: SUMMER 2026 - SUMMER 2027
CUMULATIVE IMPERVIOUS SURFACE/PERMANENT STORMWATER MANAGEMENT REQUIREMENTS:
THE PROPOSED PROJECT RESULTS IN A NET DECREASE OF 0.02 ACRES OF IMPERVIOUS AREA WITHIN THE LIMITS OF DISTURBANCE.

THE SITE IS WITHIN 1 MILE OF ANY IMPAIRED WATER. THE SITE ULTIMATELY DRAINS TO AN UNDERGROUND DETENTION BMP IS PROPOSED TO PROVIDE RATE CONTROL AGAINST EXISTING CONDITIONS, IN AN EFFORT TO BE GOOD STEWARDS OF THE LOCAL UTILITY SYSTEM AND REDUCE LOCAL POTENTIAL FOR FLOODING.

THE PERMANENT STORMWATER SYSTEM WILL CONSIST OF A UNDERGROUND DETENTION BMP IS PROPOSED TO PROVIDE RATE CONTROL AGAINST EXISTING CONDITIONS, DRAINING TO THE EXISTING STORM SYSTEM.

PARTY RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE SITE (OWNER): TDP ACQUISITIONS LLC
CONTACT: CODY DIETRICH
CONTACT PHONE: 507-440-5702
CONTACT EMAIL: CODY@TDPMN.COM
PARTY RESPONSIBLE FOR IMPLEMENTATION OF THE SWPPP (CONTRACTOR):
CONTRACTOR:
CONTRACTOR PHONE:
CONTRACTOR EMAIL:

CONTRACTOR SHALL PROVIDE A CHAIN OF RESPONSIBILITY WITH ALL OPERATORS ON THE SITE FOR INCORPORATION INTO THIS SWPPP DOCUMENT TO ENSURE THAT THE SWPPP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION PROJECT IS COMPLETE (THROUGH FINAL STABILIZATION AND NOT SUBMITTAL). CONTRACTOR SHALL ALSO PROVIDE DOCUMENTATION OF PERSONNEL TRAINING IN ACCORDANCE WITH THE PERMIT FOR INCORPORATION INTO THIS SWPPP DOCUMENT AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. CONTRACTOR IS RESPONSIBLE FOR KEEPING A FINAL SWPPP DOCUMENT, CONTAINING THE INFORMATION REQUIRED ABOVE, AT THE CONSTRUCTION SITE FOR THE DURATION OF THE PROJECT.

SWPPP DOCUMENTS

THE SWPPP IS COMPOSED OF, BUT NOT LIMITED TO, THE BELOW PROJECT DOCUMENTS. THESE DOCUMENTS SHALL BE KEPT ON THE PROJECT SITE AT ALL TIMES THROUGHOUT CONSTRUCTION. THE SWPPP SHALL BE AMENDED BY THE PERSON RESPONSIBLE TO INCLUDE ANY DOCUMENTS NECESSARY TO ENSURE ADHERENCE TO THE GENERAL PERMIT.

530 ALBERT CIVIL CONSTRUCTION DRAWINGS BY STANTEC DATED MAY, 2026
530 ALBERT STORMWATER MANAGMENT PLAN BY STANTEC DATED MAY, 2026

RECORD RETENTION - THE SESC PLAN, ALL CHANGES TO IT, AND INSPECTION AND MAINTENANCE RECORDS MUST BE KEPT ON-SITE DURING CONSTRUCTION; THE CONSTRUCTION DRAWINGS ARE INCORPORATED HEREIN BY REFERENCE, AND A COPY OF THE PLAN SET SHOULD BE KEPT ON-SITE WITH THE SESC RECORDS. THE OWNER MUST RETAIN A COPY OF THE SESC PLAN ALONG WITH THE FOLLOWING RECORDS FOR THREE (3) YEARS AFTER SUBMITTAL OF THE NOTICE OF TERMINATION:
1. ANY OTHER PERMITS REQUIRED FOR THE PROJECT;
2. RECORDS OF ALL INSPECTION AND MAINTENANCE CONDUCTED DURING CONSTRUCTION;
3. ALL PERMANENT OPERATIONS AND MAINTENANCE AGREEMENTS THAT HAVE BEEN IMPLEMENTED, INCLUDING ALL RIGHT OF WAY, CONTRACT, COVENANTS AND OTHER BINDING REQUIREMENTS REGARDING PERPETUAL MAINTENANCE; AND
4. ALL REQUIRED CALCULATIONS FOR DESIGN OF THE TEMPORARY AND PERMANENT STORMWATER MANAGEMENT SYSTEMS.

INSPECTIONS

THE INSPECTION LOG WILL BE COMPLETED BY THE CONTRACTOR FOR THE CONSTRUCTION SITE.
INSPECTOR(S): TBD - TRAINING DOCUMENTATION SHALL BE INCORPORATED INTO THIS SESC PLAN AS SOON AS THE PERSONNEL FOR THE PROJECT HAVE BEEN DETERMINED. THE CONTRACTOR WILL MAKE CORRECTIONS OR REPAIRS REQUIRED TO COMPLY WITH THE PERMIT.

INSPECTIONS AT THE SITE WILL BE COMPLETED IN ACCORDANCE WITH THE PERMIT AS FOLLOWS:
ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND,
WITHIN 24 HOURS AFTER A RAINFALL EVENT WHICH ALLOWS RUNOFF TO LEAVE THE SITE.

1. THE INDIVIDUAL PERFORMING INSPECTIONS MUST BE TRAINED AS A STATE OF MICHIGAN CERTIFIED STORMWATER OPERATOR. TRAINING DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR FOR INCORPORATION INTO THE SESC PLAN. INSPECTIONS MUST INCLUDE STABILIZED AREAS, EROSION PREVENTION AND SEDIMENT CONTROL BMPS, AND INFILTRATION AREAS. CORRECTIVE ACTIONS MUST BE IDENTIFIED AND DATE OF CORRECTION MUST BE NOTED. ANY OFFSITE DISCHARGE MUST BE DOCUMENTED. ANY AMENDMENTS TO THE SESC PLAN PROPOSED AS A RESULT OF THE INSPECTION MUST BE DOCUMENTED WITHIN SEVEN (7) CALENDAR DAYS. AN INSPECTION LOG IS PROVIDED BY DTMB; THE INSPECTION LOG AND SESC PLAN MUST BE KEPT ON-SITE FOR THE DURATION OF THE CONSTRUCTION PROJECT.

AT A MINIMUM, THE FOLLOWING SHALL BE COMPLETED DURING EACH INSPECTION:
-DATE OF INSPECTION
-NAME OF INSPECTOR
-NAME OF COMPANY REPRESENTATIVE
-GENERAL WEATHER CONDITIONS SINCE PREVIOUS INSPECTION
-IS THERE A POTENTIAL FOR SEDIMENT TO LEAVE THE SITE?
-HAS SEDIMENT LEFT THE SITE SINCE THE PREVIOUS REPORT? (EXPLAIN IN DETAIL)
-ARE SESC CONTROLS INSTALLED PER PLAN?
-ARE SESC CONTROLS EFFECTIVE?
-DO SESC CONTROLS REQUIRE MAINTENANCE?
-LIST CORRECTIVE ACTIONS AND INFORMATION REGARDING TIMELINE FOR COMPLIANCE ACTIONS, INCLUDING WHO WAS NOTIFIED OF NON-COMPLIANCE, AT WHAT TIME

THE GENERAL CONTRACTOR MUST UPDATE THE SWPPP, INCLUDING THE JOBSITE BINDER AND SITE MAPS, TO REFLECT THE PROGRESS OF CONSTRUCTION ACTIVITIES AND GENERAL CHANGES TO THE PROJECT SITE. UPDATES SHALL BE MADE DAILY TO TRACK PROGRESS WHEN ANY OF THE FOLLOWING ACTIVITIES OCCUR: BMP INSTALLATION, MODIFICATION OR REMOVAL, CONSTRUCTION ACTIVITIES (E.G. PAVING, SEWER INSTALLATION, ETC), CLEARING, GRUBBING, GRADING, OR TEMPORARY AND PERMANENT STABILIZATION.

THE CONTRACTOR MAY UPDATE OR MODIFY THE SWPPP WITHOUT ENGINEER APPROVAL IN AN EMERGENCY SITUATION TO PREVENT SEDIMENT DISCHARGE OR PROTECT WATER QUALITY. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE TO ENSURE COMPLIANCE WITH THE PERMIT AND PROTECTION OF DOWNSTREAM WATER QUALITY.

PROJECT SCHEDULE

INITIAL EROSION AND SEDIMENT CONTROL INSTALLATION:	SEPTEMBER 2026
REMOVALS AND SITE GRADING:	SEPTEMBER 2026 - MARCH 2027
SITE PAVING:	2028
REMOVAL OF TEMPORARY SEDIMENT CONTROLS AND PROJECT COMPLETION:	AUGUST 2028

EROSION AND SEDIMENT CONTROL

PRIOR TO ANY SITE DISTURBANCE, AND AS REQUIRED AS CONSTRUCTION PROGRESSES, ANY PERMIT REQUIRED EROSION PREVENTION MEASURES AND THE SEDIMENT CONTROL DEVICES INLET PROTECTION, CONSTRUCTION ENTRANCE, SILT FENCE, EROSION CONTROL BLANKET SHOWN ON THE CONSTRUCTION DRAWINGS WILL BE INSTALLED AT THE SITE.

ALL EXPOSED SOIL AREAS WITHIN THE CONSTRUCTION LIMITS WILL BE STABILIZED WITHIN 5 DAYS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS TEMPORARILY CEASED. STABILIZATION WILL BE INITIATED IMMEDIATELY. EXPOSED SOIL AREAS MUST HAVE TEMPORARY EROSION PROTECTION (SLASH MULCH, EROSION CONTROL BLANKET, SEED) OR PERMANENT COVER YEAR ROUND.

CONTRACTOR SHALL IMPLEMENT APPROPRIATE CONSTRUCTION PHASING, VEGETATIVE BUFFER STRIPS, HORIZONTAL SLOPE GRADING, AND OTHER CONSTRUCTION PRACTICES THAT MINIMIZE EROSION WHEN PRACTICAL.
SESC PLAN IMPLEMENTATION, PHASING, AND SEQUENCE OF CONSTRUCTION:
BMP AND EROSION CONTROL INSTALLATION SEQUENCE SHALL BE AS FOLLOWS:
1. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCE, CONCRETE WASHOUT PIT, AND INSTALL SILT FENCE.
2. INSTALL INLET PROTECTION AT EXISTING STORMWATER CULVERTS AND INLETS.
3. PREPARE TEMPORARY STORAGE, PARKING, AND PHASING AREAS.
4. CONSTRUCT AND STABILIZE DIVERSIONS AND TEMPORARY SEDIMENT TRAPS/BASINS.
5. PERFORM CLEARING AND GRUBBING OF THE SITE, IF APPLICABLE.
6. PERFORM MASS GRADING, ROUGH GRADE TO ESTABLISH PROPOSED DRAINAGE PATTERNS.
7. BEGIN EXCAVATION OF PERMANENT STORMWATER BASIN AREAS. SEE SEQUENCING BELOW FOR ADDITIONAL INFORMATION.
8. START CONSTRUCTION OF THE BUILDING PAD AND STRUCTURES.
9. INSTALL SMALL UTILITIES (GAS, ELECTRIC, PHONE, CABLE, ETC.).
10. PAVE CURB AND GUTTER, SIDEWALK, AND PARKING LOT/ DRIVEWAYS.
11. TEMPORARILY SEED WITH PURE LIVE SEED THROUGHOUT CONSTRUCTION. DISTURBED AREAS THAT WILL BE INACTIVE FOR 5 DAYS OR MORE AS REQUIRED BY NPDES OR PERMIT.

SEDIMENT CONTROL PRACTICES MUST MINIMIZE SEDIMENT FROM ENTERING SURFACE WATERS, INCLUDING CURB AND GUTTER SYSTEMS AND STORM SEWER INLETS. THE FOLLOWING MEASURES WILL BE TAKEN AS SEDIMENT CONTROL PRACTICES IN ORDER TO MINIMIZE SEDIMENTS FROM ENTERING SURFACE WATERS:
1. INSTALLATION OF SEDIMENT CONTROL PRACTICES ON ALL DOWN GRADIENT PERIMETERS PRIOR TO LAND DISTURBING ACTIVITIES.
2. SILT FENCING, FILTER LOGS, OR OTHER SEDIMENT CONTROL SURROUNDING TEMPORARY SOIL STOCKPILES.
3. VEHICLE TRACKING BMP AT CONSTRUCTION SITE ENTRANCE/EXIT. STREET SWEEPING SHALL BE PERFORMED IF VEHICLE TRACKING BMPS ARE NOT ADEQUATE TO PREVENT SEDIMENT TRACKING. TRACKED SEDIMENT MUST BE REMOVED FROM ALL PAVED SURFACES BOTH ON AND OFFSITE WITHIN 24 HOURS OF DISCOVERY PER THE PERMIT.
4. STREET SWEEPING IS NOT TO BE USED AS A PRIMARY BMP FOR SEDIMENT TRACKING. IF SEDIMENT IS TRACKED OFFSITE, WORK WILL CEASE UNTIL PROPER EROSION CONTROL AND SEDIMENT CONTROL DEVICES ARE INSTALLED AND/OR BEING MAINTAINED TO PREVENT TRACKING BEYOND THE SITE'S PERIMETER (CONTAINMENT AREA). ALL STREET SWEEPING MUST BE PERFORMED UTILIZING A PICK-UP SWEEPER. IF NECESSARY WATER WILL ALSO BE USED TO CLEAN UP THE STREETS PRIOR TO BEING SWEPT TO ENSURE THEY ARE FULLY CLEANED.

THE FOLLOWING GUIDELINES WILL BE USED TO DETERMINE IF POLLUTION CONTROL DEVICES REQUIRE MAINTENANCE, REPAIR, OR REPLACEMENT:
-IF SEDIMENT CONTROL DEVICES SUCH AS SILT FENCE ARE FILLED TO 1/3 THE HEIGHT OF THE FENCE, REMOVE ALL SEDIMENT WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.
-IF INLET PROTECTION DEVICES APPEAR PLUGGED WITH SEDIMENT, ARE FILLED TO 1/3 CAPACITY, OR HAVE STANDING WATER AROUND THEM, REMOVE THE SEDIMENT AND CLEAN OR REPLACE THE FILTER WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.
-IF THE GRAVEL CONSTRUCTION ENTRANCE(S) ARE FILLED WITH SEDIMENT EITHER REPLACE THE ENTRANCE OR ADD ADDITIONAL GRAVEL WITH 24 HOURS OF DETECTION OR NOTIFICATION.
-IF SEDIMENT FROM THE SITE IS OBSERVED ON ADJACENT STREETS OR OTHER PROPERTIES, THE INSPECTOR SHALL IDENTIFY THE SOURCE AND DISCHARGE LOCATION OF THE SEDIMENT AND INSTRUCT TO IMPLEMENT ADDITIONAL EROSION AND SEDIMENT CONTROLS AT THOSE LOCATIONS TO PREVENT FUTURE DISCHARGES.
-IF BUILDING MATERIALS, CHEMICALS, OR GENERAL REFUSE IS BEING USED, STORED, DISPOSED OF, OR OTHERWISE MANAGED INAPPROPRIATELY, CORRECT SUCH DEFECTS WITHIN 24 HOURS OF DETECTION OR NOTIFICATION.
-IF EXCESSIVE SEDIMENTS OR DEBRIS ARE OBSERVED AT THE FLARED END SECTION OUTFALLS, THE INSPECTOR SHALL DETERMINE THE SOURCE AND DISCHARGE LOCATIONS OF SUCH MATERIALS. IF THE DISCHARGE HAS OCCURRED ON THE PROPERTY, REMOVE THE SEDIMENTS AND DEBRIS WITHIN 24 HOURS OF NOTIFICATION AND CORRECT THE SOURCE OF SUCH MATERIALS AS DIRECTED BY THE INSPECTOR

POLLUTION PREVENTION MEASURES

SOLID WASTE:
SOLID WASTE, INCLUDING BUT NOT LIMITED TO, COLLECTED ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS AND OTHER WASTE, INCLUDING ALL TRASH ONSITE, MUST BE REGULARLY DISPOSED OF PROPERLY AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

HAZARDOUS MATERIALS:
HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCE MUST BE PROPERLY STORED INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MCPA REGULATIONS.

CONSTRUCTION EQUIPMENT/VEHICLES:
EXTERNAL WASHING OF TRUCKS AND OTHER CONSTRUCTION VEHICLES MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE. REASONABLE STEPS TO PREVENT THE DISCHARGE OF SPILLED OR LEAKED CHEMICALS SHALL BE TAKEN. ADEQUATE SUPPLIES MUST BE AVAILABLE AT ALL TIMES TO CLEAN UP DISCHARGED MATERIALS; CONDUCT FUELING IN A CONTAINED AREA UNLESS INFEASIBLE.

CONCRETE WASHOUT AREA:
CONCRETE WASHOUT WILL BE PERMITTED ON-SITE; CONTRACTOR SHALL FOLLOW ALL PERMIT REQUIREMENTS FOR CONCRETE WASHOUT. THE CONTRACTOR SHALL PROVIDE EFFECTIVE CONTAINMENT FOR ALL LIQUID AND SOLID WASTES GENERATED BY WASHOUT OPERATIONS. LIQUID AND SOLID WASHOUT WASTES MUST NOT CONTACT THE GROUND AND THE CONTAINMENT MUST BE DESIGNED TO PROHIBIT RUNOFF FROM THE WASHOUT OPERATIONS/AREAS. LIQUID AND SOLID WASTES MUST BE DISPOSED OF PROPERLY AND IN COMPLIANCE WITH MPCA RULES. A SIGN MUST BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY THAT REQUIRES SITE PERSONNEL TO UTILIZE THE PROPER FACILITIES FOR CONCRETE WASHOUT AND DISPOSAL OF WASHOUT WASTES. CONTRACTOR SHALL REVISE SWPPP TO INDICATE WASHOUT LOCATION ONCE THE LOCATION HAS BEEN DETERMINED.

FERTILIZERS AND LANDSCAPE MATERIALS MUST BE UNDER COVER TO PREVENT THE DISCHARGE OF POLLUTANTS OR PROTECTED BY SIMILARLY EFFECTIVE MEANS DESIGNED TO MINIMIZE CONTACT WITH STORMWATER.

PORTABLE TOILETS MUST BE POSITIONED SO THAT THEY ARE SECURE AND WILL NOT BE TIPPED OR KNOCKED OVER. SANITARY WASTE MUST BE DISPOSED OF PROPERLY.

UNDERGROUND DETENTION BASIN SEQUENCING NOTES

1. CONTRACTOR SHALL STAGE CONSTRUCTION APPROPRIATELY AND INSTALL ALL NECESSARY EROSION CONTROL TO PREVENT SEDIMENT WASHING INTO THE UNDERGROUND DETENTION BASIN.
2. IN THE EVENT THAT SEDIMENT IS INTRODUCED INTO THE UNDERGROUND DETENTION BASIN, THIS MATERIAL WILL NEED TO BE REMOVED PRIOR TO PROCEEDING WITH CONSTRUCTION.
3. UNDERGROUND DETENTION BASIN SHALL BE FREE AND CLEAR OF SEDIMENT UPON FINAL COMPLETION OF CONSTRUCTION.
4. KEEP UNDERGROUND DETENTION SYSTEM OFF-LINE BY RESTRICTING STORM WATER INFLOW UNTIL VEGETATION IS WELL ESTABLISHED IN THE CELL AND ALL UP GRADIENT AREAS HAVE BEEN STABILIZED AND IMPERVIOUS SURFACES CLEARED OF CONSTRUCTION SEDIMENT.
5. PROVIDE TOPSOIL AND SEED IN ACCORDANCE WITH THE EROSION CONTROL PLAN AND NPDES PERMIT.

GENERAL SWPPP NOTES

DEWATERING MAY BE REQUIRED DURING TRENCHING FOR UTILITY CONSTRUCTION. IN THE EVENT THAT DEWATERING IS NECESSARY CONTRACTOR SHALL COMPLY WITH STATE REQUIREMENTS FOR DEWATERING.

THIS SWPPP SHALL BE AMENDED BY THE CONTRACTOR IN ACCORDANCE WITH THE PERMIT AS NECESSARY TO INCLUDE ADDITIONAL REQUIREMENTS, TO CORRECT PROBLEMS IDENTIFIED, OR TO ADDRESS CONSTRUCTION SITUATIONS.

THE PROJECT WILL NOT DISTURB MORE THAN 5 ACRES THAT PROMOTE DRAINAGE TO A COMMON LOCATION, THEREFORE A TEMPORARY SEDIMENT BASIN WILL NOT BE REQUIRED. THIS SESC PLAN SHALL BE AMENDED BY THE CONTRACTOR IN ACCORDANCE WITH THE GENERAL PERMIT TO INCLUDE TEMPORARY SEDIMENTATION BASINS, IF THEY BECOME NECESSARY. BASIN OUTLETS SHALL BE DESIGNED TO WITHDRAW WATER FROM THE SURFACE OF THE BASIN, PREVENT SHORT-CIRCUITING AND THE DISCHARGE OF FLOATING DEBRIS. BASINS SHALL HAVE A STABILIZED EMERGENCY OVERFLOW LOCATION AND BE DESIGNED TO PREVENT THE DISCHARGE OF POLLUTANTS TO THE EXTENT PRACTICAL.

FINAL STABILIZATION:
ALL PERVIOUS AREAS DISTURBED BY CONSTRUCTION AS DESIGNATED WILL RECEIVE VEGETATIVE COVER ACCORDING TO THE PLANS AND SPECIFICATIONS AND WITHIN THE SPECIFIED VEGETATIVE TIME SCHEDULE. FINAL STABILIZATION WILL OCCUR WHEN THE SITE HAS A UNIFORM VEGETATIVE COVER WITH A DENSITY OF 90% OVER THE RESTORED PERVIOUS AREAS. ALL TEMPORARY SYNTHETIC EROSION PREVENTION AND SEDIMENT CONTROL BMPS (SUCH AS SILT FENCE) MUST BE REMOVED AS PART OF THE SITE FINAL STABILIZATION. ALL SEDIMENT MUST BE CLEANED OUT OF CONVEYANCES AND TEMPORARY SEDIMENTATION BASINS IF APPLICABLE. NOTICE OF TERMINATION (NOT) MUST BE SUBMITTED WITHIN 30 DAYS OF FINAL STABILIZATION.

IMPAIRED WATERS, SPECIAL WATERS, AND WETLANDS

THIS PROJECT IS LOCATED WITHIN ONE MILE OF AN IMPAIRED WATER. THERE ARE IMPAIRED WATERS WITHIN CLOSE PROXIMITY OF THE SITE. DISCHARGE TO AN IMPAIRED WATER REQUIRES IMPLEMENTATION OF SECTION 23.1 OF THE PERMIT AS INCORPORATED INTO THIS SWPPP DOCUMENT.

THE PROJECT SITE DISCHARGES TO AN ONSITE UNDERGROUND DETENTION SYSTEM FOR STORMWATER MANAGEMENT PRIOR TO THE ULTIMATE DISCHARGE POINT TO CITY SEWER. THE PROJECT WILL NOT IMPACT WETLANDS. 0 SF OF WETLANDS WILL BE MITIGATED AS PART OF THIS PROJECT.

SITE SOILS - SITE SOILS ARE SHOWN ON THIS SHEET. THIS PROJECT IS NOT LOCATED IN A KARST AREA.

ESTIMATED BMP QUANTITIES AND INSTALLATION SCHEDULE

THE ADJACENT TABLE INDICATES THE ESTIMATED MATERIAL QUANTITIES NECESSARY TO IMPLEMENT THE TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPS IDENTIFIED IN THIS SESC PLAN AND ON THE CONSTRUCTION DRAWINGS. TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPS WILL BE INSTALLED/CONSTRUCTED WHEN NECESSARY AS CONSTRUCTION ACTIVITIES PROGRESS AND IN ACCORDANCE WITH THE NPDES PERMIT REQUIREMENTS.

MAINTAIN AND REPLACE BMPs DURING THE EXECUTION OF THE PROJECT AS REQUIRED TO CONTINUE SESC PERMIT COVERAGE DURING CONSTRUCTION

ESTIMATED BMP QUANTITIES

ITEM	QUANTITY	UNIT
INLET PROTECTION	4	EA
SEEDING	578	SY
BIO ROLL	881	LF
CONSTRUCTION EXIT	1	EA

NOTE: QUANTITIES ON PLAN SUPERCEDES LIST QUANTITIES IN A DISCREPANCY

CERTIFICATION

IN ACCORDANCE WITH THE AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NPDES, THE PREPARER OF THIS DOCUMENT WAS TRAINED UNDER THE EGLE WATER RESOURCES DIVISION SOIL EROSION AND SEDIMENTATION CONTROL REVIEW AND DESIGN PROGRAM.. JOHN PENSHORN'S CERTIFICATION IN DESIGN IS VALID THROUGH JULY 1, 2028.

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT: TAREEN DEVELOPMENT PARTNERS

530 ALBERT
530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

PROJECT TITLE:

ISSUE NO:	DESCRIPTION:	DATE:
1	LAND USE SUBMITTAL	05/05/2026
2	ARCHITECT SD SET	05/27/2026

CERTIFICATION:
STATE OF MICHIGAN — JOHN PENSHORN — License No. 6001313331 — PROFESSIONAL ENGINEER

PROJECT NO.:	255500018	
DWN BY: RAO	CHK'D BY: MJS	APP'D BY: JTP
ISSUE DATE:	05/27/2026	
ISSUE NO.:	2	
SHEET TITLE:	SWPPP	
SHEET NO.:	C-202	

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530 ALBERT STREET
EAST LANSING, MICHIGAN | Conceptual Rendering



esg

530 ALBERT STREET
EAST LANSING, MICHIGAN

Conceptual Rendering


esg
ARCHITECTURE & DESIGN



esg

530 ALBERT STREET
EAST LANSING, MICHIGAN

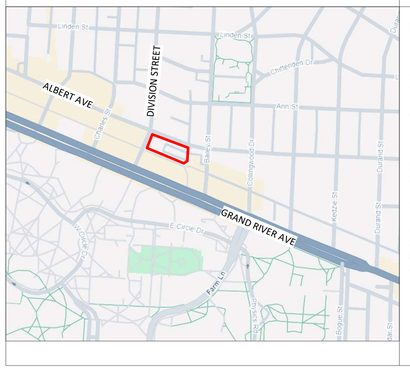
Conceptual Rendering

530 ALBERT AVE. DEVELOPMENT
LAND USE DEVELOPMENT SUBMITTAL

530 ALBERT AVE. EAST LANSING, MI 48823



VICINITY MAP



PROJECT TEAM

OWNER/DEVELOPER:
TAREEN DEVELOPMENT PARTNERS
2770 Fairview Ave N
Roseville, MN 55113
Cody Dietrich
CODY@TDPMN.COM

ARCHITECT:
ESG Architecture & Design
350 North 5th Street, Suite 400
Minneapolis, MN 55401
Christine Pecard
CHRISTINE.PECARD@ESGARCH.COM

CIVIL ENGINEER:
Stantec
2321 Club Meridian Drive, Suite E
Okemos, MI 48864-4588
John Penshorn, PE
JOHN.PENSHORN@STANTEC.COM

SHEET INDEX

Sheet Number	Sheet Name
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A1-06	SIGNAGE PLAN
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A3-02	ELEVATIONS
A3-03	ELEVATIONS
A3-04	ELEVATIONS
A3-05	ELEVATIONS
A3-06	ELEVATIONS

METRICS

Levels	Gross SF	Parking GSF	Residential GSF	Res. Amenity	Retail	Terrace, Roof, or Other	Residential NLSF	Efficiency NLSF		Res. Units	Res. Beds
LEVEL 1	21,322	-	-	13,878	1,500		-			0	0
LEVEL 2	22,035	-	22,035				18,986	86%		23	50
LEVEL 3	22,035	-	22,035				18,986	86%		23	50
LEVEL 4	22,035	-	22,035				18,986	86%		23	50
LEVEL 5	22,035	-	22,035				18,986	86%		23	50
LEVEL 6	22,035	-	22,035				18,986	86%		23	50
LEVEL 7	22,035	-	22,035				18,986	86%		23	50
LEVEL 8	22,035	-	22,035				18,986	86%		23	50
LEVEL 9	22,035	-	22,035				18,986	86%		23	50
LEVEL 10	21,037	-	21,037	802		963	17,983	85%		21	45
Total	**218,639**	**-**	**197,317**	**14,680**	**691**	**963**	**169,871**	**86.0%**		**205**	**445**

Unit Mix	Mix(Units)	Mix(Beds)	# of Units	# of Beds	# of BR
Studio	13%	6%	27	27	27
Alcove	9%	4%	18	18	18
One Bedroom	9%	4%	18	18	18
Two Bedroom	21%	20%	44	88	88
Two Bedroom 3 Occ.	4%	6%	9	27	18
Three Bedroom 2 Bath	26%	36%	53	159	159
Three Bedroom	18%	24%	36	108	108
Total	**100%**	**100%**	**205**	**445**	**436**

530 Albert, East Lansing MI

East Lansing - MI		
Zoning District		**B3 City Center Commercial District**
	Zoning Standard	**Proposed Building**
Permitted Use	Dwelling Units, 388 DU MAX above Level I Retail	**Compliant - No Units have more than 3 BR above first floor retail**
Building Coverage	90% + (*) Max 100% w/ Conditions	**76.4%**
Ground Coverage	85%+ (*) Max 100% w/Conditions	**84.8%** **Note: Qualify for additional coverage, but not utilizing**
Setbacks		**0.0'**
Front Yard	0' min.	**1.9'**
Rear Yard	0' min.	**1.5'**
Side Yard	0' min.	**East - 1.8', West 10.9'**
Floor Area Ratio	min 1.25	**7.28 FAR**
Building Height	min 4 Stories max 8 Stories 112' *Height Incentive Sec. 50-806 + (1409 max)	**10 Stories 113' 7" (140' max)** *Bonus: LEED Gold 2pts = 2 additional Stories
Vehicle Parking	Not Allowed	None Provided
Bicycle Parking	1 Space/2 Bedrooms	**436 BR = 218 Bicycle Spaces**

APPLICABLE CODES

-2015 MICHIGAN BUILDING CODE
-2021 MICHIGAN PLUMBING CODE
-2021 MICHIGAN MECHANICAL CODE
-2021 MICHIGAN ENERGY CODE
-2015 INTERNATIONAL FIRE CODE (IFC)

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530 ALBERT AVE.
DEVELOPMENT

530 Albert Ave, East Lansing, MI 48823

TAREEN DEVELOPMENT PARTNERS

esg
ARCHITECTURE & DESIGN
350 North 5th Street, Suite 400
Minneapolis, MN 55401
p 612.339.5508 | esgarch.com

NOT FOR CONSTRUCTION

LAND USE DEVELOPMENT SUBMITTAL
5-5-2026

ORIGINAL ISSUE:
11-05-2025 LAND USE SUBMITTAL
REVISIONS:

No.	Description	Date

2025-1701
PROJECT NUMBER

Author DRAWN BY | Checker CHECKED BY

KEY PLAN

530 ALBERT AVE.
DEVELOPMENT

COVER SHEET

TS-01

5/5/2026 11:14:05 AM

SITE PLAN

FOR

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

CLIENT

TAREEN DEVELOPMENT PARTNERS

TAREEN DEVELOPMENT PARTNERS
2770 FAIRVIEW AVE N, ROSEVILLE,
MN 55113
DEVELOPMENT MANAGER: CODY DIETRICH
(E) - CODY@TDPMN.COM

ENGINEER

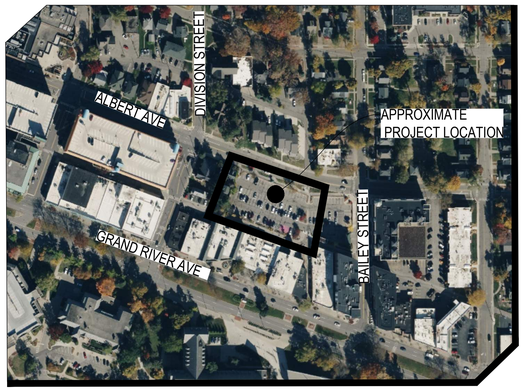
Stantec

STANTEC CONSULTING MICHIGAN, INC.
2321 CLUB MERIDIAN DRIVE SUITE E,
OKEMOS, MI 48864
PROJECT MANAGER: JOHN PENSHORN, PE
(E) - JOHN.PENSHORN@STANTEC.COM

ARCHITECT

esg

ESG ARCHITECTURE & DESIGN
350 NORTH 5TH STREET, SUITE 400,
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CONTACT: NATHAN CANTLEY, AIA
(E) - NATHAN.CANTLEY@ESGARCH.COM

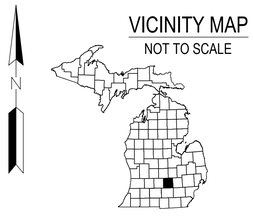


THIS SHEET SET CONTAINS 16 SHEETS

SHEET LIST TABLE

SHEET NUMBER	SHEET TITLE
G-001	COVER SHEET
G-002	GENERAL NOTES
G-003	GENERAL NOTES
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L-202	LANDSCAPE DETAILS

VICINITY MAP
NOT TO SCALE



PROJECT LOCATION
CITY: EAST LANSING
COUNTY: INGHAM

WARNING:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT MISS DIG AT 811 OR 1-800-482-7171 AT 3 BUSINESS DAYS (EXCLUDING HOLIDAYS) IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG
MISS DIG 811
MICHIGAN AREA: 811
TOLL FREE 1-800-482-7171

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Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT: TAREEN DEVELOPMENT PARTNERS

PROJECT TITLE: 530 ALBERT
530 ALBERT AVENUE, EAST LANSING,
MICHIGAN, 48823

ISSUE NO:	DESCRIPTION:	DATE:
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
LICENSED PROFESSIONAL ENGINEER
License No. 6201313291

PROJECT NO.: 255500018

DWN BY:	CHK'D BY:	APP'D BY:
RAO	MJS	JTP

ISSUE DATE: 05/05/2026
ISSUE NO.: 1
SHEET TITLE: COVER SHEET
SHEET NO.: G-001

GOVERNING SPECIFICATIONS

1. CITY OF EAST LANSING (CITY) STANDARD SPECIFICATIONS AND REQUIREMENTS.
2. MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) "STANDARD SPECIFICATIONS FOR CONSTRUCTION" LATEST EDITION AND SUPPLEMENTS.
3. CITY/UTILITY PROVIDER SPECIFICATIONS, LOCAL PLUMBING CODE
4. APPLICABLE FEDERAL, STATE, AND LOCAL LAWS AND ORDINANCES

PROJECT AGENCIES/AUTHORITIES

1. MUNICIPALITY: CITY OF EAST LANSING (CITY)
2. ROW AUTHORITY: CITY OF EAST LANSING
3. UTILITY AUTHORITY: CITY OF EAST LANSING PUBLIC WORKS
4. NOTE: NOT ALL APPLICABLE AUTHORIES MAY BE LISTED.

GENERAL NOTES

1. UNTIL REVISION BLOCK STATES "ISSUED FOR CONSTRUCTION", THE PLAN SET IS NOT CERTIFIED FOR CONSTRUCTION AND CONTRACTOR IS BUILDING AT THEIR OWN RISK.
2. EXISTING CONDITIONS SHOWN ARE FROM A TOPOGRAPHIC SURVEY COMPLETED BY MIDWESTERN CONSULTING LLC, DATED AUGUST 2025. EXISTING FEATURES MAY NOT BE EXACT TO THEIR LOCATION. CONTRACTOR RESPONSIBLE FOR VERIFYING THE CONDITIONS OF THE SITE AND MUST IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF DISCREPANCIES OR VARIATIONS FROM THE DRAWINGS.
3. SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-2 ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA". EXACT LOCATION/DEPTH OF SUBSURFACE UTILITIES SUCH AS GAS, TELEPHONE, FIBER OPTIC, SEWER, WATER, PIPELINES, ELECTRICAL, AND CABLE TV ARE UNKNOWN AND THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE.
4. CONTRACTOR RESPONSIBLE FOR CONTACTING MISS DIG 811 (811 OR 1-800-482-7171) A MINIMUM OF THREE BUSINESS DAYS IN ADVANCE BEFORE STARTING WORK FOR LOCATIONS OF UNDERGROUND UTILITIES.
5. CONTRACTOR SHALL ANTICIPATE PRIVATE UTILITY CONFLICTS THROUGHOUT THE PROJECT SUB CUT AND TRENCH AREAS AND MUST COORDINATE THE RELOCATION OR PROTECTION OF EXISTING UTILITIES, OR INSTALLATION OF NEW UTILITIES WITH UTILITY OWNERS THAT MAY HAVE BURIED OR AERIAL UTILITIES WITHIN OR NEAR THE CONSTRUCTION AREA BEFORE STARTING WORK. COSTS FOR SUCH WORK, INCLUDING EXTRA TIME AND EFFORT FOR PROVISIONS NECESSARY TO WORK AROUND OR UNDER UTILITIES, IS THE RESPONSIBILITY OF THE CONTRACTOR WITH NO ADDITIONAL COST TO THE OWNER. FEES OR CHARGES WHICH ARE TO BE PAID TO THE UTILITY COMPANY, INCLUDING WORK THAT MUST BE PERFORMED BY THE UTILITY COMPANY, ARE TO BE INCLUDED IN THE CONTRACTOR'S BID PRICE
6. WORK AND MATERIALS MUST COMPLY WITH CITY, COUNTY, STATE, AND FEDERAL (INCLUDING OSHA) REGULATIONS AND CODES.
7. CONTRACTOR SHALL COORDINATE WORK WITH OTHER CONTRACTORS PERFORMING WORK AT OR NEAR THE SITE.
8. CONTRACTOR SHALL COORDINATE AND MAINTAIN ACCESS TO PROPERTIES LOCATED WITHIN THE PROJECT LIMITS DURING CONSTRUCTION. ANY ACCESS RESTRICTIONS TO RESIDENTS/BUSINESSES OR ROAD CLOSURES WITHIN THE PROJECT LIMITS MUST BE COORDINATED AND NOTIFICATIONS PROVIDED A MINIMUM OF 48 HOURS PRIOR TO CREATING THE ACCESS RESTRICTION
9. CONTRACTOR SHALL COORDINATE AND MAINTAIN MAIL, GARBAGE, AND RECYCLING SERVICES TO PROPERTIES THROUGHOUT CONSTRUCTION. COORDINATE WITH LOCAL POSTMASTER, GARBAGE AND RECYCLING SERVICES.
10. CONTRACTOR SHALL COORDINATE AND MAINTAIN STORMWATER DRAINAGE CONVEYANCE THROUGHOUT CONSTRUCTION (BOTH PIPED AND OVERLAND FLOW). CORRECTION OF DAMAGED SOILS OR CONSTRUCTED SITE FEATURES THAT ARE A RESULT OF THE CONTRACTOR'S FAILURE TO PROTECT THE SITE FROM TEMPORARY DRAINAGE CONDITIONS SHALL BE PERFORMED AT NO ADDITIONAL COSTS TO THE OWNER. THE METHOD OF SOIL CORRECTION WILL BE DETERMINED BY THE ENGINEER/GEOTECHNICAL ENGINEER.
11. CONTRACTOR SHALL COORDINATE AND MAINTAIN WATER AND SANITARY FLOW TO AND FROM PROPERTIES. PROVIDE BYPASS AND TEMPORARY SYSTEMS, AS NECESSARY.
12. CONTRACTOR SHALL COORDINATE AND MAINTAIN UTILITY SERVICES TO ADJACENT PROPERTIES AT ALL TIMES. UTILITY SERVICE MUST NOT BE INTERRUPTED WITHOUT APPROVAL FROM OWNER, CITY, AND ADJACENT PROPERTIES.
13. CONTRACTOR SHALL COORDINATE WITH UTILITY SERVICES FOR SMALL/DRY UTILITY INSTALLATION.
14. CONSTRUCTION LIMITS ARE TO PROPERTY LINE UNLESS SHOWN OR NOTED OTHERWISE. CONTRACTOR SHALL RESTRICT CONSTRUCTION ACTIVITIES TO AREAS DESIGNATED ON PLANS WITHIN THE CONSTRUCTION LIMITS.
15. CONTRACTOR SHALL PRESERVE AND PROTECT EXISTING PAVEMENT, SITE FEATURES, UTILITIES, TREES, ETC., UNLESS NOTED OR SHOWN OTHERWISE.
16. EXISTING PAVEMENT AND SITE CONDITIONS HAVE BEEN DOCUMENTED, AND ANY DAMAGE TO THE EXISTING PAVEMENT, CURBING, STRIPING, OR OTHER SITE FEATURE TO REMAIN MUST BE REPLACED BY THE CONTRACTOR, TO OWNER'S SATISFACTION, AT NO ADDITIONAL COST TO THE OWNER.
17. CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING CONSTRUCTION AND WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES.
18. CONTRACTOR MUST IMMEDIATELY NOTIFY THE OWNER AND ENGINEER IN WRITING OF DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS ARE TO BE MADE WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. FAILURE TO NOTIFY OWNER AND ENGINEER OF AN IDENTIFIABLE CONFLICT BEFORE PROCEEDING WITH INSTALLATION RELIEVES OWNER AND ENGINEER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
19. CONTRACTOR SHALL HAVE ONE COPY OF EACH REQUIRED CONSTRUCTION PERMIT AND ONE COPY OF THE MOST CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS (INCLUDING PLANS, SPECIFICATIONS, GEOTECHNICAL REPORT, SPECIAL CONDITIONS AND PROVISIONS, ETC.) AVAILABLE AT THE PROJECT SITE AT ALL TIMES.
20. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR IMPLEMENTATION AND ENFORCEMENT OF SAFE WORK PRACTICES, INCLUDING BUT NOT LIMITED TO PERSONNEL MONITORING, USE OF TRENCHING, SHEETING, AND SHORING, SCAFFOLDING, MATERIALS HANDLING AND DRILLING; OPERATION OF EQUIPMENT; AND SAFETY OF PUBLIC DURING PROGRESS OF WORK.
21. CONTRACTOR SHALL PLAN FOR AND ENSURE PERSONNEL COMPLY WITH PROVISIONS OF OSHA SAFETY AND HEALTH STANDARDS (29 CFR 1910) AND GENERAL CONSTRUCTION STANDARDS (29 CFR 1926) AS APPROPRIATE.
22. CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH WORK. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS FOR SAFETY OF EMPLOYEES ON PROJECT SITE AND OTHER PERSONS AND ORGANIZATIONS WHO MAY BE AFFECTED BY THE PROJECT. CONTRACTOR'S DUTIES AND RESPONSIBILITIES FOR SAFETY IN CONNECTION WITH WORK SHALL CONTINUE UNTIL SUCH TIME AS ALL WORK IS COMPLETED, AND ENGINEER HAS ISSUED NOTICE TO CONTRACTOR THAT WORK IS COMPLETE.
23. HAZARDOUS MATERIALS, INCLUDING BUT NOT LIMITED TO OIL, GASOLINE, PAINT AND OTHER HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, BY THE CONTRACTOR, INCLUDING SECONDARY CONTAINMENTS, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH LOCAL/STATE/FEDERAL REGULATIONS. CONTRACTOR SHALL REMOVE SPILL OF FUELS, OILS, OR OTHER CHEMICALS IMMEDIATELY UPON DETECTION.
24. IF CONSTRUCTION IS ANTICIPATED TO OCCUR DURING COLD WEATHER, IN THE EVENT THAT SNOW/ICE REMOVAL IS REQUIRED FOR SITE ACCESS AND CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL REMOVE SNOW/ICE AND COORDINATE WITH OWNER FOR ACCEPTABLE SNOW/ICE STORAGE AREAS ONSITE. SNOW/ICE REMOVAL AND STORAGE IS INCIDENTAL TO THE CONTRACT.

REMOVAL / DEMOLITION NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR SHALL OBTAIN PERMITS REQUIRED FOR DEMOLITION, REMOVAL AND DISPOSAL.
3. CONTRACTOR SHALL REVIEW FEATURES NOT SPECIFICALLY IDENTIFIED ON PLAN FOR SALVAGE OR REMOVAL THAT CONFLICT WITH CONSTRUCTION WITH THE ENGINEER.
4. MATERIALS REMOVED/DEMOLISHED BY CONTRACTOR BECOME PROPERTY OF THE CONTRACTOR, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL LOAD AND HAUL MATERIAL OFF-SITE AND PROPERLY DISPOSE OF MATERIALS IN ACCORDANCE WITH APPLICABLE REGULATIONS. CONTRACTOR MUST LEAVE THE SITE IN A CONDITION TO THE SATISFACTION OF THE OWNER AND ENGINEER.
5. CONTRACTOR SHALL SAWCUT FULL DEPTH AT PAVEMENT REMOVAL LIMITS AND AS NECESSARY TO CREATE A SMOOTH FIT/TRANSITION ALONG MATCHING PAVEMENT AREAS.
6. CONTRACTOR SHALL COORDINATE UTILITY REMOVAL WORK WITH APPROPRIATE UTILITY OWNER.
7. CONTRACTOR SHALL SALVAGE AND REINSTALL STREET AND TRAFFIC SIGNS IN CONFLICT WITH CONSTRUCTION ACTIVITIES AS NOTED OR AS DIRECTED BY ENGINEER. IF SIGNS ARE DAMAGED DURING CONSTRUCTION, CONTRACTOR REQUIRED TO PROVIDE NEW SIGNS AT NO ADDITIONAL COST TO THE OWNER.
8. CONTRACTOR SHALL SALVAGE AND REINSTALL FENCE IN CONFLICT WITH CONSTRUCTION ACTIVITIES AS NOTED OR AS DIRECTED BY ENGINEER. IF FENCE IS DAMAGED DURING CONSTRUCTION, CONTRACTOR REQUIRED TO PROVIDE NEW FENCE, TO OWNER'S SATISFACTION, AT NO ADDITIONAL COST TO THE OWNER.
9. IN THE EVENT THAT UNKNOWN CONTAINERS OR TANKS ARE ENCOUNTERED, THE CONTRACTOR MUST CONTACT THE ENGINEER IMMEDIATELY. ALL CONTAINERS OR TANKS MUST BE DISPOSED OF PROPERLY AT A REGULATED/PERMITTED FACILITY.
10. CONTRACTOR SHALL REVIEW ALL TREE REMOVALS WITH THE OWNER AND CITY DEPARTMENT OF PUBLIC WORKS PRIOR TO REMOVAL OPERATIONS.

REMOVAL / DEMOLITION NOTES (CONT.)

11. CLEARING AND GRUBBING OPERATIONS MUST COMPLY WITH THE FOLLOWING: PROTECT ALL TREES AND PLANTS NOT DESIGNATED FOR REMOVAL; CONDUCT OPERATIONS IN SUCH A MANNER THAT DOES NOT DAMAGE PROTECTED TREES AND VEGETATION; CUT, REMOVE, AND DISPOSE OF TREES, BRUSH, SHRUBS, WINDFALLS, LOGS, STUMPS, ROOTS, FALLEN TIMBER, AND OTHER VEGETATION; BACKFILL DEPRESSIONS WITH NATIVE SOILS OR SUITABLE FILL MATERIAL AS REQUIRED BY DESIGN OR AS DIRECTED BY THE GEOTECHNICAL ENGINEER AND COMPACT BACKFILL AS DIRECTED; DISPOSE OF DEBRIS IN ACCORDANCE WITH APPLICABLE REGULATIONS; CONSIDER BENEFICIAL USE DESIGNATIONS FOR UNADULTERATED WOOD, WOOD CHIPS, BARK AND SAWDUST; NO BURYING OF CLEARED AND GRUBBED WASTE WITHIN THE CONSTRUCTION LIMITS.
12. UNLESS OTHERWISE NOTED, CONTRACTOR IS RESPONSIBLE FOR REMOVAL/DEMOLITION WITHIN ALL AREAS OF PROPOSED IMPROVEMENTS. REMOVAL LIMITS ARE IDENTIFIED ON THE DRAWINGS IN ANTICIPATED LOCATIONS. CONTRACTOR RESPONSIBLE FOR REMOVALS AS NECESSARY TO CONSTRUCT NEW IMPROVEMENTS AND CONFORM TO DESIGN REQUIREMENTS. ALL FACILITIES TO BE REMOVED MUST BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE FILL MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS AND AS DIRECTED BY THE GEOTECHNICAL ENGINEER.

TRAFFIC CONTROL NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR SHALL COORDINATE CONSTRUCTION STAGING, ON OR OFFSITE, AS NECESSARY TO COMPLETE THE WORK. IF OFFSITE STAGING AREA IS REQUIRED, CONTRACTOR IS RESPONSIBLE TO FIND, OBTAIN, AND PAY FOR NECESSARY STAGING AREA AT NO ADDITIONAL COST TO THE OWNER. SUBMIT A STAGING PLAN TO THE ENGINEER FOR REVIEW BEFORE STARTING WORK.
3. CONTRACTOR RESPONSIBLE FOR ALL TRAFFIC CONTROL . TRAFFIC CONTROL MUST BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE'S MUTCD, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS. SUBMIT TRAFFIC CONTROL PLAN TO CITY OF EAST LANSING, AND ENGINEER FOR REVIEW BEFORE CONSTRUCTION RELATED ACTIVITIES. PLANS MUST COMPLY WITH APPLICABLE PERMIT REQUIREMENTS. TRAFFIC CONTROL ALSO INCLUDES NECESSARY SIGNAGE AND MARKINGS FOR SIDEWALKS, TRAILS, BOARDWALKS, ETC. CLOSURE. THIS MUST INCLUDE ADVANCED WARNING SIGNS AND NECESSARY FENCING AND SIGNAGE TO PREVENT PEDESTRIANS FROM ACCESSING THE PROPOSED AREA.
4. CONTRACTOR MUST SCHEDULE WORK IMPACTING ALBERT AVE OR PUBLIC ALLEYS SOUTH OF THE PROJECT WITH THE OWNER, AND CITY OF EAST LANSING. CLOSURES OR DETOURS MUST BE ACCEPTED BY OWNER, AND CITY OF EAST LANSING PRIOR TO STARTING WORK.
5. CONTRACTOR SHALL MAINTAIN TWO-WAY TRAFFIC ON ALBERT AVE AT ALL TIMES, UNLESS OTHERWISE APPROVED BY THE ROAD AUTHORITY.

SITE NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. REFER TO THE ARCHITECTURAL, STRUCTURAL, LANDSCAPE, AND MEP PLANS FOR EXACT LOCATIONS OF AND DIMENSIONS OF BUILDINGS, VESTIBULES, STOOPS, OVERHANGS, COLUMNS, RAMPS, SIDEWALKS, TRASH ENCLOSURES, TRAFFIC GATES, MONUMENT SIGNS, LANDSCAPING, PLANTINGS, TREES, SITE LIGHTING, EXTERIOR ELECTRICAL, BACKFLOW PREVENTORS AND BUILDING UTILITY ENTRANCE LOCATIONS.
3. BUILDING LINES SHOWN ARE APPROXIMATE OUTSIDE LINES OF BUILDINGS AT GRADE, MAY NOT ACCOUNT FOR EXTRUSIONS (I.E. BALCONIES, OVERHANGS, LIGHTING, ETC.) ABOVE GRADE, AND ARE BASED ON INFORMATION PROVIDED TO STANTEC BY THE ARCHITECT. CONTRACTOR SHALL VERIFY FINAL BUILDING PLANS WITH ARCHITECT.
4. CONTRACTOR AND SURVEYOR SHALL FIELD VERIFY THE BUILDING FOOTPRINT/OUTLINE AND OUTER MOST EXTRUSIONS PRIOR TO CONSTRUCTION TO REVIEW POTENTIAL CONFLICTS WITH ADJACENT WORK, EXISTING SITE FEATURES, PROPERTY LINES, SETBACKS, ETC.
5. EQUIPMENT PAD ELEVATIONS SHOWN ON GRADING PLAN. EQUIPMENT PAD STRUCTURAL/CONCRETE DESIGN BY ARCHITECT/STRUCTURAL/MEP. COORDINATE WITH PROJECT PARTNERS.
6. CONCRETE GUTTER PAN TO TIP IN THE SAME DIRECTION AS THE ADJACENT PAVEMENT.
7. DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

PAVING, PAVEMENT MARKING, AND SIGNAGE NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR SHALL MAINTAIN STREET AND TRAFFIC SIGNS AT ALL TIMES DURING CONSTRUCTION.
3. SIGNS, PAVEMENT MARKINGS, AND OTHER TRAFFIC CONTROL DEVICES MUST BE IN ACCORDANCE WITH THE STATE'S MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) AND THE APPLICABLE ROAD AUTHORITY STANDARDS.
4. THE PAVEMENT SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE APPLICABLE ROAD AUTHORITY AND THE ENGINEER JUST PRIOR TO APPLICATION OF PAVEMENT MARKINGS. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIALS MANUFACTURER AND ACCEPTABLE TO THE APPLICABLE ROAD AUTHORITY AND THE ENGINEER.
5. THE PAVEMENT MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING.
6. PAVEMENT MARKING EDGE LINES ARE TO BE BROKEN ONLY AT INTERSECTION WITH PUBLIC ROADS AND PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAVEMENT MARKING RELATED ACTIVITIES, SUCH AS, BUT NOT LIMITED TO, COLLECTING DATA FROM IN PLACE LANE LINES, MARKING PERMANENT MARKING ALIGNMENTS, NECESSARY 'SPOTTING' AT APPROPRIATE POINTS AND TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. EXACT LOCATION OF PAVEMENT MARKINGS TO BE FIELD LOCATED BY THE ENGINEER.
8. THE CONTRACTOR SHALL HAVE A MINIMUM OF 2 PEOPLE WITH CURRENT ACI CONCRETE FLATWORK TECHNICIAN OR FLATWORK FINISHER CERTIFICATION, AND AT LEAST ONE OF THEM MUST BE ONSITE FOR ALL CONCRETE POURS.
9. PROTECT CONCRETE PAVING FROM DAMAGE. EXCLUDE TRAFFIC FROM PAVING FOR A MINIMUM OF 14 DAYS AFTER PLACEMENT. WHEN CONSTRUCTION TRAFFIC IS PERMITTED, MAINTAIN PAVING AS CLEAN AS POSSIBLE BY REMOVING SURFACE STAINS AND SPILLAGE OF MATERIALS AS THEY OCCUR. MAINTAIN CONCRETE FREE OF STAINS, DISCOLORATION, DIRT, AND OTHER FOREIGN MATERIALS. SWEEP PAVING NOT MORE THAN TWO DAYS BEFORE DATE SCHEDULED FOR SUBSTANTIAL COMPLETION INSPECTIONS. REPAIR OR REPLACE STAINED/DISCOLORED CONCRETE TO THE SATISFACTION OF THE OWNER AT NO COST TO THE OWNER.
10. CONSTRUCTION AND MATERIALS WITHIN PUBLIC RIGHT-OF-WAY MUST BE IN ACCORDANCE WITH APPLICABLE ROAD AUTHORITY'S SPECIFICATIONS AND STANDARDS. DOT SPECIFICATIONS AND STANDARDS APPLY IF NOT COVERED BY LOCAL OR COUNTY REGULATIONS. PAVING, PAVEMENT MARKINGS, AND SIGNAGE WITHIN THE SITE SHALL MEET THE FOLLOWING REQUIREMENTS:
    A. HMA: CONFORM TO MDOT SPECS 501, 902, AND 904, AND MDOT HMA PRODUCTION MANUAL
        1) TOP COURSE MIX DESIGN: SEE DETAILS
        2) BASE COURSE MIX DESIGN: SEE DETAILS
        3) RECYCLED MATERIAL: SEE DETAILS
        4) TACK COAT: MDOT SPECS 501.03.D BOND COAT AND 904 EMULSIFIED ASPHALT, CATIONIC, CSS-1 OR CSS-1H
    B. MAXIMUM ALLOWABLE HMA LIFT THICKNESS SHALL NOT EXCEED 3 INCHES. MINIMUM LIFT THICKNESS SHALL BE IN ACCORDANCE WITH THE FOLLOWING: 1.5 INCHES FOR MIXES WITH 0.5 INCH MAX AGGREGATE SIZE; 2 INCHES FOR MIXES WITH 0.75 INCH MAX AGGREGATE SIZE ; 0.75 INCHES FOR MIXES WITH 0.375 INCH MAX AGGREGATE SIZE.
    C. PLACE TACK COAT BETWEEN OLD (1 YEAR OR OLDER) BITUMINOUS SURFACE AND NEW LIFT AT A RATE OF 0.07 GALLONS PER SQUARE YARD.
    D. PLACE TACK COAT BETWEEN MILLED SURFACE AND NEW LIFT AT A RATE OF 0.08 GALLONS PER SQUARE YARD.
    E. CONCRETE SIDEWALK/DRIVEWAYS/SLABS MATERIALS: MDOT SPECS 602, 801, 803, AND 1004
    F. CONCRETE CURB AND GUTTER MATERIALS: MDOT SPECS 802, AND 1004
        1) MANUAL PLACEMENT: MDOT SPEC 1004 GRADE 4000
        2) SLIP FORM PLACEMENT: MDOT SPEC 1004 GRADE 4000
    G. CONCRETE METAL REINFORCEMENT:
        1) REINFORCING BARS: CONFORM TO MDOT SPECS 602, 905, AND 914, AND AS SPECIFIED ON THE DRAWINGS. COATING: MDOT SPEC 905.03.C
        2) TIE WIRE: TIE WIRES IN ACCORDANCE WITH MDOT SPECIFICATIONS
        3) BAR SUPPORTS: CONFORM TO "BAR SUPPORT SPECIFICATIONS AND STANDARD NOMENCLATURE", CRSI MANUAL OF STANDARD PRACTICE.
        4) WELDED WIRE FABRIC/REINFORCEMENT: CONFORM TO MDOT SPECS 602, 905, AND 914, AND AS SPECIFIED ON THE DRAWINGS. COATING: MDOT SPEC 905.03.C
    H. CONCRETE ISOLATION/EXPANSION JOINT MATERIAL: MDOT SPEC 914 FROM MDOT'S QUALIFIED PRODUCTS LIST. PROVIDE CAULKING/JOINT SEALANT AND BACKER ROAD AS RECOMMENDED BY JOINT MANUFACTURER.
    I. CONCRETE CURING MATERIALS: MDOT SPEC 903
    J. SILANE/SILOXANE CONCRETE SEALER: SILOXA-TEK 8500, OKON S40, ARMOR SX5000, OR APPROVED EQUAL. SHALL BE APPLIED PER MANUFACTUER INSTRUCTIONS. SHALL BE APPLIED ON A CLEAN, DRY, AND ABSORBENT SURFACE THAT HAS BEEN CURED FOR AT LEAST 28 DAYS PRIOR TO APPLICATION. SHALL BE APPLIED TO A SURFACE THAT IS ABOVE 40 DEGREES FAHRENHEIT AND WILL NOT FREEZE FOR AT LEAST 24 HOURS. APPLICATION RATE SHALL BE MONITORED AND BE GREATER THAN MANUFACTURERS RECOMMENDATIONS.

PAVING, PAVEMENT MARKING, AND SIGNAGE NOTES (CONT.)

    K. CONCRETE CURING AND SEALER ALTERNATE: TK PRODUCTS ONE-STEP CURING AND SEALING PRODUCT OR EQUAL. SHALL BE APPLIED PER MANUFACTUER INSTRUCTIONS. SHALL BE APPLIED TO A SURFACE THAT IS ABOVE 40 DEGREES FAHRENHEIT AND WILL NOT FREEZE FOR AT LEAST 24 HOURS. APPLICATION RATE SHALL BE MONITORED AND BE GREATER THAN MANUFACTURERS RECOMMENDATIONS.
    L. CONCRETE PLACING, FINISHING, CURING, AND PROTECTION: CONFORM TO MDOT SPECS 602, 706, 801, 802, AND 803, AND APPLICABLE ACI STANDARDS
        1) FOR HOT WEATHER PLACEMENT, COMPLY WITH ACI 305 HOT WEATHER CONCRETING (LATEST EDITION).
        2) FOR COLD WEATHER PLACEMENT, COMPLY WITH ACI 306 COLD WEATHER CONCRETING (LATEST EDITION). DO NOT PLACE CONCRETE IN AIR TEMPERATURE LESS THAN 40 DEGREES F WITHOUT APPROVAL OF THE ENGINEER.
        3) PRIOR TO POURING ANY EXTERIOR CONCRETE FLATWORK/SLAB, CONTRACTOR MUST VERIFY THE PREDICTED COMBINATION OF AIR TEMPERATURE, RELATIVE HUMIDITY, CONCRETE TEMPERATURE AND WIND VELOCITY WILL NOT EXCEED AN EVAPORATION RATE OF 0.20 POUNDS PER SQUARE FOOT OF SURFACE AREA PER HOUR IN ACCORDANCE WITH ACI 305 (LATEST EDITION) AND MDOT SPEC 706, FIGURE 706-1. THE WEATHER MUST ALSO BE LESS THAN 30% CHANCE OF PRECIPITATION FOR THE ENTIRE PLACEMENT WINDOW, AND 2 HOURS FOLLOWING EXPECTED COMPLETION. IF EITHER OF THESE CONDITIONS ARE NOT MET, THE POUR MUST BE POSTPONED UNTIL IT CAN MEET THESE REQUIREMENTS.
        4) INSTALLATION FORM: CONTRACTOR OR INDEPENDENT TESTING AGENCY IS REQUIRED TO FILL OUT AND SUBMIT THE ENGINEER'S EXTERIOR CONCRETE INSTALLATION FORM AT THE END OF THE DAY OF EACH POUR. CONTACT THE ENGINEER TO OBTAIN THE FORM.
        5) APPLY CURING COMPOUND AT A MINIMUM RATE OF 1 GALLON PER 150 SQ FT SURFACE CURING AREA OR MANUFACTURER RECOMMENDED APPLICATION RATE, WHICHEVER IS GREATER.
        6) CONSTRUCT TEMPORARY WIND BREAKS AS NECESSARY TO REDUCE WIND VELOCITY/DRYING/EXPOSURE.
        7) CONSTRUCT TEMPORARY SUNSHADES AS NECESSARY TO REDUCE CONCRETE TEMPERATURES/EXPOSURE.
        8) CONTRACTOR SHALL PROTECT ALL CONCRETE SLABS THROUGHOUT CONSTRUCTION FROM HEAVY EQUIPMENT, VIBRATIONS, ADJACENT WORK, ETC. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL CONCRETE DAMAGED DURING CONSTRUCTION AND SHALL REPLACE AT NO ADDITIONAL COST TO THE OWNER.
    M. AGGREGATE BASE: MDOT SPECS 302 AND 902 DENSE GRADED AGGREGATES CLASS 21A
    N. AGGREGATE SURFACING: MDOT SPECS 306, 307, AND 902 DENSE GRADED AGGREGATE CLASS 23A
    O. GRANULAR BASE: MDOT SPECS 205, 301, AND 902, GRANULAR MATERIAL CLASS II
    P. PAVEMENT MARKINGS: MDOT SPECS 811 AND 920
        1) PAVEMENT STRIPES: MDOT SPECS 811 AND 920
        2) PAVEMENT MESSAGES (ARROWS): MDOT SPECS 811 AND 920
        3) PRIOR TO APPLYING PAVEMENT MARKINGS, ALLOW NEW PAVEMENT TO CURE A MINIMUM OF 14 DAYS OR FOLLOW MANUFACTURER'S SPECIFICATION FOR PAVEMENT CURE TIME, WHICHEVER IS GREATER.
    Q. SIGNAGE: CONFORM TO MDOT SPEC 810 AND 919 . ALL SIGNS/POSTS SHALL MEET CRASHWORTHY REQUIREMENTS OF MASH-16. SIGNS SHALL INCLUDE NUMBER AND SIZE OF POSTS IN ACCORDANCE WITH MDOT WIND LOADING REQUIREMENTS. MOUNT SIGNS IN ACCORDANCE WITH SQUARE TUBE SIGN MOUNTING MDOT STANDARD PLANS AND REQUIREMENTS (STANDARD PLAN SIGN-200-E). SEE MDOT STANDARD PLANS FOR SIGN BLANK DETAILS FOR FLAT SHEET SIGN PANELS. SEE MDOT STANDARD PLANS AND REQUIREMENTS FOR DETAILS OF TRAFFIC SIGN INSTALLATION. SEE MDOT STANDARD PLANS AND MUTCD FOR SIGN MOUNTING HEIGHT AND OFFSET REQUIREMENTS.
11. CONTRACTOR SHALL PROVIDE CONCRETE JOINTS AS FOLLOWS:
    A. CONTROL JOINTS - MAINTAIN AN ASPECT RATIO (LENGTH TO WIDTH) BETWEEN CONTROL JOINTS AS CLOSE TO 1:1 AS FEASIBLE. DO NOT EXCEED ASPECT RATIO GREATER THAN 1.5:1. MATCH EXISTING PATTERN WHERE APPLICABLE. VERIFY WITH OWNER. MAXIMUM CONTROL JOINT SPACING SHALL BE 24 TIMES THE SLAB THICKNESS UP TO A MAXIMUM OF 12 FEET (I.E. 4-INCH-THICK SLAB = 96 INCH (8 FOOT) MAXIMUM CONTROL JOINT SPACING IN ANY DIRECTION, 8-INCH-THICK SLAB IS 12 FEET)
        1) JOINT INTERSECTION ANGLES LESS THAN 60 DEGREES WILL NOT BE ALLOWED
        2) PANEL WIDTHS LESS THAN 6 INCHES AT ANY POINT WILL NOT BE ALLOWED
        3) JOINTING MUST ACCOMMODATE IN-PAVEMENT STRUCTURES THROUGH JOINTING AND BOXOUTS
        4) CONTRACTOR MUST SUBMIT A JOINTING PLAN FOR ENGINEER ACCEPTANCE.
    B. EXPANSION/ISOLATION JOINTS - PROVIDE AT THE FOLLOWING:
        1) JOINT INTERSECTION ANGLES LESS THAN 60 DEGREES WILL NOT BE ALLOWED
        2) LOCATIONS WHERE CHANGES IN WIDTH OCCUR
        3) LOCATIONS WHERE ADJOINING EXISTING CONCRETE
        4) LOCATIONS THAT ABUT THE BUILDING AND OTHER SITE FEATURES INCLUDING RAMPS, STAIRS, LANDINGS, CONCRETE APRONS, ARCHITECTURAL AND LANDSCAPE FEATURES, ETC.
        5) LOCATIONS IN CHANGES IN DEPTH (INCLUDING PAVEMENT ADJACENT TO CURB).
    C. WHEREVER POSSIBLE MATCH JOINTS OF ADJACENT CONCRETE WORK.
12. FIELD QUALITY CONTROL:
    A. AGGREGATE BASE TESTING REQUIREMENTS AND FREQUENCY: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
    B. CONCRETE TESTING REQUIREMENTS AND FREQUENCY: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
    C. HMA TESTING REQUIREMENTS AND FREQUENCY: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
    D. GRANULAR BASE TESTING REQUIREMENTS AND FREQUENCY: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
13. TOLERANACES:
    A. HMA PAVEMENT: CONFORM TO MDOT SPECIFICATIONS AND THE FOLLOWING: DEVIATIONS ALONG ADA ACCESSIBLE ROUTES THAT EXCEED THE MAXIMUM SLOPES WILL BE CONSIDERED UNACCEPTABLE. HORIZONTAL/LINE DEVIATIONS GREATER THAN ±1 INCH WILL BE CONSIDERED UNACCEPTABLE. ANY SURFACE AREA ALLOWING ENTRAPMENT OF WATER AT A DEPTH OF 1/4 INCH OR GREATER WILL BE CONSIDERED UNACCEPTABLE. REMOVE AND REPLACE UNACCEPTABLE WORK AS DIRECTED BY THE ENGINEER AT NO ADDITIONAL COST TO THE OWNER.
    B. CONCRETE PAVEMENT: CONFORM TO MDOT SPECIFICATIONS AND THE FOLLOWING: VERTICAL DEVIATIONS IN SURFACE GREATER THAN ±3/16 INCH WILL BE CONSIDERED UNACCEPTABLE. DEVIATIONS ALONG ADA ACCESSIBLE ROUTES THAT EXCEED THE MAXIMUM SLOPES WILL BE CONSIDERED UNACCEPTABLE. HORIZONTAL/LINE DEVIATIONS IN LOCATION GREATER

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UTILITY NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR SHALL COMPLY WITH THE SPECIFICATIONS AND REQUIREMENTS OF THE CITY/UTILITY PROVIDER, MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION, COUNTY, LOCAL PLUMBING CODE, AND LOCAL REQUIREMENTS FOR MATERIALS, INSTALLATION, AND TESTING OF WATERMAIN UTILITIES.
3. CONTRACTOR SHALL COMPLY WITH THE SPECIFICATIONS AND REQUIREMENTS OF CITY/UTILITY PROVIDER SPECIFICATIONS, LOCAL PLUMBING CODE FOR MATERIALS, INSTALLATION, AND TESTING OF WATER AND SANITARY UTILITIES.
4. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 5 FEET COVER ON ALL WATERLINES, UNLESS OTHERWISE NOTED. PROVIDE HYDRANT EXTENSIONS AND GATE VALVE NUT EXTENSIONS IF WATERLINE IS DEEPER THAN MINIMUM COVER. PROVIDE INSULATION OVER WATERMAIN AND SERVICES WITH PROPOSED ELEVATIONS LESS THAN MINIMUM BURY DEPTH PER PROJECT DETAILS AND UTILITY PROVIDER REQUIREMENTS.
5. CONTRACTOR SHALL MAINTAIN A MINIMUM OF 4 FEET COVER ON ALL SANITARY SEWER AND SERVICES, UNLESS OTHERWISE NOTED. PROVIDE INSULATION OVER SANITARY SEWER AND SERVICES WITH PROPOSED ELEVATIONS LESS THAN MINIMUM BURY DEPTH PER PROJECT DETAILS AND UTILITY PROVIDER REQUIREMENTS.
6. CONTRACTOR SHALL PROVIDE 10 FEET MINIMUM HORIZONTAL SEPARATION (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE/STRUCTURE) BETWEEN WATER LINES AND SANITARY OR STORM LINES AND STRUCTURES
7. CONTRACTOR SHALL PROVIDE 24 INCH MINIMUM VERTICAL SEPARATION (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE) BETWEEN WATER LINES AND OTHER UTILITY LINE CROSSINGS.
8. PIPE LENGTH INDICATED BETWEEN STRUCTURES IS FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE UNLESS NOTED OTHERWISE.
9. PIPE SIZES SHOWN ON THE PLANS ARE INTERNAL PIPE DIAMETER.
10. CONTRACTOR SHALL INSTALL TRACER WIRE ON ALL SEWER AND WATER MAINS, LATERALS, SERVICE PIPE AND CONNECTIONS TO RISERS, CURB BOXES, MANHOLES, VALVES, HYDRANTS PER CITY/UTILITY PROVIDER REQUIREMENTS AND PROJECT DETAILS AND SPECIFICATIONS.
11. IN THE EVENT OF A VERTICAL CONFLICT BETWEEN WATER LINES, SANITARY LINES, STORM LINES AND GAS LINES (EXISTING AND PROPOSED), THE WATER AND SEWER LINES MUST INCLUDE ONE FULL LENGTH OF PIPE SO BOTH JOINTS ARE AS FAR FROM THE SEWER/UTILITY AS POSSIBLE AND SHALL HAVE MECHANICAL JOINTS WITH APPROPRIATE THRUST BLOCKING AS REQUIRED TO PROVIDE MINIMUM CLEARANCE.
12. WATERMAINS AND SERVICES SHALL NOT HAVE ANY INTERMITTENT HIGH POINTS, EXCEPT AT HYDRANTS OR AS NOTED AT SPECIFIC LOCATIONS ON THE PLANS.
13. CONTRACTOR SHALL VERIFY PIPE SIZE, MATERIAL, AND ELEVATION FOR ALL CONNECTIONS. PROVIDE APPROPRIATE PIPES AND FITTINGS REQUIRED TO MAKE CONNECTIONS TO EXISTING INFRASTRUCTURE AS VERIFIED IN THE FIELD IN ACCORDANCE WITH CITY/UTILITY PROVIDER REQUIREMENTS.
14. WATER AND SANITARY SEWER SERVICES ARE SHOWN TERMINATING AT THE BUILDING FOOTPRINT BUT ARE DESIGNED TO WITHIN 5 FEET OF THE BUILDING FOOTPRINT. VERIFY WITH MEP/PLUMBING PLANS/DESIGNER FOR EXACT LOCATIONS, ELEVATIONS, AND DIMENSIONS OF BACKFLOW DEVICES (DDCV AND PRZ ASSEMBLIES), METERS, AND BUILDING UTILITY ENTRANCE LOCATIONS. SERVICE DESIGNS AND INVERTS WITHIN 5 FEET OF THE BUILDING ARE FOR ILLUSTRATIVE AND REFERENCE PURPOSES ONLY. SEE MEP/PLUMBING PLANS FOR CONTINUATION. VERIFY LOCATIONS AND INVERT ELEVATIONS WITH MEP/PLUMBING PLANS. PROVIDE A RISER PIPE AS NEEDED TO MATCH PLUMBING PIPING.
15. WATER AND SANITARY SEWER SERVICE SIZES AND ALIGNMENT ARE BASED ON MEP DESIGN. VERIFY SIZE AND ALIGNMENT W/ MEP PLANS. IN THE EVENT THE FINAL SIZE OR ALIGNMENT IS DIFFERENT THAN SHOWN, CONTRACTOR SHALL NOTIFY THE ENGINEER AND OWNER IN WRITING IMMEDIATELY.
16. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED, AND APPROVED PRIOR TO BACKFILLING IN ACCORDANCE WITH AGENCY HAVING JURISDICTION REQUIREMENTS.
17. CONTRACTOR SHALL PLACE AND COMPACT SUITABLE FILL MATERIAL BEFORE INSTALLATION OF PROPOSED UTILITIES.
18. SANITARY SEWER MAIN, SERVICE PIPES, FITTINGS, AND STRUCTURES SHALL MEET THE FOLLOWING REQUIREMENTS:
    A. SANITARY SERVICE PIPE: PVC SCHEDULE 40 PER ASTM D1785
    B. SANITARY PIPE FITTINGS: ASTM D2665 FOR SCH 40 PVC PIPE, INJECTION MOLDED (GRAVITY LINES ONLY)
    C. SANITARY PIPE JOINTS: ASTM F656 AND D2564 FOR SCHEDULE 40 PIPE
    D. SANITARY PRECAST STRUCTURE: CONFORM TO THE DETAILS/STANDARD PLATES AS SHOWN ON THE DRAWINGS, INCLUDING INTEGRAL BASE SECTIONS AND RUBBER GASKETED TONGUE AND GROOVE JOINTS, UNLESS NOTED OTHERWISE. ALL PIPE OPENINGS SHALL HAVE INTEGRAL CAST WATERTIGHT SEAL.
    E. SANITARY PRECAST STRUCTURE DESIGN: THE STRUCTURE BASE SLAB, PERIMETER WALLS, AND TOP SLAB SHALL BE DESIGNED FOR SHEAR STRENGTH, FLEXURAL STRENGTH, AND OTHER APPLICABLE STRENGTHS DUE TO HYDROSTATIC LOADING. THE DESIGN OF THE STRUCTURE SHALL CONFORM TO A MINIMUM FACTOR OF SAFETY OF 1.3 FOR BUOYANCY AND FLOTATION. THE HYDROSTATIC LOADING (WATER TABLE ELEVATIONS) SHALL BE ASSUMED FROM THE TOP OF THE STRUCTURE. THE STRUCTURE SHALL BE DESIGNED AND DETAILED PREPARED BY A PROFESSIONAL ENGINEER, EXPERIENCED IN PRECAST CONCRETE MANHOLE DESIGN, WHO IS LICENSED IN THE STATE OF MICHIGAN.
    F. SANITARY PIPE/STRUCTURE CONNECTION: SEE DETAILS.
    G. STRUCTURE ADJUSTMENT RINGS: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS
    H. ADHESION MATERIAL: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS
    I. EXTERNAL/INTERNAL SEALS: IN ACCORDANCE WITH CITY REQUIREMENTS
20. WATERMAIN, SERVICE PIPES AND FITTINGS TO MEET THE FOLLOWING REQUIREMENTS:
    A. WATER SERVICE PIPING - 4 INCHES AND LARGER: DIP C900 DR 18 PER AWWA C 900
    B. WATER SERVICE PIPE FITTINGS - 4 INCHES AND LARGER: AWWA C153, 250 PSI WORKING PRESSURE WITH INTERNAL AND EXTERNAL COATING PER AWWA C116
    C. WATERMAIN PIPING:DIP C900 DR 18 PER AWWA C 900
    D. WATERMAIN PIPE FITTINGS: AWWA C153 DUCTILE IRON COMPACT FITTINGS, 250 PSI WORKING PRESSURE WITH INTERNAL AND EXTERNAL COATING PER AWWA C116
    E. WATERMAIN PIPE JOINTS: AWWA C111 WITH MECHANICAL JOINTS AND THRUST BLOCKING PER PROJECT DETAILS.
    F. WATERMAIN STUBS: MECHANICALLY RESTRAINED JOINTS WITH THRUST BLOCKING PER PROJECT DETAILS.
    G. WATER SYSTEM TRACER WIRE: UTILITY PROVIDER REQUIREMENTS
    H. ENCASEMENT: POLYETHYLENE FILM PER AWWA C105. ENCASE DUCTILE IRON PIPE, FITTINGS, VALVES, AND OTHER APPURTENANCES
    I. JOINT RESTRAINT: PROVIDE AT ALL BENDS, TEES, AND DEAD-ENDS/STUBS IN ACCORDANCE WITH THE UTILITY PROVIDER REQUIREMENTS AND EBAA IRON RESTRAINT LENGTH CALCULATOR.
    J. THRUST BLOCKING: WATERMAIN AND SERVICES REQUIRE THRUST BLOCKING PER PROJECT DETAILS. CONCRETE MUST HAVE A MINIMUM 28 DAY COMPRESSION STRENGTH OF 3000 PSI
    K. HYDRANTS: PER UTILITY PROVIDER REQUIREMENTS
    L. VALVES: PER UTILITY PROVIDER REQUIREMENTS
21. CONTRACTOR SHALL INSTALL AND PROVIDE BEDDING FOR PIPING/STRUCTURES IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS, ASTM D 2321 AND ASTM F 1668 (FOR GRAVITY SEWER), ASTM D 2774 (FOR PRESSURE PIPE), ASTM C 1479 (FOR RC PIPE), AWWA C600 (FOR DIP PIPE), AWWA C605 (FOR PVC), AND PROJECT/MANUFACTURER DETAILS AND SPECIFICATIONS.
22. IF MANUFACTURER DETAILS SPECIFY DESIGN COMPONENTS TO BE DETERMINED BY SITE DESIGN ENGINEER, CONTRACTOR IS RESPONSIBLE FOR CONTACTING SITE DESIGN ENGINEER TO VERIFY SYSTEM REQUIREMENTS PRIOR TO CONSTRUCTION IF NOT NOTED IN THE DRAWINGS.
23. CONTRACTOR SHALL COMPACT EMBANKMENT/BEDDING/BACKFILL MATERIAL IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS, THE GEOTECHNICAL REPORT, AND SITE TESTING REQUIREMENTS.
24. CONTRACTOR SHALL MEET MOISTURE CONTENT/CONTROL REQUIREMENTS IN ACCORDANCE WITH CITY/UTILITY PROVIDER REQUIREMENTS, THE GEOTECHNICAL REPORT, AND SITE TESTING REQUIREMENTS.
25. FIELD QUALITY CONTROL, TESTING, INSPECTIONS, AND CERTIFICATIONS MUST COMPLY WITH THE FOLLOWING:
    A. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, AGENCY HAVING JURISDICTION AND UTILITY PROVIDER COMPANIES.
    B. SANITARY LINES AND STRUCTURES, INCLUDING BUT NOT LIMITED TO:
        1) SERVICE PIPE AND STRUCTURES TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS
        2) LEAKAGE TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS
        3) DEFLECTION TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS
        4) TELEVISING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS
        5) CONDUCTIVITY/TRACING TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS
    C. WATER LINES AND STRUCTURES, INCLUDING BUT NOT LIMITED TO:
        1) SERVICE PIPE AND STRUCTURES TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS, MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION, MICHIGAN PLUMBING CODE CHAPTER 6, AND MDOT SPEC 823
        2) HYDROSTATIC PRESSURE TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS, MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION, MICHIGAN PLUMBING CODE CHAPTER 6, AND MDOT SPEC 823
        3) DISINFECTION TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS, MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) DRINKING WATER AND ENVIRONMENTAL HEALTH DIVISION, MICHIGAN PLUMBING CODE CHAPTER 6, AND MDOT SPEC 823
        4) CONDUCTIVITY/TRACING TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS

UTILITY NOTES (CONT.)

    D. SERVICE TRENCH COMPACTION TESTING: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
    E. SANITARY MAIN TRENCH COMPACTION TESTING: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
    F. SANITARY STRUCTURE COMPACTION TESTING: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
    G. WATERMAIN TRENCH COMPACTION TESTING: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
    H. WATER STRUCTURE/VALVE COMPACTION TESTING: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
26. TOLERANCES:
    A. SANITARY PIPE HORIZONTAL: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS.
    B. SANITARY PIPE VERTICAL: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS.
    C. SANITARY PIPE JOINT DEFLECTION: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS
    D. SANITARY STRUCTURE RIM ELEVATIONS: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS.
    E. WATER PIPE HORIZONTAL: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS.
    F. WATER PIPE VERTICAL: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS.
    G. WATER PIPE JOINT DEFLECTION: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS.
    H. HYDRANT/VALVE/CASTING ELEVATION: IN ACCORDANCE WITH UTILITY PROVIDER REQUIREMENTS.

STORM SEWER NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR SHALL COMPLY WITH THE SPECIFICATIONS OF THE CITY/UTILITY PROVIDER, MDOT SPECS DIVISION 4, AND LOCAL PLUMBING CODE FOR MATERIALS, INSTALLATION, AND TESTING OF STORM UTILITIES.
3. CONTRACTOR SHALL PROVIDE 10 FEET SEPARATION (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE/STRUCTURE) BETWEEN WATER LINES AND SANITARY OR STORM LINES AND STRUCTURE.
4. CONTRACTOR SHALL PROVIDE 24 INCH MINIMUM VERTICAL SEPARATION (OUTSIDE EDGE OF PIPE TO OUTSIDE EDGE OF PIPE/STRUCTURE) BETWEEN WATER LINES AND OTHER UTILITY LINES. PROVIDE INSULATION WHERE WATER, SANITARY, OR STORM UTILITIES CROSS. OFFSET WATERMAIN AND SERVICES AS NECESSARY.
5. CONTRACTOR SHALL VERIFY PIPE SIZE, MATERIAL, AND ELEVATION FOR CONNECTIONS. PROVIDE APPROPRIATE PIPES AND FITTINGS REQUIRED TO MAKE CONNECTIONS TO EXISTING INFRASTRUCTURE AS VERIFIED IN THE FIELD.
6. CONTRACTOR SHALL PLACE AND COMPACT SUITABLE FILL MATERIAL BEFORE INSTALLATION OF PROPOSED UTILITIES.
7. DRAINTILE/SUBSOIL DRAIN AROUND BUILDING PERIMETER NOT SHOWN ON CIVIL DRAWINGS. CONTRACTOR SHALL VERIFY IF DRAINTILE REQUIRED WITH ARCHITECT/STRUCTURAL/MEP AND COORDINATE CONNECTION TO STORM SYSTEM WITH ENGINEER.
8. INSTALL SUBSOIL DRAINS/DRAINTILE IN ACCORDANCE WITH THE GEOTECHNICAL REPORT (LOCATIONS NOT SHOWN ON PLANS).
9. LINES UNDERGROUND SHALL BE INSTALLED, INSPECTED, AND APPROVED PRIOR TO BACKFILLING IN ACCORDANCE WITH AGENCY HAVING JURISDICTION REQUIREMENTS.
10. PIPE LENGTH INDICATED BETWEEN STRUCTURES IS FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE UNLESS NOTED OTHERWISE. PIPE LENGTH INDICATED BETWEEN STRUCTURE AND FLARED END SECTION IS FROM CENTER OF STRUCTURE TO END OF FLARED END SECTION.
11. PIPE SIZES SHOWN ON THE PLANS ARE INTERNAL PIPE DIAMETER.
12. IF MANUFACTURER DETAILS SPECIFY DESIGN COMPONENTS TO BE DETERMINED BY SITE DESIGN ENGINEER, CONTRACTOR IS RESPONSIBLE FOR CONTACTING SITE DESIGN ENGINEER TO VERIFY SYSTEM REQUIREMENTS PRIOR TO CONSTRUCTION IF NOT NOTED IN THE DRAWINGS.
13. STORM SEWER MAINS, SERVICE PIPES, FITTINGS, AND STRUCTURES TO MEET THE FOLLOWING REQUIREMENTS:
    A. REINFORCED CONCRETE PIPE: REINFORCED CONCRETE (RC) PIPE CLASS PER ACPA LRFD FILL HEIGHT TABLES (MIN CLASS II), TYPE 4 BEDDING, WALL B THICKNESS, AASHTO M 170/ASTM C76
    B. PVC PIPE: PVC SCH 40 PER ASTM D1785 AND ASTM D2665. INJECTION MOLDED FITTINGS.
    C. ROOF DRAIN PIPE AND FITTINGS: PVC SCH 40 PER ASTM D 1785 AND ASTM D 2665. INJECTION MOLDED FITTINGS.
    D. PIPE JOINTS: JOINTS MUST BE CERTIFIED BY THE MANUFACTURER TO BE ABLE TO PASS THE AIR TEST OR INTERNAL HYDROSTATIC PRESSURE REQUIRED BY THE AGENCY HAVING JURISDICTION.
    E. PIPE CONNECTION TO EXISTING STORM STRUCTURE: CONTRACTOR SHALL PROVIDE AND INSTALL A FLEXIBLE COMPRESSION JOINT TO MAKE WATERTIGHT CONNECTIONS TO MANHOLES IN ACCORDANCE WITH MICHIGAN PLUMBING CODE AND MDOT SPEC 403. RESILIENT RUBBER JOINTS MEETING ASTM C923 MAY BE USED IF APPROVED BY AGENCY HAVING JURISDICTION, SEE PROJECT DETAILS.
    F. SUBSOIL DRAINS/DRAINTILE: PERFORATED PVC SCH 40 OR SDR 26 IN ACCORDANCE WITH ASTM D2729 - ¼ INCH PERFORATIONS AT 3 INCHES ON CENTER, 4 HOLES PER ROW CONFORMING TO ASTM F758
    G. SUBSOIL DRAIN AGGREGATE: MDOT SPECS 404 AND 902 OPEN-GRADED AGGREGATE 34R
    H. AREA DRAIN INLETS: SEE PLAN AND DETAILS
    I. STORM PRECAST STRUCTURES GENERAL: ASTM C478 AND DRAWING DETAILS.
    J. STORM PRECAST STRUCTURE JOINTS: RUBBER O-RING GASKET MEETING ASTM C443
    K. STORM PRECAST STRUCTURE STEPS: PER DETAILS
    L. STORM PRECAST STRUCTURE DESIGN: DETAILED AND PREPARED BY A PROFESSIONAL ENGINEER EXPERIENCED IN PRECAST CONCRETE STRUCTURE DESIGN WHO IS LICENSED IN THE STATE OF MICHIGAN. DESIGN SHALL CONFORM TO A MINIMUM SAFETY FACTOR OF 1.3 FOR BUOYANCY AND FLOTATION WITH THE HYDROSTATIC LOADING (WATER TABLE ELEVATIONS) ASSUMED FROM THE TOP OF THE STRUCTURE. THE DESIGN OF THE BASE SLAB, WALLS, AND TOP SLAB SHALL BE DESIGNED FOR SHEAR STRENGTH, FLEXURAL STRENGTH, AND OTHER APPLICABLE STRENGTHS DUE TO HYDROSTATIC LOADING. THE DESIGN SHALL BE IN ACCORDANCE WITH THE MOST CURRENT ACI 318, AASHTO, AND MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION, EXCEPT AS NOTED.
    M. STORM PRECAST STRUCTURE MORTAR MATERIALS: MDOT SPECS 403 AND 1005 AND ASTM C270 AND ASTM C387
    N. STORM PRECAST STRUCTURE ADJUSTMENT RINGS: SIZE TO MATCH CONE OR OPENING IN TOP SLAB. CONCRETE WITH MINIMUM 3,000 PSI COMPRESSIVE STRENGTH, SINGLE HOOP 8-GAUGE STEEL WIRE REINFORCEMENT, AND 2 INCH THICKNESS EACH RING
    O. STORM PRECAST STRUCTURE ADHESION MATERIAL: BETWEEN TOP SLAB AND BARREL SECTION - RAM-NEK OR APPROVED EQUAL. FOR CONCRETE RINGS, USE MORTAR MATERIALS.
    P. STORM PRECAST STRUCTURE INTERNAL/EXTERNAL SEAL: IN ACCORDANCE WITH CITY REQUIREMENTS
15. STORM PIPE BEDDING: CONTRACTOR SHALL INSTALL AND PROVIDE BEDDING FOR PIPING/STORMWATER SYSTEMS/VAULTS/CHAMBERS/ STRUCTURES IN ACCORDANCE WITH UTILITY PROVIDER, ASTM D 2321 AND ASTM F 1668 (FOR GRAVITY SEWER), ASTM D 2774 (FOR PRESSURE PIPE), ASTM C 1479 (FOR RC PIPE), AWWA C600 (FOR DIP PIPE), AWWA C605 (FOR PVC), ASTM A 798 (FOR CMP), AND PROJECT/MANUFACTURER DETAILS AND SPECIFICATIONS.
16. CONTRACTOR SHALL COMPACT EMBANKMENT/BEDDING/BACKFILL MATERIAL IN ACCORDANCE WITH MDOT SPECS 401, 402, AND 403, IN ACCORDANCE WITH THE GEOTECHNICAL REPORT, AND SITE TESTING REQUIREMENTS.
17. CONTRACTOR SHALL MEET MOISTURE CONTENT/CONTROL REQUIREMENTS IN ACCORDANCE WITH MDOT SPEC 205 (MOISTURE CONTENT NO GREATER THAN 3 PERCENT ABOVE OPTIMUM AT TIME OF COMPACTION FOR COHESIVE AND MOISTURE CONTENT BELOW SATURATION FOR GRANULAR IN ACCORDANCE WITH MDOT'S DENSITY TESTING AND INSPECTION MANUAL), THE GEOTECHNICAL REPORT, AND SITE TESTING REQUIREMENTS.
18. FIELD QUALITY CONTROL, TESTING, INSPECTIONS, AND CERTIFICATIONS MUST COMPLY WITH THE FOLLOWING:
    A. ALL NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES, AGENCY HAVING JURISDICTION AND UTILITY SERVICE COMPANIES.
    B. STORM LINES AND STRUCTURES, INCLUDING BUT NOT LIMITED TO:
        1) SERVICE PIPE AND ROOF DRAIN LEADERS TESTING TO COMPLY WITH LOCAL PLUMBING CODE/CITY/AGENCY HAVING JURISDICTION.
        2) ALL PORTIONS OF SYSTEM (PIPE AND STRUCTURES) THAT PASS WITHIN 10 FEET OF A WATER LINE, WITHIN 10 FEET OF A BUILDING, WITHIN 50 FEET OF WATER WELLS, OR THAT PASS THROUGH SOIL OR WATER IDENTIFIED AS BEING CONTAMINATED MUST BE TESTED IN ACCORDANCE WITH CITY/AGENCY HAVING JURISDICTION.
        3) STORM PIPE DEFLECTION TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS
        4) STORM PIPE LEAKAGE TESTING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS
        5) STORM PIPE LAMPING: VERIFY INSTALLATION IS TRUE TO LINE AND GRADE. VERIFY INSTALLED PIPE IS STRUCTURALLY SOUND. VERIFY THERE ARE NO BROKEN OR DEFLECTIVE PIPES. VERIFY THAT JOINTS ARE ALL PUSHED HOME. VERIFY STRUCTURES CONFORM TO SPECIFIED REQUIREMENTS. PROVIDE VERIFICATION OF THE ABOVE IN WRITING TO THE OWNER AND ENGINEER.
        6) STORM PIPE INFILTRATION TESTING: MDOT SPEC 825
        7) STORM PIPE CONTINUITY TESTING: IN ACCORDANCE WITH THE CITY/UTILITY PROVIDER/AUTHORITY HAVING JURISDICTION.
        8) TELEVISING: MEET CITY/UTILITY PROVIDER/AGENCY HAVING JURISDICTION REQUIREMENTS
        9) STORM PIPE TRENCH COMPACTION TESTING: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
        10) STORM CULVERT TRENCH COMPACTION TESTING: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
        11) STORM STRUCTURE COMPACTION TESTING: AT THE DISCRETION OF THE GEOTECHNICAL ENGINEER
    C. A COPY OF THE TEST RESULTS MUST BE PROVIDED TO THE OWNER, ENGINEER, UTILITY PROVIDER, AND AGENCY HAVING JURISDICTION.
19. CONTRACTOR SHALL CLEAN STRUCTURES AND PIPING OF DEBRIS AND SEDIMENT DURING AND AT THE END OF CONSTRUCTION UNTIL ACCEPTED BY THE OWNER AND ENGINEER.
20. REFER TO THE MEP PLANS FOR EXACT LOCATIONS, ELEVATIONS, AND DIMENSIONS OF BUILDING STORM UTILITY ENTRANCE LOCATIONS.

STORM SEWER NOTES (CONT.)

27. TOLERANCES:
    A. STORM PIPE HORIZONTAL TOLERANCE: WITHIN 0.50 FEET OF ALIGNMENT
    B. STORM PIPE VERTICAL TOLERANCE: ZERO PLUS AND 0.08 FEET MINUS ELEVATION SHOWN WITH NO INTERMEDIATE HIGH POINTS, LEVEL SECTION, OR REVERSE INVERT SLOPE.
    C. STORM PIPE JOINT DEFLECTION TOLERANCE: NO MORE THAN 75% OF MAXIMUM ALLOWABLE, AS RECOMMENDED BY MANUFACTURERS OF PIPE AND JOINT MATERIAL
    D. STORM STRUCTURE RIM ELEVATION TOLERANCE: ZERO PLUS AND 0.08 FEET MINUS ELEVATION SHOWN

TREE PRESERVATION NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. TREE PROTECTION SHALL OCCUR IN CONFORMANCE WITH THE CITY OF EAST LANSING'S TREE MANUAL. SECTION 4.3 OF THIS MANUAL PROVIDES STANDARD PROTECTION MEASURES.
3. CONTRACTOR SHALL PROTECT EXISTING TREES THAT ARE NOT TO BE REMOVED. INSTALL ORANGE MESH FENCING, 4 FEET HIGH, WITH STAKES EVERY 10 FEET, 5 FEET OUTSIDE OF THE DRIP LINE OF PRESERVED TREES, OR AT THE CONSTRUCTION LIMITS. DO NOT PERFORM ACTIONS WITHIN THE PROTECTED AREA THAT MAY HARM THE TREE AND COMPACT THE SOIL, INCLUDING EXCAVATION, STORING MATERIALS, PARKING AND TRAFFIC DURING CONSTRUCTION. WHERE CONSTRUCTION REQUIRES DISTURBANCE WITHIN THE PROTECTED AREAS, DISTURB THE ROOT ZONE AS LITTLE AS POSSIBLE.
4. TREE PROTECTION MEASURES/FENCING MUST BE IN PLACE PRIOR TO BEGINNING CONSTRUCTION AND MUST BE REVIEWED BY OWNER AND ENGINEER BEFORE STARTING CONSTRUCTION.
5. WHEN TREE ROOTS ARE ENCOUNTERED THAT MUST BE REMOVED, CONTRACTOR SHALL CUT ROOTS CLEANLY AS FAR FROM THE TREE AS POSSIBLE AND IMMEDIATELY WATER AND BACKFILL OVER THE ROOTS TO PREVENT DRYING.
6. THE OWNER AND DEPARTMENT OF PUBLIC WOKS MUST APPROVE EACH TREE TO BE REMOVED PRIOR TO IMPACT.

HORIZONTAL AND VERTICAL CONTROL NOTES

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. THE HORIZONTAL CONTROL FOR THIS PLAN IS NAD83, MICHIGAN STATE PLANE, SOUTH ZONE, US SURVEY FOOT
3. THE VERTICAL CONTROL FOR THE PLAN IS NAVD88
4. AN ONSITE VERTICAL BENCHMARK IS AVAILABLE: FOUND RAILROAD SPIKE IN NORTH, SIDE OF THE UTILITY POLE ON THE SOUTH SIDE OF ALBERT STREET. STANDING ON EAST OF THE NE PROPERTY CORNER. WITH AN ELEVATION OF 846.93 (NAVD88).

TYPICAL PROJECT OBSERVATIONS

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. CONTRACTOR MUST NOTIFY OWNER, ENGINEER, AND CITY IN WRITING A MINIMUM OF 2 BUSINESS DAYS IN ADVANCE OF THE FOLLOWING ACTIVITIES FOR ATTENDENCE AND OBSERVATION: PRE-CONSTRUCTION MEETING, UNDERGROUND PIPING AND UTILITIES INSTALLATION, UTILITY TESTING, STRUCTURES AND APPURTENANCES INSTALLATION, SUBGRADE PREPARATION, BASE INSTALLATION, CURB INSTALLATION, AND PAVEMENT INSTALLATION.

TEST REPORTS REQUIRED

1. SEE GENERAL NOTES FOR ADDITIONAL PROJECT AND SITE INFORMATION.
2. COPIES OF COMPACTION/MOISTURE, CONCRETE, AND OTHER TEST RESULTS ARE TO BE SENT TO THE OWNER DIRECTLY FROM THE INDEPENDENT TESTING LABORATORY.
3. ONSITE/INPLACE GEOTECHNICAL/CONCRETE TESTING WILL BE COMPLETED BY THE OWNER'S INDEPENDENT TESTING LABORATORY. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL REQUIRED IN-PLACE TESTS AND INSPECTIONS WITH THE GEOTECHNICAL ENGINEER/INDEPENDENT TESTING LABORATORY.
4. TEST REPORTS REQUIRED MAY INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO: DENSITY TESTS OF SOIL AND PAVEMENT COMPACTION, CONCRETE COMPRESSION, AIR, AND SLUMP TESTS, BACTERIOLOGICAL TESTS OF WATER SYSTEM, MANOREL TESTS OF SANITARY AND STORM SYSTEM, PRESSURE/LEAK TESTS OF WATER/SANITARY/STORM SYSTEM, AND OTHER TESTING REQUIRED BY AGENCY/MUNICIPALITY HAVING JURISDICTION.
5. RE-WORK/RE-TESTING DUE TO FIELD TEST FAILURE ARE AT NO ADDITIONAL COST TO THE OWNER.

CITY PERMITS

1. THE FOLLOWING CITY PERMITS ARE REQUIRED PRIOR TO CONSTRUCTION:
    1.1. WATER AND SEWER CONNECTION AND WATER TAP PERMIT.
    1.2. GRADING AND SOIL EROSION SEDIMENTATION CONTROL PERMIT.
    1.3. OCCUPATION AND USE OF STREET/ALLEYS RIGHTS OF WAY PERMIT.
2. IN ADDITION THE DEPARTMENT OF PUBLIC WORKS SHALL APPROVE ALL TREE REMOVAL PRIOR TO IMPACT.

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT:
TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING,
MICHIGAN, 48823

PROJECT TITLE:

ISSUE NO:	DESCRIPTION:	DATE:
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6501312331
PROFESSIONAL ENGINEER

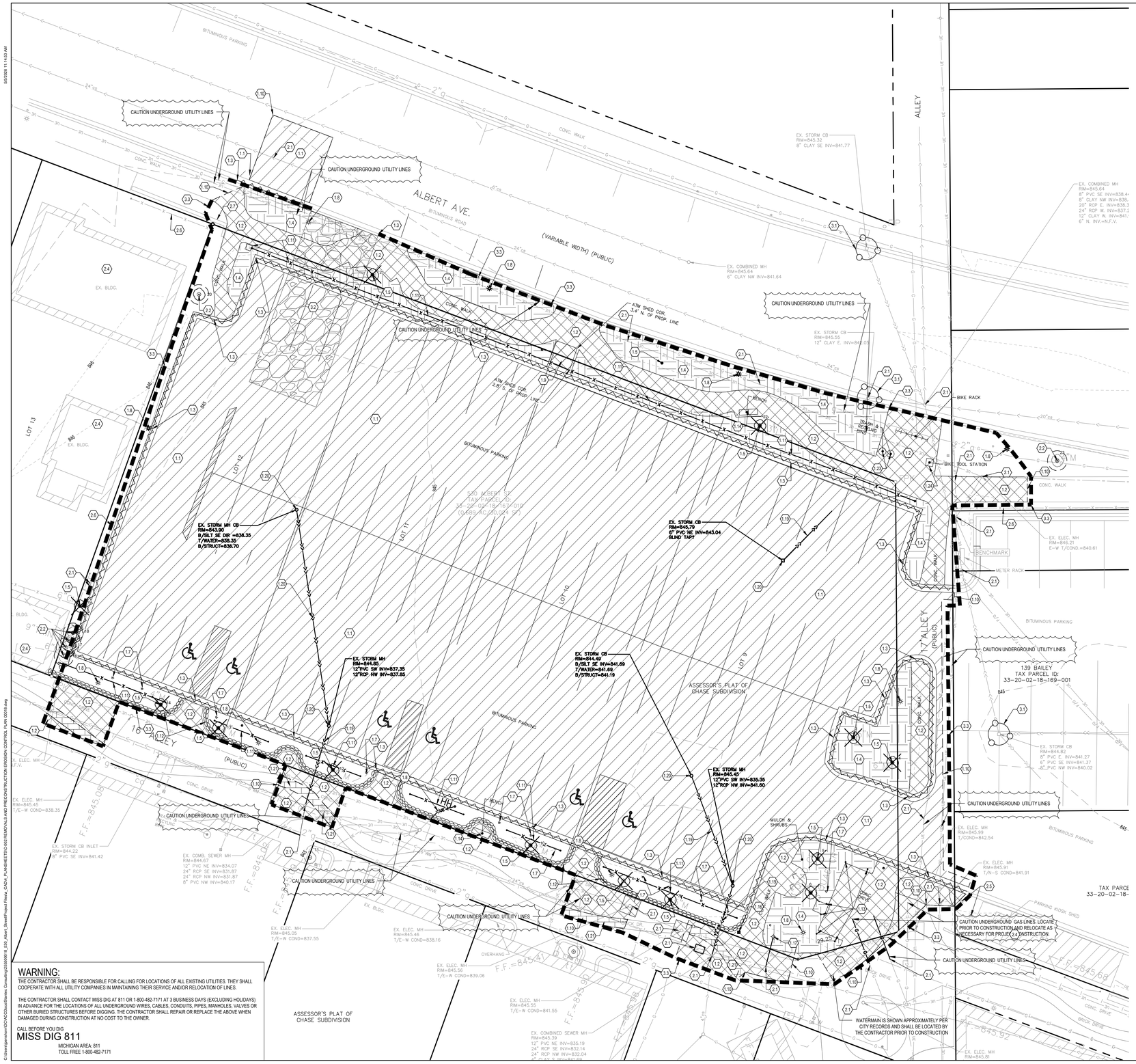
PROJECT NO.:	255500018	
DWN BY: RAO	CHK'D BY: MJS	APP'D BY: JTP
ISSUE DATE:	05/05/2026	
ISSUE NO.:	1	

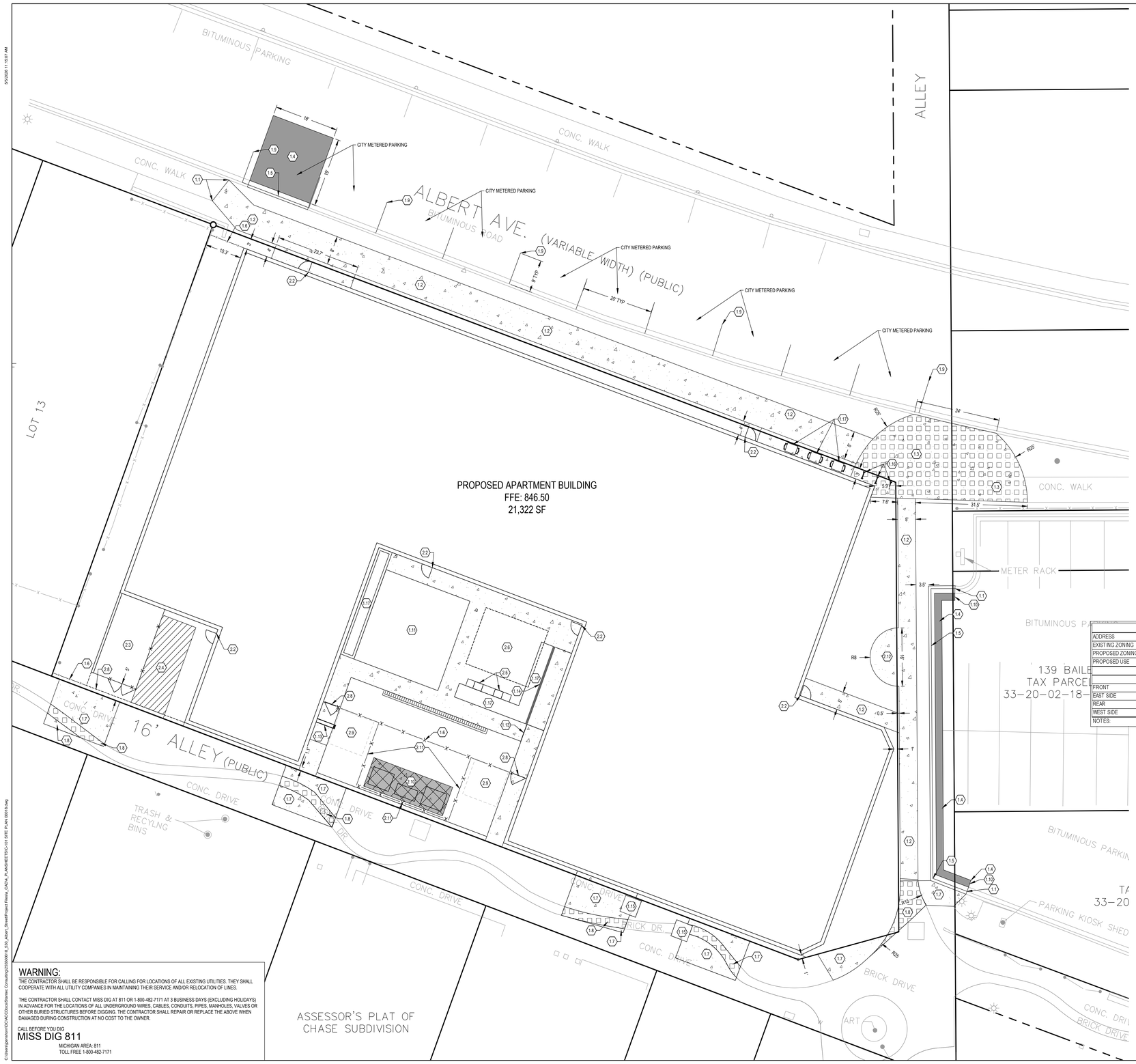
SHEET TITLE:
GENERAL NOTES

SHEET NO.:
G-003

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ALBERT AVE.
BITUMINOUS ROAD
(VARIABLE WIDTH) (PUBLIC)
ALLEY
17' ALLEY (PUBLIC)
46' ALLEY (PUBLIC)
530 ALBERT ST.
TAX PARCEL ID:
33-20-02-18-167-010
(0.689 AC/30,024 SF)
ASSESSOR'S PLAT OF CHASE SUBDIVISION
LOT 13
LOT 12
LOT 11
LOT 10
LOT 9
LOT 42
LOT 40
139 BAILEY
TAX PARCEL ID:
33-20-02-18-169-001
TAX PARCEL ID:
33-20-02-18-169-002
EX. BLDG.
BITUMINOUS PARKING
CONC. WALK
CONC. DRIVE
BRICK DR.
BENCH
BIKE RACK
TRASH & RECYCLING BINS
TOOL STATION
METER RACK
BENCHMARK
MULCH & SHRUBS
PARKING KIOSK SHED
OVERHANG
EX. STORM CB
RIM=845.32
8" CLAY SE INV=841.77
EX. COMBINED MH
RIM=845.64
6" CLAY NW INV=841.64
EX. STORM CB
RIM=845.55
12" CLAY E INV=842.05
ATM SHED COR.
3.4' N. OF PROP. LINE
ATM SHED COR.
2.8' S. OF PROP. LINE
EX. STORM MH CB
RIM=843.90
B/SILT SE DIR =838.35
T/WATER=838.35
B/STRUCT=836.70
EX. STORM CB
RIM=845.79
6" PVC NE INV=843.04
BLIND TAP?
EX. STORM MH
RIM=844.85
12"PVC SW INV=837.35
12"RCP NW INV=837.85
EX. STORM CB
RIM=844.49
B/SILT SE INV=841.69
T/WATER=841.69
B/STRUCT=841.19
EX. STORM MH
RIM=845.45
12"PVC SW INV=835.35
12"RCP NW INV=841.60
EX. STORM CB
RIM=844.82
8" PVC E. INV=841.27
6" PVC SE INV=841.37
8" PVC NW INV=840.02
EX. ELEC. MH
RIM=846.21
E-W T/COND.=840.61
EX. ELEC. MH
RIM=845.99
T/COND=842.54
EX. ELEC. MH
RIM=845.91
T/N-S COND=841.91
EX. ELEC. MH
RIM=845.81
COULD NOT OPEN
EX. COMB. SEWER MH
RIM=844.67
12" PVC NE INV=834.07
24" RCP SE INV=831.87
24" RCP NW INV=831.87
8" PVC NW INV=840.17
EX. ELEC. MH
RIM=845.05
T/E-W COND=837.55
EX. ELEC. MH
RIM=845.46
T/E-W COND=838.16
EX. ELEC. MH
RIM=845.56
T/E-W COND=839.06
EX. ELEC. MH
RIM=845.55
T/E-W COND=841.55
EX. COMBINED SEWER MH
RIM=845.39
12" PVC NE INV=835.19
24" RCP SE INV=832.14
24" RCP NW INV=832.04
4" CLAY S INV=841.69
F.F.=845.68
F.F.=845.92
F.F.=845.68
F.F.=845.92
F.F.=845.68
F.F.=845.92


ALBERT AVE.
(VARIABLE WIDTH) (PUBLIC)
BITUMINOUS ROAD
ALLEY
17 ALLEY (PUBLIC)
16 ALLEY (PUBLIC)
CAUTION UNDERGROUND UTILITY LINES
EX. STORM CB
RIM=845.32
6" CLAY SE INV=841.77
EX. COMBINED MH
RIM=845.64
6" CLAY NW INV=841.64
EX. STORM CB
RIM=845.55
12" CLAY E. INV=841.05
EX. COMBINED MH
RIM=845.64
8" PVC SE INV=838.4
8" CLAY NW INV=838.
20" RCP E. INV=838.3
24" RCP W. INV=837.2
12" CLAY W. INV=841.
6" N. INV=N.F.V.
ATM SHED CDR. 2.4' N. OF PROP. LINE
ATM SHED CDR. 2.4' S. OF PROP. LINE
BENCH
TRASH & RECYCLING BINS
BIKE RACK
BIKE TOOL STATION
CONC. WALK
EX. ELEC. MH
RIM=846.21
E-W T/COND.=840.61
BENCHMARK
METER RACK
EX. BLDG.
LOT 13
LOT 12
LOT 11
LOT 10
LOT 9
530 ALBERT
TAX PARCEL ID:
33-20-02-18-101-010
(0.689 AC. OR 30,014 SF)
EX. STORM MH CB
RIM=843.90
B/SILT SE DIR =836.35
T/WATER=836.35
B/STRUCT=836.70
EX. STORM MH
RIM=844.85
12"PVC SW INV=837.35
12"RCP NW INV=837.85
EX. STORM CB
RIM=844.49
B/SILT SE INV=841.69
T/WATER=841.69
B/STRUCT=841.19
EX. STORM MH
RIM=845.45
12"PVC SW INV=835.35
12"RCP NW INV=841.80
EX. STORM CB
RIM=845.79
6" PVC NE INV=843.04
BLIND TAPT
139 BAILEY
TAX PARCEL ID:
33-20-02-18-169-001
TAX PARCE
33-20-02-18-
ASSESSOR'S PLAT OF CHASE SUBDIVISION
EX. ELEC. MH
T/E-W COND=838.35
EX. STORM INLET
RIM=844.22
8" PVC SE INV=841.42
EX. COMB. SEWER MH
RIM=844.67
12" PVC NE INV=834.07
24" RCP SE INV=831.87
24" RCP NW INV=831.87
8" PVC NW INV=840.17
EX. ELEC. MH
RIM=845.05
T/E-W COND=837.55
EX. ELEC. MH
RIM=845.46
T/E-W COND=838.16
EX. ELEC. MH
RIM=845.56
T/E-W COND=839.06
EX. ELEC. MH
RIM=845.55
T/E-W COND=841.55
EX. COMBINED SEWER MH
RIM=845.39
12" PVC NE INV=835.19
24" RCP SE INV=832.14
24" RCP NW INV=832.04
EX. ELEC. MH
RIM=845.99
T/COND=842.54
EX. ELEC. MH
RIM=845.91
T/N-S COND=841.91
EX. ELEC. MH
RIM=845.81
EX. STORM CB
RIM=844.82
8" PVC E. INV=841.27
8" PVC SE INV=841.37
8" PVC NW INV=840.02
PARKING KIOSK SHED
MULCH & SHRUBS
BRICK DRIVE
CONC. DRIVE
BITUMINOUS PARKING
CAUTION UNDERGROUND GAS LINES. LOCATE PRIOR TO CONSTRUCTION AND RELOCATE AS NECESSARY FOR PROJECT CONSTRUCTION.
WATERMAIN IS SHOWN APPROXIMATELY PER CITY RECORDS AND SHALL BE LOCATED BY THE CONTRACTOR PRIOR TO CONSTRUCTION
F.F.=845.08
F.F.=845.18
F.F.=845.68
F.F.=845.92
F.F.=845.69
F.F.=845.49
F.F.=845.59
F.F.=845.39
F.F.=845.29
F.F.=845.19
F.F.=845.09
F.F.=844.89
F.F.=844.79
F.F.=844.69
F.F.=844.59
F.F.=844.49
F.F.=844.39
F.F.=844.29
F.F.=844.19
F.F.=844.09
F.F.=843.99
F.F.=843.89
F.F.=843.79
F.F.=843.69
F.F.=843.59
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F.F.=843.39
F.F.=843.29
F.F.=843.19
F.F.=843.09
F.F.=842.99
F.F.=842.89
F.F.=842.79
F.F.=842.69
F.F.=842.59
F.F.=842.49
F.F.=842.39
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F.F.=841.69
F.F.=841.59
F.F.=841.49
F.F.=841.39
F.F.=841.29
F.F.=841.19
F.F.=841.09
F.F.=840.99



GRAPHIC SCALE
10 0 10 20
(IN FEET)
1 inch = 10 ft.

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- RIGHT OF WAY LINE
- OVERHEAD BUILDING LINE
- CURB AND GUTTER
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT BY OTHERS
- CONCRETE SIDEWALK
- STAMPED CONCRETE
- MOUNTED BUILDING LIGHT
- ORNAMENTAL FENCE

NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. DOORS SHALL NOT CROSS PROPERTY LINE.

KEYNOTES

1. STANTEC DESIGN ITEMS
   - 1.1. MATCH EXISITNG
   - 1.2. CONCRETE SIDEWALK - SEE SHEET 1/C-802
   - 1.3. STAMPED CONCRETE PAVEMENT - SEE SHEET 2/C-802
   - 1.4. PATCH ASPHALT PAVEMENT - MATCH EXISTING SECTION
   - 1.5. F4 CURB AND GUTTER - SEE SHEET C-802
   - 1.6. ORNAMENTAL FENCE - SEE L-101
   - 1.7. STAMPED CONCRETE TO MATCH EXISTING BRICK
   - 1.8. MATCH EXISTING CONCRETE DRIVE
   - 1.9. 4" WHITE PAINT STRIPE (TYP.) - SEE DETAIL 2/C-804
   - 1.10. FUTURE CONSTRUCTION EASEMENT NECESSARY
   - 1.11. LAWN AREA - SEE LANDSCAPE PLAN PLANTING AREA - SEE LANDSCAPE PLAN
   - 1.12. STAIRS - SEE SHEET C-301 AND ARCHITECTURAL/STRUCTURAL PLANS
   - 1.13. RETAINING WALL
   - 1.14. CONCRETE CAP
   - 1.15. BIKE RACKS - SEE LANDSCAPE PLAN
   - 1.16. SEATING AREA - SEE ARCH SITE PLAN
   - 1.17. PLANTING AREA - SEE LANDSCAPE PLAN
2. DESIGN BY OTHERS
   - 2.1. MOUNTED BUILDING LIGHT - SEE PHOTOMETRIC PLAN
   - 2.2. DOOR LOCATION - SEE ARCHITECTURAL PLANS
   - 2.3. SOLID WASTE AND RECYCLING COLLECTION POINT - SEE ARCH. PLANS
   - 2.4. COMMERCIAL LOADING ZONE
   - 2.5. GRILL AREA
   - 2.6. PERGOLA
   - 2.7. GATE
   - 2.8. OVERHEAD BUILDING LINE
   - 2.9. DARCY WELL LOCATION
   - 2.10. TRANSFORMER
   - 2.11. TRANSFORMER SCREENING
   - 2.12. ART LOCATION

SITE ANALYSIS TABLE	
ADDRESS	530 ALBERT STREET EAST LANSING, MICHIGAN 48823 PID (33-20-02-18-167-010)
EXISTING ZONING	B-3 CITY CENTER COMMERICAL
PROPOSED ZONING	B-3 CITY CENTER COMMERICAL
PROPOSED USE	APARTMENTS

SETBACK SUMMARY		
	REQUIRED	PROPOSED
FRONT	0'	3'
EAST SIDE	0'	1.0'
REAR	0'	1.1'
WEST SIDE	0'	10.3'

NOTES:

WARNING:
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CALL BEFORE YOU DIG
MISS DIG 811
MICHIGAN AREA: 811
TOLL FREE 1-800-482-7171

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT:
TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

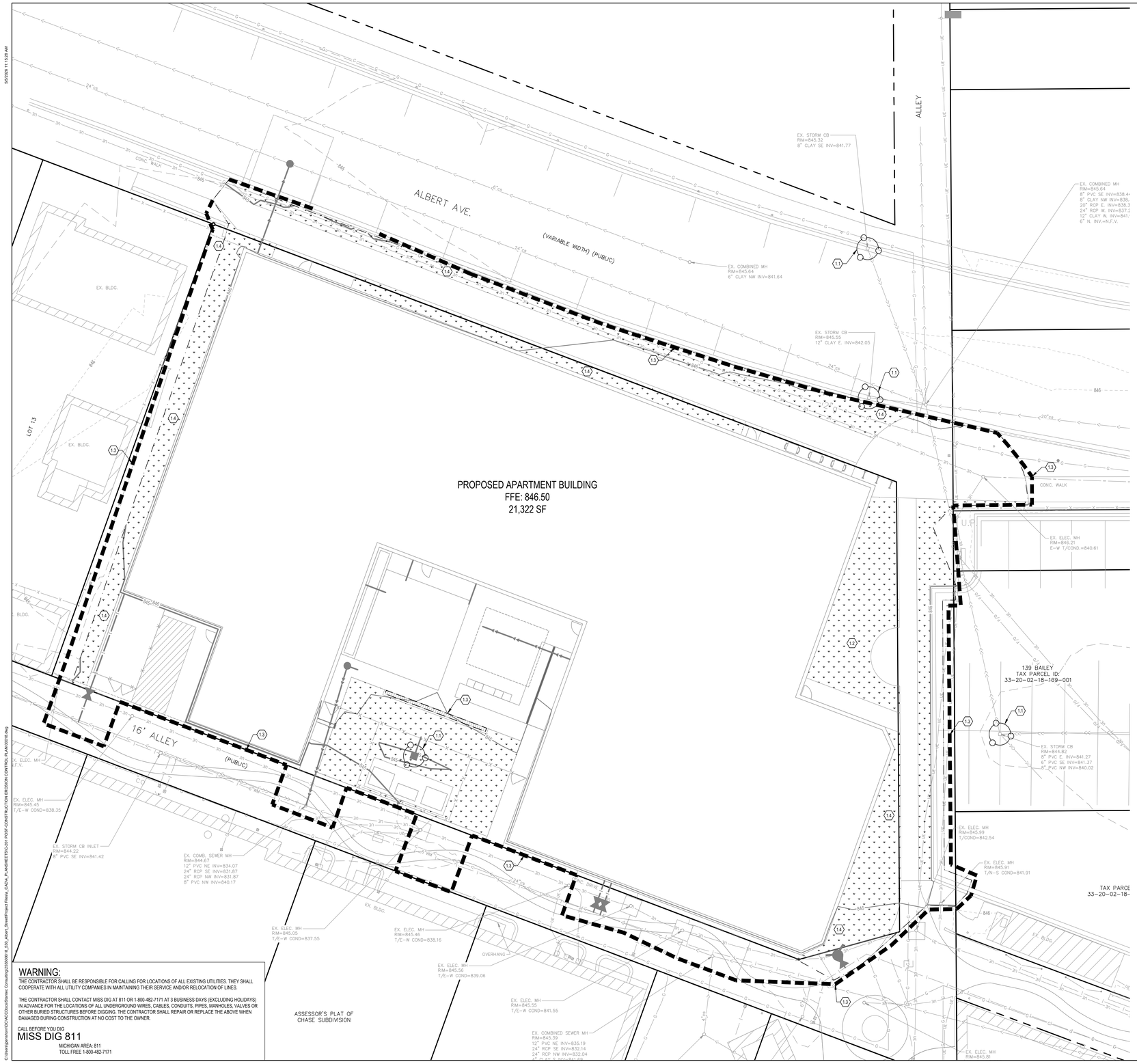
PROJECT TITLE:

ISSUE NO.	DESCRIPTION	DATE
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6001312331
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.:	255500018	
DWN BY: RAO	CHK'D BY: MJS	APPD BY: JTP
ISSUE DATE:	05/05/2026	
ISSUE NO.:	1	
SHEET TITLE:	SITE PLAN	
SHEET NO.:	C-101	

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LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- EASEMENT LINE
- SETBACK LINE
- RIGHT OF WAY LINE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING COMBINED MANHOLE
- EXISTING STORM CATCHBASIN
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- CONSTRUCTION LIMITS
- STORM SEWER
- SANITARY SEWER
- WATERMAIN
- COMBINED SEWER MANHOLE
- HYDRANT
- GATE VALVE
- ROCK CONSTRUCTION EXIT
- EROSION CONTROL BLANKET
- PERMANENT STABILIZATION
- SILT FENCE
- BIOROLL
- FLEX STORM INLET FILTER

NOTES

1. SEE SHEET L-201 FOR PERMANENT GROUND COVER. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. CONTRACTOR TO CLEAR AND GRUB WITHIN CONSTRUCTION LIMITS AS REQUIRED FOR CONSTRUCTION.
2. EXISTING UTILITY SERVICE LINES MAY NOT BE SHOWN IN THEIR ENTIRETY ON PLANS. CONTRACTOR TO VERIFY LOCATIONS OF EXISTING UTILITY SERVICE LINES WITHIN THE LIMITS OF DISTURBANCE AND REMOVE EXISTING INFRASTRUCTURE AS NECESSARY PER CITY REQUIREMENTS TO INSTALL PROPOSED IMPROVEMENTS.
3. CONSTRUCTION LIMITS AND SILT FENCE ARE SHOWN OFFSET FROM PROPERTY LINE FOR CLARITY, WHERE APPLICABLE.
4. UNTRENCHED SILT FENCE OR ORANGE SNOW FENCE MAY BE USED FOR TREE PROTECTION.
5. CONSTRUCTION SITE SHALL HAVE A STABILIZED EXIT AT ALL TIMES THROUGHOUT THE DURATION OF THE PROJECT. CONTRACTOR IS ULTIMATELY RESPONSIBLE TO PROTECT DOWNSTREAM WATERS FROM CONSTRUCTION RUNOFF.
6. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL SLOPES 4H:1V OR STEEPER.

KEYNOTES (#)

1. EROSION CONTROL ITEMS
   - 1.1. FLEX STORM INLET FILTERS - SEE DETAIL 7SS/C-803
   - 1.2. ROCK CONSTRUCTION ENTRANCE - SEE DETAIL 2/C-803
   - 1.3. BIOROLL - SEE DETAIL 1/C-803
   - 1.4. PERMANENT STABILIZATION SEED

WARNING:
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MICHIGAN AREA: 811
TOLL FREE 1-800-482-7171

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT: TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

PROJECT TITLE:

ISSUE NO:	DESCRIPTION:	DATE:
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6201313331
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.:	255500018
DWN BY: RAO	CHK'D BY: MJS
APP'D BY: JTP	
ISSUE DATE:	05/05/2026
ISSUE NO.:	1
SHEET TITLE:	POST CONSTRUCTION STABILIZATION PLAN
SHEET NO.:	C-201

5/5/2026 11:15:28 AM
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PROPOSED APARTMENT BUILDING
FFE: 846.50
21,322 SF

ALBERT AVE.
(VARIABLE WIDTH) (PUBLIC)

16' ALLEY
(PUBLIC)

ALLEY

LOT 1,3

EX. BLDG.

CONC. WALK

CONC. DRIVE

OVERHANG

EX. STORM CB
RIM=845.32
6" CLAY SE INV=841.77

EX. COMBINED MH
RIM=845.64
6" CLAY NW INV=841.64

EX. STORM CB
RIM=845.55
12" CLAY E. INV=842.05

EX. COMBINED MH
RIM=845.64
8" PVC SE INV=838.4
8" CLAY NW INV=838.
20" RCP E. INV=838.3
24" RCP W. INV=837.2
12" CLAY W. INV=841.
6" N. INV=N.F.V.

EX. ELEC. MH
RIM=846.21
E=W T/COND.=840.61

EX. STORM CB
RIM=845.82
8" PVC E. INV=841.27
6" PVC SE INV=841.37
8" PVC NW INV=840.02

EX. ELEC. MH
RIM=845.99
T/COND=842.54

EX. ELEC. MH
RIM=845.91
T/N-S COND=841.91

EX. ELEC. MH
RIM=845.81

139 BAILEY
TAX PARCEL ID:
33-20-02-18-169-001

TAX PARCE
33-20-02-18-

EX. ELEC. MH
RIM=845.45
T/E-W COND=838.35

EX. STORM CB INLET
RIM=844.22
8" PVC SE INV=841.42

EX. COMB. SEWER MH
RIM=844.67
12" PVC NE INV=834.07
24" RCP SE INV=831.87
24" RCP NW INV=831.87
8" PVC NW INV=840.17

EX. ELEC. MH
RIM=845.05
T/E-W COND=837.55

EX. ELEC. MH
RIM=845.46
T/E-W COND=838.16

EX. ELEC. MH
RIM=845.56
T/E-W COND=839.06

EX. ELEC. MH
RIM=845.55
T/E-W COND=841.55

EX. COMBINED SEWER MH
RIM=845.39
12" PVC NE INV=835.19
24" RCP SE INV=832.14
24" RCP NW INV=832.04

ASSESSOR'S PLAT OF
CHASE SUBDIVISION

WARNING:
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CALL BEFORE YOU DIG
MISS DIG 811
MICHIGAN AREA: 811
TOLL FREE 1-800-482-7171

GRAPHIC SCALE
20 0 20 40
(IN FEET)
1 inch = 20 ft.

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- EASEMENT LINE
- SETBACK LINE
- 901 — EXISTING MINOR CONTOUR
- 900 — EXISTING MAJOR CONTOUR
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING COMBINED SEWER MANHOLE
- EXISTING STORM CATCHBASIN
- 901 — PROPOSED MINOR CONTOUR
- 900 — PROPOSED MAJOR CONTOUR
- GRADING LIMITS
- CONSTRUCTION LIMITS
- FL=BBX.XX — FLOW LINE ELEVATION
- FG=BBX.XX — FINISHED GRADE ELEVATION
- ME=BBX.XX — MATCH EXISTING ELEVATION
- ME (TC)=BBX.XX — MATCH EXISTING TOP OF CURB ELEVATION
- ME (FL)=BBX.XX — MATCH EXISTING FLOW LINE
- SW=BBX.XX — SIDEWALK ELEVATION
- RIM=BBX.XX — STRUCTURE RIM SPOT ELEVATION
- 1.00% — SURFACE GRADE & FLOW DIRECTION
- 3.0:1 — SURFACE SLOPE (H:V) & FLOW DIRECTION
- STORM SEWER
- SANITARY SEWER
- WATERMAIN
- COMBINED SEWER MANHOLE
- ROOF DRAIN

NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. EXISTING SPOT ELEVATIONS AT MATCH POINTS ARE BASED ON INTERPOLATED POINT TO POINT SURVEY DATA. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR VERIFYING CONNECTION POINTS PRIOR TO INSTALLATION OF IMPROVEMENTS. CONTRACTOR SHALL NOTIFY ENGINEER IN WRITING IMMEDIATELY OF ANY FIELD DISCREPANCIES. CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR MAKING NECESSARY ADJUSTMENTS IN THE FILED FOR CONSTRUCTABILITY, REGULATORY COMPLIANCE (ADA), POSITIVE DRAINAGE, AND TO ENSURE SMOOTH TRANSITIONS TO FIELD CONDITIONS. CONTRACTOR IS RESPONSIBLE FOR REWORK OF A DISCREPANCY THAT IS NOT COMMUNICATED TO THE ENGINEER IN WRITING.
3. CONTRACTOR MUST IMMEDIATELY NOTIFY THE OWNER AND ENGINEER OF DISCREPANCIES OR CONFLICTS IN THE CONTRACT DOCUMENTS BEFORE COMMENCING WORK. NO FIELD CHANGES OR DEVIATIONS ARE TO BE MADE WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER. FAILURE TO NOTIFY OWNER AND ENGINEER OF AN IDENTIFIABLE CONFLICT BEFORE PROCEEDING WITH INSTALLATION RELIEVES OWNER AND ENGINEER OF ANY OBLIGATION TO PAY FOR A RELATED CHANGE ORDER.
4. ALL SPOT ELEVATION LABELS AT RETAINING WALLS ARE THE SURFACE GRADE ADJACENT TO WALL TOP AND BOTTOM. SEE STRUCTURAL PLANS FOR WALL HEIGHT/ DESIGN.
5. ALL PAVEMENT PATCHES SHALL BE CONSTRUCTED TO MATCH EXISTING GRADE. ENSURE POSITIVE DRAINAGE.

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT:
TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

PROJECT TITLE:

ISSUE NO.	DESCRIPTION	DATE
1	LAND USE SUBMITTAL	05/05/2026

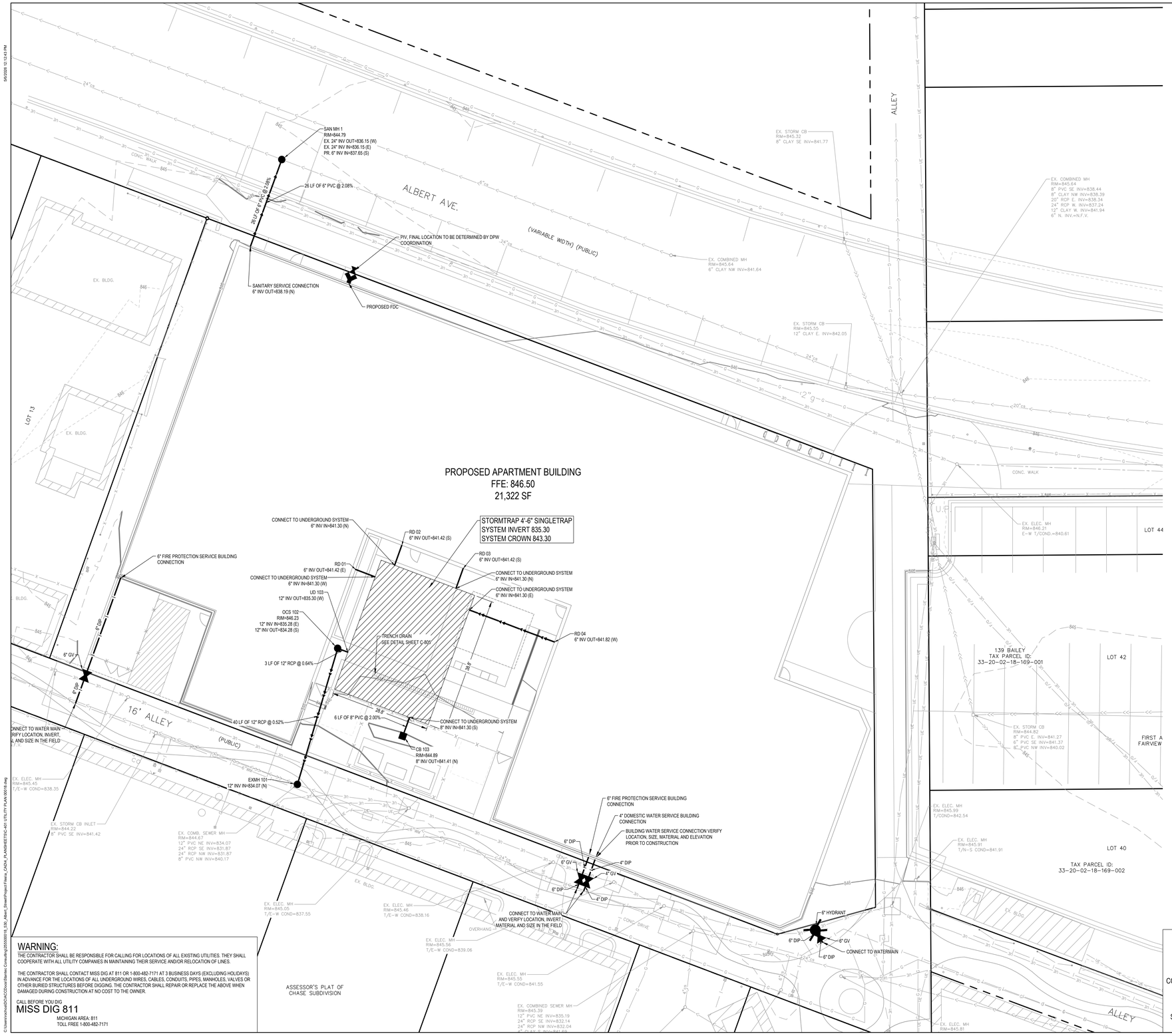
CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6901013291
REGISTERED PROFESSIONAL ENGINEER

PROJECT NO.:	255500018	
DWN BY: RAO	CHK'D BY: MJS	APP'D BY: JTP
ISSUE DATE:	05/05/2026	
ISSUE NO.:	1	

SHEET TITLE:
GRADING PLAN

SHEET NO.:
C-301

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LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- EASEMENT LINE
- SETBACK LINE
- EXISTING MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING SANITARY SEWER
- EXISTING WATERMAIN
- EXISTING SANITARY MANHOLE
- PROPOSED MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- GRADING LIMITS
- WATERMAIN
- STORM SEWER
- SANITARY SEWER
- STORM MANHOLE
- SANITARY MANHOLE
- ROOF DRAIN
- GATE VALVE
- STORM WATER VAULT

NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. MAINTAIN 18" VERTICAL SEPARATION AT ALL UTILITY CROSSINGS.
3. HYDRANT COVERAGE: THERE IS A PROPOSED HYDRANT AT THE SOUTH EAST CORNER AT THE BUILDING. THERE IS AN EXISTING HYDRANT AT THE CORNER OF ALBERT AVE AND BAILEY STREET WHICH IS APPROXIMATELY 162 FT FROM THE NORTH EAST CORNER OF THE BUILDING.
4. ALL ROOF DOWNSPOUTS ARE TO DRAIN TO UNDERGROUND DETENTION SYSTEM IN CENTRAL COURTYARD.
5. TRENCH DRAIN IS TO BE CONNECTED TO STORMTRAP SYSTEM WITH VERTICAL PVC RISER WITH WATERTIGHT CONNECTION. CONNECTION LOCATION TO BE COORDINATED WITH STORMTRAP.

STORM STRUCTURE SCHEDULE			
STRUCTURE ID	SIZE*	CASTING*	DETAIL
OCS 102	48" Ø	1040 A	SEE SHEET 2/C-804
CB 103	12" Ø	1090GD	SEE SHEET 3/C-804

* STRUCTURE SIZES ARE APPROXIMATE. PRECAST MANUFACTURER TO CONFIRM SIZES AND ADJUST AS NECESSARY, PRIOR TO BID OPENING
* NEENAH OR APPROVED EQUAL

THIS PROJECT DOES NOT TRIGGER THE CITY RULES WHICH REQUIRE STORMWATER IMPROVEMENTS.

UNDERGROUND DETENTION BMP IS PROPOSED TO PROVIDE RATE CONTROL AGAINST EXISTING CONDITIONS, IN AN EFFORT TO BE GOOD STEWARDS OF THE LOCAL UTILITY SYSTEM AND REDUCE LOCAL POTENTIAL FOR FLOODING

SEE ATTACHED HYDROLOGY REPORT AND C-805 FOR DETAILS

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TOLL FREE 1-800-482-7171

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WWW.STANTEC.COM

CLIENT:
TAREEN DEVELOPMENT PARTNERS

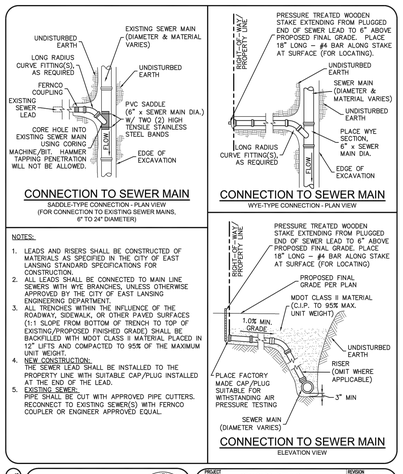
PROJECT TITLE:
530 ALBERT
530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

ISSUE NO.	DESCRIPTION	DATE
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6001313331
PROFESSIONAL ENGINEER

PROJECT NO.:	255500018	
DWN BY:	CHK'D BY:	APP'D BY:
RAO	MJS	JTP
ISSUE DATE:	05/05/2026	
ISSUE NO.:	1	
SHEET TITLE:	UTILITY PLAN	
SHEET NO.:	C-401	

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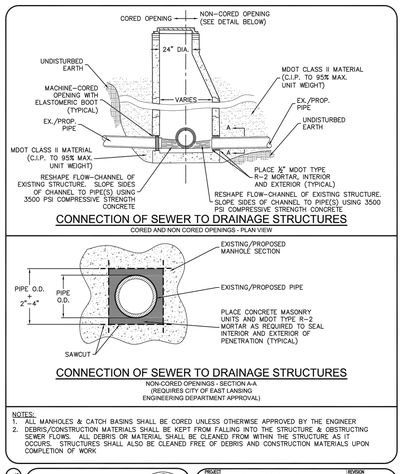


NOTES:

1. LEADS AND RISERS SHALL BE CONSTRUCTED OF MATERIALS AS SPECIFIED IN THE CITY OF EAST LANSING STANDARD SPECIFICATIONS FOR CONSTRUCTION.
2. ALL LEADS SHALL BE CONNECTED TO MAIN LINE SEWERS WITH WYE BRANCHES, UNLESS OTHERWISE APPROVED BY THE CITY OF EAST LANSING ENGINEERING DEPARTMENT.
3. ALL TRENCHES WITHIN THE INFLUENCE OF THE ROADWAY, SIDEWALK, OR OTHER PAVED SURFACES (1:1 SLOPE FROM BOTTOM OF TRENCH TO TOP OF EXISTING/PROPOSED FINISHED GRADE) SHALL BE BACKFILLED WITH MDOT CLASS II MATERIAL PLACED IN 12" LIFTS AND COMPACTED TO 95% OF THE MAXIMUM UNIT WEIGHT.
4. NEW CONSTRUCTION:
   THE SEWER LEAD SHALL BE INSTALLED TO THE PROPERTY LINE WITH SUITABLE CAP/PLUG INSTALLED AT THE END OF THE LEAD.
5. EXISTING SEWER:
   PIPE SHALL BE CUT WITH APPROVED PIPE CUTTERS. RECONNECT TO EXISTING SEWER(S) WITH FERNCO COUPLER OR ENGINEER APPROVED EQUAL.

CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOTT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943	PROJECT: STANDARD DETAILS SHEET NAME: CONNECTION TO SEWER MAIN	REVISION: ENG. REVIEW DATE: 03/01/16
	DRAWN: CJM / CHECKED: RFS / APPROVED: RFS	SCALE: NONE
	DATE: 02/20/14 / DATE: 03/14/14 / DATE: 03/14/14	SHEET NO.: 1 OF 1

N:\Engineering\Templates\Documents\Specifications\Details\Master Standard Details\Dwg\Current 030116\Sewer – Connections Detail – Rev 030116.dwg, Tuesday, March 01, 2016 1:26:50 PM, Clinton Martinez



NOTES:

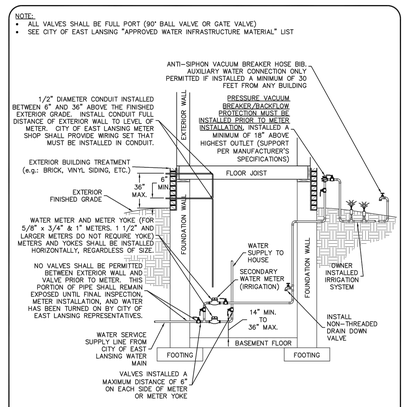
1. ALL MANHOLES & CATCH BASINS SHALL BE CORED UNLESS OTHERWISE APPROVED BY THE ENGINEER
2. DEBRIS/CONSTRUCTION MATERIALS SHALL BE KEPT FROM FALLING INTO THE STRUCTURE & OBSTRUCTING SEWER FLOWS. ALL DEBRIS OR MATERIAL SHALL BE CLEANED FROM WITHIN THE STRUCTURE AS IT OCCURS. STRUCTURES SHALL ALSO BE CLEANED FREE OF DEBRIS AND CONSTRUCTION MATERIALS UPON COMPLETION OF WORK

CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOTT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943	PROJECT: STANDARD DETAILS SHEET NAME: DRAINAGE STRUCTURE CONNECTIONS	REVISION: ENG. REVIEW DATE: 03/01/16
	DRAWN: CJM / CHECKED: RFS / APPROVED: RFS	SCALE: NONE
	DATE: 02/20/14 / DATE: 03/14/14 / DATE: 03/14/14	SHEET NO.: 1 OF 1

N:\Engineering\Templates\Documents\Specifications\Details\Master Standard Details\Dwg\Current 030116\Sewer – Manhole Connections–Coring Detail – Rev 030116.dwg, Tuesday, March 01, 2016 1:28:24 PM, Clinton Martinez

NOTE:

- ALL VALVES SHALL BE FULL PORT (90° BALL VALVE OR GATE VALVE)
- SEE CITY OF EAST LANSING "APPROVED WATER INFRASTRUCTURE MATERIAL" LIST



CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOTT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943	PROJECT: STANDARD DETAILS SHEET NAME: IRRIGATION SERVICE INSTALLATION	REVISION: ENG. REVIEW DATE: 03/01/16
	DRAWN: CJM / CHECKED: RFS / APPROVED: RFS	SCALE: NONE
	DATE: 02/20/14 / DATE: 03/14/14 / DATE: 03/14/14	SHEET NO.: 1 OF 2

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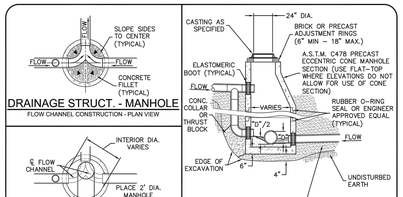
NOTES FOR IRRIGATION METER DETAILS:

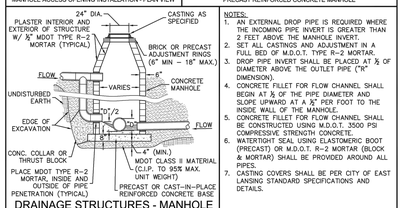
1. A PLUMBING PERMIT MUST BE ON SITE AND VISIBLE TO THE CITY OF EAST LANSING PUBLIC WORKS STAFF PRIOR TO A NEW METER BEING INSTALLED.
2. A 1/2" CONDUIT MUST BE INSTALLED THE FULL DISTANCE FROM THE METER ALL THE WAY THROUGH THE EXTERIOR WALL PRIOR TO A NEW METER BEING INSTALLED OR A METER BEING UP-SIZED OR DOWNSIZED. THE CONDUIT IS RECOMMENDED BUT NOT REQUIRED FOR THE CITY TO REPLACE A METER WITH THE SAME SIZE METER.
3. ADEQUATE ACCESS MUST BE MAINTAINED TO THE METER AND ADEQUATE SPACE MUST BE PROVIDED AND MAINTAINED AROUND THE METER TO ALLOW IT TO BE SERVICED BY CITY STAFF. THE FOLLOWING IS A LIST OF REQUIREMENTS WHEN A NEW METER IS BEING INSTALLED OR WHEN EXISTING METERS ARE BEING UP-SIZED OR DOWN-SIZED:
   - 3.1. 5/8" X 3/4" & 1" METERS: THERE MUST BE A CLEAR PATH AT LEAST TWO FEET WIDE PROVIDED TO ACCESS THE METER FOR FUTURE MAINTENANCE. NO PERMANENT ITEMS (FURNACE, WATER HEATER, ETC) WITHIN TWO FEET OF THE METER IN ANY HORIZONTAL DIRECTION. THERE SHALL BE NOTHING MOUNTED BELOW THE METER AND NOTHING MOUNTED CLOSER THAN 2 FEET ABOVE THE METER. IF THE SPACE IS TO BE FINISHED, AND ACCESS PANEL SHALL BE PROVIDED THAT EXTENDS NO LESS THAN 6 INCHES BEYOND THE VALVES ON EITHER SIDE OF THE METER, 14 INCHES BELOW THE METER AND 14 INCHES ABOVE THE METER.
   - 3.2. 1-1/2" & LARGER METERS: THERE MUST BE A CLEAR PATH AT LEAST TWO FEET WIDE PROVIDED TO ACCESS THE METER FOR FUTURE MAINTENANCE. NO PERMANENT ITEMS (FURNACE, WATER HEATER, ETC.) WITHIN THREE FEET OF THE METER IN ANY HORIZONTAL DIRECTION. THERE SHALL BE NOTHING MOUNTED BELOW THE METER AND NOTHING MOUNTED CLOSER THAN THREE FEET ABOVE THE METER.
4. SEE CITY OF EAST LANSING "APPROVED WATER INFRASTRUCTURE MATERIAL" LIST

WATER SYSTEM - IRRIGATION SERVICE CONNECTION
NOTES

CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOTT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943	PROJECT: STANDARD DETAILS SHEET NAME: IRRIGATION SERVICE INSTALLATION – NOTES	REVISION: ENG. REVIEW DATE: 03/01/16
	DRAWN: CJM / CHECKED: RFS / APPROVED: RFS	SCALE: NONE
	DATE: 02/20/14 / DATE: 03/14/14 / DATE: 03/14/14	SHEET NO.: 2 OF 2

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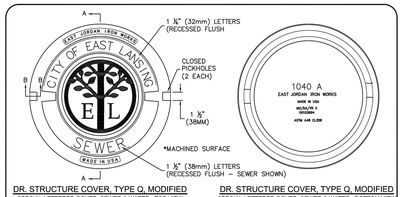


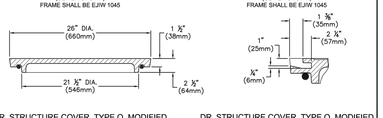
NOTES:

1. AN EXTERNAL DROP PIPE IS REQUIRED WHERE THE INCOMING PIPE INVERT IS GREATER THAN 2 FEET ABOVE THE MANHOLE INVERT.
2. SET ALL CASTINGS AND ADJUSTMENT IN A FULL BED OF M.D.O.T. TYPE R-2 MORTAR.
3. DROP PIPE INVERT SHALL BE PLACED AT ½ OF DIAMETER ABOVE THE OUTLET PIPE ("N" DIMENSION).
4. CONCRETE FILLET FOR FLOW CHANNEL SHALL BEGIN AT ½ OF THE PIPE DIAMETER AND SLOPE UPWARD AT A ½" PER FOOT TO THE INSIDE WALL OF THE MANHOLE.
5. CONCRETE FILLET FOR FLOW CHANNEL SHALL BE CONSTRUCTED USING M.D.O.T. 3500 PSI COMPRESSIVE STRENGTH CONCRETE.
6. WATERTIGHT SEAL USING ELASTOMERIC BOOT (PRECAST) OR M.D.O.T. R-2 MORTAR (BLOCK & MORTAR) SHALL BE PROVIDED AROUND ALL PIPES.
7. CASTING COVERS SHALL BE PER CITY OF EAST LANSING STANDARD SPECIFICATIONS AND DETAILS.

CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOTT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943	PROJECT: STANDARD DETAILS SHEET NAME: DR. STRUCTURES – MANHOLES	REVISION: ENG. REVIEW DATE: 03/01/16
	DRAWN: CJM / CHECKED: RFS / APPROVED: RFS	SCALE: NONE
	DATE: 02/20/14 / DATE: 03/14/14 / DATE: 03/14/14	SHEET NO.: 1 OF 1

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DR. STRUCTURE COVER, TYPE Q, MODIFIED
SPECIAL LETTERED COVER, SEWER & WATER - SECTION A-A

DR. STRUCTURE COVER, TYPE Q, MODIFIED
SPECIAL LETTERED COVER, SEWER & WATER - SECTION B-B (PICK-HOLE DETAIL)

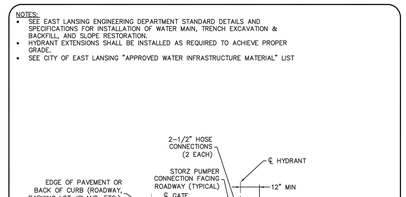
EAST JORDAN IRON WORKS, INC. P.O. BOX 439 EAST JORDAN, MI. 49727 1-800-874-4100 FAX. 231-536-4458	SPECIAL LETTERED COVER	REF. LOGO DRAWING 00103694	
	PRODUCT NO. 00103694 (SEWER) / PRODUCT NO. 00103695 (WATER)	EST. WT. COVER: 150 LBS (68kg)	MAT'L SPEC. COVER– GRAY IRON ASTM A48 CL35B
DRAWN: SMH / DATE: 04/06/06		OPEN AREA NOT APPLICABLE	LOAD RATING HEAVY DUTY
APPROVED / DATE	CATALOG NO. 1040A		

CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOTT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943	PROJECT: STANDARD DETAILS SHEET NAME: DR. STRUCTURE COVER. – TYPE Q, MODIFIED	REVISION: ENG. REVIEW DATE: 03/01/16
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	DATE: 06/22/15 / DATE: 06/22/15 / DATE: 06/22/15	SHEET NO.: 1 OF 1

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NOTES:

- SEE EAST LANSING ENGINEERING DEPARTMENT STANDARD DETAILS AND SPECIFICATIONS FOR INSTALLATION OF WATER MAIN, TRENCH EXCAVATION & BACKFILL, AND SLOPE RESTORATION.
- HYDRANT EXTENSIONS SHALL BE INSTALLED AS REQUIRED TO ACHIEVE PROPER GRADE.
- SEE CITY OF EAST LANSING "APPROVED WATER INFRASTRUCTURE MATERIAL" LIST



CITY OF EAST LANSING DEPARTMENT OF ENGINEERING 410 ABBOTT ROAD EAST LANSING, MI 48823 (517) 337-9459 FAX: (517) 337-3943	PROJECT: STANDARD DETAILS SHEET NAME: FIRE HYDRANT ASSEMBLY	REVISION: ENG. REVIEW DATE: 03/01/16
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Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT: TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

PROJECT TITLE:

ISSUE NO.	DESCRIPTION	DATE
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:



PROJECT NO.:	255500018	
DWN BY: RAO	CHK'D BY: MJS	APP'D BY: JTP
ISSUE DATE:	05/05/2026	
ISSUE NO.:	1	
SHEET TITLE:	DETAILS	
SHEET NO.:	C-801	

© Users\jpenshorn\DCAD\Documents\Projects\255500018_530_Albert_Street\Project Files\e_CAD\14_PLANSHEETS\C-801 DETAILS 030116.dwg

5/5/2026 11:16:23 AM

SIDEWALK, DRIVE APPROACH AND CONCRETE CURB REQUIREMENTS

Rev. 03/16

GENERAL:

1. **Removal**
   - Concrete must be saw-cut full depth at the limits of removal.
2. **Concrete Requirements**:
   - Air Content 5%-8%
   - Slump No Greater than 4"
   - Compressive Strength 3500 psi @ 28 days
   - Mix (6 sack minimum) P1 or S2 (As defined in the MDOT 2012 Standard Specifications for Construction)

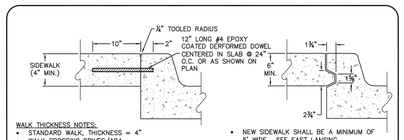
   Note: All concrete items and materials shall be constructed/provided in accordance with Section 601 & 602 of the MDOT 2012 Standard Specifications for Construction.
3. **Finish**:
   - Concrete surfaces shall have a broomed finish.
   - After finishing, the concrete surface must have clear or a white membrane cure applied at a rate of 1 gallon per 25 square yards.
   - The contractor must stamp the concrete with the contractor name and current year at the limits of the pour, using a professionally manufactured/fabricated stamp ONLY. No other methods will be allowed.
4. **Weather & Protection:**
   - The air temperature must be at least 25°F and rising prior to any concrete pour. The subgrade and forms shall not be frozen or have frost present.
   - The concrete shall be protected against damage from rain with plastic or burlap.
   - The concrete shall be protected against damage from freezing with blankets or straw.
5. **Inspection:**
   - The city of East Lansing Engineering Department must be contacted for a grade and form work inspection at least 48 hours in advance of any concrete pour.

SIDEWALK AND DRIVE APPROVACHES:

1. **Joints & Expansion:**
   - Sidewalk shall have troweled joints with spacing equal to the width of the sidewalk.
   - Sidewalk shall have expansion joints using 1/2" thick fiber matrix every 150 feet. See attached Concrete Construction/Control Joints Standard Details.
   - Where new sidewalk meets existing sidewalk, 18" long epoxy-coated deformed bars shall be drilled and inserted at 24" on-center and centered vertically. See attached Concrete Construction/Control Joints Standard Details.
2. **Subgrade Fill:**
   - Subgrade fill for sidewalk and drive approaches shall be MDOT 21AA aggregate material compacted to 98% maximum unit weight.
3. **Barricading:**
   - Lighted, type II barricades shall be placed on both ends of each continuous sidewalk section removed, with a maximum barricade spacing of fifty feet. For sidewalk sections not within a driveway, the barricades shall remain in place from the time of removal until 24 hours after the concrete has been poured and cured. For sidewalk sections within a driveway and drive approaches, the barricades shall remain in place from the time of removal until 7 days after the concrete has been poured unless the strength has been verified. Pedestrian detour may be required, at which time the contractor shall submit a detour route in accordance with current MMUTCD standards.

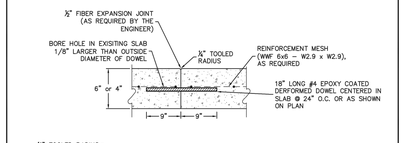
CURB AND GUTTER:

1. **New Drive Openings:**
   - The curb maybe removed and replaced or horizontally cut to create drive openings (see the City's Standards for the specifications on this procedure)
2. **Joints & Expansion:**
   - Curb and gutter shall have trowled joints paced every 10 feet
   - Curb and gutter shall have expansion joints 1" thick fiber matrix every 400 feet.
3. **Subgrade Fill:**
   - Subgrade fill for curb and gutter shall be MDOT 21AA aggregate material compacted to 98% maximum unit weight.



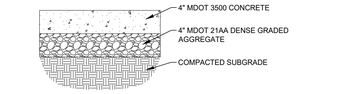
CONCRETE CONSTRUCTION JOINT AT BACK OF CURB

PROVIDE KEYWAY OR DOWEL CONNECTION

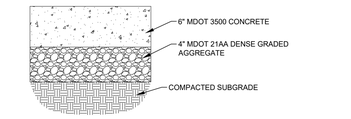


CONCRETE CONSTRUCTION JOINT

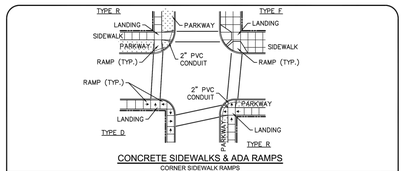
PROVIDE KEYWAY OR DOWEL CONNECTION



1 C-802 CONCRETE SIDEWALK
NOT TO SCALE

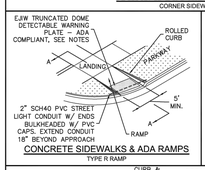


2 C-802 STAMPED CONCRETE PAVEMENT
NOT TO SCALE



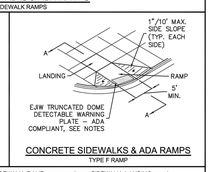
CONCRETE SIDEWALKS & ADA RAMPS

CORNER SIDEWALK RAMPS



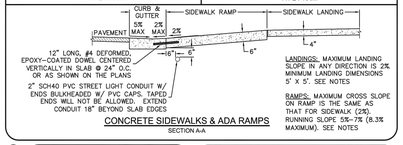
CONCRETE SIDEWALKS & ADA RAMPS

TYPE R RAMP



CONCRETE SIDEWALKS & ADA RAMPS

TYPE F RAMP



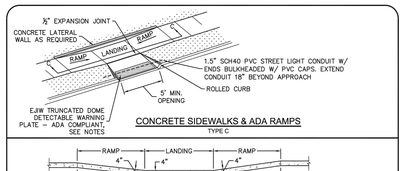
CONCRETE SIDEWALKS & ADA RAMPS

SECTION A-A

CITY OF EAST LANDING
DEPARTMENT OF ENGINEERING
410 ABBOT ROAD
EAST LANSING, MI 48823
(517) 337-9459 FAX: (517) 337-3943

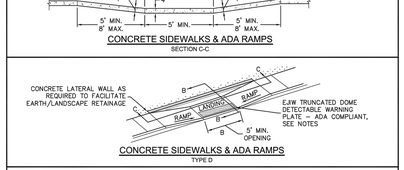
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SHEET NAME	CONCRETE CONSTRUCTION/CONTROL JOINTS			DATE 03/01/16
DRAWN CJM	CHECKED RFS	APPROVED RFS		SCALE NONE
DATE 02/20/14	DATE 03/14/14	DATE 03/14/14		SHEET NO. 1 OF 1

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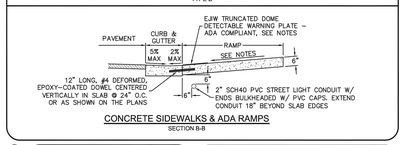
CONCRETE SIDEWALKS & ADA RAMPS

TYPE C



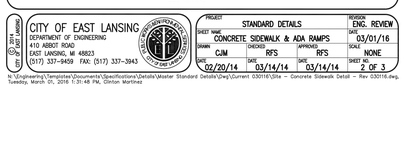
CONCRETE SIDEWALKS & ADA RAMPS

SECTION C-C



CONCRETE SIDEWALKS & ADA RAMPS

TYPE D



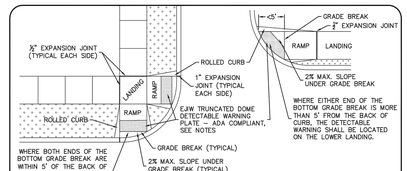
CONCRETE SIDEWALKS & ADA RAMPS

SECTION B-B

CITY OF EAST LANDING
DEPARTMENT OF ENGINEERING
410 ABBOT ROAD
EAST LANSING, MI 48823
(517) 337-9459 FAX: (517) 337-3943

PROJECT	STANDARD DETAILS			REVISION ENG. REVIEW
SHEET NAME	CONCRETE SIDEWALK & ADA RAMPS			DATE 03/01/16
DRAWN CJM	CHECKED RFS	APPROVED RFS		SCALE NONE
DATE 02/20/14	DATE 03/14/14	DATE 03/14/14		SHEET NO. 2 OF 3

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CONCRETE SIDEWALKS & ADA RAMPS

DETECTABLE WARNING PLACEMENT AND RAMP CONSTRUCTION

CONCRETE SIDEWALKS & ADA RAMPS

GENERAL NOTES AND SPECIFICATIONS

NOTES:
1. GRADE BREAKS AT THE TOP AND BOTTOM OF THE CURB RAMPS SHALL BE PERPENDICULAR TO THE DIRECTION OF RAMP RUN. AT LEAST ONE END OF THE BOTTOM GRADE BREAK SHALL BE AT THE BACK OF CURB.
2. INSTALL A 24" DEEP DETECTABLE WARNING, EXTENDING THE WIDTH OF THE RAMP, (NEAREST EDGE OF THE GRADE BREAK AT THE BACK OF CURB.) ALIGN DETECTABLE WARNING IN THE DIRECTION OF TRAVEL AND PERPENDICULAR (OR RADIAL) TO THE GRADE BREAK.
3. SIDEWALK RAMPS ARE TO BE LOCATED AS SPECIFIED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
4. SURFACE TEXTURE OF THE RAMP SHALL BE THAT OBTAINED BY A COARSE BROOMING, TRANSVERSE TO THE SLOPE OF RAMP.
5. SIDEWALK SHALL BE RAMPED WHERE THE DRIVEWAY CURB IS EXTENDED ACROSS THE WALK.
6. CARE SHALL BE TAKEN TO ASSURE A UNIFORM GRADE ON THE RAMP, FREE OF SAGS AND SHORT GRADE CHANGES. WHERE CONDITIONS PERMIT, IT IS DESIRABLE THAT THE SLOPE OF THE RAMP BE IN ONLY ONE DIRECTION. PARALLEL TO THE DIRECTION OF TRAVEL.
7. PROVIDE LANDINGS WHERE PEDESTRIAN TURNING MOVEMENTS ARE REQUIRED.
8. WHEN 5' MINIMUM DIMENSIONS ARE NOT FEASIBLE, RAMP WIDTH MAY BE REDUCED TO NOT LESS THAN 4' AND LANDING DIMENSION TO NOT LESS THAN 4' X 4', UNLESS APPROVED BY THE ENGINEER.
9. FOR NEW ROADWAY CONSTRUCTION THE RAMP CROSS SLOPE MAY NOT EXCEED 2%. FOR ALTERATIONS TO EXISTING ROADWAYS, THE CROSS SLOPE MAY BE TRANSITIONED TO MEET AN EXISTING ROADWAY GRADE. THE CROSS SLOPE TRANSITION SHALL BE APPLIED UNIFORMLY OVER THE FULL LENGTH OF THE RAMP.
10. THE MAXIMUM RUNNING SLOPE OF 8.3% IS RELATIVE TO A FLAT (0%) REFERENCE. HOWEVER, IT SHALL NOT REQUIRE ANY RAMP OR SERIES OF RAMPS TO EXCEED 15 FEET IN LENGTH.
11. DRAINAGE STRUCTURES SHOULD NOT BE PLACED IN LINE WITH RAMPS. THE LOCATION OF THE RAMP SHOULD TAKE PRECEDENCE OVER THE LOCATION OF THE DRAINAGE STRUCTURE. WHERE EXISTING DRAINAGE STRUCTURES ARE LOCATED IN THE RAMP PATH OR TRAVEL, USE A MANUFACTURER'S ADA COMPLIANT GRATE. OPENINGS SHALL NOT BE GREATER THAN ½ INCH. ELONGATED OPENINGS SHALL BE PLACED SO THAT THE LONG DIMENSION IS PERPENDICULAR TO THE DOMINANT DIRECTION OF TRAVEL.
12. TRANSITION THE GUTTER PAN CROSS SECTION SUCH THAT THE COUNTER SLOPE IN THE DIRECTION OF RAMP TRAVEL IS NOT GREATER THAN 5%. MAINTAIN THE NORMAL GUTTER PAN CROSS SECTION ACROSS DRAINAGE STRUCTURES.
13. THE TOP OF THE JOINT FILLER FOR ALL RAMP TYPES SHALL BE RECESSED 1/2" BELOW WITH THE ADJACENT CONCRETE.
14. CROSSWALK AND STOP LINE MARKINGS, IF USED, SHALL BE SO LOCATED AS TO STOP TRAFFIC SHORT OF RAMP CROSSINGS. SPECIFIC DETAILS FOR MARKING APPLICATIONS ARE GIVEN IN THE "MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES."
15. FLARED SIDES WITH A SLOPE OF 10% MAXIMUM, MEASURED ALONG THE CURB LINE, SHALL BE PROVIDED WHERE A CIRCULATION PATH CROSSES THE SIDEWALK RAMP. FLARED SIDES ARE NOT REQUIRED WHERE THE EDGES OF A SIDEWALK RAMP ARE PROTECTED BY LANDSCAPING OR OTHER BARRIERS TO TRAVEL BY WHEELCHAIR USERS OR PEDESTRIANS ACROSS THE EDGE OF THE SIDEWALK RAMP.

CITY OF EAST LANDING
DEPARTMENT OF ENGINEERING
410 ABBOT ROAD
EAST LANSING, MI 48823
(517) 337-9459 FAX: (517) 337-3943

PROJECT	STANDARD DETAILS			REVISION ENG. REVIEW
SHEET NAME	CONCRETE SIDEWALK & ADA RAMPS			DATE 03/01/16
DRAWN CJM	CHECKED RFS	APPROVED RFS		SCALE NONE
DATE 02/20/14	DATE 03/14/14	DATE 03/14/14		SHEET NO. 3 OF 3

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT: TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

DATE	DESCRIPTION	ISSUE NO.
05/05/2026	LAND USE SUBMITTAL	1

PROJECT TITLE:

CERTIFICATION:

STATE OF MICHIGAN
JOHN PENSHORN
License No. 6001313331
PROFESSIONAL ENGINEER

PROJECT NO.: 255500018

DWN BY:	CHK'D BY:	APP'D BY:
RAO	MJS	JTP

ISSUE DATE: 05/05/2026

ISSUE NO.: 1

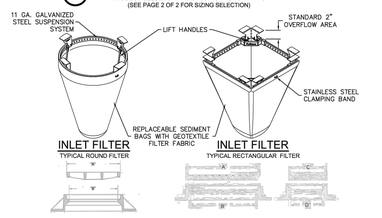
SHEET TITLE: DETAILS

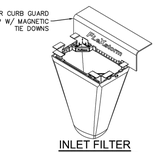
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T55 FLEXSTORM CATCH-IT INLET FILTERS

PRODUCT SELECTION AND SPECIFICATION DRAWING
(SEE PAGE 2 OF 2 FOR SIZING SELECTION)





NOTES:

1. ALL FRAMING IS CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED) FOR 7 YEAR MINIMUM SERVICE LIFE.
2. UPON ORDERING CONFIRMATION OF THE DOT CALLOUT, PRECAST OR CASTING MAKE AND MODEL, OR DETAILED DIMENSIONAL FORMS MUST BE PROVIDED TO CONFIGURE AND ASSEMBLE YOUR CUSTOMIZED FLEXSTORM INLET FILTER. PART NUMBER ALONE IS NOT SUFFICIENT.
3. FOR WRITTEN SPECIFICATIONS AND MAINTENANCE GUIDELINES VISIT: WWW.INLETFILTERS.COM

ALL PRODUCTS MANUFACTURED
BY INLET & PIPE PROTECTION, INC
A DIVISION OF ADS, INC.
WWW.INLETFILTERS.COM (866)
287-8655 PH (630) 355-3477
FX INFO@INLETFILTERS.COM

SIZE	INLET & PIPE PROTECTION, INC DWG NO.:	REV
C	FLEXSTORM_CATCH_IT	A

1. INDENTIFY YOUR FRAME STYLE AND SIZE

STYLE	FRAME STYLE AND SIZE	Frame P/N
ROUND	Small Round (up to 20.0" dia grates (A) dim)	62SRD
	Med Round (20.1" - 35.0" dia grates (A) up to 25" dia openings (B))	62MRD
	Large Round (35.1" - 51.0" dia grates (A) up to 30" openings (B))	62LRD
	XL Round (51.1" dia - 78" dia grates (A) up to 57" dia openings (B))	62XLRD
RECT / SQUARE	Small Rect / Square (up to 16" (B) x 16" (D) openings or 64" perimeter)	62SSQ
	Med Rect / Square (up to 24" (B) x 24" (D) openings or 96" perimeter)	62MSQ
	Large Rect / Square (up to 36" (B) x 24" (D) openings or 120" perimeter)	62LSQ
CURB INLETS	XL Rect / Square (side by side 2 as set to fit up to 48" (B) x 36" (D) openings)	62XLSQ
	Small Rect / Square (ref Rect sizing, shipped with Magnetic Curb Flaps)	62SCB
	Med Rect / Square (ref Rect sizing, shipped with Magnetic Curb Flaps)	62MCB
	Large Rect / Square (ref Rect sizing, shipped with Magnetic Curb Flaps)	62LCB
	XL Rect / Square (ref Rect sizing, shipped with Magnetic Curb Flaps)	62XLCB
NYLOPLAST	12" diameter Nyloplast castings (Stainless Steel Framing standard)	6212NY
	15" diameter Nyloplast castings (Stainless Steel Framing standard)	6215NY
	18"diameter Nyloplast castings (Stainless Steel Framing standard)	6218NY
	24" diameter Nyloplast castings (Stainless Steel Framing standard)	6224NY
	30" diameter Nyloplast castings (Stainless Steel Framing standard)	6230NY

2. SELECT YOUR BAG PART NUMBER

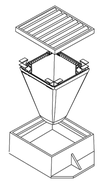
FLEXSTORM FILTER BAGS	(22" depth) STD Bag P/N	(12" depth) Short Bag P/N	Clean Water Flow Rate (GPM/SqFt)	Min A.O.S. (US Sieve)
FX- Standard Woven Bag	FX	FX-S	200	40
IL- IDOT Non-Woven Bag	IL	IL-S	145	70

3. CREATE YOUR FLEXSTORM INLET FILTER PART NUMBER

Frame P/N from Step 1. | Filter Bag P/N from Step 2.

SPECIFICATIONS FOR STANDARD BAGS BY NOMINAL SIZE

Nominal Bag Size	Solids Storage (Cu/Ft)	Filtered Flow Rate at 50% Max (CFS) FX (Woven)	IL (NonWoven)
Small	1.6	1.2	0.9
Medium	2.1	1.7	1.3
Large	3.8	2.7	1.9
XL	4.2	3.6	2.6



INSTALLATION NOTES:

1. REMOVE GRATE
2. DROP FLEXSTORM INLET FILTER ON TO LOAD BEARING LIP OF CASTING OR CONCRETE STRUCTURE
3. REPLACE GRATE

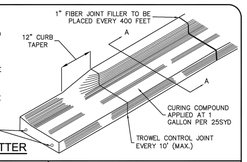
INLET FILTER
TYPICAL INSTALLATION

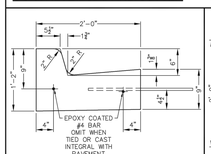
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WWW.INLETFILTERS.COM (866)
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SIZE	INLET & PIPE PROTECTION, INC DWG NO.:	REV
C	FLEXSTORM_CATCH_IT	A

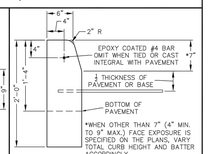
CONCRETE CURB AND GUTTER

NOTES:
1. MDOT 21AA AGGREGATE MATERIAL (4" MINIMUM, C.I.P.) SHALL BE PLACED AND COMPACTED TO 95% MAXIMUM DENSITY BENEATH CURB AND GUTTER TO ACHIEVE THE PROPER ELEVATION.
2. MATERIAL, CONSTRUCTION, MEASUREMENT, AND PAYMENT SHALL BE CONSISTENT WITH THE MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 802.
3. FOR CURB TYPES B1, E1, AND F3, LANE TIES SHALL BE PLACED EVERY 24".

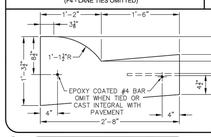




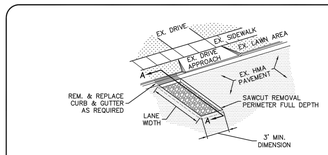
SECTION A-A - MDOT F3 & F4
(F4 - LANE TIES OMITTED)



SECTION A-A - MDOT E1 & E2
(E2 - LANE TIES OMITTED)

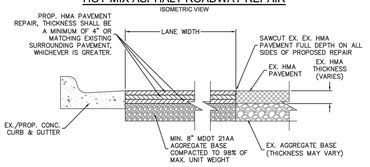


SECTION A-A - MDOT B1 & B2
(B2 - LANE TIES OMITTED)



HOT-MIX ASPHALT ROADWAY REPAIR

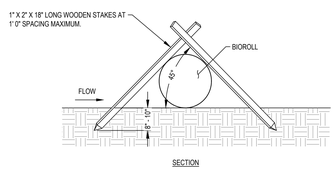
ISOMETRIC VIEW



HOT-MIX ASPHALT ROADWAY REPAIR

SECTION A-A

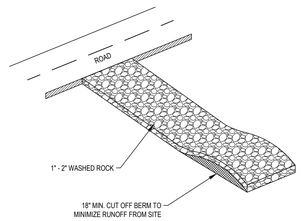
NOTES:
1. NO TUNNELING OF EXISTING PAVEMENT/CURB & GUTTER/SIDEWALK/DRIVE APPROACHES WILL BE ALLOWED.
2. PLACEMENT OF PROPOSED HMA PAVEMENT SHALL BE IN ACCORDANCE WITH SECTION 501.03 OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION. MIX TYPE AND APPLICATION RATE SHALL BE APPROVED BY THE ENGINEER. HMA PAVEMENT SHALL BE APPLIED AS SHOWN IN TABLE 501-4, "HMA APPLICATION RATES", AS CONTAINED IN SECTION 501.03 OF THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION.
3. MATERIAL, CONSTRUCTION, MEASUREMENT, AND PAYMENT SHALL BE CONSISTENT WITH THE MDOT 2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 802.



SECTION

NOTE: IF PLACED ON PAVED SURFACE, DO NOT STAKE INTO SURFACE. CONTRACTOR SHALL ENSURE BIOROLL IS PROPERLY FUNCTIONING AT LEAST DAILY AND AS REQUIRED BY THE SWPPP/NPDES PERMIT, IF APPLICABLE.

1 C-803 BIOROLL
NOT TO SCALE



ISOMETRIC

NOTES:
1. FILTER FABRIC SHALL BE PLACED UNDER ROCK TO STOP MUD MIGRATION THROUGH ROCK.
2. ENTRANCE MUST BE MAINTAINED TO PREVENT SEDIMENTATION ON PUBLIC ROADWAYS.
3. FUGITIVE ROCKS SHALL BE REMOVED FROM ADJACENT ROADWAYS DAILY OR MORE FREQUENTLY AS NECESSARY.

2 C-803 STABILIZED CONSTRUCTION EXIT
NOT TO SCALE

CITY OF EAST LANSING
DEPARTMENT OF ENGINEERING
410 ABBOTT ROAD
EAST LANSING, MI 48823
(517) 337-9459 FAX: (517) 337-3943

PROJECT	STANDARD DETAILS			REVISION: ENG. REVIEW
SHEET NAME:	FLEXSTORM CATCH-IT INLET FILTERS			DATE: 03/01/16
DRAWN: CJM	CHECKED: RFS	APPROVED: RFS		SCALE: NONE
DATE: 02/20/14	DATE: 03/14/14	DATE: 03/14/14		SHEET NO.: 1 OF 2

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CITY OF EAST LANSING
DEPARTMENT OF ENGINEERING
410 ABBOTT ROAD
EAST LANSING, MI 48823
(517) 337-9459 FAX: (517) 337-3943

PROJECT	STANDARD DETAILS			REVISION: ENG. REVIEW
SHEET NAME:	FLEXSTORM CATCH-IT INLET FILTERS			DATE: 03/01/16
DRAWN: CJM	CHECKED: RFS	APPROVED: RFS		SCALE: NONE
DATE: 02/20/14	DATE: 03/14/14	DATE: 03/14/14		SHEET NO.: 2 OF 2

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CITY OF EAST LANSING
DEPARTMENT OF ENGINEERING
410 ABBOTT ROAD
EAST LANSING, MI 48823
(517) 337-9459 FAX: (517) 337-3943

PROJECT	STANDARD DETAILS			REVISION: ENG. REVIEW
SHEET NAME:	CONCRETE CURB & GUTTER DETAILS			DATE: 03/01/16
DRAWN: CJM	CHECKED: RFS	APPROVED: RFS		SCALE: NONE
DATE: 02/20/14	DATE: 03/14/14	DATE: 03/14/14		SHEET NO.: 1 OF 1

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CITY OF EAST LANSING
DEPARTMENT OF ENGINEERING
410 ABBOTT ROAD
EAST LANSING, MI 48823
(517) 337-9459 FAX: (517) 337-3943

PROJECT	STANDARD DETAILS			REVISION: ENG. REVIEW
SHEET NAME:	HOT-MIX ASPHALT ROADWAY REPAIR			DATE: 03/01/16
DRAWN: CJM	CHECKED: RFS	APPROVED: RFS		SCALE: NONE
DATE: 02/20/14	DATE: 03/14/14	DATE: 03/14/14		SHEET NO.: 1 OF 1

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Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT:
TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

ISSUE NO.	DATE	DESCRIPTION
1	05/05/2026	LAND USE SUBMITTAL

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6001312331
LICENSED PROFESSIONAL ENGINEER

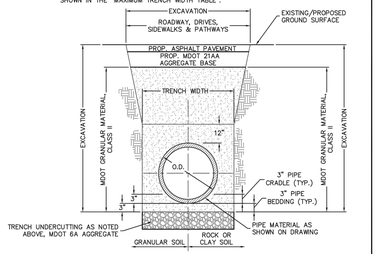
PROJECT NO.:	255500018
DWN BY: RAO	CHK'D BY: MJS
APPD BY: JTP	
ISSUE DATE:	05/05/2026
ISSUE NO.:	1
SHEET TITLE:	DETAILS
SHEET NO.:	C-803

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TRENCH UNDERCUTTING:
WHEN ENCOUNTERING UNSTABLE OR UNSUITABLE MATERIAL BELOW THE PLAN TRENCH GRADE THE CONTRACTOR SHALL REMOVE THE MATERIAL TO A DEPTH AS REQUIRED TO PROVIDE A STABLE BASE FOR PIPE INSTALLATION. MDOT 6A STONE SHALL BE PLACED TO A MINIMUM OF 3" BELOW THE PIPE. IF GROUND WATER PREVENTS THE PLACEMENT AND COMPACTION OF GRANULAR MATERIAL (MDOT CLASS II SAND), THE CONTRACTOR SHALL USE MDOT 6A STONE FOR PIPE BEDDING, PIPE CRADLE, AND BACKFILL MATERIAL TO AN ELEVATION WHICH WILL ALLOW PROPER PLACEMENT AND COMPACTION OF GRANULAR MATERIAL AS REQUIRED TO COMPLETE THE BACKFILLING PROCESS. FOR ADDITIONAL REQUIREMENTS, REFER TO THE CITY OF EAST LANSING STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION: SEWER CONSTRUCTION SPECIFICATIONS.

MAXIMUM TRENCH WIDTH TABLE	
INTERNAL PIPE DIA.	MAX. TRENCH WIDTH
LESS THAN 18"	30"
18" TO 24"	PIPE O.D. PLUS 18"
24" AND LARGER	PIPE O.D. PLUS 24"

BELOW A POINT 12" ABOVE THE TOP OF THE PIPE, THE TRENCH WIDTH SHALL PROVIDE A CLEARANCE OF NOT LESS THAN 6" BETWEEN THE PIPE SIDE WALL AND THE TRENCH SIDE WALL. TRENCH WIDTH SHALL NOT EXCEED THOSE SHOWN IN THE "MAXIMUM TRENCH WIDTH TABLE".

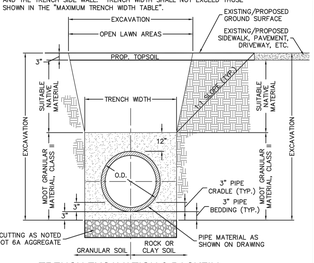


UTILITY TRENCH EXCAVATION & BACKFILL
UNDER ROADWAYS

TRENCH UNDERCUTTING:
WHEN ENCOUNTERING UNSTABLE OR UNSUITABLE MATERIAL BELOW THE PLAN TRENCH GRADE THE CONTRACTOR SHALL REMOVE THE MATERIAL TO A DEPTH AS REQUIRED TO PROVIDE A STABLE BASE FOR PIPE INSTALLATION. MDOT 6A STONE SHALL BE PLACED TO A MINIMUM OF 3" BELOW THE PIPE. IF GROUND WATER PREVENTS THE PLACEMENT AND COMPACTION OF GRANULAR MATERIAL (MDOT CLASS II SAND), THE CONTRACTOR SHALL USE MDOT 6A STONE FOR PIPE BEDDING, PIPE CRADLE, AND BACKFILL MATERIAL TO AN ELEVATION WHICH WILL ALLOW PROPER PLACEMENT AND COMPACTION OF GRANULAR MATERIAL AS REQUIRED TO COMPLETE THE BACKFILLING PROCESS. FOR ADDITIONAL REQUIREMENTS, REFER TO THE CITY OF EAST LANSING STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION: SEWER CONSTRUCTION SPECIFICATIONS.

MAXIMUM TRENCH WIDTH TABLE	
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TRENCH EXCAVATION & BACKFILL
UNDER OPEN LAWN AREAS

City of East Lansing Approved Water Infrastructure Material - Page 1 of 2
Updated: March 01, 2016 RFS

Water main pipe, including all pipe fittings and fire hydrants shall be placed as shown on the Plans. All materials shall be manufactured in the United States of America and shall be stamped or certified as such. Material not specifically approved must receive approval from the engineering in writing prior to use.

A. Water Main Pipe. Unless otherwise specified, all pipes shall be Ductile Iron Pipe Class 52 or greater and shall meet ANSI/AWWA C151/A21.51.

B. Joints, Fittings and Mechanical Joints. All pipe joints shall be Fastite, Tyton or approved equal. All fitting joints shall be mechanical joint unless otherwise noted on the plans and shall meet ANSI/AWWA C111/A21.11.

Approved Mechanical Joint Restraints:
1. Ford Meter Box Company, Inc. - Uni-Flange Series 1400
2. EBAA Iron Inc. - Megalug Series 1100

C. Hydrants. All hydrants shall meet ANSI/AWWA C502 and shall be painted red with left turning opening and meet the following specifications:
- Valve opening of 5 1/4 inch
- 2 - 2 ½ inch National Standard hose connections
- 1 - 5" Storz pumper connection
- 1 1/8 inch Pentagon nut
- 6 inch mechanical joint valve placed a maximum of 18 inches from the hydrant.

Approved Hydrants:
1. ej - 5BR250 WaterMaster Fire Hydrant
2. Waterous - Pacer WB-67-250

D. Gate Valves. Gate valves shall meet the requirements of ANSI/AWWA C515 and shall be resilient seat, open counterclockwise, non-rising stem, with mechanical joints meeting ANSI/AWWA C111/A21.11.

Approved Gate Valves:
1. EJ - Flowmaster
2. American Cast Iron Pipe Company - Series 2500
3. Clow - C515

E. Corporations Valves. Corporation valves shall be 1" unless noted on plans and shall meet ANSI/AWWA C800 with AWWA/CC taper thread inlet and compression joint outlet.

Approved Corporation Valves:
1. Mueller Water Products, Inc. - Mueller 300 - B-25008N
2. Ford Meter Box Co. - FB1000-45-Q-NL

City of East Lansing Approved Water Infrastructure Material - Page 2 of 2
Updated: March 01, 2016 RFS

F. Curb Stops. Curb Stops shall be 1" unless noted on plans and shall meet ANSI/AWWA C800 with compression joints on both the inlet and outlet.

Approved Curb Stops:
1. Mueller Water Products, Inc. - Mueller 300 - B-25155N
2. Ford Meter Box Co. - B44-444-Q-NL

G. Curb Stop Riser Boxes. All extension type curb box shall have a Minneapolis Pattern with a pentagon bolt.

Approved Curb Stop Riser Boxes:
1. Mueller Water Products, Inc. - Mueller H-1030
2. Ford Meter Box Co. - EM2-50-56

H. Valve Boxes and Bases. Valve box lids shall say "EAST LANSING."

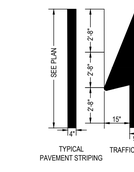
Approved Valve Boxes and Bases:
1. Tyler Union - 6860 series with No. 160 base
2. ej 8560 series with a No. 160 base

I. Post Indicator Valves. Shall be one of the following or approved equal by Fire Marshall.
1. Mueller Water Products, Inc. - A-20806
2. American Flow Controls - IP-71

J. Tapping Sleeve. Confirms to AWWA C223
Approved Tapping Sleeve:
1. Ford FTSS

K. Encasement Film. Encasement material shall be polyethylene film meeting installation and material specifications detailed in the 2012 Michigan Department of Transportation Standard Specification for Construction.

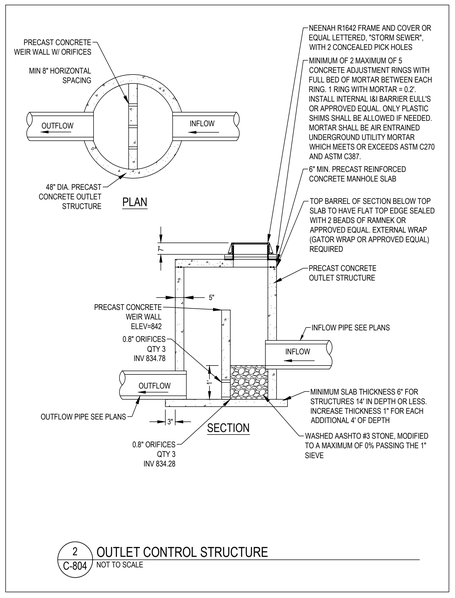
K. Service Lines. All service lines from the main to the curb stop shall be type K soft copper. All service lines and corporations shall be at least 1 inch nominal diameter unless noted on the plans.



TYPICAL PAVEMENT STRIPING | TRAFFIC ARROW | TYPICAL LETTER | TYPICAL CROSSWALK PANEL

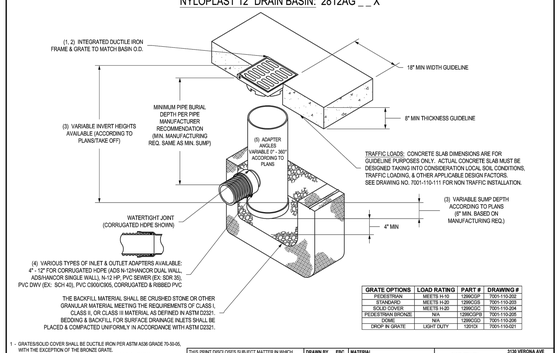
NOTES:
1. PAINT SHALL BE APPLIED AT A THICKNESS OF 22 WET MILS AND 15 DRY MILS.
2. PAINT SHALL BE NON-REFLECTIVE WHITE PAINT FOR ALL TYPICAL PAVEMENT MARKINGS

1 C-804 TYPICAL PAVEMENT MARKINGS
NOT TO SCALE



2 C-804 OUTLET CONTROL STRUCTURE
NOT TO SCALE

NYLOPLAST 12" DRAIN BASIN: 2812AG _ _ X



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1299CGP	7901-110-202
STANDARD	MEETS H-20	1299CGS	7901-110-203
LIGHT DUTY	MEETS H-20	1299CGL	7901-110-204
PEDESTRIAN/VANDAL	N/A	1299CGPV	7901-110-205
DOME	N/A	1299CGD	7901-110-206
DROP IN GRATE	LIGHT DUTY	1291CR	7901-110-021

1. GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05 WITH THE EXCEPTION OF THE 1299CGL (GRAY).
2. FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05.
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7901-110-065.
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
5. ANGLE OF ADAPTERS INSTALLED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7901-110-012.

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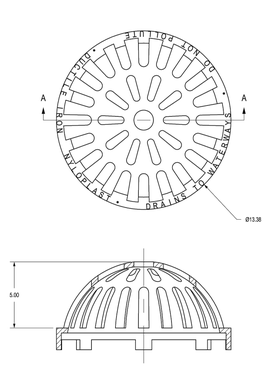
DRAWN BY	EBC	MATERIAL	
DATE	03-29-06		
REVISED BY	NMH	PROJECT NO./NAME	
DATE	03-11-16		
DWG SIZE	A	SCALE 1:20	SHEET 1 OF 1

ADS Nyloplast
2138 VERONA AVE
BUFORD, GA 30518
PH# (770) 932-2403
FAX (770) 932-3460
www.nyloplast-us.com

TITLE: 12 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL
DWG NO. 7901-110-189 REV E

1299CGD

APPROX. DRAIN AREA = 82.87 SQ IN
APPROX. WEIGHT = 18.50 LBS



SECTION A-A

DIMENSIONS ARE FOR REFERENCE ONLY
ACTUAL DIMENSIONS MAY VARY
DIMENSIONS ARE IN INCHES
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
LOCKING DEVICE AVAILABLE UPON REQUEST

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DRAWN BY	EBC	MATERIAL	DUCTILE IRON
DATE	03-06-06		
REVISED BY	CCA	PROJECT NO./NAME	
DATE	09-30-13		
DWG SIZE	A	SCALE 1:4	SHEET 1 OF 1

ADS Nyloplast
2138 VERONA AVE
BUFORD, GA 30518
PH# (770) 932-2403
FAX (770) 932-3460
www.nyloplast-us.com

TITLE: 12 IN DOME GRATE
DWG NO. 7901-110-206 REV E

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT: TAREEN DEVELOPMENT PARTNERS

530 ALBERT
530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

DESCRIPTION:	DATE:
LAND USE SUBMITTAL	05/05/2026

ISSUE NO.: 1

PROJECT TITLE:

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6001312331
PROFESSIONAL ENGINEER

PROJECT NO.: 255500018
DWN BY: RAO | CHK'D BY: MJS | APP'D BY: JTP
ISSUE DATE: 05/05/2026
ISSUE NO.: 1
SHEET TITLE: DETAILS
SHEET NO.: C-804

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WARNING:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT MISS DIG AT 811 OR 1-800-482-7171 AT 3 BUSINESS DAYS (EXCLUDING HOLIDAYS) IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG
MISS DIG 811
MICHIGAN AREA: 811
TOLL FREE 1-800-482-7171

GRAPHIC SCALE
10 0 10 20
(IN FEET)
1 inch = 10 ft.

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- CURB AND GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE SIDEWALK
- BRICK PAVERS
- GRASS / LANDSCAPING
- FENCE
- EXISTING TREE TO BE REMOVED
- EXISTING TREE TO REMAIN

TREE INVENTORY

Tree ID	Species	DBH	Condition	Remove Y/N
1	Acer platanoides	10.7	Good	N
2	Gingko biloba	6	Good	N
3	Acer saccharinum	9.8	Good	Y
4	Acer saccharinum	6.7	Good	Y
5	Amelanchier arborea	4.2	Good, multi trunk	Y
6	Amelanchier arborea	2.8	Good	Y
7	Amelanchier arborea	2.9	Good, multi trunk	Y
8	Acer platanoides	7.8	Poor	Y
9	Thuja occidentalis	2.1	Good	N
10	Acer platanoides	7.7	Good	Y
11	Thuja occidentalis	4.3	Good	N
12	Acer platanoides	6.4	Poor	Y
13	Acer platanoides	6.3	Poor	Y
14	Acer platanoides	6.2	Poor	N
15	Acer negundo	7.4	Good	N
16	Juglans nigra	4.5	Good	N
17	Catalpa speciosa	4.9	Good, multi trunk	N
18	Ulmus americana	14.5	Good, multi trunk	Y
19	Rhamnus cathartica	11.8	Good	Y
20	Quercus macrocarpa	1.9	Good	N
21	Fraxinus pennsylvanica	16	Good	Y
22	Fraxinus pennsylvanica	19.2	Good	Y
23	Acer platanoides	3.1	Good	N
24	Gingko biloba	8.3	Good	N
			Total Trees Removed	13
			Total DBH Removed	116

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SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT:
TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

PROJECT TITLE:

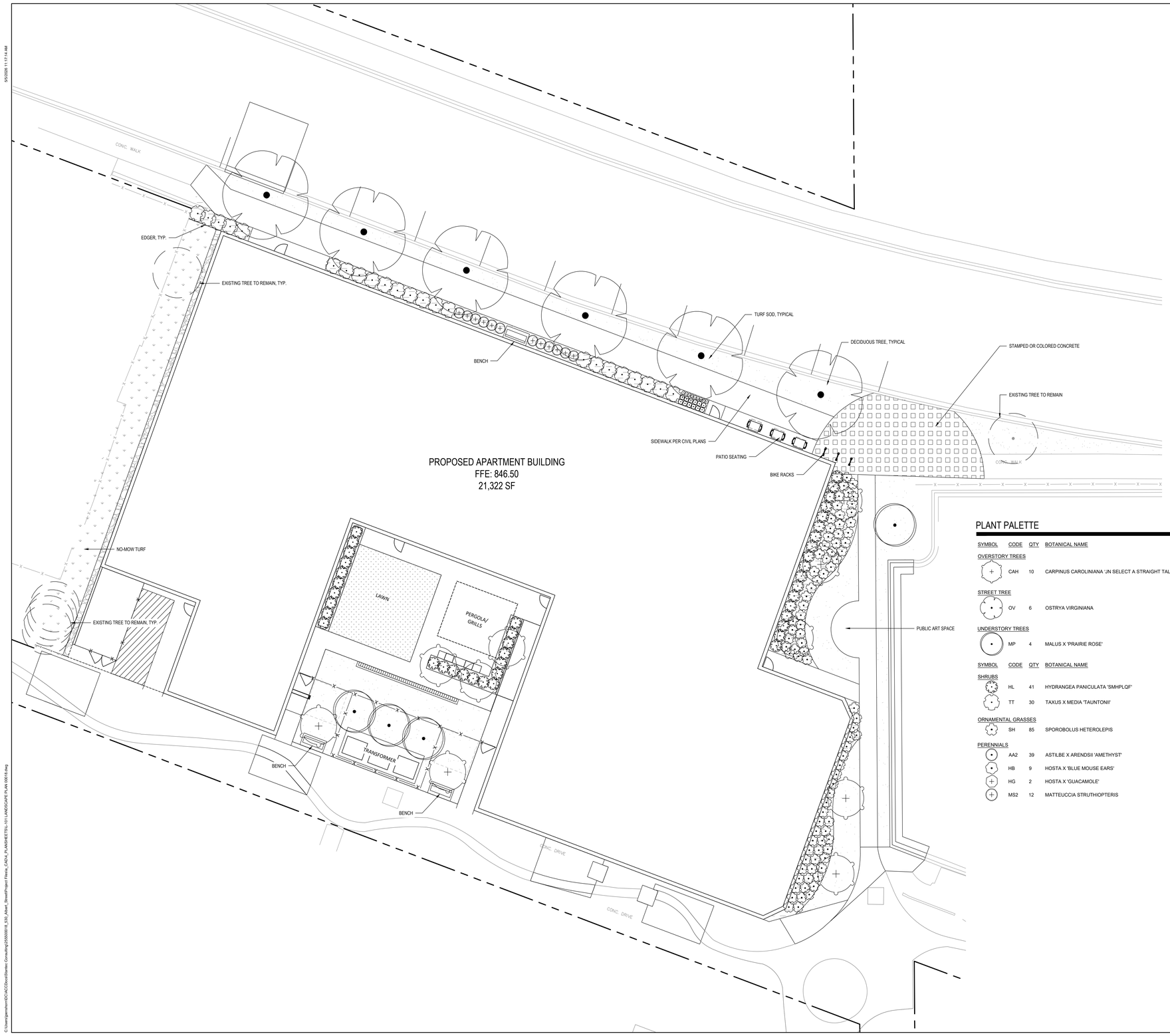
ISSUE NO:	DESCRIPTION:	DATE:
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:

STATE OF MICHIGAN
MARK FLICKER
LANDSCAPE ARCHITECT
No. 3901047065
LICENSED LANDSCAPE ARCHITECT

PROJECT NO.:	255500018
DWN BY: RAO	CHK'D BY: MJS
APP'D BY: JTP	
ISSUE DATE:	05/05/2026
ISSUE NO.:	1
SHEET TITLE:	TREE PRESERVATION PLAN
SHEET NO.:	L-101

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GRAPHIC SCALE
10 0 10 20
(IN FEET)
1 inch = 10 ft.

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- CURB AND GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE SIDEWALK
- NO-MOW TURF
- STAMPED OR COLORED CONCRETE
- TURF SOD
- WOOD MULCH
- FENCE

NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

PLANT PALETTE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL
OVERSTORY TREES						
	CAH	10	CARPINUS CAROLINIANA 'JN SELECT A STRAIGHT TALK'	COLUMNAR AMERICAN HORNBEAM	B&B	2.5"
STREET TREE						
	OV	6	OSTRYA VIRGINIANA	AMERICAN HOPHORNBEAM	B&B	3.5"
UNDERSTORY TREES						
	MP	4	MALUS X 'PRAIRIE ROSE'	PRAIRIE ROSE CRABAPPLE	B&B	1.5"
SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	
SHRUBS						
	HL	41	HYDRANGEA PANICULATA 'SMHPLQF'	LITTLE QUICK FIRE® PANICLE HYDRANGEA	3 GAL	
	TT	30	TAXUS X MEDIA 'TAUNTONII'	TAUNTON'S YEW	3 GAL	
ORNAMENTAL GRASSES						
	SH	85	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED	1 GAL	
PERENNIALS						
	AA2	39	ASTILBE X ARENDSII 'AMETHYST'	AMETHYST ASTILBE	1 GAL	
	HB	9	HOSTA X 'BLUE MOUSE EARS'	BLUE MOUSE EARS HOSTA	1 GAL	
	HG	2	HOSTA X 'GUACAMOLE'	GUACAMOLE HOSTA	1 GAL	
	MS2	12	MATTEUCCIA STRUTHIOPTERIS	OSTRICH FERN	1 GAL	

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CLIENT:
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530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

PROJECT TITLE:

ISSUE NO:	DESCRIPTION:	DATE:
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:

STATE OF MICHIGAN
MARK FLICKER
LANDSCAPE ARCHITECT
No. 3901047055
LICENSED LANDSCAPE ARCHITECT

PROJECT NO.:	255500018
DWN BY: RAO / CHK'D BY: MJS / APP'D BY: JTP	
ISSUE DATE:	05/05/2026
ISSUE NO.:	1
SHEET TITLE:	LANDSCAPE PLAN
SHEET NO.:	L-201

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INSPECTION AND ACCEPTANCE

1. LANDSCAPE WORK WILL BE INSPECTED FOR ACCEPTANCE IN PARTS AGREEABLE TO THE OWNER, PROVIDED WORK OFFERED FOR INSPECTION IS COMPLETE, INCLUDING MAINTENANCE, FOR THE PORTION IN QUESTION.
2. AT THE CONCLUSION OF THE ESTABLISHMENT PERIOD, WHICH WILL BE ONE YEAR FOLLOWING INITIAL INSTALLATION A FINAL INSPECTION OF PLANTING WILL BE MADE TO DETERMINE THE CONDITIONS OF AREAS SPECIFIED FOR LANDSCAPING.
3. WHEN INSPECTED LANDSCAPE WORK DOES NOT COMPLY WITH REQUIREMENTS, REPLACE REJECTED WORK AND CONTINUE SPECIFIED MAINTENANCE UNTIL RE-INSPECTED BY OWNER AND FOUND TO BE ACCEPTABLE. REMOVE REJECTED PLANTS AND MATERIALS FROM SITE.

PLANTING NOTES

1. UPON APPROVAL OF STAKING LOCATIONS CONTRACTOR SHALL EXCAVATE PLANTING HOLES CENTERED AT STAKED LOCATIONS.
2. DIG HOLES AS DETAILED AND TO A DIAMETER A MINIMUM OF TWO TIMES THE DIAMETER OF THE ROOT BALL OR CONTAINER.
3. ALL PLANTING AND SEEDING AREAS SHALL BE PREPARED PRIOR TO INSTALLATION ACTIVITIES WITH A HARLEY POWER BOX RAKE OR EQUAL TO PROVIDE A FIRM PLANTING BED FREE OF STICKS, RUBBISH, FOREIGN MATERIALS AND UNDESIRABLE PLANTS AND THEIR ROOTS. REMOVE STONES MEASURING OVER 1-1/2 INCHES IN ANY DIMENSIONS.
4. SET BALLED AND BURLAPPED (B&B) STOCK ON LAYER OF COMPACTED PLANTING SOIL MIXTURE, PLUMB AND IN CENTER OF PIT OR TRENCH WITH TOP OF ALL AT SAME ELEVATION AS ADJACENT FINISHED LANDSCAPE GRADES.
5. ROOT FLARE OF THE TREE MUST BE ABOVE FINISHED GRADE.
6. CUT ALL CORDS AND TWIN AND REMOVE WIRE BASKET AND BURLAP FROM TOP AND SIDES OF BALLS; RETAIN BURLAP ON BOTTOMS.
7. WHEN SET, PLACE ADDITIONAL PLANTING SOIL BACKFILL AROUND BASE AND SIDES OF BALL, AND WORK EACH LAYER TO SETTLE BACKFILL AND ELIMINATE VOIDS AND AIR POCKETS.
8. WHEN EXCAVATION IS APPROXIMATELY 2/3 FULL, WATER THOROUGHLY BEFORE PLACING REMAINDER OF BACKFILL.
9. REPEAT WATERING UNTIL NO MORE IS ABSORBED. WATER AGAIN AFTER PLACING FINAL LAYER OF BACKFILL.
10. FOR CONTAINER GROWN STOCK, SAME AS FOR BALLED AND BURLAPPED STOCK, EXCEPT CUT CONTAINERS ON SIDES INTO QUARTERS WITH SHEAR. REMOVE CONTAINER BEFORE SETTING PLANT SO AS NOT TO DAMAGE ROOT BALLS.
11. WATER EACH PLANT WITHIN 2 HOURS OF PLANTING.
12. ALL PLANTINGS TO BE MULCHED UNLESS OTHERWISE NOTED ON THE PLAN.
13. PLACE 3-INCH THICKNESS OF MULCH AROUND TREES AND SHRUBS WITHIN A PERIOD OF 48 HOURS AFTER THE SECOND WATERING.
14. DO NOT PLACE MULCH IN DIRECT CONTACT WITH TRUNKS OR STEMS.
15. WHERE NOTED / INDICATED PLANT BEDS SHALL RECEIVE 3" DEPTH LOCALLY AVAILABLE 3/4" TRAP ROCK MULCH, OVER WEED MAT. SUBMIT MULCH SAMPLE FOR OWNER APPROVAL.
15. WHERE NOTED / INDICATED PLANT BEDS SHALL RECEIVE 3" DEPTH LOCALLY AVAILABLE SHRED WESTERN RED CEDAR WOOD MULCH. SUBMIT MULCH SAMPLE FOR OWNER APPROVAL. CONTRACTOR TO APPLY PREEN PRE-EMERGENT GRANULES AT INSTALLATION PER MANUFACTURER RECOMMENDATIONS.
16. TREE SAUCER MULCH TO BE THREE INCHES (3") DEPTH WESTERN RED CEDAR SHRED MULCH FOR TREES OUTSIDE OF PLANT BED. INSTALL PER TREE PLANTING DETAIL.

MAINTENANCE NOTES

1. WHEN INSPECTED LANDSCAPE WORK DOES NOT COMPLY WITH REQUIREMENTS, REPLACE REJECTED WORK AND CONTINUE SPECIFIED MAINTENANCE UNTIL RE-INSPECTED BY OWNER AND FOUND TO BE ACCEPTABLE. REMOVE REJECTED PLANTS AND MATERIALS FROM SITE.
2. BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING.
3. MAINTAIN PLANT MATERIAL INCLUDING WATERING FOR ONE YEAR AFTER ACCEPTANCE BY OWNER. IT IS CONTRACTORS RESPONSIBILITY FOR COORDINATE WATERING.
4. TRIM, PRUNE, REMOVE CLIPPINGS AND DEAD OR BROKEN BRANCHES, AND TREAT PRUNED AREAS AND OTHER WOUNDS.
5. IT IS THE CONTRACTOR'S OPTION WHETHER OR NOT TO STAKE TREES. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING TREES IN AN UPRIGHT POSITION THROUGHOUT THE ONE-YEAR GUARANTEE PERIOD.

GUARANTEE AND REPLACEMENTS

1. PLANT MATERIAL SHALL BE GUARANTEED FOR ONE FULL YEAR AFTER OWNER ACCEPTANCE AND SHALL BE ALIVE AND IN SATISFACTORY CONDITION AT THE END OF THE GUARANTEE PERIOD. SUCH GUARANTEE EXCLUDES VANDALISM.
2. AT THE END OF THE ONE-YEAR GUARANTEE PERIOD, INSPECTION WILL BE MADE BY THE OWNER UPON WRITTEN NOTICE BY THE CONTRACTOR AT LEAST FIVE DAYS BEFORE THE ANTICIPATED DATE. ANY PLANT MATERIAL REQUIRED UNDER THE CONTRACT THAT IS DEAD OR NOT IN SATISFACTORY CONDITION, AS DETERMINED BY THE OWNER, SHALL BE REMOVED FROM THE SITE, AND SHALL BE REPLACED AS SOON AS CONDITIONS PERMIT DURING THE NORMAL PLANTING SEASONS.
3. THE OPINION OF THE OWNER SHALL GOVERN IN ANY AND ALL DISPUTES BY THE CONTRACTOR REGARDING THE CONDITION AND DISPOSITION OF UNSATISFACTORY MAINTENANCE PROCEDURES OR REJECTED PLANTS.
4. ALL REPLACEMENTS SHALL BE PLANT MATERIAL OF THE SAME KIND AND SIZE AS SPECIFIED IN THE PLANT LIST. REPLACEMENT COSTS SHALL BE BORNE BY THE CONTRACTOR.
5. REPLACEMENT PLANTINGS REQUIRED AT THE END OF THE GUARANTEE PERIOD ARE NOT TO BE GUARANTEED. THE PLANT MATERIAL IS SUBJECT TO INSPECTION AND REJECTION BY THE OWNER BEFORE AND AFTER PLANTING.

TURF RESTORATION NOTES

1. EDGE RESTRAINT BETWEEN PLANTING BEDS AND TURF SHALL BE BLACK COMMERCIAL GRADE STEEL LANDSCAPE EDGER, 1/8" THICKNESS. ANCHOR EVERY 16" ON-CENTER (MINIMUM). SUBMIT SAMPLE TO OWNER FOR APPROVAL.
2. THE ESTABLISHMENT PERIOD FOR TURF SHALL BEGIN IMMEDIATELY AFTER INSTALLATION. WITH THE APPROVAL OF THE OWNER, AND CONTINUE UNTIL THE DATE THAT THE OWNER PERFORMS A FINAL INSPECTION.
3. THE ESTABLISHMENT PERIOD FOR SODDED AREAS IS 1 YEAR.
4. FERTILIZER SHALL CONFORM TO MDOT SPEC. 917.10, PLANTING FERTILIZER.
5. FERTILIZER SHALL HAVE A FORMULA (N-P-K) AS DETERMINED BY THE RESULTS OF A SOIL TEST. CONTRACTOR TO CONDUCT SOIL TEST AND PROVIDE RESULTS ALONG WITH RECOMMENDED FERTILIZER FORMULA TO OWNER FOR REVIEW AND APPROVAL PRIOR TO APPLICATION.
6. TOPSOIL SHALL BE IMPORTED AND CONFORM TO MDOT SPEC. 917.07. 6" OF TOPSOIL SHALL BE PLACED IN ALL SODDED AREAS.
7. INSTALLATION OF SOD SHALL OCCUR WITHIN ONE (1) WEEK OF COMPLETING THE GRADING.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR WATER DURING THE PLANTING ESTABLISHMENT PERIOD.
9. PLACE ALL SOD STRIPS WITH LONG EDGES PARALLEL TO THE CONTOURS, STAGGERING ALL JOINTS ALTERNATIVELY WITHOUT SPACE BETWEEN. SECURE THE SOD TO SLOPES 4:1 OR GREATER WITH BIODEGRADABLE ANCHOR SYSTEMS.
10. TURF SOD SHALL CONFORM TO MDOT SPEC. 917.13; SOD SPECIES COMPOSITION SHALL BE SALT TOLERANT TURF.

CODES AND INSPECTION

1. THE ENTIRE INSTALLATION SHALL FULLY COMPLY WITH ALL LOCAL AND STATE LAWS AND ORDINANCES AND WITH THE ESTABLISHED CODES ALLOCABLE THERETO.
2. THE CONTRACTOR SHALL TAKE OUT ALL REQUIRED PERMITS. ARRANGE FOR ALL NECESSARY INSPECTION, AND PAY ANY FEES AND EXPENSES IN CONJUNCTION WITH THE SAME AS PART OF THE WORK UNDER THIS CONTRACT.

QUALITY ASSURANCE

1. ALL WORK AND MATERIALS TO BE IN FULL ACCORDANCE WITH LATEST RULES AND REGULATIONS OF THE DIVISION OF INDUSTRIAL SAFETY, THE UNIFORM PLUMBING CODE, NATIONAL ELECTRIC CODE, AMERICANS WITH DISABILITIES, AND OTHER APPLICABLE LAWS OR REGULATION.
2. NOTHING IN THESE DRAWINGS OR SPECIFICATIONS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.
3. FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIAL AND LABOR AS REQUIRED TO COMPLY WITH THESE RULES AND REGULATIONS, THOUGH THE WORK IS NOT MENTIONED IN THESE PARTICULAR CONSTRUCTION DOCUMENTS.

PROTECTION OF EXISTING CONDITIONS

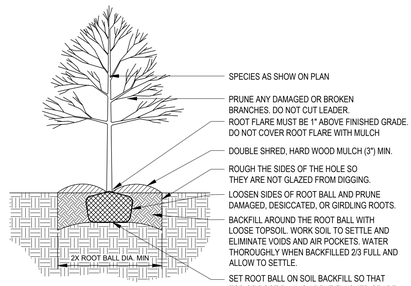
1. BECOME ACQUAINTED WITH ALL SITE CONDITIONS. LOCATE EXISTING UTILITIES AND EQUIPMENT TO REMAIN. SHOULD UTILITIES OR OTHER WORK NOT SHOWN ON THE DRAWINGS BE FOUND DURING EXCAVATIONS, PROMPTLY NOTIFY ENGINEER. FAILURE TO DO SO WILL MAKE CONTRACTOR LIABLE FOR ANY AND ALL DAMAGE ARISING FROM OPERATIONS SUBSEQUENT TO DISCOVERY OF SUCH UTILITIES NOT SHOWN ON DRAWINGS.
2. TAKE NECESSARY PRECAUTIONS TO PROTECT EXISTING SITE CONDITIONS. REPAIR ANY DAMAGED ITEM TO ITS ORIGINAL CONDITION OR FURNISH AND INSTALL EQUIVALENT REPLACEMENT AT NO ADDITIONAL COST TO OWNER.

COORDINATION

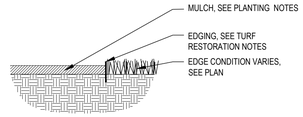
1. SCHEDULE AND COORDINATE WORK WITH OTHER TRADES TO FACILITATE WORK AND AVOID CONFLICTS IN CONSTRUCTION SEQUENCE AND EQUIPMENT INSTALLATION.
2. REVIEW ENTIRE PLAN SET AND COORDINATE WITH OTHER TRADES AS REQUIRED BY SEQUENCE OF CONSTRUCTION TO ENSURE PROVISION OF MAINLINE AND ELECTRICAL CONDUIT STUB-OUTS AT ALL REQUIRED LOCATIONS.

LANDSCAPE NOTES

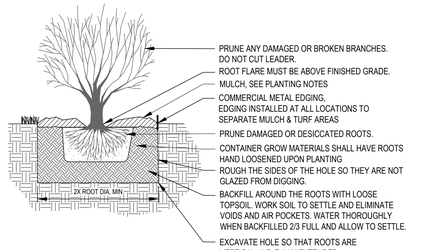
1. PLANT MATERIAL SHALL BE PROVIDED IN THE QUANTITY, SIZE, GENUS, SPECIES, AND VARIETY AS CHOSEN BY THE OWNER/OWNER AS LISTED IN THE PLANT SCHEDULE.
2. PLANT MATERIAL SHALL BE HEALTHY, VIGOROUS STOCK, GROWN IN RECOGNIZED NURSERY IN ACCORDANCE WITH GOOD HORTICULTURAL PRACTICE AND FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS.
3. OWNER RETAINS THE RIGHT TO INSPECT TREES AND SHRUBS FOR SIZE AND CONDITION OF BALLS AND ROOT SYSTEMS, INSECTS, INJURIES, AND LATENT DEFECTS, AND TO REJECT UNSATISFACTORY OR DEFECTIVE MATERIAL AT ANY TIME DURING PROGRESS OF WORK.
4. NURSERY STOCK SHALL BE DELIVERED DIRECTLY FROM NURSERY. HEEL IN IMMEDIATELY UPON DELIVERY IF NOT TO BE PLANTED WITHIN FOUR HOURS, COVERING WITH MOIST SOIL OR MULCH TO PROTECT FROM DRYING. STORE PLANTS IN SHADE AND PROTECT FROM WEATHER.
5. PROTECTION FROM EXTREMES IN EXPOSURE AND ROUGH HANDLING SHALL BE PROVIDED FOR ALL PLANT MATERIALS DURING TRANSPORT AND STORAGE.
6. THE CONTRACTOR SHALL NOTIFY THE OWNER 48 HOURS PRIOR TO PLANTING SO THAT A MUTUALLY AGREEABLE TIME MAY BE ARRANGED FOR INSPECTION.
7. LAY OUT INDIVIDUAL TREE AND SHRUB LOCATIONS WITH STAKES CENTERED AT PROPOSED PLANTING LOCATIONS FOR APPROVAL BY OWNER.
8. DO NOT START PLANTING WORK UNTIL LAYOUT IS APPROVED BY THE OWNER.
9. TO ENSURE PROPER INFILTRATION THE LANDSCAPE CONTRACTOR MUST PROVE THE OPEN SUB-GRADE OF ALL PLANTING ARES AFTER THEIR EXCAVATION IS COMPACTED LESS THAN 200 PSI. THE OWNER OR OWNER'S REPRESENTATIVE MUST BE ONSITE DURING COMPACTION TESTING.
10. ALL GRADED AREAS OF THE SITE THAT ARE DESIGNATED FOR SHRUBS, TREES AND PERENNIALS SHALL HAVE NO LESS THAN 18" OF IMPORTED TOP SOIL, MEETING MDOT SPEC 917.07 FOR LOAM TOPSOIL BORROW.



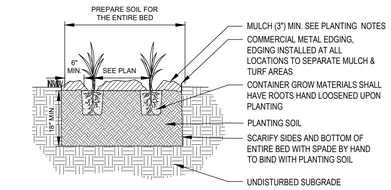
1 DECIDUOUS TREE PLANTING
L-202 NOT TO SCALE



2 MULCH WITH EDGER
L-202 NOT TO SCALE



3 SHRUB PLANTING
L-202 NOT TO SCALE



4 SHRUB / PERENNIAL PLANTING
L-202 NOT TO SCALE

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CLIENT:
TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

PROJECT TITLE:

ISSUE NO.	DESCRIPTION	DATE
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:

STATE OF MICHIGAN
MARK FLICKER
LANDSCAPE ARCHITECT
No. 3901047066
LICENSED LANDSCAPE ARCHITECT

PROJECT NO.:	255500018
DWN BY: RAO / CHK'D BY: MJS / APP'D BY: JTP	
ISSUE DATE:	05/05/2026
ISSUE NO.:	1
SHEET TITLE:	LANDSCAPE DETAILS
SHEET NO.:	L-202

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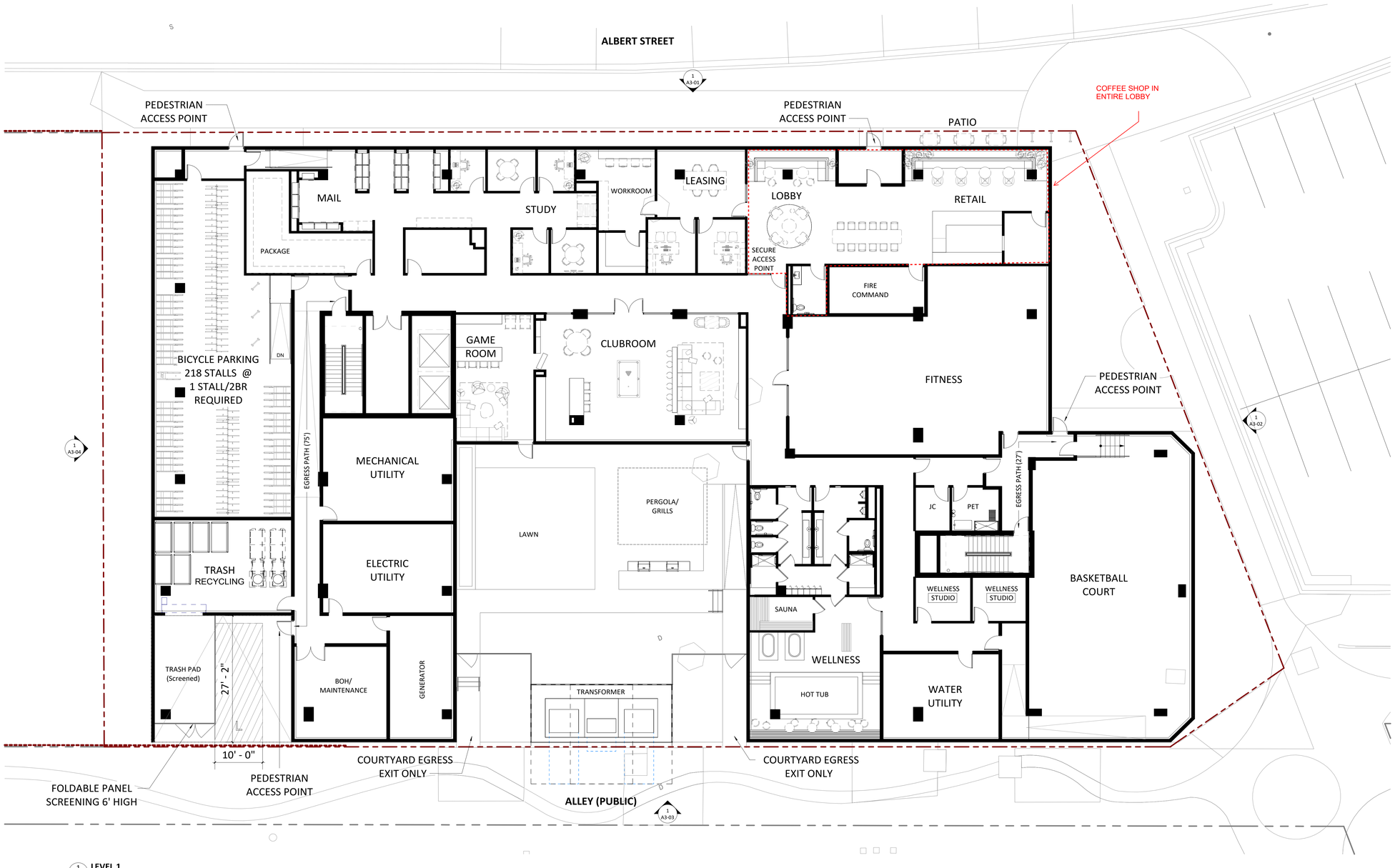
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Trash/Recycling Note
Trash room includes trash and recycling collection from chutes above with additional dumpsters available. The recycling will be comingled and there will be a separate dumpster for cardboard.

GENERAL NOTES - PLANS

1. FINAL UNIT LAYOUTS TBD. ALL UNIT PLANS WILL MEET MINIMUM BUILDING CODE REQUIREMENTS
2. ALL BEDROOMS HAVE MIN DIMENSION OF 7' AND 70SF AREA.

Unit Mix	*Mix(Units)*	*Mix(Beds)*	*# of Units*	*# of Beds*	*# of BR*
Studio	13%	6%	27	27	27
Alcove	9%	4%	18	18	18
One Bedroom	9%	4%	18	18	18
Two Bedroom	21%	20%	44	88	88
Two Bedroom 3 Occ.	4%	6%	9	27	18
Three Bedroom 2 Bath	26%	36%	53	159	159
Three Bedroom	18%	24%	36	108	108
Total	**100%**	**100%**	**205**	**445**	**436**



1 A1-01 **LEVEL 1**
1/8" = 1'-0"

5/5/2026 9:47:22 AM

530 ALBERT AVE. DEVELOPMENT

530 Albert Ave, East Lansing, MI 48823

TAREEN DEVELOPMENT PARTNERS

esg
ARCHITECTURE & DESIGN
350 North 5th Street, Suite 400
Minneapolis, MN 55401
p 612.339.5508 | esgarch.com

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LAND USE DEVELOPMENT SUBMITTAL 5-5-2026

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No. Description Date

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KEY PLAN

530 ALBERT AVE. DEVELOPMENT

LEVEL 1

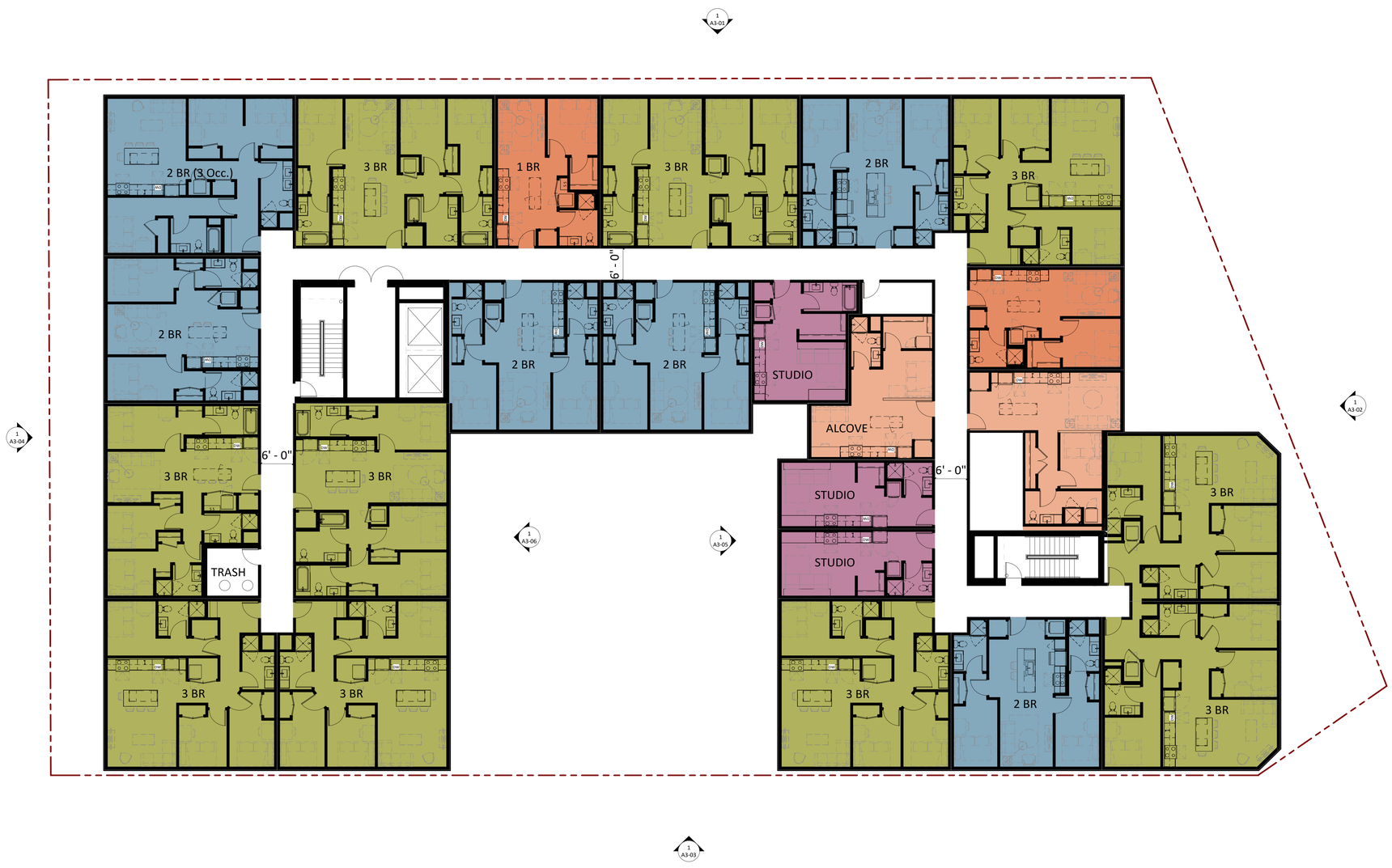
A1-01

Trash/Recycling Note
Trash room on the residential floors include a trash chute and a recycling chute to the main trash and recycling room.

GENERAL NOTES - PLANS

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Two Bedroom 3 Occ.	4%	6%	9	27	18
Three Bedroom 2 Bath	26%	36%	53	159	159
Three Bedroom	18%	24%	36	108	108
Total	**100%**	**100%**	**205**	**445**	**436**



1 A1-02 **LEVEL 2-9**
1/8" = 1'-0"

5/5/2026 9:47:32 AM

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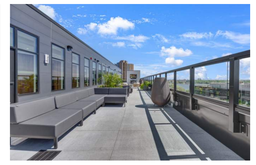
KEY PLAN

530 ALBERT AVE. DEVELOPMENT

LEVEL 2-9

A1-02

Trash/Recycling Note
Trash room on the residential floors include a trash chute and a recycling chute to the main trash and recycling room.



ROOF AMENITY RAILING EXAMPLE

GENERAL NOTES - PLANS

1. FINAL UNIT LAYOUTS TBD. ALL UNIT PLANS WILL MEET MINIMUM BUILDING CODE REQUIREMENTS
2. ALL BEDROOMS HAVE MIN DIMENSION OF 7' AND 70SF AREA.

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Alcove	9%	4%	18	18	18
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Two Bedroom	21%	20%	44	88	88
Two Bedroom 3 Occ.	4%	6%	9	27	18
Three Bedroom 2 Bath	26%	36%	53	159	159
Three Bedroom	18%	24%	36	108	108
Total	**100%**	**100%**	**205**	**445**	**436**

530 ALBERT AVE. DEVELOPMENT

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1 A1-03 **LEVEL 10**
1/8" = 1'-0"

5/5/2026 9:47:42 AM

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KEY PLAN

530 ALBERT AVE. DEVELOPMENT

LEVEL 10

A1-03

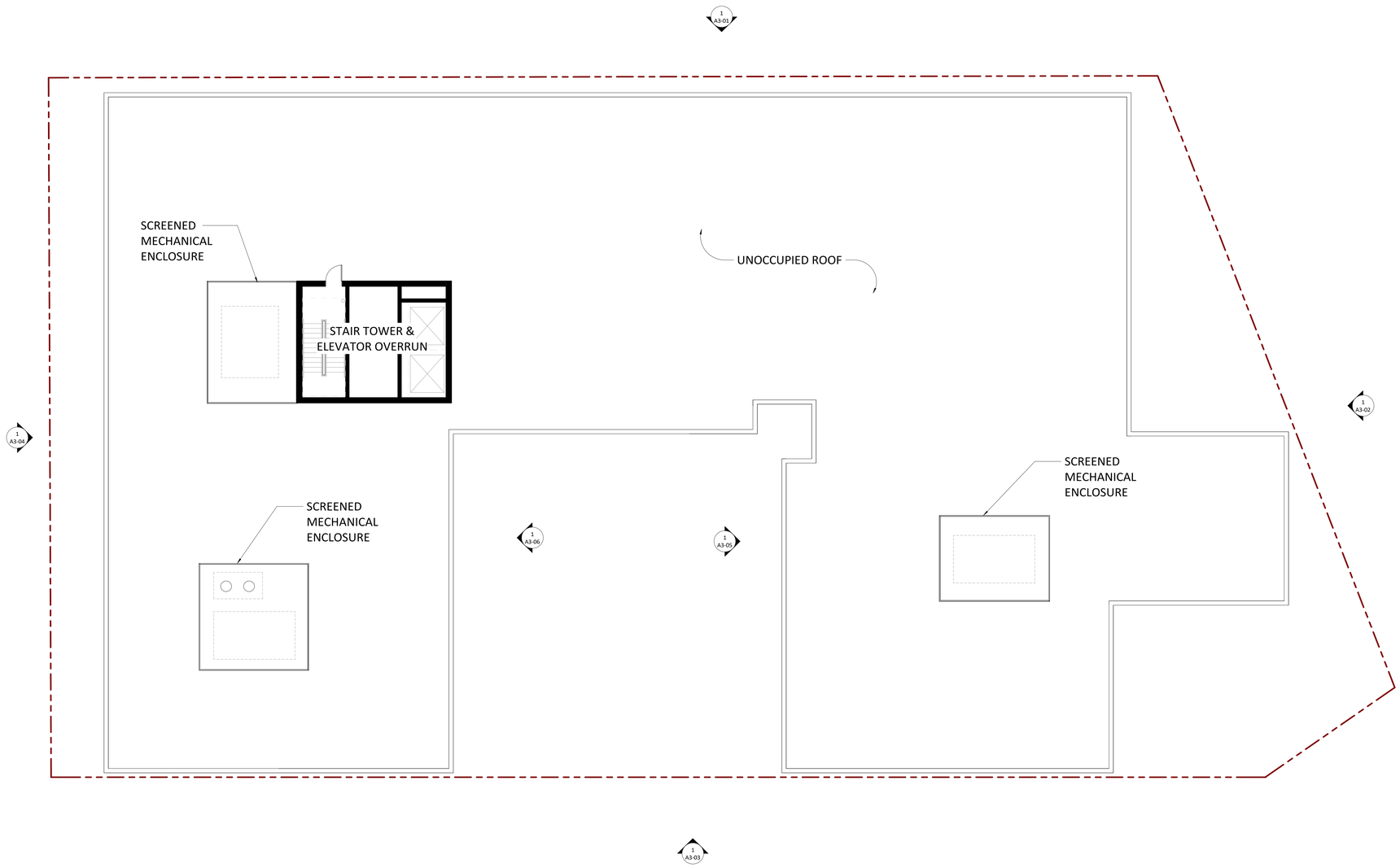


ROOF MECHANICAL SCREENING EXAMPLE

GENERAL NOTES - PLANS

1. FINAL UNIT LAYOUTS TBD. ALL UNIT PLANS WILL MEET MINIMUM BUILDING CODE REQUIREMENTS
2. ALL BEDROOMS HAVE MIN DIMENSION OF 7' AND 70SF AREA.

Unit Mix	*Mix(Units)*	*Mix(Beds)*	*# of Units*	*# of Beds*	*# of BR*
Studio	13%	6%	27	27	27
Alcove	9%	4%	18	18	18
One Bedroom	9%	4%	18	18	18
Two Bedroom	21%	20%	44	88	88
Two Bedroom 3 Occ.	4%	6%	9	27	18
Three Bedroom 2 Bath	26%	36%	53	159	159
Three Bedroom	18%	24%	36	108	108
Total	**100%**	**100%**	**205**	**445**	**436**



1 A1-04 **ROOF LEVEL**
1/8" = 1'-0"

5/5/2026 9:47:42 AM

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DEVELOPMENT

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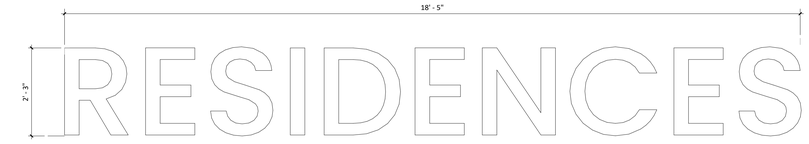
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KEY PLAN

530 ALBERT AVE.
DEVELOPMENT

ROOF

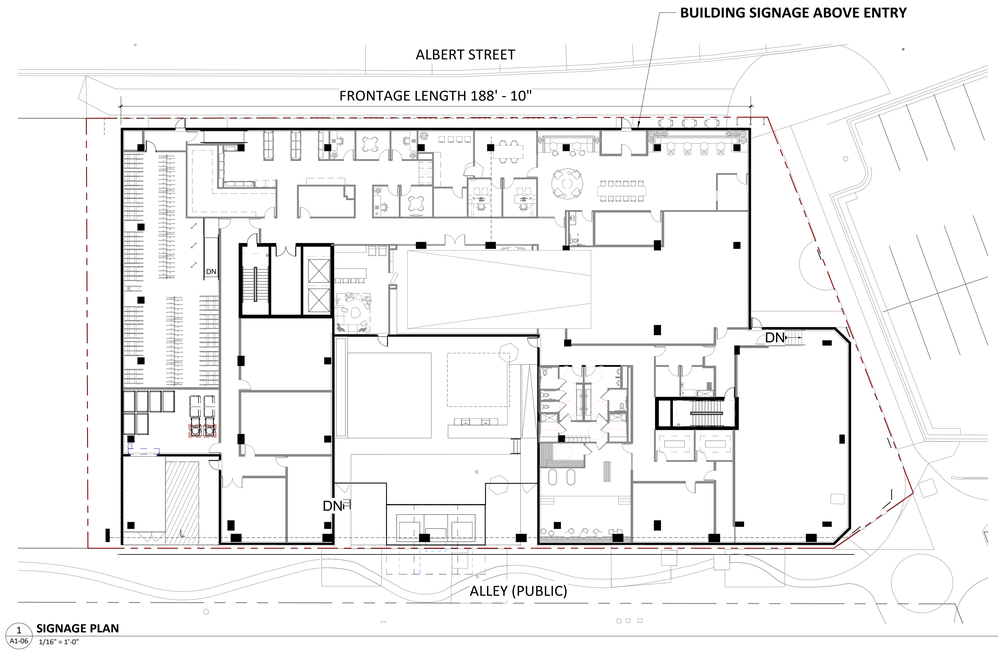
A1-04



120sf MAX SIGN SIZE

3 A1-06 **BUILDING SIGNAGE**
3/4" = 1'-0"

*FINAL SIGN DESIGN TBD



1 A1-06 **SIGNAGE PLAN**
1/16" = 1'-0"

5/5/2026 9:47:44 AM

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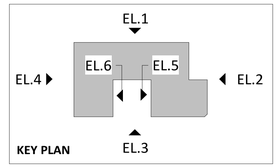
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KEY PLAN

530 ALBERT AVE.
DEVELOPMENT

SIGNAGE PLAN

A1-06



EXTERIOR FINISHES		
TAG	DESCRIPTION	COLOR FINISH
MAS-1	BRICK MASONRY	LIGHT RED
MAS-2	BLOCK MASONRY	LIGHT RED
MTL-1	METAL PANEL	TERRACOTTA COLOR
MTL-2	METAL PANEL	BLACK
MTL-3	METAL PANEL	CHARCOAL
MTL-4	METAL PANEMETAL PANEMETAL	TAN
WDW-1	STOREFRONT/WINDOW WALL	MATTE BLACK
WDW-2	WINDOW	MATTE BLACK



5/5/2026 9:47:45 AM

1 A3-01 **NORTH ELEVATION**
1/8" = 1'-0"

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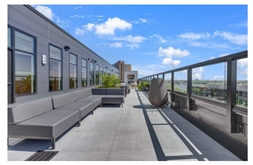
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KEY PLAN

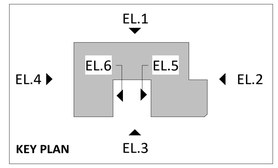
530 ALBERT AVE. DEVELOPMENT

ELEVATIONS

A3-01



ROOF AMENITY RAILING EXAMPLE



EXTERIOR FINISHES		
TAG	DESCRIPTION	COLOR FINISH
MAS-1	BRICK MASONRY	LIGHT RED
MAS-2	BLOCK MASONRY	LIGHT RED
MTL-1	METAL PANEL	TERRACOTTA COLOR
MTL-2	METAL PANEL	BLACK
MTL-3	METAL PANEL	CHARCOAL
MTL-4	METAL PANEMETAL PANEMETAL	TAN
WDW-1	STOREFRONT/WINDOW WALL	MATTE BLACK
WDW-2	WINDOW	MATTE BLACK



1 A3-02 **EAST ELEVATION**
1/8" = 1'-0"

5/5/2026 9:47:46 AM

530 ALBERT AVE.
DEVELOPMENT

530 Albert Ave, East Lansing, MI
48823

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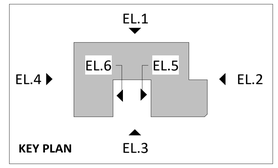
530 ALBERT AVE.
DEVELOPMENT

ELEVATIONS

A3-02



TRANSFORMER/LOADING FOLDABLE PANEL SCREENING EXAMPLE



EXTERIOR FINISHES		
TAG	DESCRIPTION	COLOR FINISH
MAS-1	BRICK MASONRY	LIGHT RED
MAS-2	BLOCK MASONRY	LIGHT RED
MTL-1	METAL PANEL	TERRACOTTA COLOR
MTL-2	METAL PANEL	BLACK
MTL-3	METAL PANEL	CHARCOAL
MTL-4	METAL PANEMETAL PANEMETAL	TAN
WDW-1	STOREFRONT/WINDOW WALL	MATTE BLACK
WDW-2	WINDOW	MATTE BLACK



1 A3-03 **SOUTH ELEVATION**
1/8" = 1'-0"

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DEVELOPMENT

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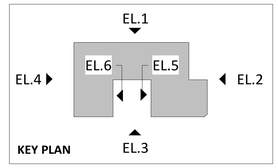
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KEY PLAN

530 ALBERT AVE.
DEVELOPMENT

ELEVATIONS

A3-03



EXTERIOR FINISHES		
TAG	DESCRIPTION	COLOR FINISH
MAS-1	BRICK MASONRY	LIGHT RED
MAS-2	BLOCK MASONRY	LIGHT RED
MTL-1	METAL PANEL	TERRACOTTA COLOR
MTL-2	METAL PANEL	BLACK
MTL-3	METAL PANEL	CHARCOAL
MTL-4	METAL PANEMETAL PANEMETAL	TAN
WDW-1	STOREFRONT/WINDOW WALL	MATTE BLACK
WDW-2	WINDOW	MATTE BLACK



1 A3-04 **WEST ELEVATION**
1/8" = 1'-0"

5/5/2026 9:47:48 AM

530 ALBERT AVE.
DEVELOPMENT

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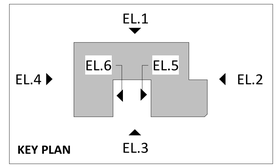
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KEY PLAN

530 ALBERT AVE.
DEVELOPMENT

ELEVATIONS

A3-04



EXTERIOR FINISHES		
TAG	DESCRIPTION	COLOR FINISH
MAS-1	BRICK MASONRY	LIGHT RED
MAS-2	BLOCK MASONRY	LIGHT RED
MTL-1	METAL PANEL	TERRACOTTA COLOR
MTL-2	METAL PANEL	BLACK
MTL-3	METAL PANEL	CHARCOAL
MTL-4	METAL PANEMETAL PANEMETAL	TAN
WDW-1	STOREFRONT/WINDOW WALL	MATTE BLACK
WDW-2	WINDOW	MATTE BLACK

530 ALBERT AVE. DEVELOPMENT

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1 A3-05 **WEST COURTYARD ELEVATION**
1/8" = 1'-0"

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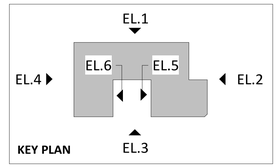
KEY PLAN

530 ALBERT AVE. DEVELOPMENT

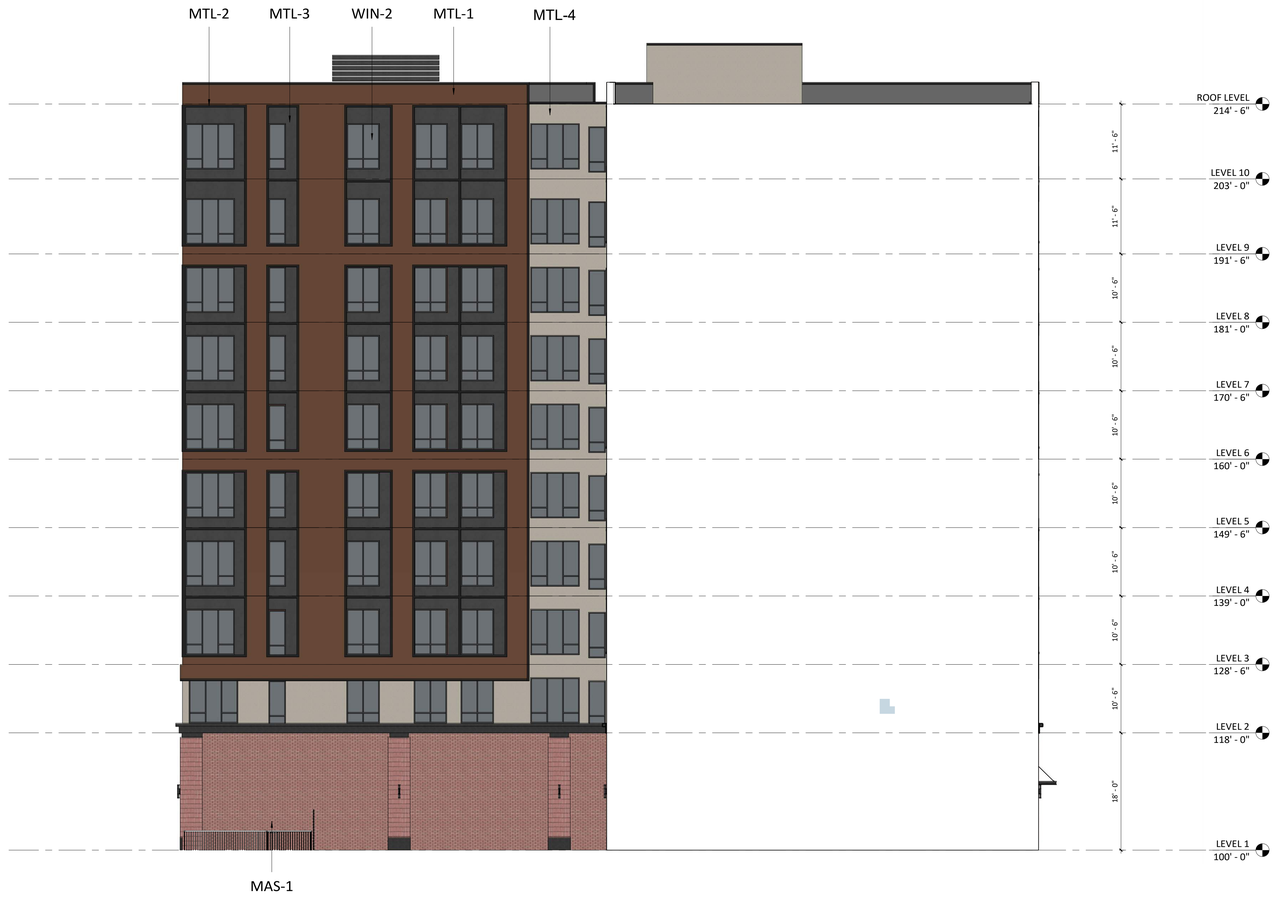
ELEVATIONS

A3-05

5/5/2026 9:47:49 AM



EXTERIOR FINISHES		
TAG	DESCRIPTION	COLOR FINISH
MAS-1	BRICK MASONRY	LIGHT RED
MAS-2	BLOCK MASONRY	LIGHT RED
MTL-1	METAL PANEL	TERRACOTTA COLOR
MTL-2	METAL PANEL	BLACK
MTL-3	METAL PANEL	CHARCOAL
MTL-4	METAL PANEMETAL PANEMETAL	TAN
WDW-1	STOREFRONT/WINDOW WALL	MATTE BLACK
WDW-2	WINDOW	MATTE BLACK



1 A3-06 **EAST COURTYARD ELEVATION**
1/8" = 1'-0"

5/5/2026 9:47:59 AM

530 ALBERT AVE.
DEVELOPMENT

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KEY PLAN

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ELEVATIONS

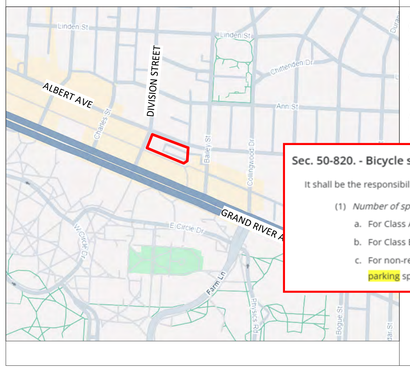
A3-06

530 ALBERT AVE. DEVELOPMENT
LAND USE DEVELOPMENT SUBMITTAL

530 ALBERT AVE. EAST LANSING, MI 48823



VICINITY MAP



5/5/2026 9:47:51 AM

PROJECT TEAM

OWNER/DEVELOPER:
TAREEN DEVELOPMENT PARTNERS
2770 Fairview Ave N
Roseville, MN 55113
Cody Dietrich
CODY@TDPMN.COM

ARCHITECT:
ESG Architecture & Design
350 North 5th Street, Suite 400

SHEET INDEX

Sheet Number	Sheet Name
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G-001	COVER SHEET
G-002	GENERAL NOTES
G-003	GENERAL NOTES
C-001	EXISTING CONDITIONS
C-002	REMOVALS AND PRECONSTRUCTION EROSION CONTROL PLAN
C-101	SITE PLAN
C-201	POST-CONSTRUSTION STABILIZATION PLAN

Sheet Number	Sheet Name
A1-01	LEVEL 1
A1-02	LEVEL 2-9
A1-03	LEVEL 10
A1-04	ROOF
A1-06	SIGNAGE PLAN
A3-01	ELEVATIONS
A3-02	ELEVATIONS
A3-03	ELEVATIONS
A3-04	ELEVATIONS
A3-05	ELEVATIONS

Sec. 50-820. - Bicycle storage requirements.

It shall be the responsibility of both the owner and occupant of any multiple-family or nonresidential premises to provide on-site storage facilities for bicycles according to the following provisions.

(1) *Number of spaces.* The number of bicycle storage spaces shall be determined as follows:

a. For Class A multiple-family dwellings, there shall be one storage space for each two bedrooms within a structure.

b. For Class B multiple-family dwellings, there shall be one storage space for each two occupants, based on maximum permitted occupancy.

c. For non-residential uses, there shall be one storage space for each ten required parking spaces through the first 100 required parking spaces and one storage space for each 15 required parking spaces in excess of 100.

METRICS

Levels		Gross SF	Parking GSF	Residential GSF	Res. Amenity	Retail	Terrace, Roof, or Other	Residential NLSF	Efficiency NLSF		Res. Units	Res. Beds
LEVEL 1	Lobby / Amenities/ Retail	21,322	-	-	13,878	1,500		-			0	0
LEVEL 2	Amenity/Parking	22,035	-	22,035				18,986	86%		23	50
LEVEL 3	Amenity/Apartments	22,035	-	22,035				18,986	86%		23	50
LEVEL 4	Apartments	22,035	-	22,035				18,986	86%		23	50
LEVEL 5	Apartments	22,035	-	22,035				18,986	86%		23	50
LEVEL 6	Apartments	22,035	-	22,035				18,986	86%		23	50
LEVEL 7	Apartments	22,035	-	22,035				18,986	86%		23	50
LEVEL 8	Apartments	22,035	-	22,035				18,986	86%		23	50
LEVEL 9	Apartments	22,035	-	22,035				18,986	86%		23	50
LEVEL 10	Apartments/Ameities	21,037	-	21,037	802		963	17,983	85%		21	45
Total		218,639	-	197,317	14,680	691	963	169,871	86.0%		205	445

Unit Mix	Mix(Units)	Mix(Beds)	# of Units	# of Beds	# of BR
Studio	13%	6%	27	27	27
Alcove	9%	4%	18	18	18
One Bedroom	9%	4%	18	18	18
Two Bedroom	21%	20%	44	88	88
Two Bedroom 3 Occ.	4%	6%	9	27	18
Three Bedroom 2 Bath	26%	36%	53	159	159
Three Bedroom	18%	24%	36	108	205
Total	100%	100%	205	445	436

# of Bedrooms to calculate bike parking. Class A is 1 stall per every 2 bedrooms. Our previous proposal was 435 bedrooms and we listed the minimum required at 218 as well.

APPLICABLE CODES

-2015 MICHIGAN BUILDING CODE
-2021 MICHIGAN PLUMBING CODE
-2021 MICHIGAN MECHANICAL CODE
-2021 MICHIGAN ENERGY CODE
-2015 INTERNATIONAL FIRE CODE (IFC)

530 ALBERT AVE.
DEVELOPMENT

530 Albert Ave, East Lansing, MI 48823

TAREEN DEVELOPMENT PARTNERS

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REVISIONS:

No.	Description	Date

2025-1701
PROJECT NUMBER

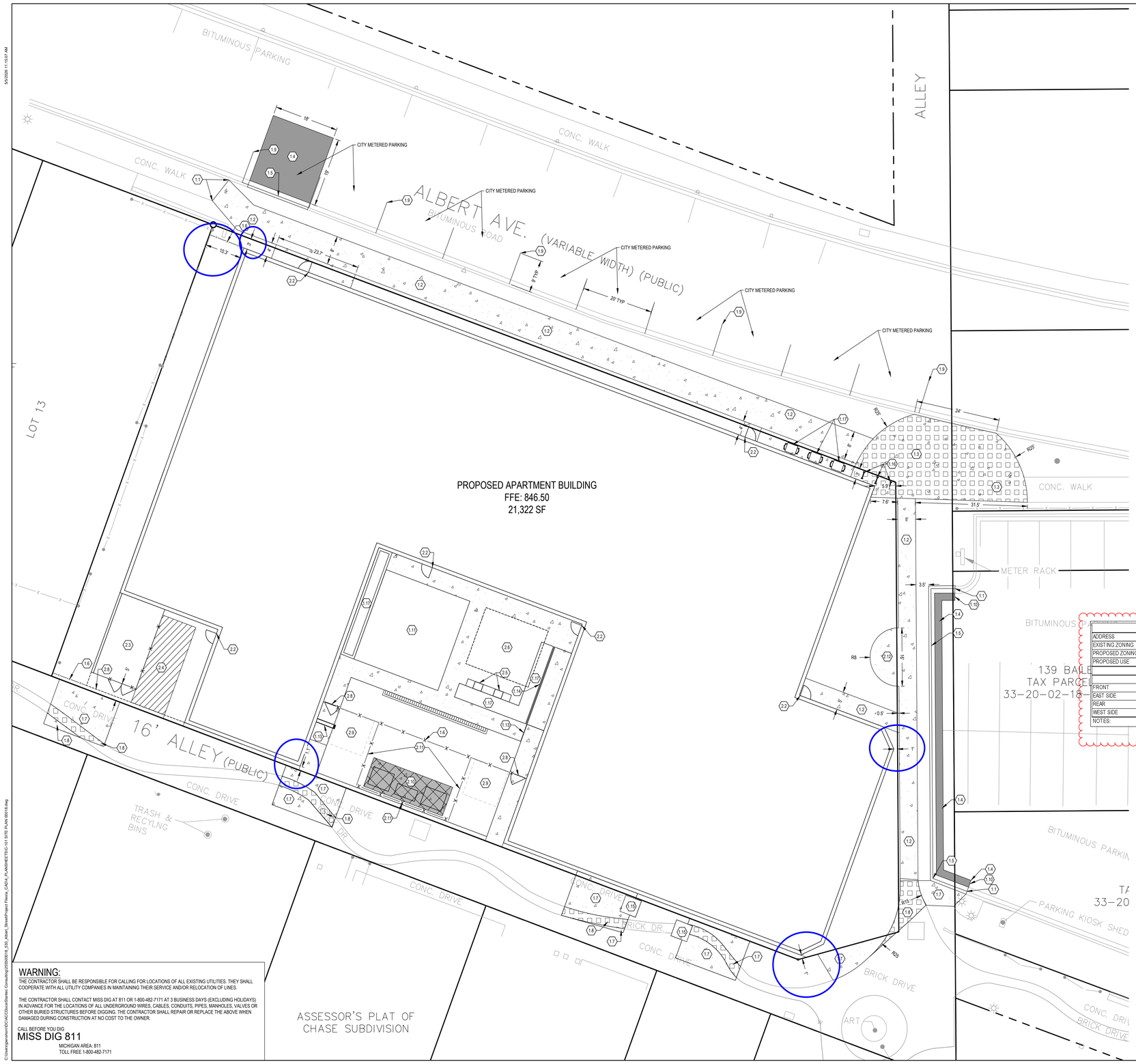
Author DRAWN BY | Checker CHECKED BY

KEY PLAN

530 ALBERT AVE.
DEVELOPMENT

COVER SHEET

TS-01



Setback table - see circles for dimension on plan.

GRAPHIC SCALE
10 0 10 20
(IN FEET)
1 inch = 10 ft.

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- RIGHT OF WAY LINE
- OVERHEAD BUILDING LINE
- CURB AND GUTTER
- ASPHALT PAVEMENT
- CONCRETE PAVEMENT BY OTHERS
- CONCRETE SIDEWALK
- STAMPED CONCRETE
- MOUNTED BUILDING LIGHT
- ORNAMENTAL FENCE

NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.
2. DOORS SHALL NOT CROSS PROPERTY LINE.

KEYNOTES

1. STANTEC DESIGN ITEMS
   - 1.1. MATCH EXISITNG
   - 1.2. CONCRETE SIDEWALK - SEE SHEET 1/C-802
   - 1.3. STAMPED CONCRETE PAVEMENT - SEE SHEET 2/C-802
   - 1.4. PATCH ASPHALT PAVEMENT - MATCH EXISTING SECTION
   - 1.5. F4 CURB AND GUTTER - SEE SHEET C-802
   - 1.6. ORNAMENTAL FENCE - SEE L-101
   - 1.7. STAMPED CONCRETE TO MATCH EXISTING BRICK
   - 1.8. MATCH EXISTING CONCRETE DRIVE
   - 1.9. 4" WHITE PAINT STRIPE (TYP.) - SEE DETAIL 2/C-804
   - 1.10. FUTURE CONSTRUCTION EASEMENT NECESSARY
   - 1.11. LAWN AREA - SEE LANDSCAPE PLAN PLANTING AREA - SEE LANDSCAPE PLAN
   - 1.12. STAIRS - SEE SHEET C-301 AND ARCHITECTURAL/STRUCTURAL PLANS
   - 1.13. RETAINING WALL
   - 1.14. CONCRETE CAP
   - 1.15. BIKE RACKS - SEE LANDSCAPE PLAN
   - 1.16. SEATING AREA - SEE ARCH SITE PLAN
   - 1.17. PLANTING AREA - SEE LANDSCAPE PLAN
2. DESIGN BY OTHERS
   - 2.1. MOUNTED BUILDING LIGHT - SEE PHOTOMETRIC PLAN
   - 2.2. DOOR LOCATION - SEE ARCHITECTURAL PLANS
   - 2.3. SOLID WASTE AND RECYCLING COLLECTION POINT - SEE ARCH. PLANS
   - 2.4. COMMERCIAL LOADING ZONE
   - 2.5. GRILL AREA
   - 2.6. PERGOLA
   - 2.7. GATE
   - 2.8. OVERHEAD BUILDING LINE
   - 2.9. DARCY WELL LOCATION
   - 2.10. TRANSFORMER
   - 2.11. TRANSFORMER SCREENING
   - 2.12. ART LOCATION

SITE ANALYSIS TABLE	
ADDRESS	530 ALBERT STREET EAST LANSING, MICHIGAN 48823 PID (33-20-02-18-167-010)
EXISTING ZONING	B-3 CITY CENTER COMMERICAL
PROPOSED ZONING	B-3 CITY CENTER COMMERICAL
PROPOSED USE	APARTMENTS

SET BACK SUMMARY		
	REQUIRED	PROPOSED
FRONT	0'	3'
EAST SIDE	0'	1.0'
REAR	0'	1.1'
WEST SIDE	0'	10.3'
NOTES:		

WARNING:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT MISS DIG AT 811 OR 1-800-482-7171 AT 3 BUSINESS DAYS (EXCLUDING HOLIDAYS) IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

CALL BEFORE YOU DIG
MISS DIG 811
MICHIGAN AREA: 811
TOLL FREE 1-800-482-7171

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT: TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

PROJECT TITLE

ISSUE NO.	DESCRIPTION:	DATE:
	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6001312331
LICENSED PROFESSIONAL ENGINEER

PROJECT NO.:	255500018	
DWN BY: RAO	CHK'D BY: MJS	APP'D BY: JTP
ISSUE DATE:	05/05/2026	
ISSUE NO.:	1	
SHEET TITLE:	SITE PLAN	
SHEET NO.:	C-101	

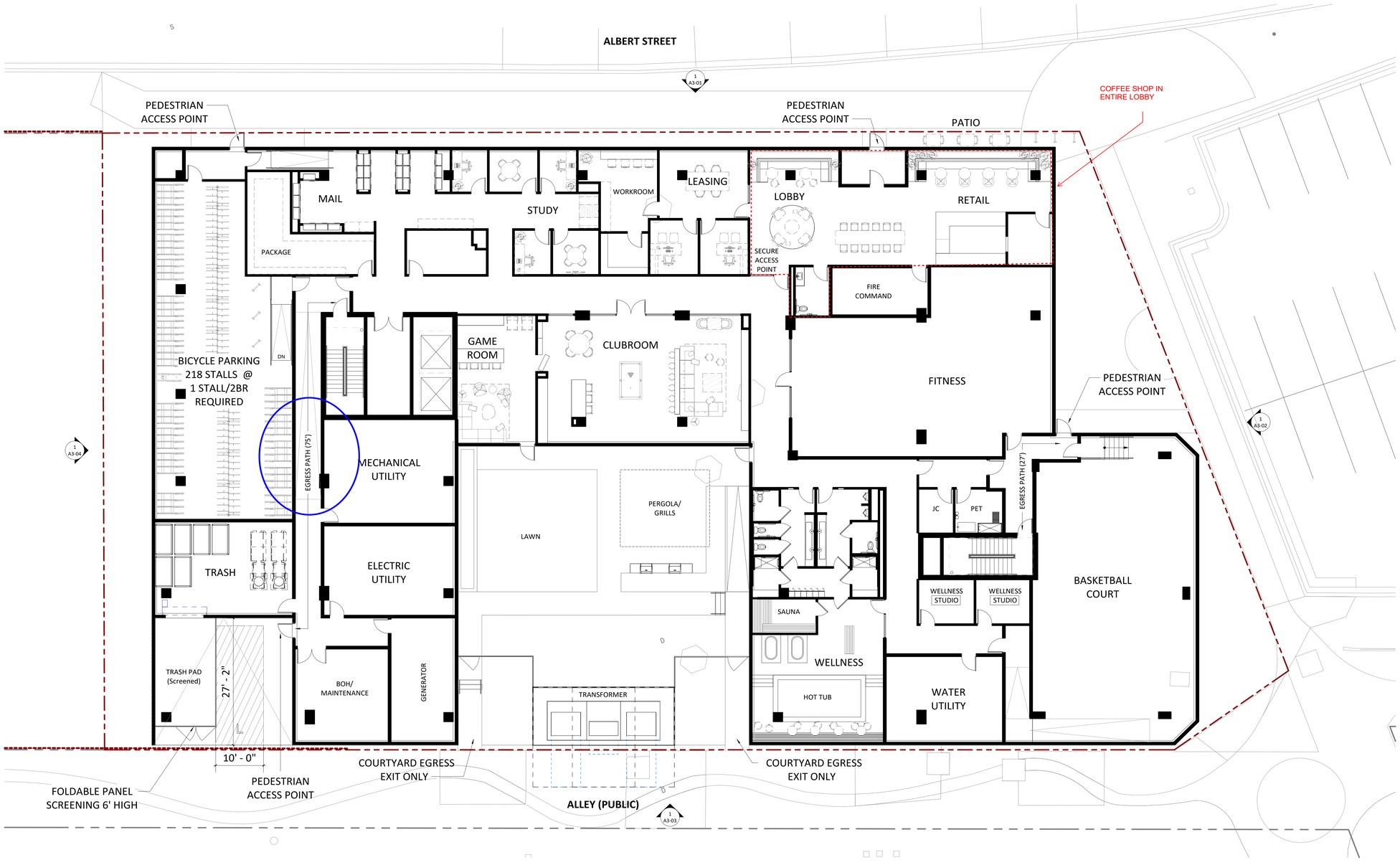
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Egress at main level to exterior.

GENERAL NOTES - PLANS

1. FINAL UNIT LAYOUTS TBD. ALL UNIT PLANS WILL MEET MINIMUM BUILDING CODE REQUIREMENTS
2. ALL BEDROOMS HAVE MIN DIMENSION OF 7' AND 70SF AREA.

Unit Mix	*Mix(Units)*	*Mix(Beds)*	*# of Units*	*# of Beds*	*# of BR*
Studio	13%	6%	27	27	27
Alcove	9%	4%	18	18	18
One Bedroom	9%	4%	18	18	18
Two Bedroom	21%	20%	44	88	88
Two Bedroom 3 Occ.	4%	6%	9	27	18
Three Bedroom 2 Bath	26%	36%	53	159	159
Three Bedroom	18%	24%	36	108	108
Total	**100%**	**100%**	**205**	**445**	**436**



1 A1-01 **LEVEL 1**
1/8" = 1'-0"

5/5/2026 9:47:22 AM

530 ALBERT AVE. DEVELOPMENT

530 Albert Ave, East Lansing, MI 48823

TAREEN DEVELOPMENT PARTNERS

esg
ARCHITECTURE & DESIGN
350 North 5th Street, Suite 400
Minneapolis, MN 55401
p 612.339.5508 | esgarch.com

NOT FOR CONSTRUCTION

LAND USE DEVELOPMENT SUBMITTAL 5-5-2026

ORIGINAL ISSUE:
11-05-2025 LAND USE SUBMITTAL
REVISIONS:
No. Description Date

2025-1701
PROJECT NUMBER

ESG DRAWN BY | ESG CHECKED BY

KEY PLAN

530 ALBERT AVE. DEVELOPMENT

LEVEL 1

A1-01



University of Minnesota Offsite Collections Facility (OCF)

Preserving the Environment, Collections, and Campus Square Footage with Darcy Solutions Technology



A NEW HOME FOR KNOWLEDGE

In early 2025, the University of Minnesota reached a milestone in its ongoing effort to preserve and manage its vast library collections. The University's new Offsite Collections Facility (OCF) opened on the St. Paul campus — a purpose-built structure designed to house millions of library volumes and archives in a secure, stable, and efficient environment.

Since February 2025, five full-time library staff and 20–25 student employees have operated the facility, moving more than 3.5 million volumes into carefully organized storage. Each item is housed in a size-sorted tray and scanned into a shared Big Ten library system, ensuring every inch of space is optimized and every item is easily retrievable.

While the OCF is not yet open to the public, a reading room will soon allow visitors to access collections by appointment — expanding public engagement with university archives and special collections while freeing up valuable space in other campus libraries.

SUSTAINABILITY AS STANDARD

Sustainability at the University of Minnesota is not a new initiative — it's embedded in every project from the start. All new buildings follow the Minnesota B3 Guidelines (an adaptation of LEED), ensuring projects meet the highest standards of environmental performance.

According to Shane Stennes, the University's Chief Sustainability Officer, sustainability is a 'foregone conclusion.' The OCF reflects this philosophy: efficiency is not an afterthought but a design foundation.

The University's 2023 Climate Action Plan (CAP) outlines a clear path toward decarbonization. The plan focuses on reducing heating and cooling-related carbon emissions by 20% by 2033 on the way to full decarbonization by 2045 and significant improvements in energy use intensity (EUI).

These ambitious goals are central to how the University approaches new infrastructure like the OCF. Beyond architecture, UMN continues to bridge research and application through partnerships with organizations such as Darcy Solutions — whose geothermal technology was born from research at the University in the early 2010s. The OCF project demonstrates how these innovations can move from lab to large-scale impact, supporting the University's broader mission of sustainable progress.

University of Minnesota 2023 Climate Action Plan (CAP)

- Outlines a clear path toward decarbonization
- Focuses on reducing heating and cooling-related carbon emissions by 20% by 2033
- Full decarbonization by 2045 and significant improvements in energy use intensity (EUI)



WHY GEOTHERMAL?

As with every new facility, the design and construction team — led by Trevor Dickie, Scott McCord, and Nicholai Fugate — evaluated a range of systems for heating and cooling. Early considerations included air-cooled chillers, boilers, and source heat pumps. However, OCF's unique storage environment demanded exceptional temperature stability to protect sensitive collections, while the University's sustainability mandate required maximum efficiency with a minimal footprint.

That's where Darcy Solutions' groundwater enabled technology came in. Initial space limitations made geothermal seem infeasible. Traditional systems often require hundreds of borings, but Darcy's delivered commensurate capacity with just three 12" diameter wells. The simplified design unlocked a geothermal solution met capacity requirements and improved energy efficiency, even as the building's total energy use was set to double.

Trevor Dickie described the process as an 'integrated design journey' — one that balanced innovation, practicality, and long-term value. The fact that Darcy Solutions was founded by University of Minnesota alumni helped strengthen confidence and collaboration. 'It was a great opportunity to showcase a former student,' Dickie noted.





DESIGN & CONSTRUCTION

Construction began in April 2023 and wrapped up by February 2025, with geothermal drilling completed in Fall 2023. The geothermal system uses a four-part water circuit with variable speed control, ensuring optimal temperature regulation. By integrating geothermal energy with efficient envelopes and low-temperature hot water loops, the team achieved both reliability and performance in a smaller plant footprint.

For the University, OCF represented more than a building — it was an opportunity to test, measure, and refine sustainable design practices. One clear takeaway was the importance of integrated planning. From mechanical engineering to library operations, collaboration was key to success.

“You have to figure out how you can use less, then find efficient systems that can do the job,” summarized Trevor Dickie. Balancing cost, size, and efficiency was an ongoing challenge, but long-term lifecycle savings made geothermal a compelling choice. ‘The dollar always wins,’ Dickie added, ‘but when you start to see and quantify the savings, it changes how you think.’



3
WELL SYSTEM

1,332
MBH HEATING DEMAND

111
TONS COOLING DEMAND





LOOKING AHEAD

The University of Minnesota views the OCF geothermal project as a pilot for future opportunities. While there are no immediate plans for additional geothermal installations, it's now firmly part of the University's 'toolbox' for sustainable infrastructure.

Each new project will be evaluated on its own merits, but the success of OCF shows how geothermal energy can play a role even where space is limited. "We're learning as we go," said Dickie. "So far, so good."

The school continues to advance its sustainability leadership through campus-wide initiatives in energy efficiency, waste reduction, and climate action planning. Projects like OCF embody that commitment — combining research, innovation, and practical application to create lasting environmental impact.

CONCLUSION

The Offsite Collections Facility stands as a testament to innovation and collaboration — between university departments, local partners, and alumni-founded enterprises. Through forward-thinking design and a willingness to try new technology, the University of Minnesota has set a new standard for how institutional buildings can merge functionality, efficiency, and sustainability.

As the facility fills with the history of the University's collections, its geothermal system quietly ensures that knowledge is preserved — efficiently and responsibly — for generations to come.



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P250-CS 10/25



Mayo Clinic Health System La Crosse Hospital Bed Tower

Advancing Community Healthcare Through High-Performance, Sustainable Design

BUILDING HISTORY & USE

For more than a century, Mayo Clinic Health System has served as a cornerstone of healthcare for the La Crosse region. Over time, however, the existing inpatient facilities on campus no longer aligned with the demands of modern medicine, patient expectations, or long-term operational efficiency.

In response, Mayo Clinic Health System undertook the development of a new, purpose-built hospital tower to replace the aging structure with a new inpatient tower. The goal extended beyond increasing capacity — it was an opportunity to modernize care delivery, improve patient and staff experience, and invest in a facility designed to perform well into the future, keeping high-quality care close to home.

Completed in 2024, the building integrates energy-efficient systems and flexible spaces that can adapt as care models evolve. The Bed Tower facility is the largest construction project in the system's regional history. Its completion strengthens Mayo Clinic Health System's role as a regional healthcare hub for La Crosse and the surrounding 7 Rivers Region for generations to come.

6
WELL SYSTEM

3,396
MBH HEATING DEMAND

828
TONS COOLING DEMAND

PROCESS

From the beginning, the Bed Tower was envisioned as a long-term healthcare asset — one that balanced clinical performance with environmental responsibility.

Early planning focused on reducing energy demand at the building scale through efficient massing, durable construction, and systems integration. The design team prioritized solutions that would support patient comfort and reliability while lowering operational impact over the life of the building.

A high-performance Darcy geothermal heating and cooling system was selected to serve the tower, leveraging stable subsurface temperatures to deliver efficient, low-carbon conditioning year-round. Paired with advanced lighting and building controls, this approach significantly reduces energy use compared to conventional hospital systems.

Together, these strategies align the Bed Tower with Mayo Clinic Health System's broader sustainability goals while supporting resilient, cost-effective healthcare operations.

DESIGN & CONSTRUCTION

Design and construction of the Bed Tower were carefully coordinated within an active hospital campus, requiring close collaboration among clinical, facilities, and construction teams. Maintaining uninterrupted patient care throughout the project remained a critical priority.

Construction officially began in 2022 following extensive site preparation and utility coordination, and in 2024 the building was completed. The tower stands six stories above grade with an additional below-grade level and mechanical penthouse, delivering nearly 300,000 square feet of modern inpatient space that's ready to support advanced care in a durable, efficient, and future-ready environment.

BUILT TO SUPPORT TOMORROW'S CARE

The La Crosse Hospital Bed Tower represents more than a replacement facility — it is a strategic investment in resilient, responsible healthcare infrastructure.

By combining efficient systems, thoughtful planning, and long-term adaptability, Mayo Clinic Health System has created a building that supports exceptional patient care while reducing environmental impact and operational cost.

As healthcare continues to evolve, the Bed Tower stands as a model for how high-performance design can strengthen community hospitals and serve patients for generations to come.









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Stantec

Memo

To:	City of East Lansing	From:	John Penshorn, PE, Stantec Evan Young, EIT, Stantec
File:	255500018	Date:	May 5, 2025

Reference: 530 Albert Avenue Project Stormwater Management Plan

INTRODUCTION

Tareen Development Partners hired Stantec Consulting Michigan Inc. (Stantec) to prepare stormwater calculations and site design drawings for the proposed multifamily apartment building project located in East Lansing, MI. The limited scope of the project (less than 1 acre of disturbance) exempts it from formal stormwater management requirements per the City of East Lansing-Stormwater Policy & Procedures Manual, Section D.1, however, the developer has chosen to provide detention for the roof area of the building via an underground detention vault in the parking area, as a good-faith effort to reduce peak discharges to the city's combined sewer and reduce flooding potential in the historic downtown district. This memorandum highlights the parameters and methodologies used to design this underground detention system.

EXISTING CONDITIONS

- Runoff for the site drains to 24" combined sewer lines to the north and south of the property primarily via catch basins, or via surface drainage to offsite inlets.
- Runoff for the site was calculated separately for pervious and impervious areas. Pervious areas on-site were modeled using a curve number (CN) of 74 (HSG C) representing grass cover in good condition. Impervious areas were modeled using a CN of 98 for impervious surfaces.
- The site is fully developed and heavily impervious; therefore, times of concentration (Tc) were calculated using the direct entry method with a time of six (6) minutes.
- Stormwater calculations use the NCRS Type II rainfall distribution and Atlas 14 rainfall depths.
- See Figure-01 in Appendix A for existing drainage areas.
- See Appendix B for existing conditions HydroCAD model output.

PROPOSED CONDITIONS

- The proposed project intends to redevelop the parking lot at 530 Albert Ave into a multi-family apartment building with outdoor amenity areas.
- Grate inlets on the roof will collect runoff from the building area and convey it to a proposed underground detention system. The proposed stormwater management system is a StormTrap SingleTrap System that will serve as a detention facility and provide rate control.
- Portions of the site that are not feasible to be captured by the stormwater management system will continue to follow existing flow patterns and will not exceed existing discharge rates for all locations where runoff leaves the site.
- The stormwater management system was designed to meet the following standards:
  - Provide rate control to below existing conditions for the 2-, 10-, and 100-year, 24-hour storm events.
- Stormwater calculations use NCRS Type II rainfall distribution and Atlas 14 precipitation depths.
- See Figure-02 in Appendix A for proposed drainage areas.
- See Appendix B for proposed conditions HydroCAD model output.

Reference: **530 Albert Avenue Project Stormwater Management Plan**

Table 1: Drainage Area Summary within Parcel Boundary

Basin ID	Impervious Area (sf)	Pervious Area (sf)	Total Area (sf)	CN
E-01	15,733	1,323	17,056	96
E-02	79	116	195	84
E-03	992	787	1,779	87
E-04	4,043	234	4,277	97
E-05	6,382	329	6,711	97
Existing Total	**27,229**	**2,789**	**30,018**	**96**
PR-01	23,389	0	23,389	98
PR-02	820	0	820	98
PR-03	382	2,423	2,805	82
PR-04	1,804	1,200	3,004	91
Proposed Total	**26,395**	**3,623**	**30,018**	**95**

RATE CONTROL

No increase in the peak discharge over existing conditions for the 2-year, 10-year, 25-year, and 100-year 24-hour storm event, using the NRCS Type II distribution.

Table 2: Peak Runoff Rate Summary

Basin ID	Albert Ave Combined Sewer			South Alley Combined Sewer			Site Total		
	Existing (cfs)	Proposed (cfs)	Delta (cfs)	Existing (cfs)	Proposed (cfs)	Delta (cfs)	Existing (cfs)	Proposed (cfs)	Delta (cfs)
2-Year	0.36	0.10	**-0.26**	1.51	0.35	**-1.16**	1.87	0.46	**-1.41**
10-Year	0.41	0.19	**-0.22**	2.48	0.47	**-2.01**	3.08	0.65	**-2.43**
25-Year	0.76	0.25	**-0.51**	3.05	0.55	**-2.50**	3.81	0.81	**-3.00**
100-Year	1.03	0.38	**-0.65**	4.08	0.71	**-3.37**	5.12	1.09	**-4.03**

Reference: **530 Albert Avenue Project Stormwater Management Plan**

SUMMARY

The proposed stormwater management system:

- reduces peak runoff rates from existing conditions for all locations where stormwater discharge leaves the site for the 2-, 10-, 25-, and 100-year 24-hour storm events

Stantec Consulting Michigan Inc.

John Penshorn, P.E.
Senior Associate

Phone: (612) 300-3502
[redacted]



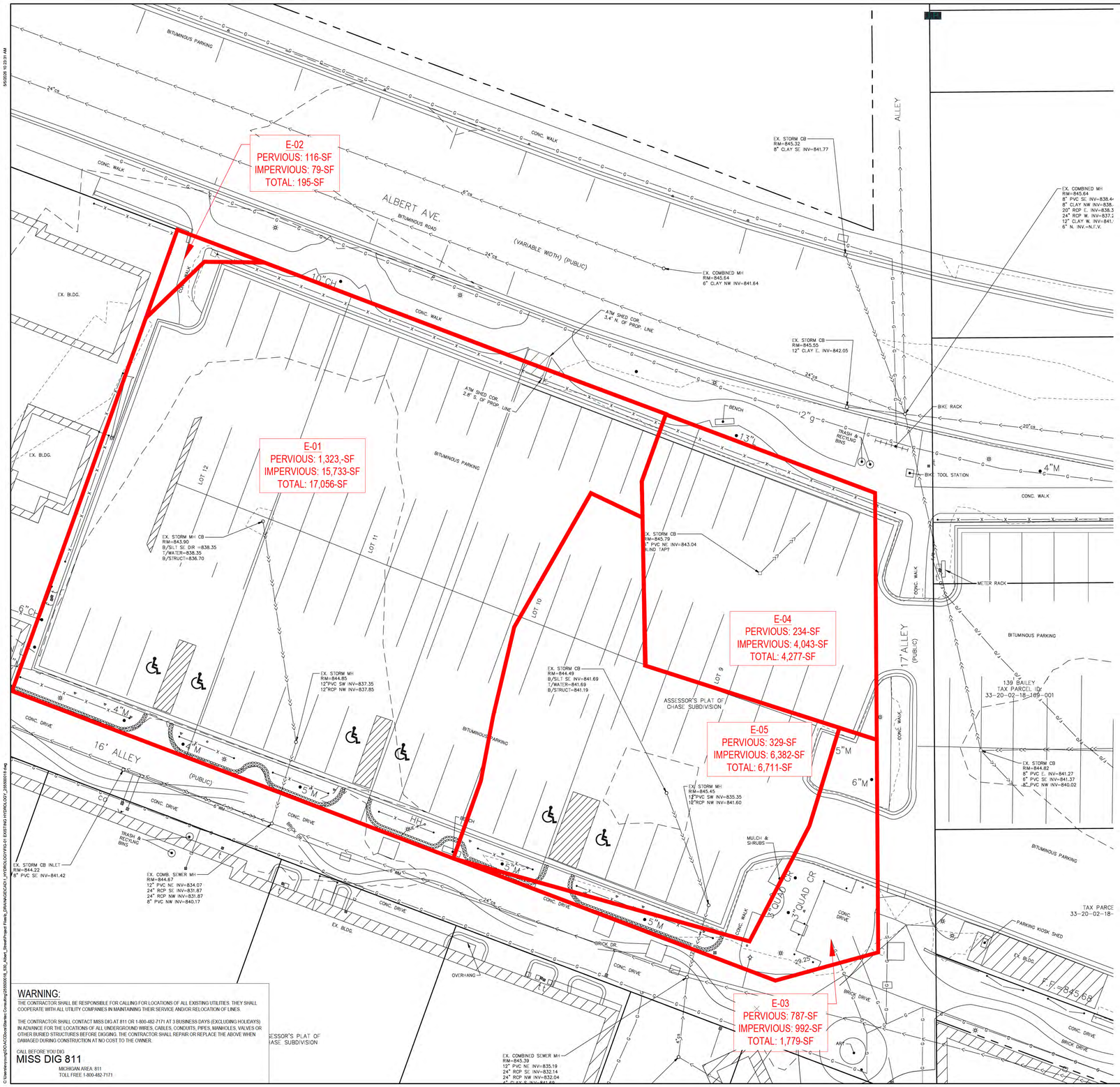
Appendices:

- Appendix A: Existing and Proposed Hydrology Exhibits
- Appendix B: Existing and Proposed HydroCAD Model Output
- Appendix C: Web Soil Survey Report

APPENDICES

APPENDIX A

EXISTING AND PROPOSED HYDROLOGY EXHIBITS



WARNING:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALLING FOR LOCATIONS OF ALL EXISTING UTILITIES. THEY SHALL COOPERATE WITH ALL UTILITY COMPANIES IN MAINTAINING THEIR SERVICE AND/OR RELOCATION OF LINES.

THE CONTRACTOR SHALL CONTACT MISS DIG AT 811 OR 1-800-482-7171 AT 3 BUSINESS DAYS (EXCLUDING HOLIDAYS) IN ADVANCE FOR THE LOCATIONS OF ALL UNDERGROUND WIRES, CABLES, CONDUITS, PIPES, MANHOLES, VALVES OR OTHER BURIED STRUCTURES BEFORE DIGGING. THE CONTRACTOR SHALL REPAIR OR REPLACE THE ABOVE WHEN DAMAGED DURING CONSTRUCTION AT NO COST TO THE OWNER.

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CLIENT:
TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

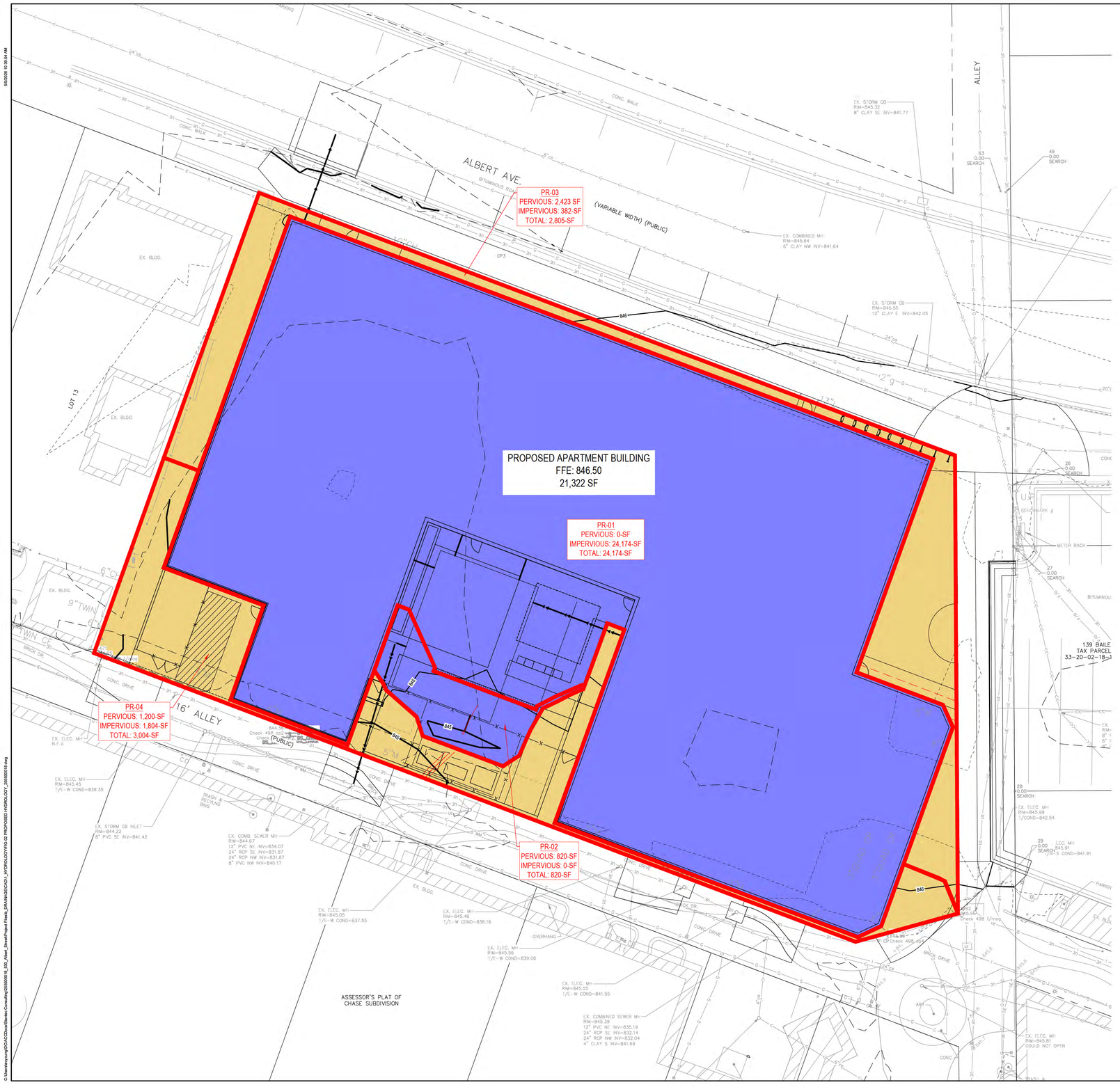
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ISSUE NO.	DESCRIPTION	DATE
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6201213237
REGISTERED PROFESSIONAL ENGINEER

PROJECT NO.:	255500018	
DWN BY: RAO	CHK'D BY: MJS	APP'D BY: JTP
ISSUE DATE:	05/05/2026	
ISSUE NO.:	1	
SHEET TITLE:	EXISTING DRAINAGE	
SHEET NO.:	EX-1	

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CLIENT:
TAREEN DEVELOPMENT PARTNERS

PROJECT TITLE:
530 ALBERT
530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

ISSUE NO.:	DESCRIPTION:	DATE:
1	LAND USE SUBMITTAL	05/05/2026

CERTIFICATION:
STATE OF MICHIGAN
JOHN PENSHORN
License No. 6201013283
PROFESSIONAL ENGINEER

PROJECT NO.:	255500018	
DWN BY: RAO	CHK'D BY: MJS	APP'D BY: JTP
ISSUE DATE:	05/05/2026	
ISSUE NO.:	1	

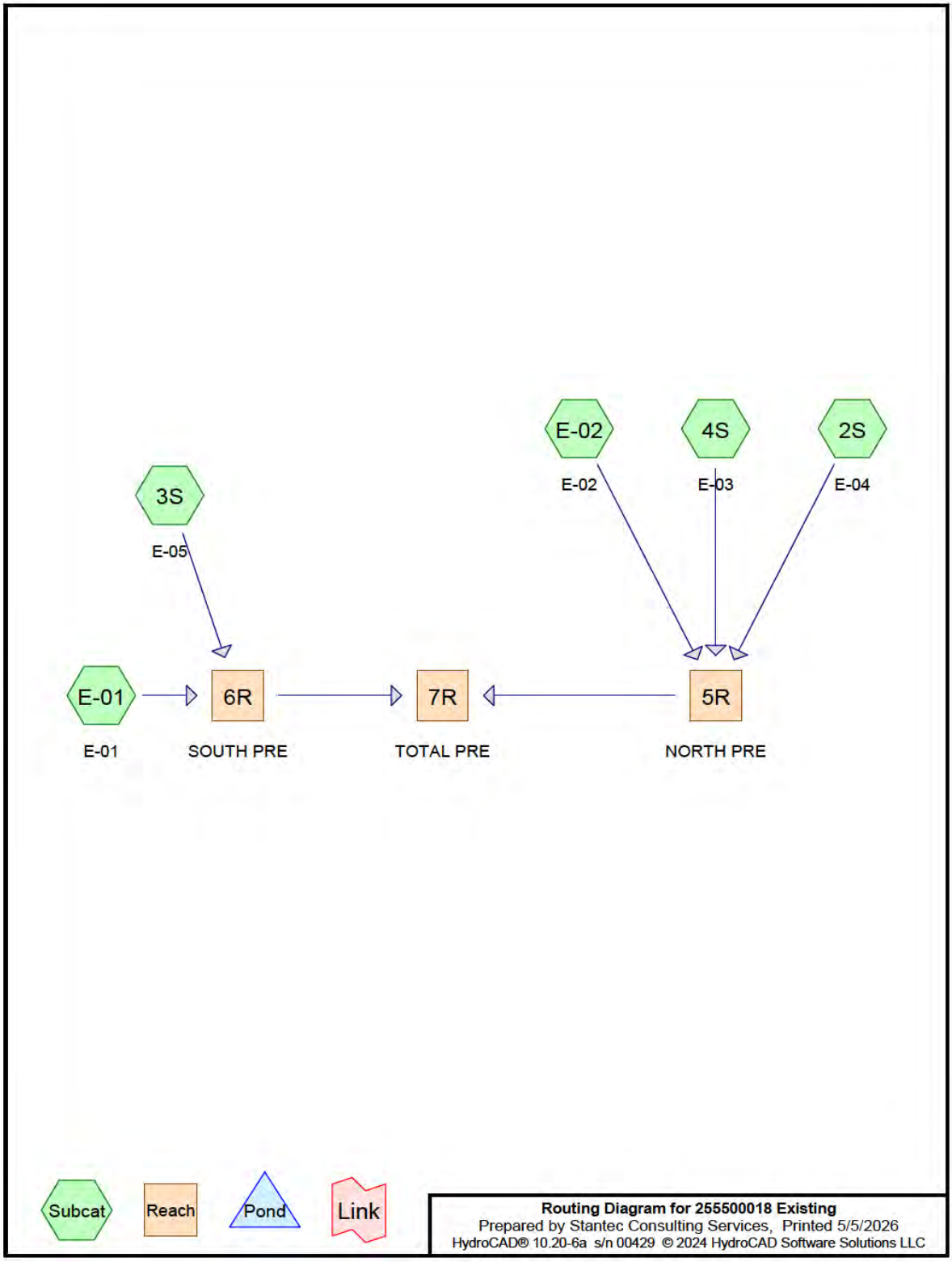
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PROPOSED DRAINAGE

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APPENDIX B

EXISTING AND PROPOSED HYDROCAD MODEL OUTPUT


E-02
4S
2S
3S
E-02
E-03
E-04
E-05
E-01
6R
7R
5R
E-01
SOUTH PRE
TOTAL PRE
NORTH PRE
Subcat
Reach
Pond
Link
Routing Diagram for 255500018 Existing
Prepared by Stantec Consulting Services, Printed 5/5/2026
HydroCAD® 10.20-6a s/n 00429 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1YR	Type II 24-hr		Default	24.00	1	2.15	2
2	10YR	Type II 24-hr		Default	24.00	1	3.38	2
3	25YR	Type II 24-hr		Default	24.00	1	4.12	2
4	100YR	Type II 24-hr		Default	24.00	1	5.46	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.064	74	>75% Grass cover, Good, HSG D (2S, 3S, 4S, E-01, E-02)
0.625	98	Paved parking, HSG D (2S, 3S, 4S, E-01, E-02)
0.689	**96**	**TOTAL AREA**

Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: E-04 Runoff Area=4,277 sf 94.53% Impervious Runoff Depth=1.82"
Tc=6.0 min CN=97 Runoff=0.28 cfs 0.015 af

Subcatchment 3S: E-05 Runoff Area=6,711 sf 95.10% Impervious Runoff Depth=1.82"
Tc=6.0 min CN=97 Runoff=0.44 cfs 0.023 af

Subcatchment 4S: E-03 Runoff Area=1,779 sf 55.76% Impervious Runoff Depth=1.02"
Tc=6.0 min CN=87 Runoff=0.07 cfs 0.003 af

Subcatchment E-01: E-01 Runoff Area=17,056 sf 92.24% Impervious Runoff Depth=1.72"
Tc=6.0 min CN=96 Runoff=1.08 cfs 0.056 af

Subcatchment E-02: E-02 Runoff Area=195 sf 40.51% Impervious Runoff Depth=0.85"
Tc=6.0 min CN=84 Runoff=0.01 cfs 0.000 af

Reach 5R: NORTH PRE Inflow=0.36 cfs 0.019 af
Outflow=0.36 cfs 0.019 af

Reach 6R: SOUTH PRE Inflow=1.51 cfs 0.079 af
Outflow=1.51 cfs 0.079 af

Reach 7R: TOTAL PRE Inflow=1.87 cfs 0.098 af
Outflow=1.87 cfs 0.098 af

Total Runoff Area = 0.689 ac Runoff Volume = 0.098 af Average Runoff Depth = 1.71"
9.29% Pervious = 0.064 ac 90.71% Impervious = 0.625 ac

Summary for Subcatchment 2S: E-04

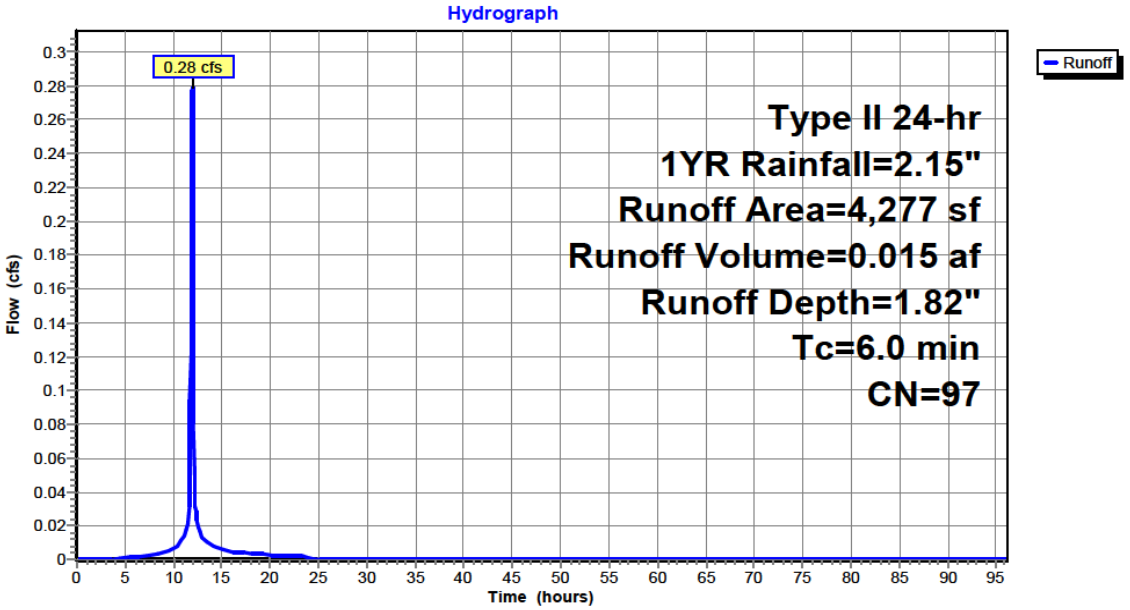
Runoff = 0.28 cfs @ 11.96 hrs, Volume= 0.015 af, Depth= 1.82"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 1YR Rainfall=2.15"

	Area (sf)	CN	Description
	4,043	98	Paved parking, HSG D
*	234	74	>75% Grass cover, Good, HSG D
	4,277	97	Weighted Average
	234		5.47% Pervious Area
	4,043		94.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: E-04



Summary for Subcatchment 3S: E-05

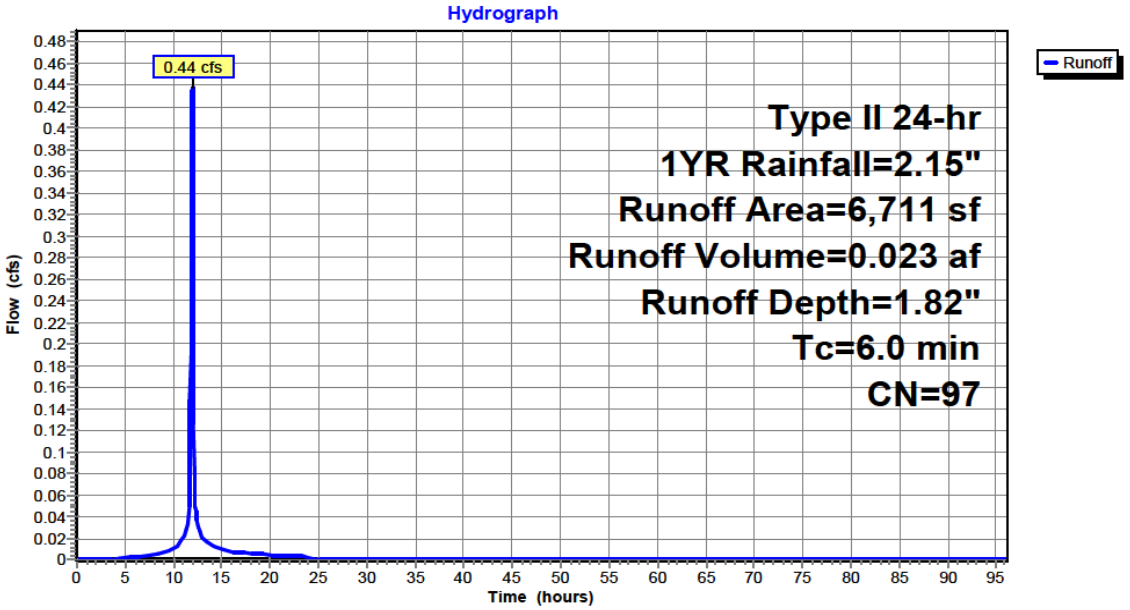
Runoff = 0.44 cfs @ 11.96 hrs, Volume= 0.023 af, Depth= 1.82"
Routed to Reach 6R : SOUTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 1YR Rainfall=2.15"

	Area (sf)	CN	Description
	6,382	98	Paved parking, HSG D
*	329	74	>75% Grass cover, Good, HSG D
	6,711	97	Weighted Average
	329		4.90% Pervious Area
	6,382		95.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: E-05



Summary for Subcatchment 4S: E-03

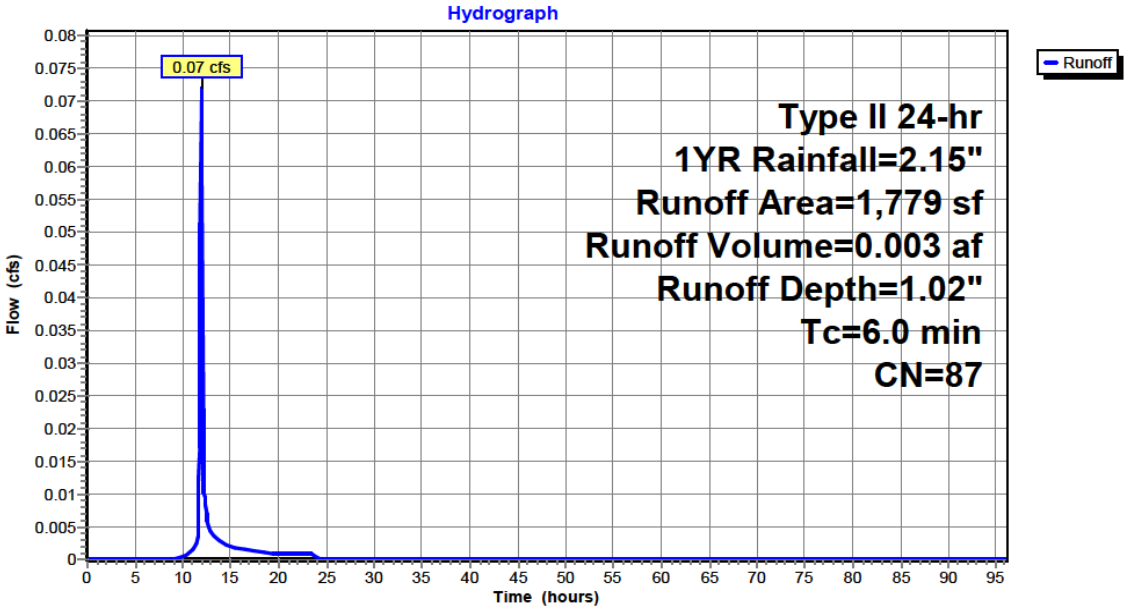
Runoff = 0.07 cfs @ 11.97 hrs, Volume= 0.003 af, Depth= 1.02"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 1YR Rainfall=2.15"

	Area (sf)	CN	Description
	992	98	Paved parking, HSG D
*	787	74	>75% Grass cover, Good, HSG D
	1,779	87	Weighted Average
	787		44.24% Pervious Area
	992		55.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: E-03



Summary for Subcatchment E-01: E-01

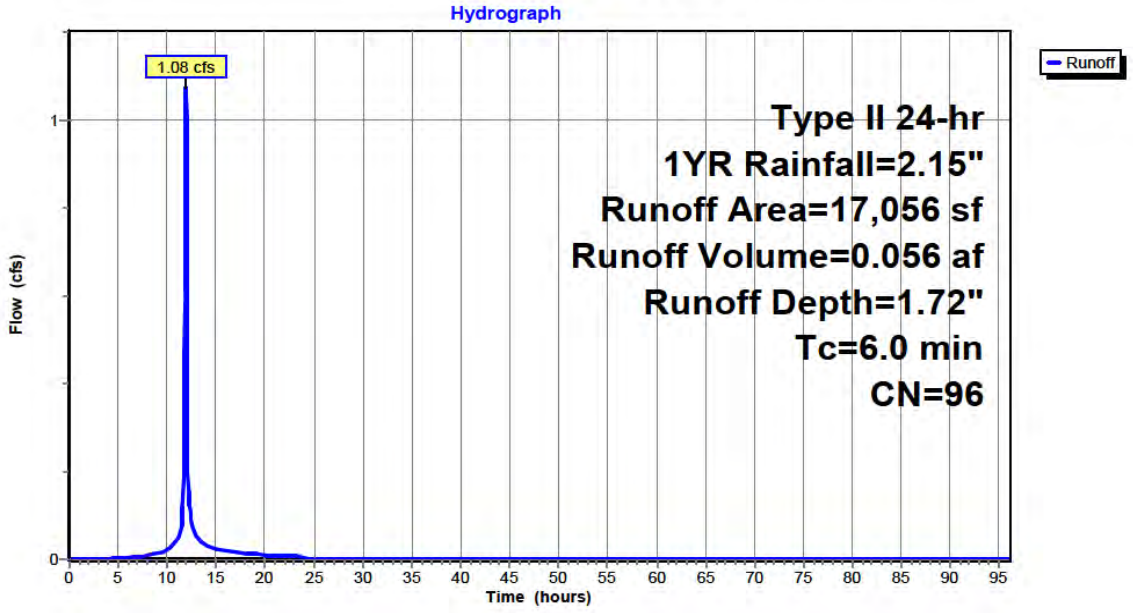
Runoff = 1.08 cfs @ 11.96 hrs, Volume= 0.056 af, Depth= 1.72"
Routed to Reach 6R : SOUTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 1YR Rainfall=2.15"

	Area (sf)	CN	Description
	15,733	98	Paved parking, HSG D
*	1,323	74	>75% Grass cover, Good, HSG D
	17,056	96	Weighted Average
	1,323		7.76% Pervious Area
	15,733		92.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment E-01: E-01



Summary for Subcatchment E-02: E-02

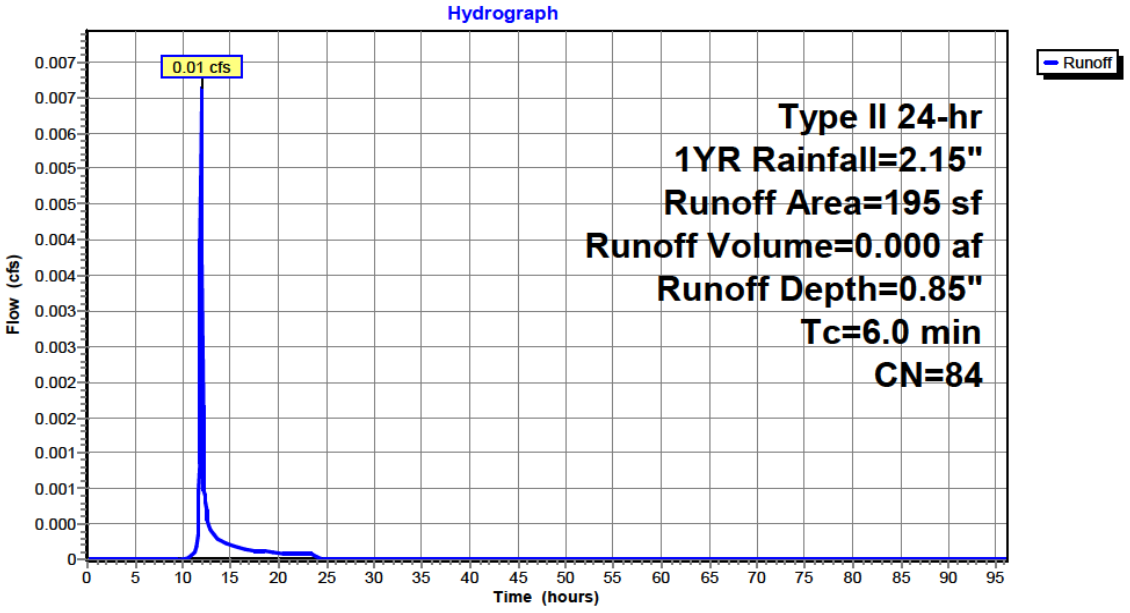
Runoff = 0.01 cfs @ 11.98 hrs, Volume= 0.000 af, Depth= 0.85"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 1YR Rainfall=2.15"

	Area (sf)	CN	Description
	79	98	Paved parking, HSG D
*	116	74	>75% Grass cover, Good, HSG D
	195	84	Weighted Average
	116		59.49% Pervious Area
	79		40.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment E-02: E-02

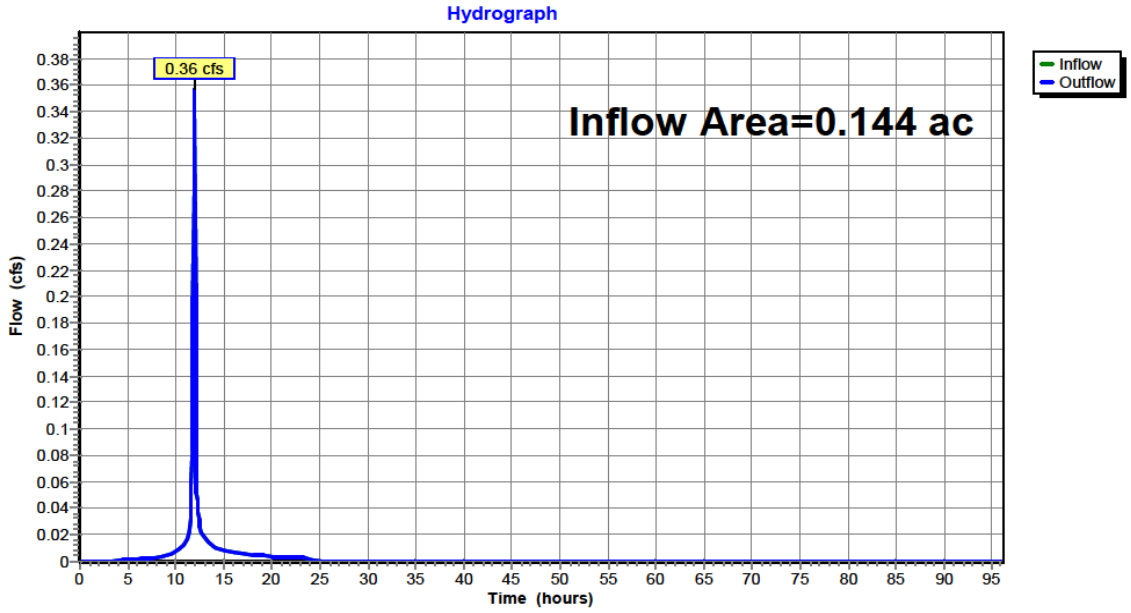


Summary for Reach 5R: NORTH PRE

Inflow Area = 0.144 ac, 81.81% Impervious, Inflow Depth = 1.56" for 1YR event
Inflow = 0.36 cfs @ 11.97 hrs, Volume= 0.019 af
Outflow = 0.36 cfs @ 11.97 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 7R : TOTAL PRE

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 5R: NORTH PRE

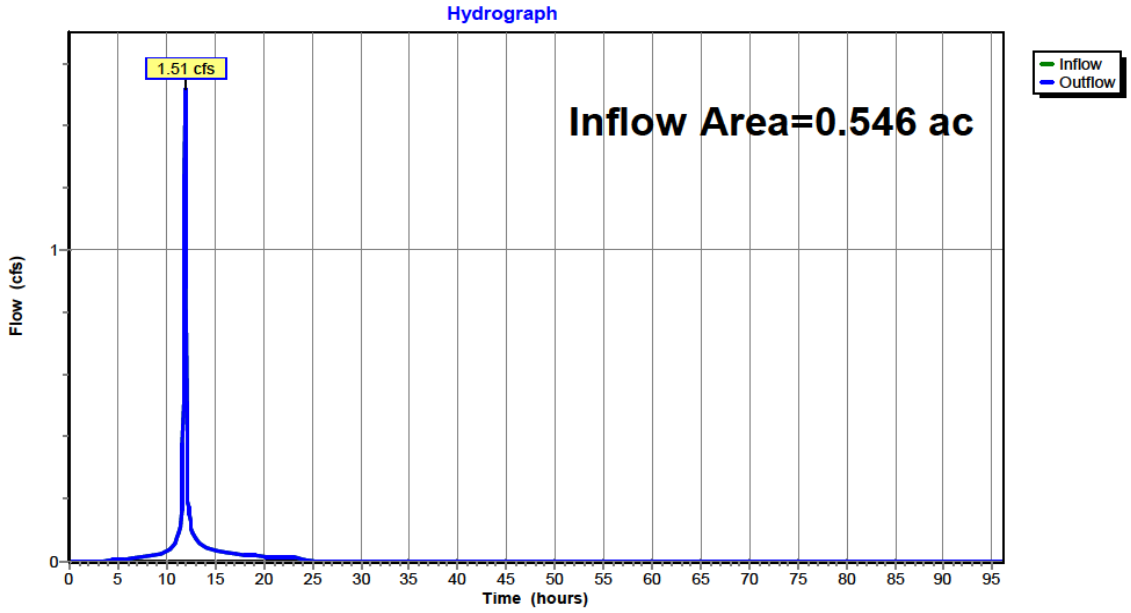


Summary for Reach 6R: SOUTH PRE

Inflow Area = 0.546 ac, 93.05% Impervious, Inflow Depth = 1.75" for 1YR event
Inflow = 1.51 cfs @ 11.96 hrs, Volume= 0.079 af
Outflow = 1.51 cfs @ 11.96 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 7R : TOTAL PRE

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 6R: SOUTH PRE

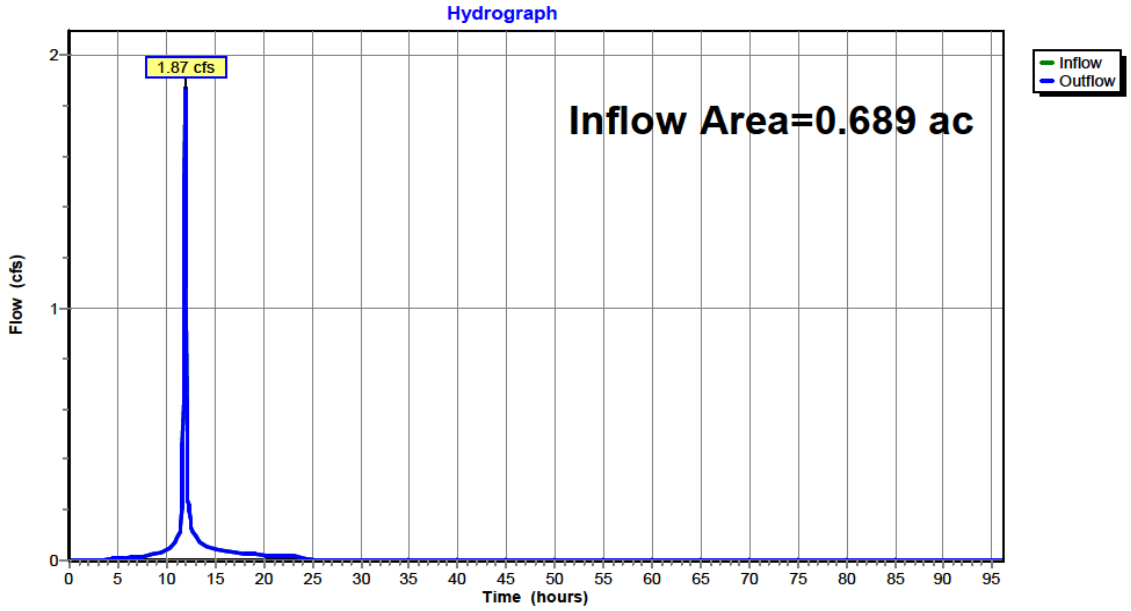


Summary for Reach 7R: TOTAL PRE

Inflow Area = 0.689 ac, 90.71% Impervious, Inflow Depth = 1.71" for 1YR event
Inflow = 1.87 cfs @ 11.96 hrs, Volume= 0.098 af
Outflow = 1.87 cfs @ 11.96 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 7R: TOTAL PRE



Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: E-04 Runoff Area=4,277 sf 94.53% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=97 Runoff=0.45 cfs 0.025 af

Subcatchment 3S: E-05 Runoff Area=6,711 sf 95.10% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=97 Runoff=0.71 cfs 0.039 af

Subcatchment 4S: E-03 Runoff Area=1,779 sf 55.76% Impervious Runoff Depth=2.07"
Tc=6.0 min CN=87 Runoff=0.14 cfs 0.007 af

Subcatchment E-01: E-01 Runoff Area=17,056 sf 92.24% Impervious Runoff Depth=2.93"
Tc=6.0 min CN=96 Runoff=1.77 cfs 0.095 af

Subcatchment E-02: E-02 Runoff Area=195 sf 40.51% Impervious Runoff Depth=1.83"
Tc=6.0 min CN=84 Runoff=0.01 cfs 0.001 af

Reach 5R: NORTH PRE Inflow=0.61 cfs 0.033 af
Outflow=0.61 cfs 0.033 af

Reach 6R: SOUTH PRE Inflow=2.48 cfs 0.134 af
Outflow=2.48 cfs 0.134 af

Reach 7R: TOTAL PRE Inflow=3.08 cfs 0.167 af
Outflow=3.08 cfs 0.167 af

Total Runoff Area = 0.689 ac Runoff Volume = 0.167 af Average Runoff Depth = 2.91"
9.29% Pervious = 0.064 ac 90.71% Impervious = 0.625 ac

Summary for Subcatchment 2S: E-04

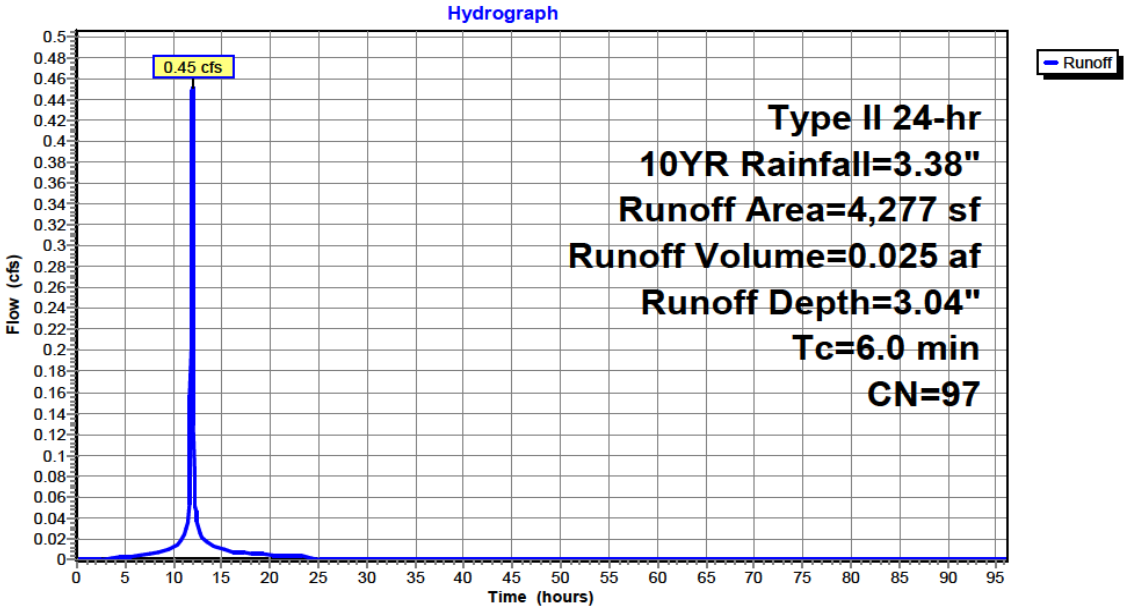
Runoff = 0.45 cfs @ 11.96 hrs, Volume= 0.025 af, Depth= 3.04"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

	Area (sf)	CN	Description
	4,043	98	Paved parking, HSG D
*	234	74	>75% Grass cover, Good, HSG D
	4,277	97	Weighted Average
	234		5.47% Pervious Area
	4,043		94.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: E-04



Summary for Subcatchment 3S: E-05

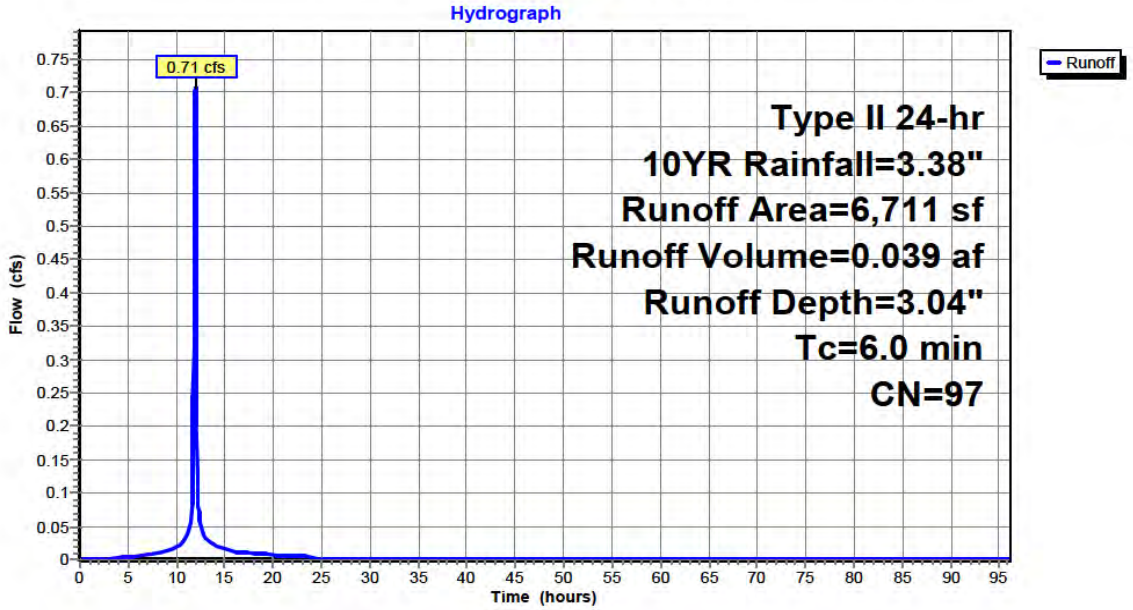
Runoff = 0.71 cfs @ 11.96 hrs, Volume= 0.039 af, Depth= 3.04"
Routed to Reach 6R : SOUTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

	Area (sf)	CN	Description
	6,382	98	Paved parking, HSG D
*	329	74	>75% Grass cover, Good, HSG D
	6,711	97	Weighted Average
	329		4.90% Pervious Area
	6,382		95.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: E-05



Summary for Subcatchment 4S: E-03

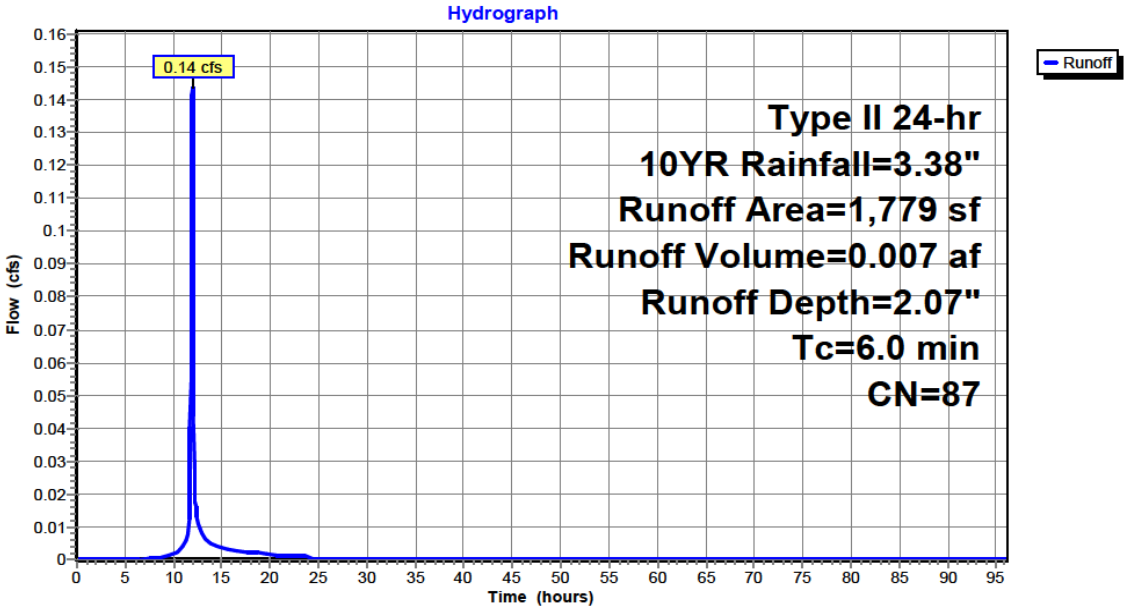
Runoff = 0.14 cfs @ 11.97 hrs, Volume= 0.007 af, Depth= 2.07"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

	Area (sf)	CN	Description
	992	98	Paved parking, HSG D
*	787	74	>75% Grass cover, Good, HSG D
	1,779	87	Weighted Average
	787		44.24% Pervious Area
	992		55.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: E-03



Summary for Subcatchment E-01: E-01

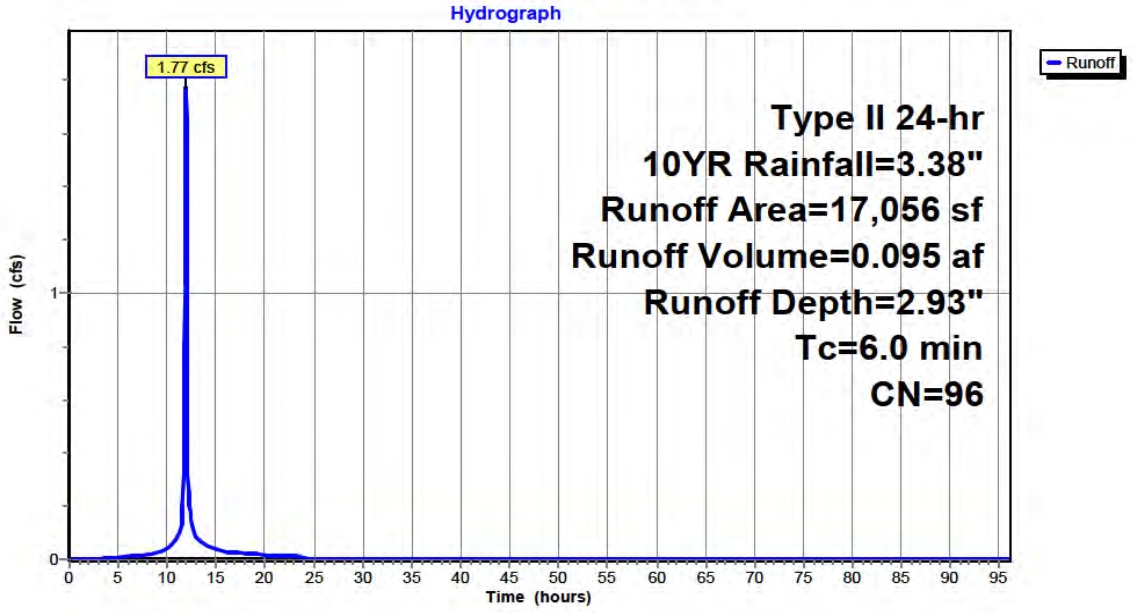
Runoff = 1.77 cfs @ 11.96 hrs, Volume= 0.095 af, Depth= 2.93"
Routed to Reach 6R : SOUTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

	Area (sf)	CN	Description
	15,733	98	Paved parking, HSG D
*	1,323	74	>75% Grass cover, Good, HSG D
	17,056	96	Weighted Average
	1,323		7.76% Pervious Area
	15,733		92.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment E-01: E-01



Summary for Subcatchment E-02: E-02

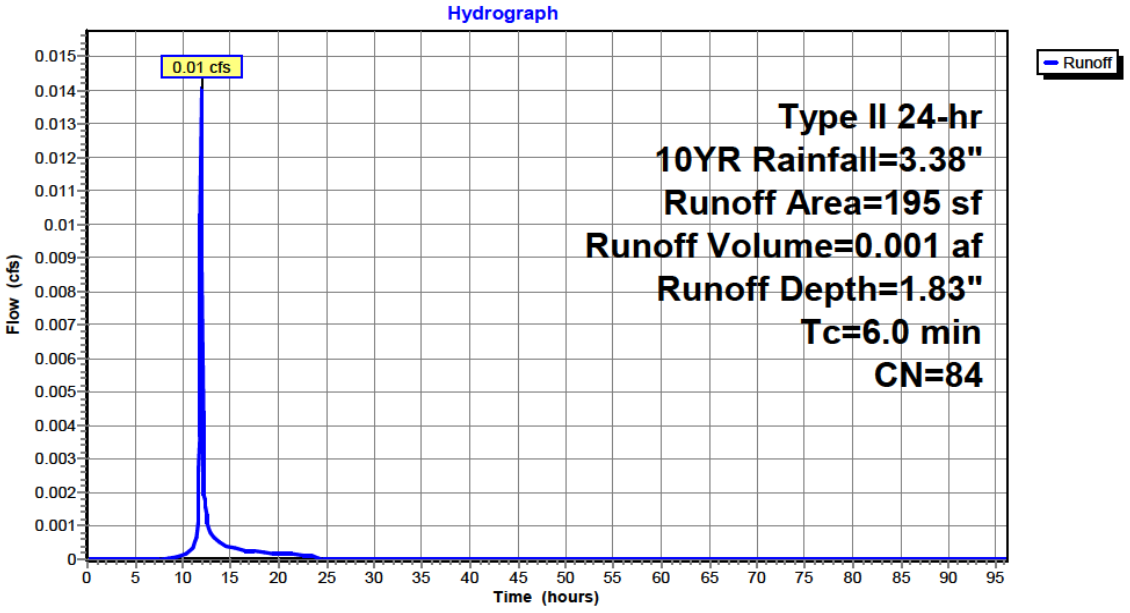
Runoff = 0.01 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 1.83"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

	Area (sf)	CN	Description
	79	98	Paved parking, HSG D
*	116	74	>75% Grass cover, Good, HSG D
	195	84	Weighted Average
	116		59.49% Pervious Area
	79		40.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment E-02: E-02

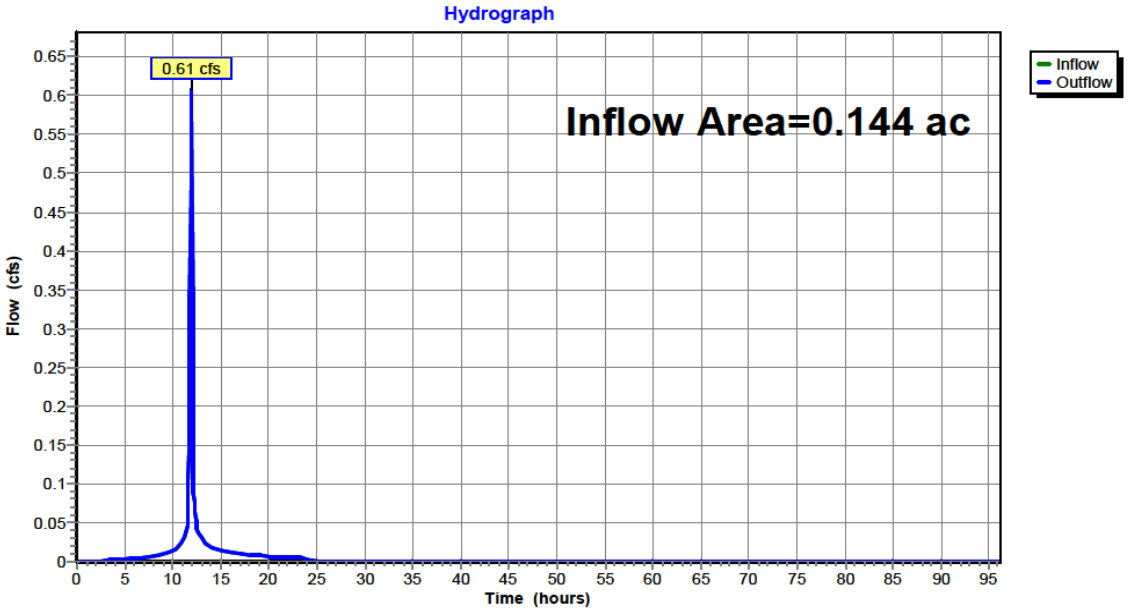


Summary for Reach 5R: NORTH PRE

Inflow Area = 0.144 ac, 81.81% Impervious, Inflow Depth = 2.72" for 10YR event
Inflow = 0.61 cfs @ 11.96 hrs, Volume= 0.033 af
Outflow = 0.61 cfs @ 11.96 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 7R : TOTAL PRE

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 5R: NORTH PRE

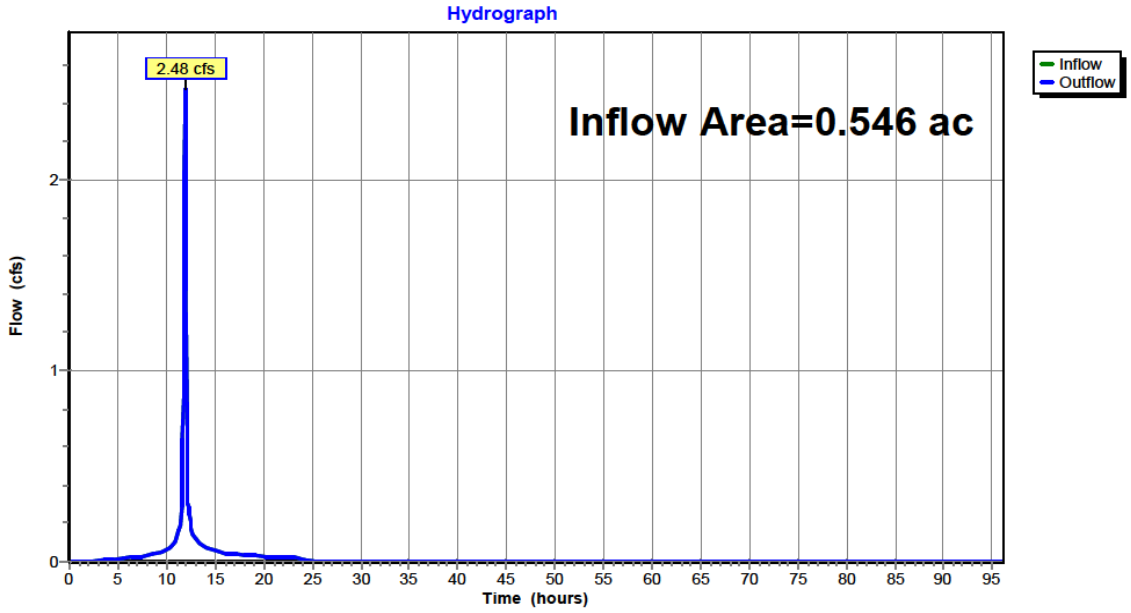


Summary for Reach 6R: SOUTH PRE

Inflow Area = 0.546 ac, 93.05% Impervious, Inflow Depth = 2.96" for 10YR event
Inflow = 2.48 cfs @ 11.96 hrs, Volume= 0.134 af
Outflow = 2.48 cfs @ 11.96 hrs, Volume= 0.134 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 7R : TOTAL PRE

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 6R: SOUTH PRE

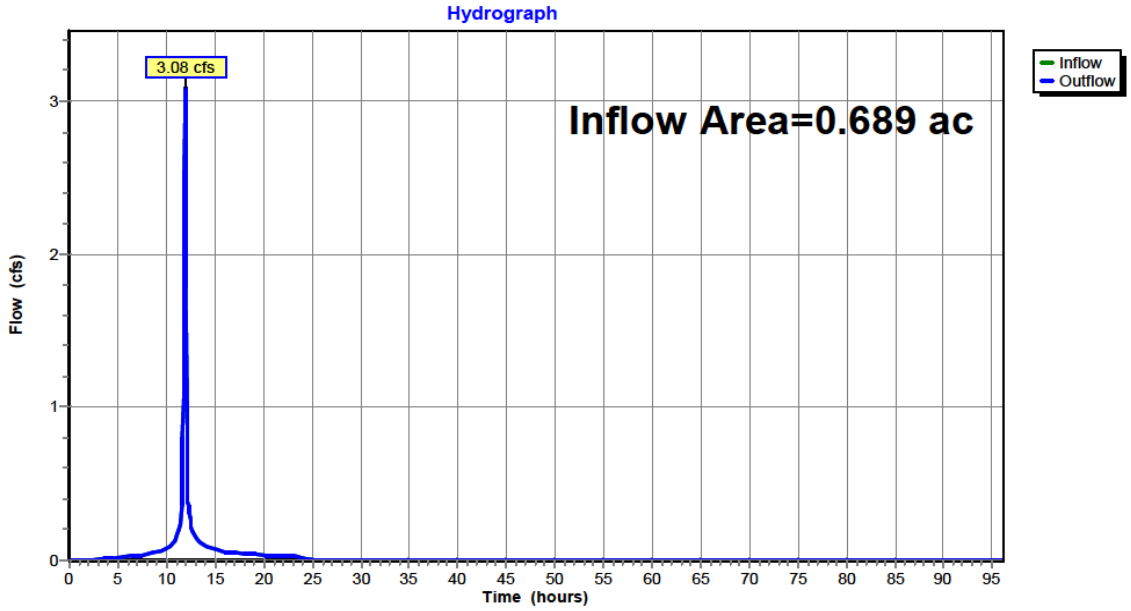


Summary for Reach 7R: TOTAL PRE

Inflow Area = 0.689 ac, 90.71% Impervious, Inflow Depth = 2.91" for 10YR event
Inflow = 3.08 cfs @ 11.96 hrs, Volume= 0.167 af
Outflow = 3.08 cfs @ 11.96 hrs, Volume= 0.167 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 7R: TOTAL PRE



Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: E-04 Runoff Area=4,277 sf 94.53% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=97 Runoff=0.55 cfs 0.031 af

Subcatchment 3S: E-05 Runoff Area=6,711 sf 95.10% Impervious Runoff Depth=3.77"
Tc=6.0 min CN=97 Runoff=0.87 cfs 0.048 af

Subcatchment 4S: E-03 Runoff Area=1,779 sf 55.76% Impervious Runoff Depth=2.75"
Tc=6.0 min CN=87 Runoff=0.19 cfs 0.009 af

Subcatchment E-01: E-01 Runoff Area=17,056 sf 92.24% Impervious Runoff Depth=3.66"
Tc=6.0 min CN=96 Runoff=2.18 cfs 0.119 af

Subcatchment E-02: E-02 Runoff Area=195 sf 40.51% Impervious Runoff Depth=2.48"
Tc=6.0 min CN=84 Runoff=0.02 cfs 0.001 af

Reach 5R: NORTH PRE Inflow=0.76 cfs 0.041 af
Outflow=0.76 cfs 0.041 af

Reach 6R: SOUTH PRE Inflow=3.05 cfs 0.168 af
Outflow=3.05 cfs 0.168 af

Reach 7R: TOTAL PRE Inflow=3.81 cfs 0.209 af
Outflow=3.81 cfs 0.209 af

Total Runoff Area = 0.689 ac Runoff Volume = 0.209 af Average Runoff Depth = 3.64"
9.29% Pervious = 0.064 ac 90.71% Impervious = 0.625 ac

Summary for Subcatchment 2S: E-04

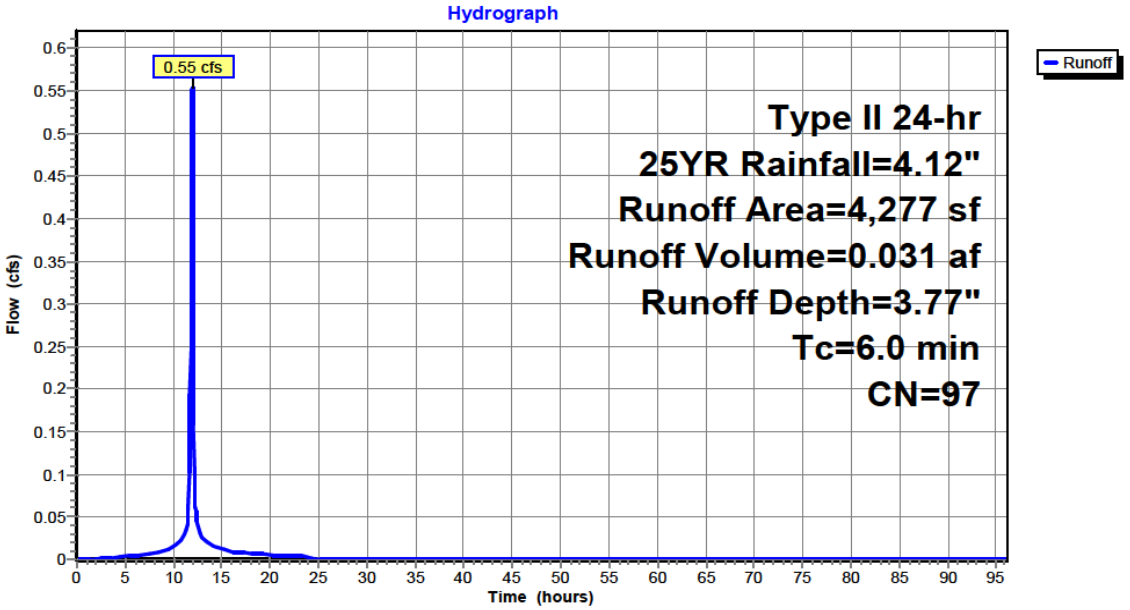
Runoff = 0.55 cfs @ 11.96 hrs, Volume= 0.031 af, Depth= 3.77"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

	Area (sf)	CN	Description
	4,043	98	Paved parking, HSG D
*	234	74	>75% Grass cover, Good, HSG D
	4,277	97	Weighted Average
	234		5.47% Pervious Area
	4,043		94.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: E-04



Summary for Subcatchment 3S: E-05

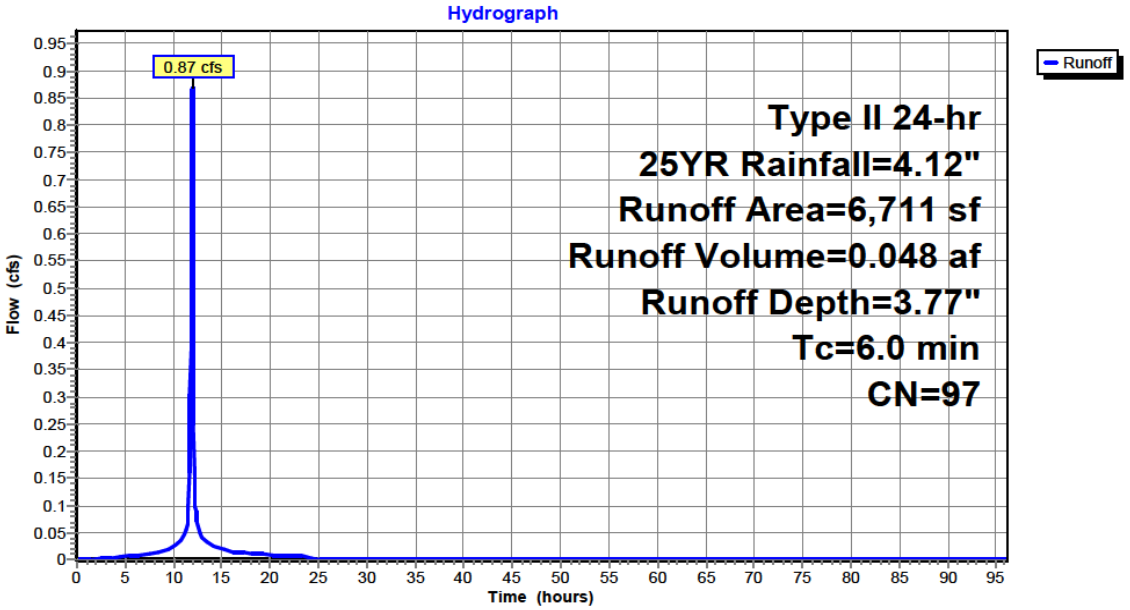
Runoff = 0.87 cfs @ 11.96 hrs, Volume= 0.048 af, Depth= 3.77"
Routed to Reach 6R : SOUTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

	Area (sf)	CN	Description
	6,382	98	Paved parking, HSG D
*	329	74	>75% Grass cover, Good, HSG D
	6,711	97	Weighted Average
	329		4.90% Pervious Area
	6,382		95.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: E-05



Summary for Subcatchment 4S: E-03

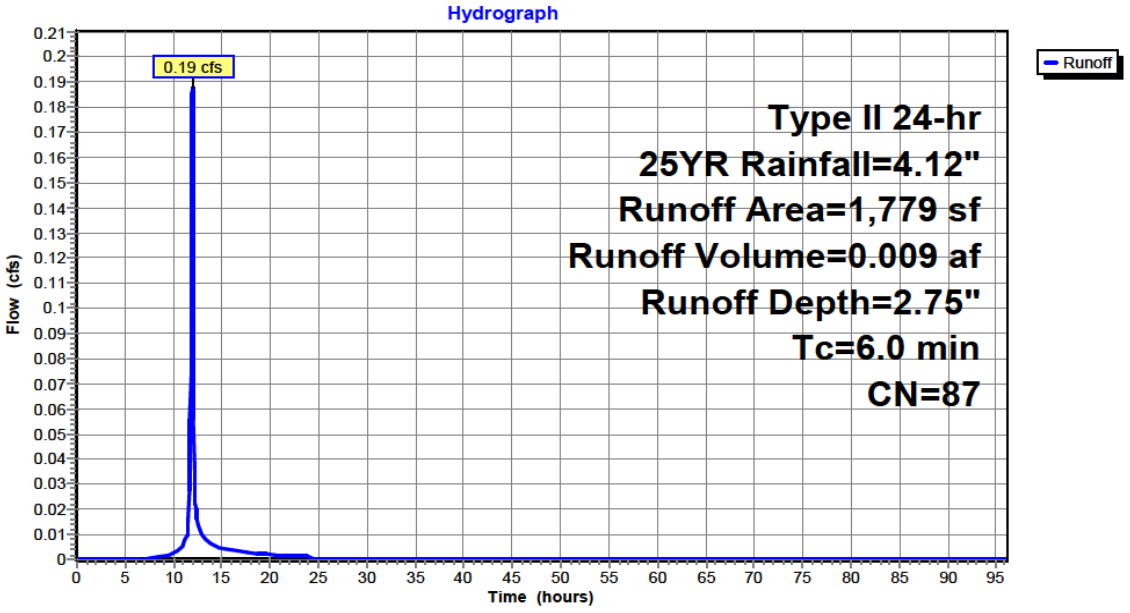
Runoff = 0.19 cfs @ 11.97 hrs, Volume= 0.009 af, Depth= 2.75"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

	Area (sf)	CN	Description
	992	98	Paved parking, HSG D
*	787	74	>75% Grass cover, Good, HSG D
	1,779	87	Weighted Average
	787		44.24% Pervious Area
	992		55.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: E-03



Summary for Subcatchment E-01: E-01

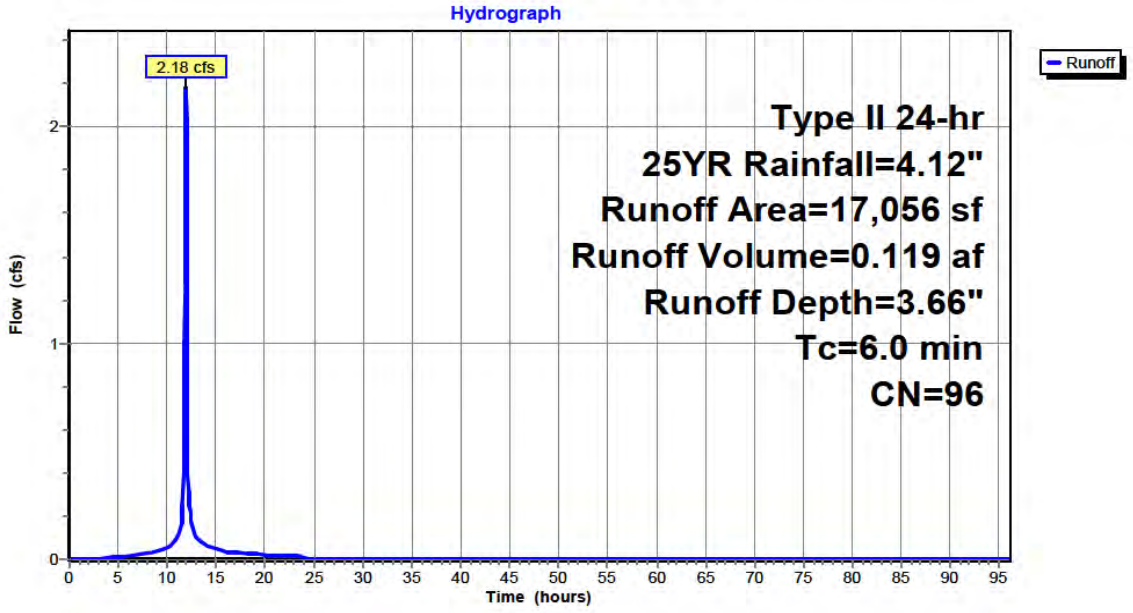
Runoff = 2.18 cfs @ 11.96 hrs, Volume= 0.119 af, Depth= 3.66"
Routed to Reach 6R : SOUTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

	Area (sf)	CN	Description
	15,733	98	Paved parking, HSG D
*	1,323	74	>75% Grass cover, Good, HSG D
	17,056	96	Weighted Average
	1,323		7.76% Pervious Area
	15,733		92.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment E-01: E-01



Summary for Subcatchment E-02: E-02

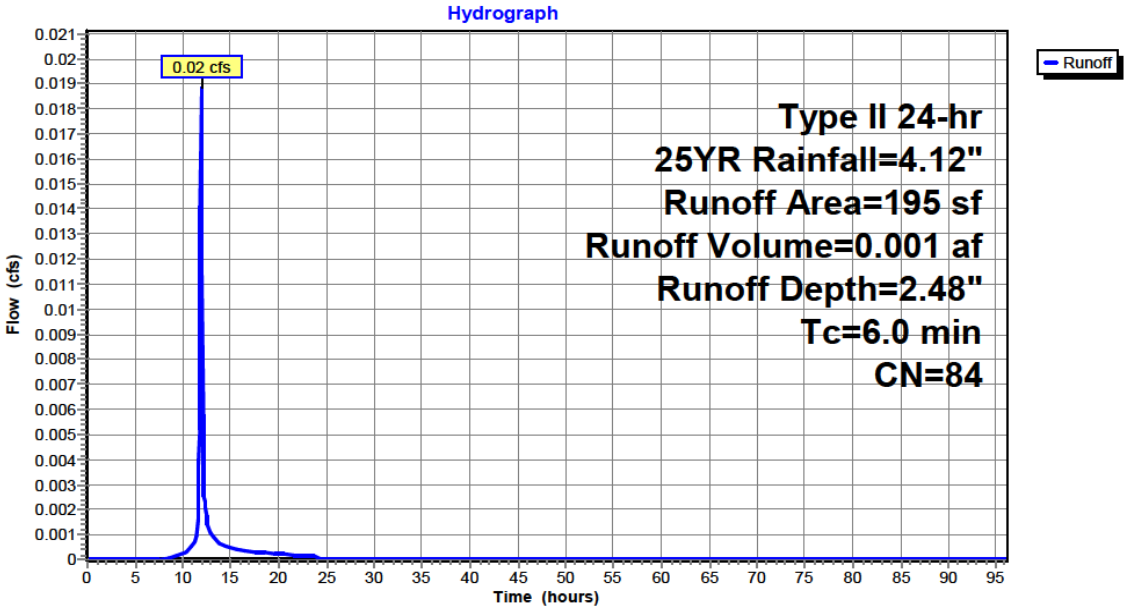
Runoff = 0.02 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 2.48"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

	Area (sf)	CN	Description
	79	98	Paved parking, HSG D
*	116	74	>75% Grass cover, Good, HSG D
	195	84	Weighted Average
	116		59.49% Pervious Area
	79		40.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment E-02: E-02

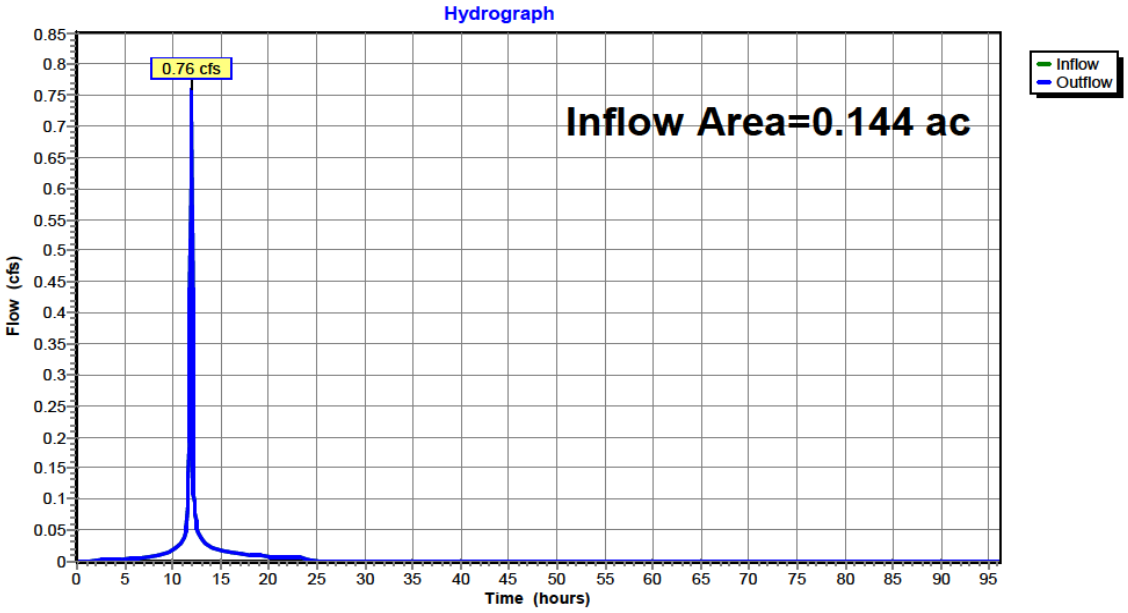


Summary for Reach 5R: NORTH PRE

Inflow Area = 0.144 ac, 81.81% Impervious, Inflow Depth = 3.44" for 25YR event
Inflow = 0.76 cfs @ 11.96 hrs, Volume= 0.041 af
Outflow = 0.76 cfs @ 11.96 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 7R : TOTAL PRE

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 5R: NORTH PRE

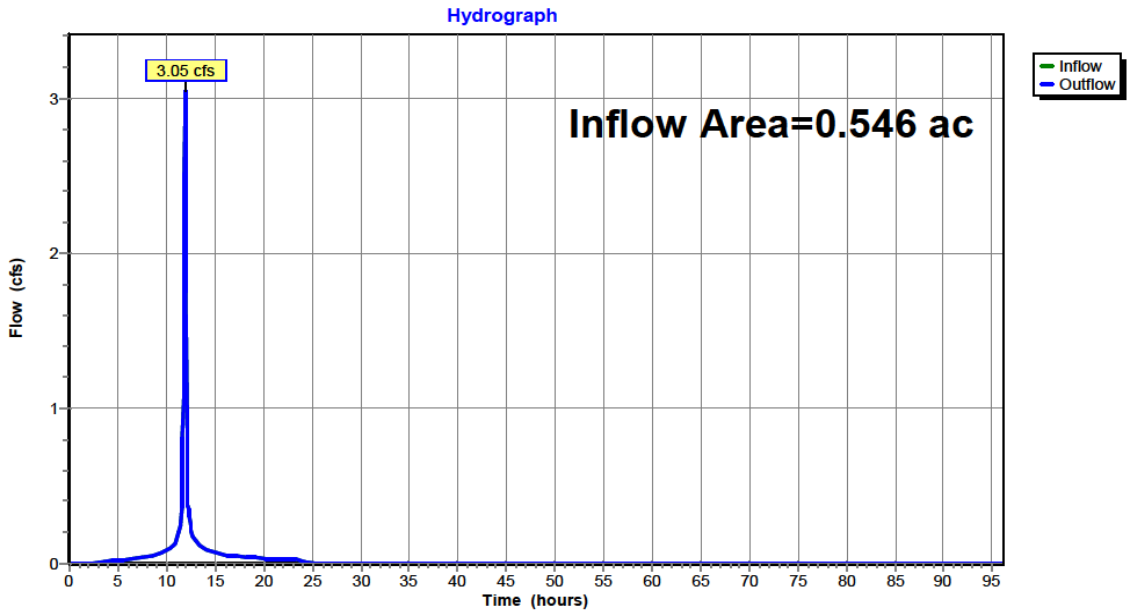


Summary for Reach 6R: SOUTH PRE

Inflow Area = 0.546 ac, 93.05% Impervious, Inflow Depth = 3.69" for 25YR event
Inflow = 3.05 cfs @ 11.96 hrs, Volume= 0.168 af
Outflow = 3.05 cfs @ 11.96 hrs, Volume= 0.168 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 7R : TOTAL PRE

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 6R: SOUTH PRE

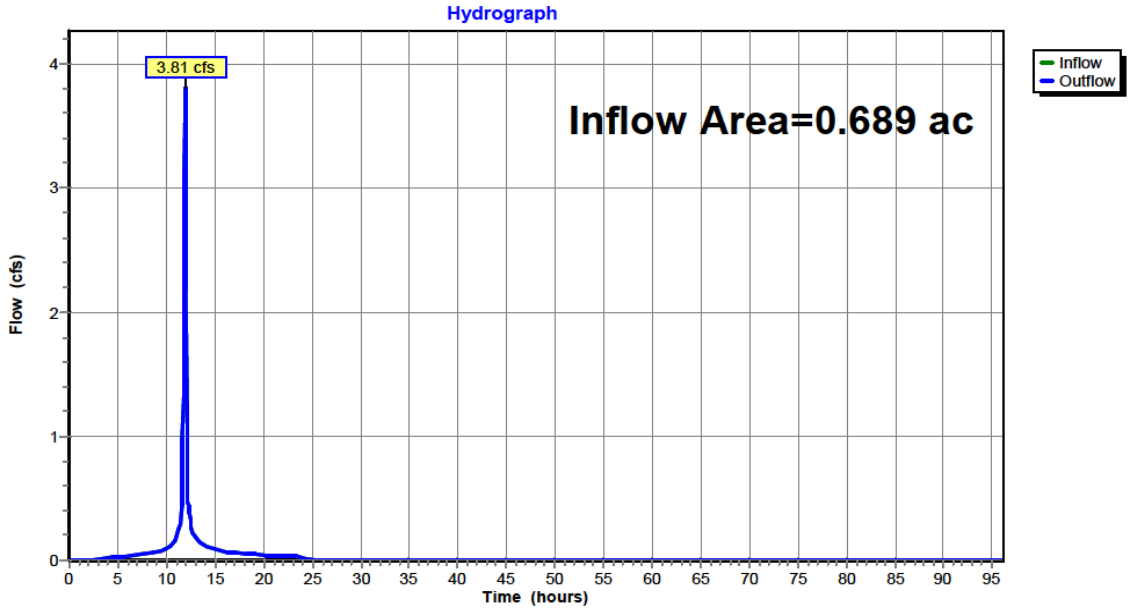


Summary for Reach 7R: TOTAL PRE

Inflow Area = 0.689 ac, 90.71% Impervious, Inflow Depth = 3.64" for 25YR event
Inflow = 3.81 cfs @ 11.96 hrs, Volume= 0.209 af
Outflow = 3.81 cfs @ 11.96 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 7R: TOTAL PRE



Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: E-04 Runoff Area=4,277 sf 94.53% Impervious Runoff Depth=5.11"
Tc=6.0 min CN=97 Runoff=0.74 cfs 0.042 af

Subcatchment 3S: E-05 Runoff Area=6,711 sf 95.10% Impervious Runoff Depth=5.11"
Tc=6.0 min CN=97 Runoff=1.16 cfs 0.066 af

Subcatchment 4S: E-03 Runoff Area=1,779 sf 55.76% Impervious Runoff Depth=4.00"
Tc=6.0 min CN=87 Runoff=0.27 cfs 0.014 af

Subcatchment E-01: E-01 Runoff Area=17,056 sf 92.24% Impervious Runoff Depth=4.99"
Tc=6.0 min CN=96 Runoff=2.92 cfs 0.163 af

Subcatchment E-02: E-02 Runoff Area=195 sf 40.51% Impervious Runoff Depth=3.69"
Tc=6.0 min CN=84 Runoff=0.03 cfs 0.001 af

Reach 5R: NORTH PRE Inflow=1.03 cfs 0.057 af
Outflow=1.03 cfs 0.057 af

Reach 6R: SOUTH PRE Inflow=4.08 cfs 0.228 af
Outflow=4.08 cfs 0.228 af

Reach 7R: TOTAL PRE Inflow=5.12 cfs 0.285 af
Outflow=5.12 cfs 0.285 af

Total Runoff Area = 0.689 ac Runoff Volume = 0.285 af Average Runoff Depth = 4.97"
9.29% Pervious = 0.064 ac 90.71% Impervious = 0.625 ac

Summary for Subcatchment 2S: E-04

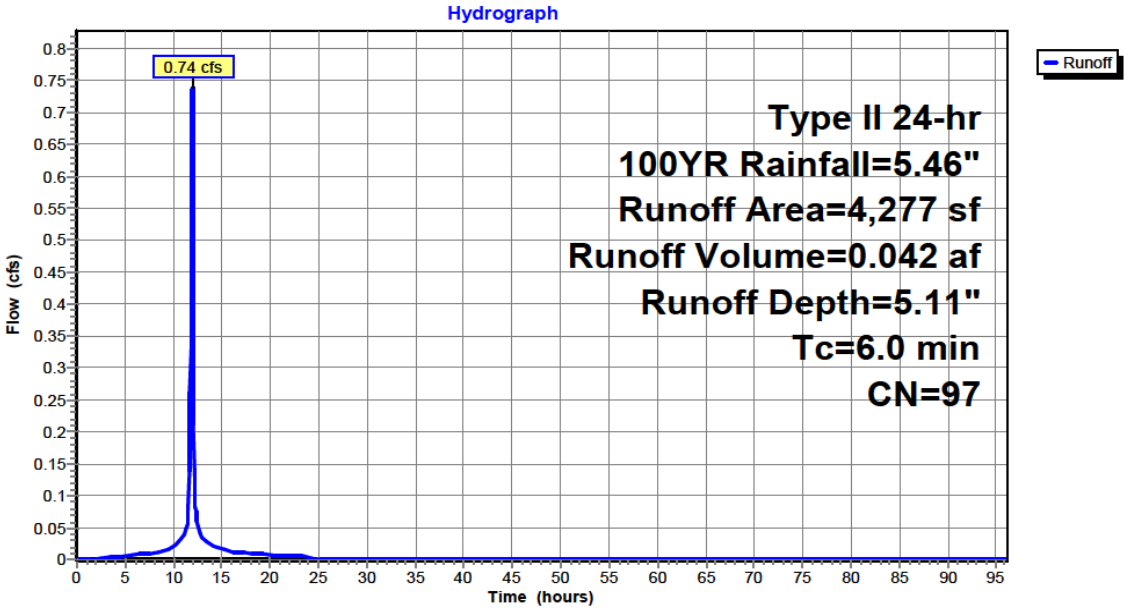
Runoff = 0.74 cfs @ 11.96 hrs, Volume= 0.042 af, Depth= 5.11"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

	Area (sf)	CN	Description
	4,043	98	Paved parking, HSG D
*	234	74	>75% Grass cover, Good, HSG D
	4,277	97	Weighted Average
	234		5.47% Pervious Area
	4,043		94.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: E-04



Summary for Subcatchment 3S: E-05

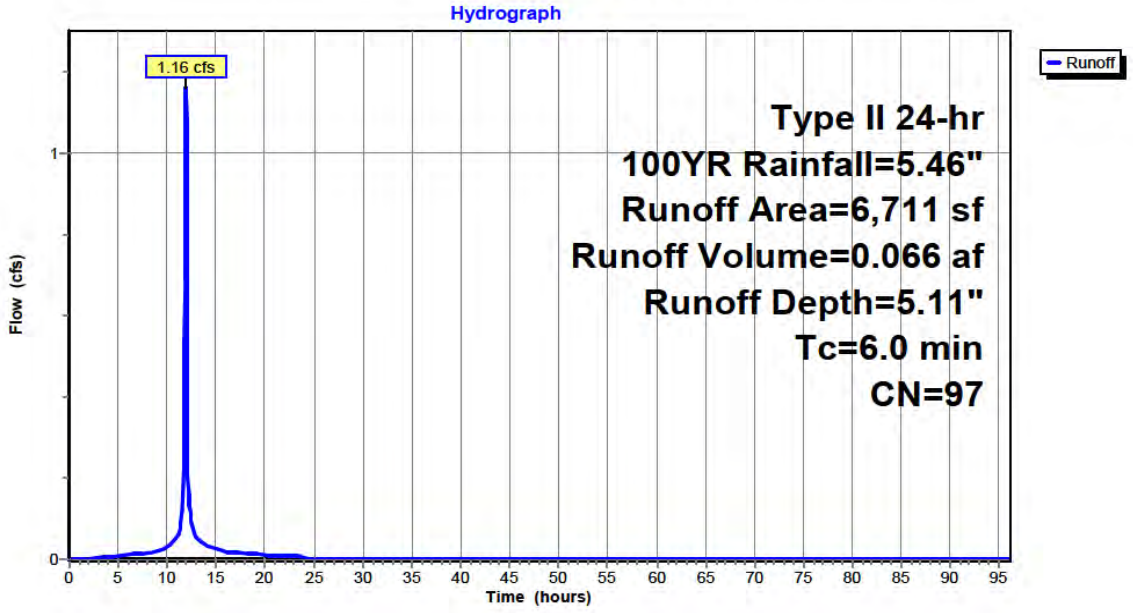
Runoff = 1.16 cfs @ 11.96 hrs, Volume= 0.066 af, Depth= 5.11"
Routed to Reach 6R : SOUTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

	Area (sf)	CN	Description
	6,382	98	Paved parking, HSG D
*	329	74	>75% Grass cover, Good, HSG D
	6,711	97	Weighted Average
	329		4.90% Pervious Area
	6,382		95.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: E-05



Summary for Subcatchment 4S: E-03

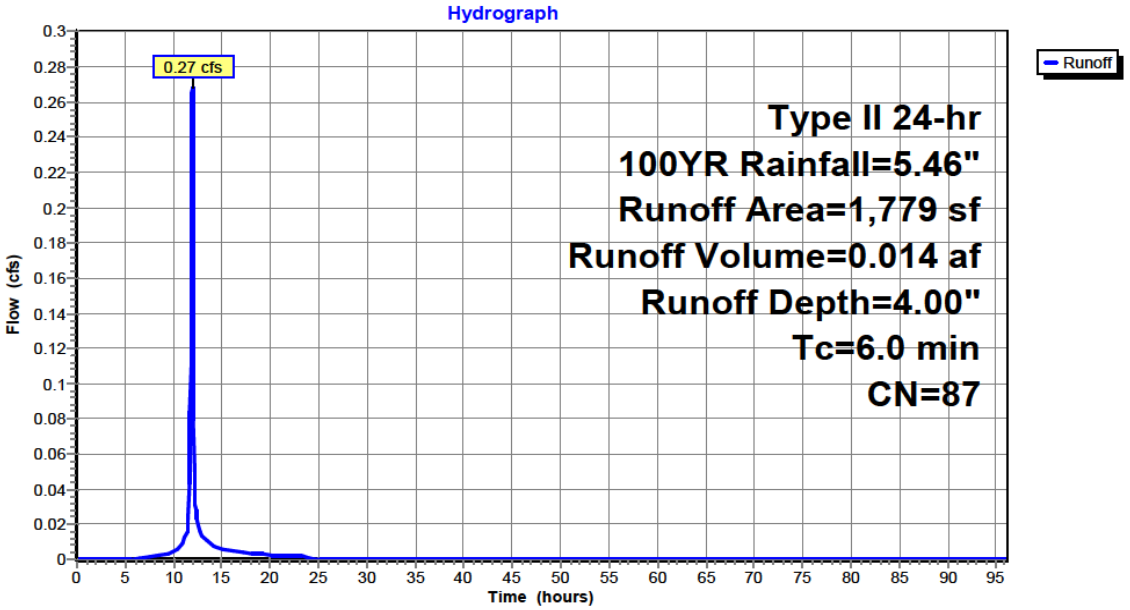
Runoff = 0.27 cfs @ 11.97 hrs, Volume= 0.014 af, Depth= 4.00"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

	Area (sf)	CN	Description
	992	98	Paved parking, HSG D
*	787	74	>75% Grass cover, Good, HSG D
	1,779	87	Weighted Average
	787		44.24% Pervious Area
	992		55.76% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: E-03



Summary for Subcatchment E-01: E-01

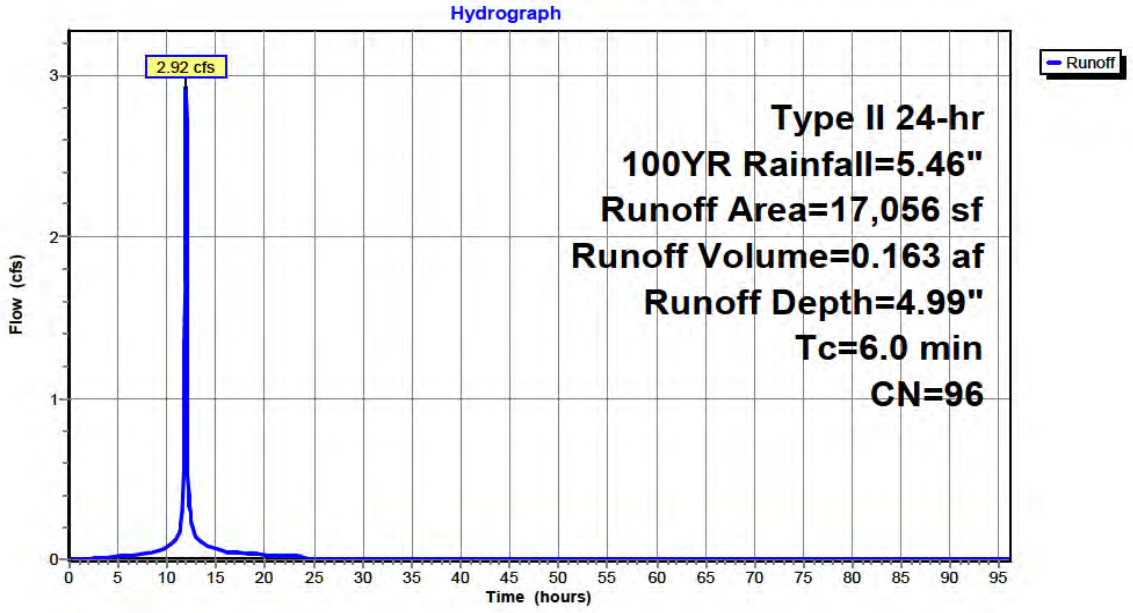
Runoff = 2.92 cfs @ 11.96 hrs, Volume= 0.163 af, Depth= 4.99"
Routed to Reach 6R : SOUTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

	Area (sf)	CN	Description
	15,733	98	Paved parking, HSG D
*	1,323	74	>75% Grass cover, Good, HSG D
	17,056	96	Weighted Average
	1,323		7.76% Pervious Area
	15,733		92.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					Direct Entry,

Subcatchment E-01: E-01



Summary for Subcatchment E-02: E-02

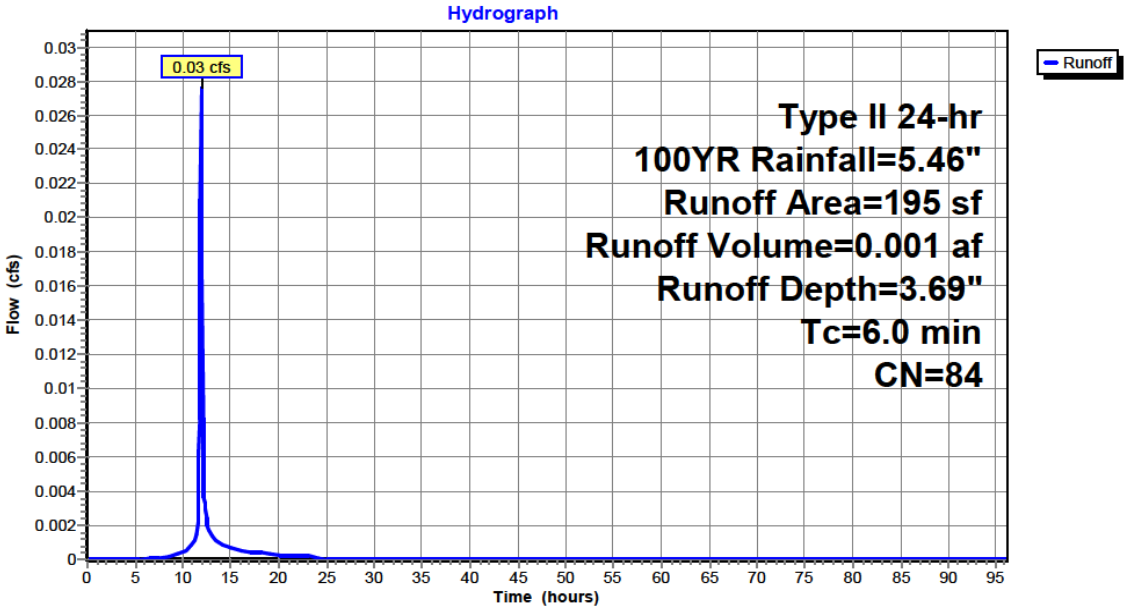
Runoff = 0.03 cfs @ 11.97 hrs, Volume= 0.001 af, Depth= 3.69"
Routed to Reach 5R : NORTH PRE

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

	Area (sf)	CN	Description
	79	98	Paved parking, HSG D
*	116	74	>75% Grass cover, Good, HSG D
	195	84	Weighted Average
	116		59.49% Pervious Area
	79		40.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment E-02: E-02

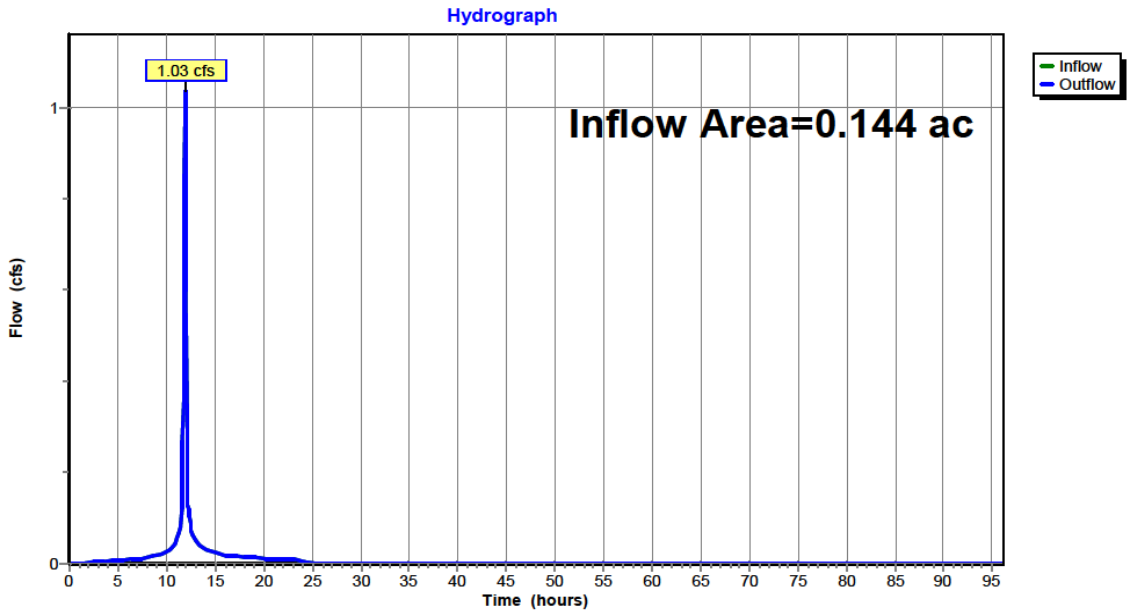


Summary for Reach 5R: NORTH PRE

Inflow Area = 0.144 ac, 81.81% Impervious, Inflow Depth = 4.75" for 100YR event
Inflow = 1.03 cfs @ 11.96 hrs, Volume= 0.057 af
Outflow = 1.03 cfs @ 11.96 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 7R : TOTAL PRE

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 5R: NORTH PRE

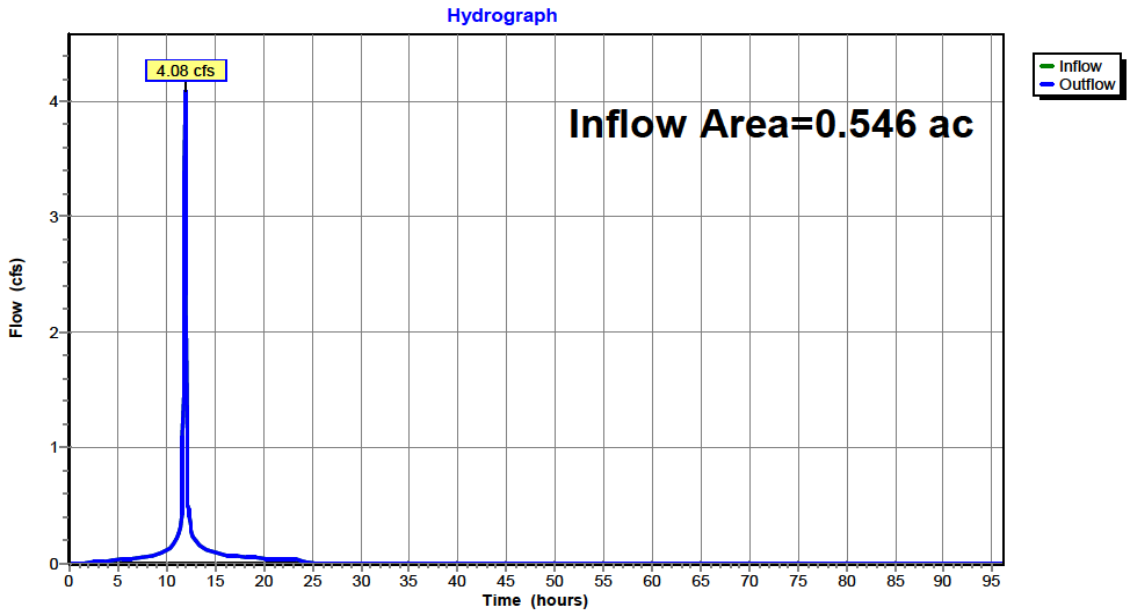


Summary for Reach 6R: SOUTH PRE

Inflow Area = 0.546 ac, 93.05% Impervious, Inflow Depth = 5.02" for 100YR event
Inflow = 4.08 cfs @ 11.96 hrs, Volume= 0.228 af
Outflow = 4.08 cfs @ 11.96 hrs, Volume= 0.228 af, Atten= 0%, Lag= 0.0 min
Routed to Reach 7R : TOTAL PRE

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 6R: SOUTH PRE

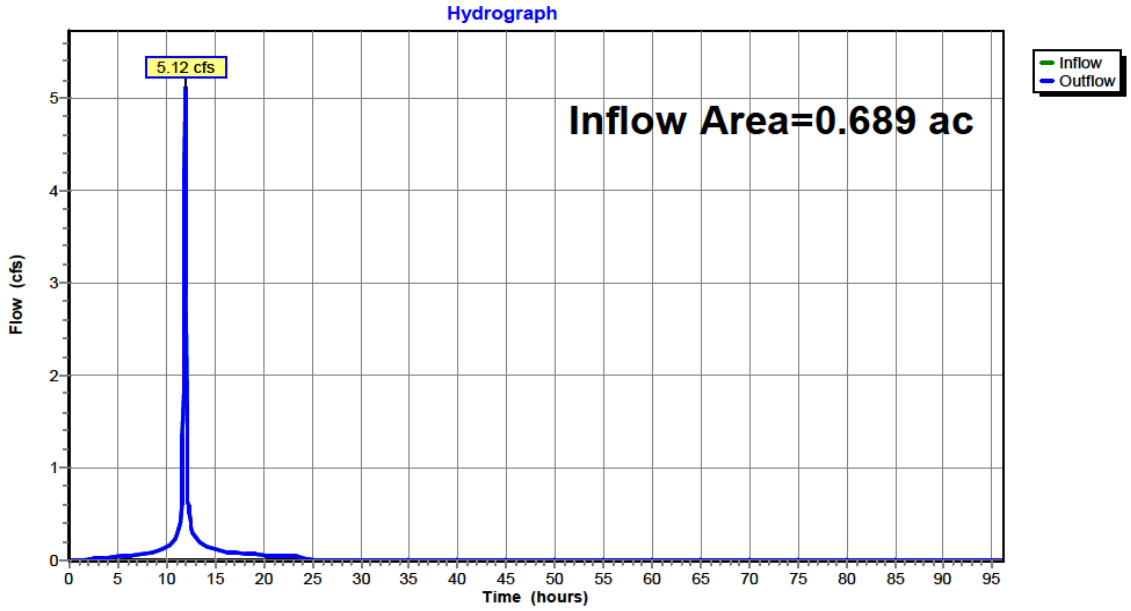


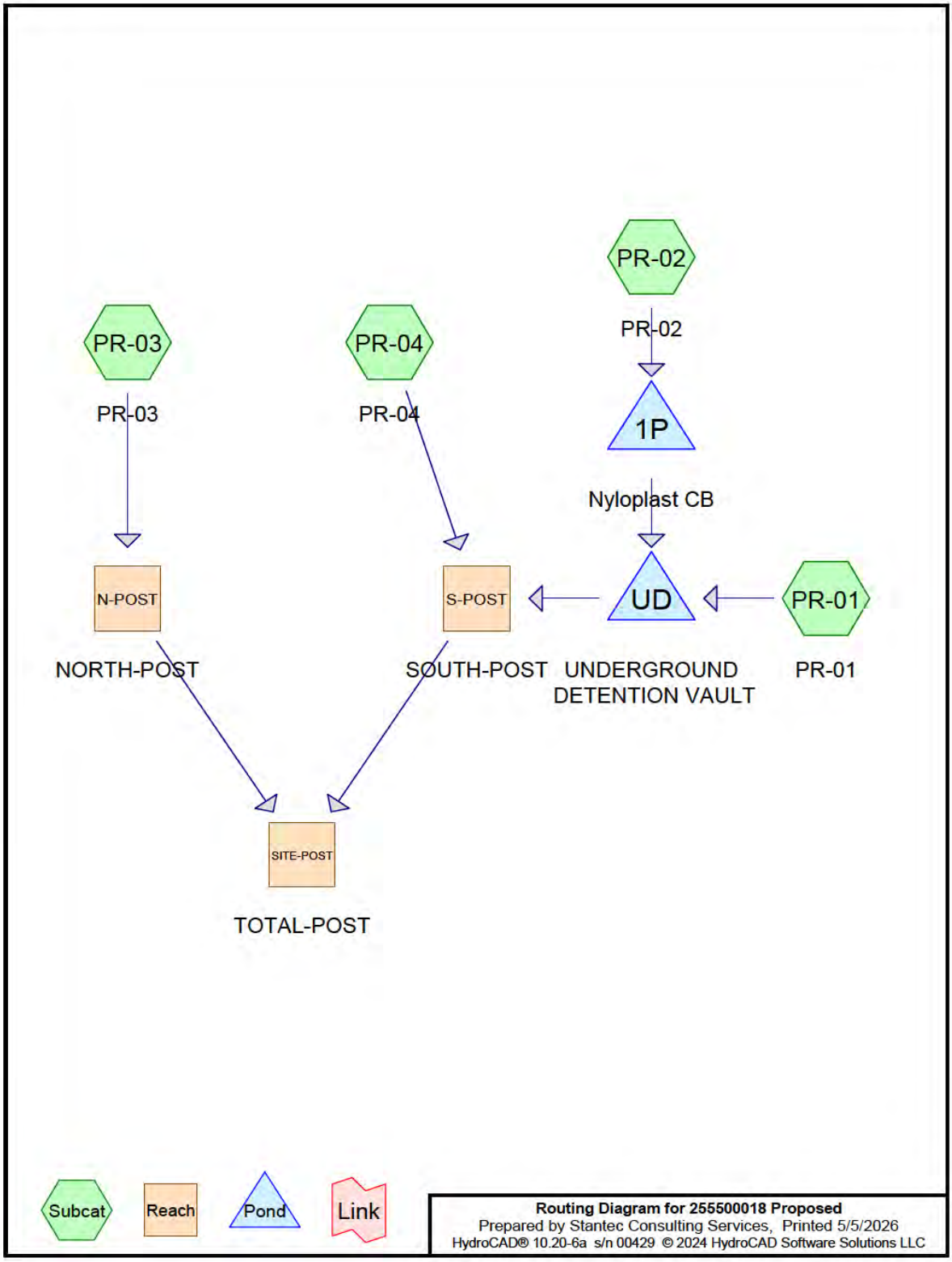
Summary for Reach 7R: TOTAL PRE

Inflow Area = 0.689 ac, 90.71% Impervious, Inflow Depth = 4.97" for 100YR event
Inflow = 5.12 cfs @ 11.96 hrs, Volume= 0.285 af
Outflow = 5.12 cfs @ 11.96 hrs, Volume= 0.285 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach 7R: TOTAL PRE




PR-02
PR-02
PR-03
PR-04
PR-03
PR-04
1P
Nyloplast CB
N-POST
S-POST
UD
PR-01
NORTH-POST
SOUTH-POST
UNDERGROUND
DETENTION VAULT
PR-01
SITE-POST
TOTAL-POST
Subcat
Reach
Pond
Link
Routing Diagram for 255500018 Proposed
Prepared by Stantec Consulting Services, Printed 5/5/2026
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Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	2YR	Type II 24-hr		Default	24.00	1	2.41	2
2	10YR	Type II 24-hr		Default	24.00	1	3.38	2
3	25YR	Type II 24-hr		Default	24.00	1	4.12	2
4	100YR	Type II 24-hr		Default	24.00	1	5.46	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.060	98	(PR-02, PR-04)
0.083	80	>75% Grass cover, Good, HSG D (PR-03, PR-04)
0.009	98	Paved parking (PR-03)
0.537	98	Roofs, HSG D (PR-01)
0.689	**96**	**TOTAL AREA**

Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-01: PR-01 Runoff Area=23,389 sf 100.00% Impervious Runoff Depth=2.18"
Tc=6.0 min CN=98 Runoff=1.76 cfs 0.098 af

Subcatchment PR-02: PR-02 Runoff Area=820 sf 100.00% Impervious Runoff Depth=2.18"
Tc=6.0 min CN=98 Runoff=0.06 cfs 0.003 af

Subcatchment PR-03: PR-03 Runoff Area=2,805 sf 13.62% Impervious Runoff Depth=0.93"
Tc=6.0 min CN=82 Runoff=0.10 cfs 0.005 af

Subcatchment PR-04: PR-04 Runoff Area=3,004 sf 60.05% Impervious Runoff Depth=1.53"
Tc=6.0 min CN=91 Runoff=0.18 cfs 0.009 af

Reach N-POST: NORTH-POST Inflow=0.10 cfs 0.005 af
Outflow=0.10 cfs 0.005 af

Reach S-POST: SOUTH-POST Inflow=0.35 cfs 0.110 af
Outflow=0.35 cfs 0.110 af

Reach SITE-POST: TOTAL-POST Inflow=0.46 cfs 0.115 af
Outflow=0.46 cfs 0.115 af

Pond 1P: Nyloplast CB Peak Elev=844.92' Storage=0 cf Inflow=0.06 cfs 0.003 af
Outflow=0.06 cfs 0.003 af

Pond UD: UNDERGROUND DETENTION Peak Elev=838.09' Storage=1,662 cf Inflow=1.83 cfs 0.101 af
Outflow=0.19 cfs 0.101 af

Total Runoff Area = 0.689 ac Runoff Volume = 0.115 af Average Runoff Depth = 2.00"
12.07% Pervious = 0.083 ac 87.93% Impervious = 0.606 ac

Summary for Subcatchment PR-01: PR-01

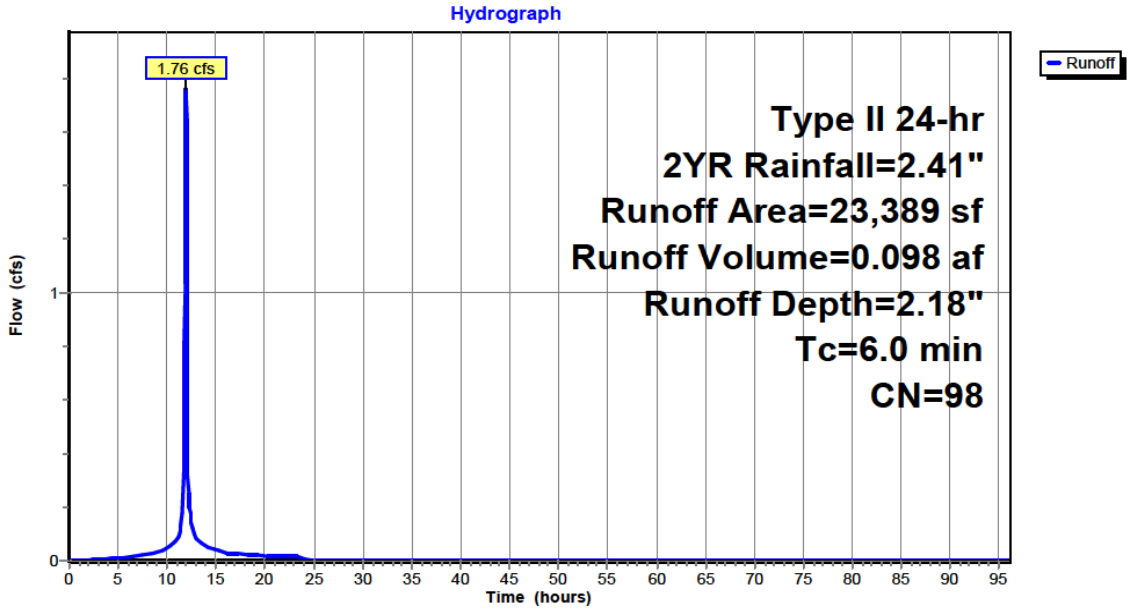
Runoff = 1.76 cfs @ 11.96 hrs, Volume= 0.098 af, Depth= 2.18"
Routed to Pond UD : UNDERGROUND DETENTION VAULT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 2YR Rainfall=2.41"

Area (sf)	CN	Description
23,389	98	Roofs, HSG D
23,389		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-01: PR-01



Summary for Subcatchment PR-02: PR-02

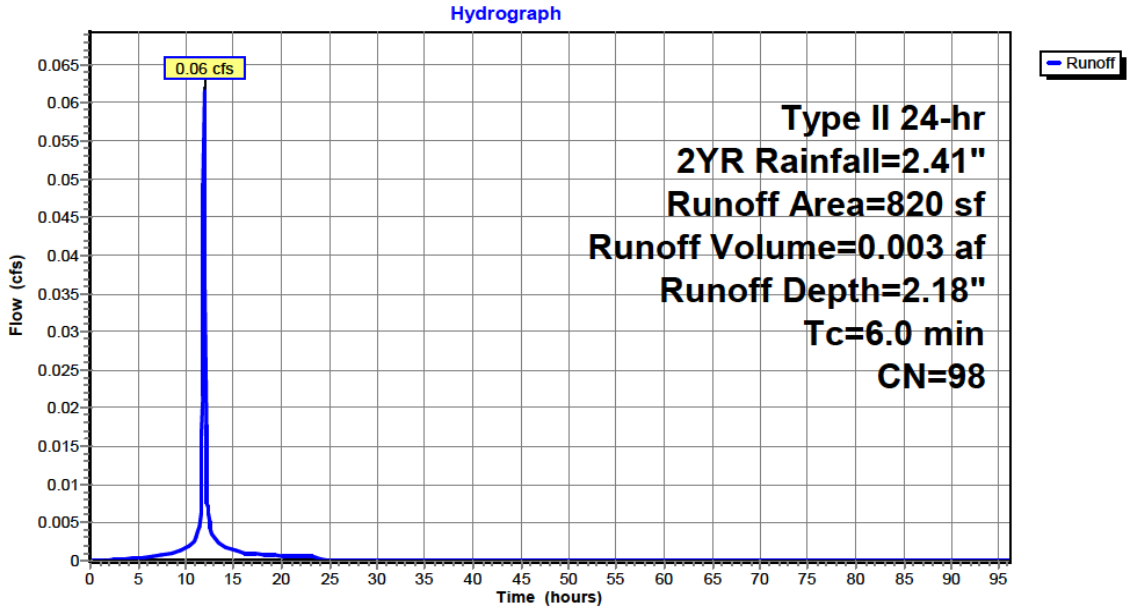
Runoff = 0.06 cfs @ 11.96 hrs, Volume= 0.003 af, Depth= 2.18"
Routed to Pond 1P : Nyloplast CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 2YR Rainfall=2.41"

	Area (sf)	CN	Description
*	820	98	
	820		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-02: PR-02



Summary for Subcatchment PR-03: PR-03

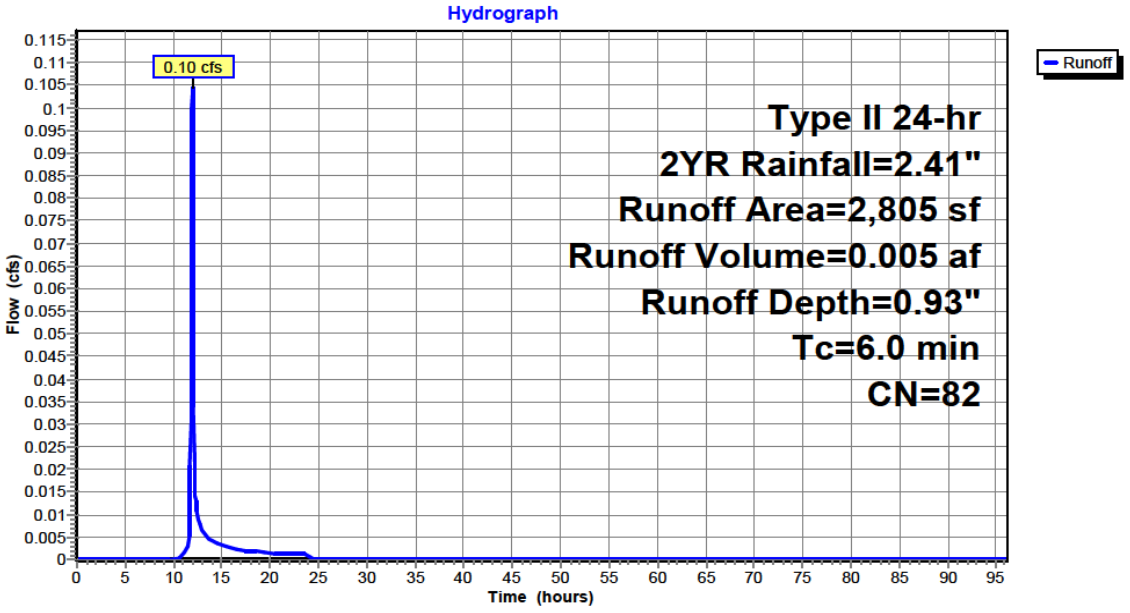
Runoff = 0.10 cfs @ 11.98 hrs, Volume= 0.005 af, Depth= 0.93"
Routed to Reach N-POST : NORTH-POST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 2YR Rainfall=2.41"

	Area (sf)	CN	Description
*	382	98	Paved parking
	2,423	80	>75% Grass cover, Good, HSG D
	2,805	82	Weighted Average
	2,423		86.38% Pervious Area
	382		13.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-03: PR-03



Summary for Subcatchment PR-04: PR-04

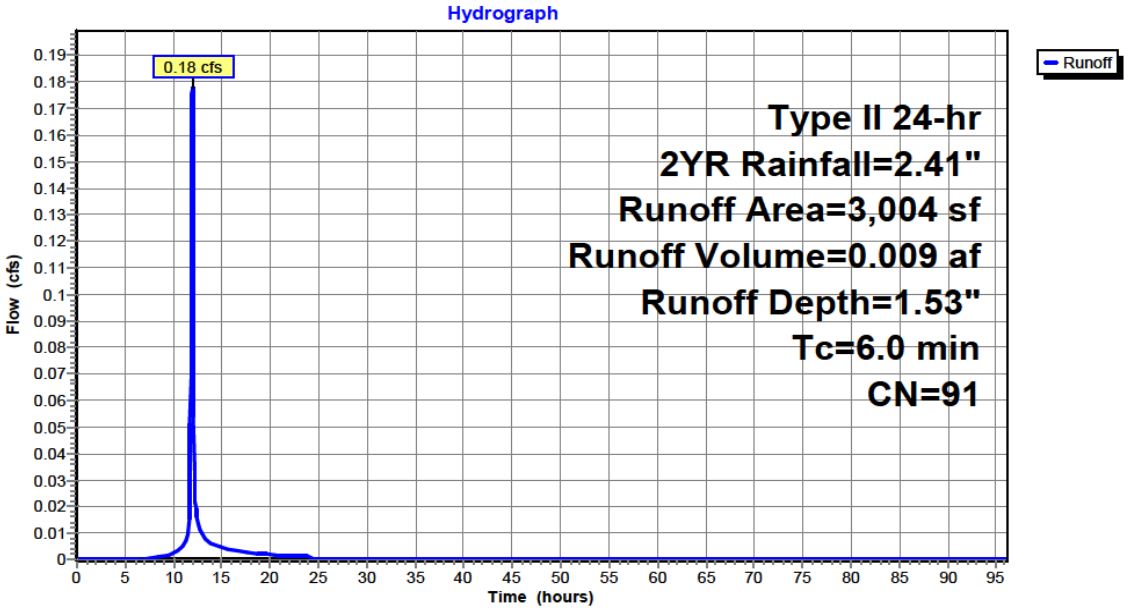
Runoff = 0.18 cfs @ 11.97 hrs, Volume= 0.009 af, Depth= 1.53"
Routed to Reach S-POST : SOUTH-POST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 2YR Rainfall=2.41"

	Area (sf)	CN	Description
	1,200	80	>75% Grass cover, Good, HSG D
*	1,804	98	
	3,004	91	Weighted Average
	1,200		39.95% Pervious Area
	1,804		60.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-04: PR-04

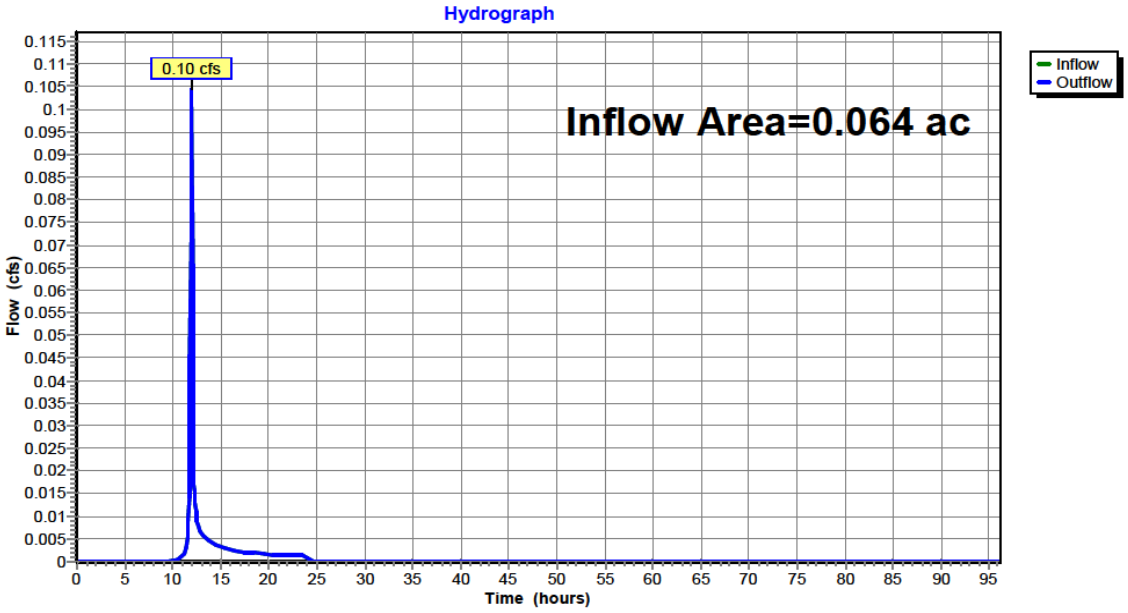


Summary for Reach N-POST: NORTH-POST

Inflow Area = 0.064 ac, 13.62% Impervious, Inflow Depth = 0.93" for 2YR event
Inflow = 0.10 cfs @ 11.98 hrs, Volume= 0.005 af
Outflow = 0.10 cfs @ 11.98 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SITE-POST : TOTAL-POST

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach N-POST: NORTH-POST

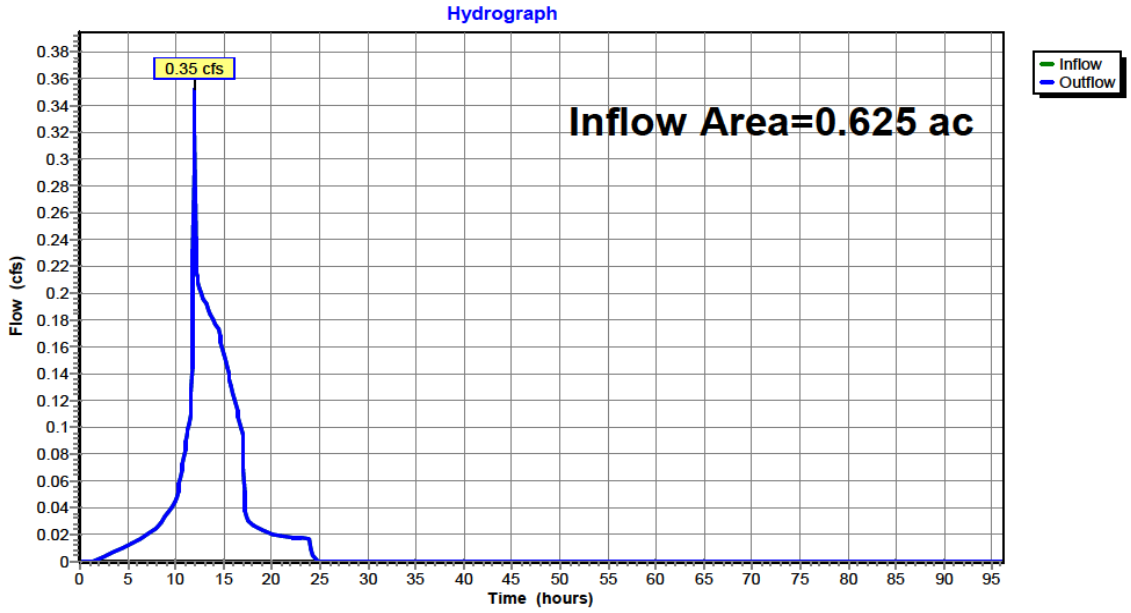


Summary for Reach S-POST: SOUTH-POST

Inflow Area = 0.625 ac, 95.59% Impervious, Inflow Depth = 2.11" for 2YR event
Inflow = 0.35 cfs @ 11.98 hrs, Volume= 0.110 af
Outflow = 0.35 cfs @ 11.98 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SITE-POST : TOTAL-POST

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach S-POST: SOUTH-POST

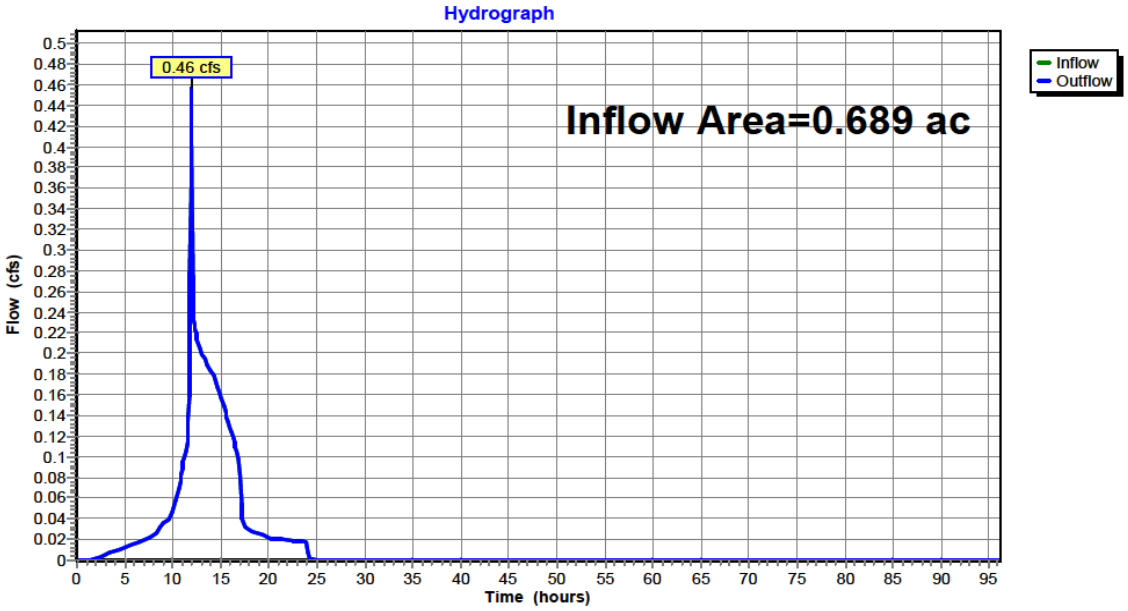


Summary for Reach SITE-POST: TOTAL-POST

Inflow Area = 0.689 ac, 87.93% Impervious, Inflow Depth = 2.00" for 2YR event
Inflow = 0.46 cfs @ 11.98 hrs, Volume= 0.115 af
Outflow = 0.46 cfs @ 11.98 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach SITE-POST: TOTAL-POST



Summary for Pond 1P: Nyloplast CB

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 2.18" for 2YR event
Inflow = 0.06 cfs @ 11.96 hrs, Volume= 0.003 af
Outflow = 0.06 cfs @ 11.96 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.1 min
Primary = 0.06 cfs @ 11.96 hrs, Volume= 0.003 af
Routed to Pond UD : UNDERGROUND DETENTION VAULT

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 844.92' @ 11.96 hrs Surf.Area= 13 sf Storage= 0 cf

Plug-Flow detention time= 0.0 min calculated for 0.003 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (759.1 - 759.0)

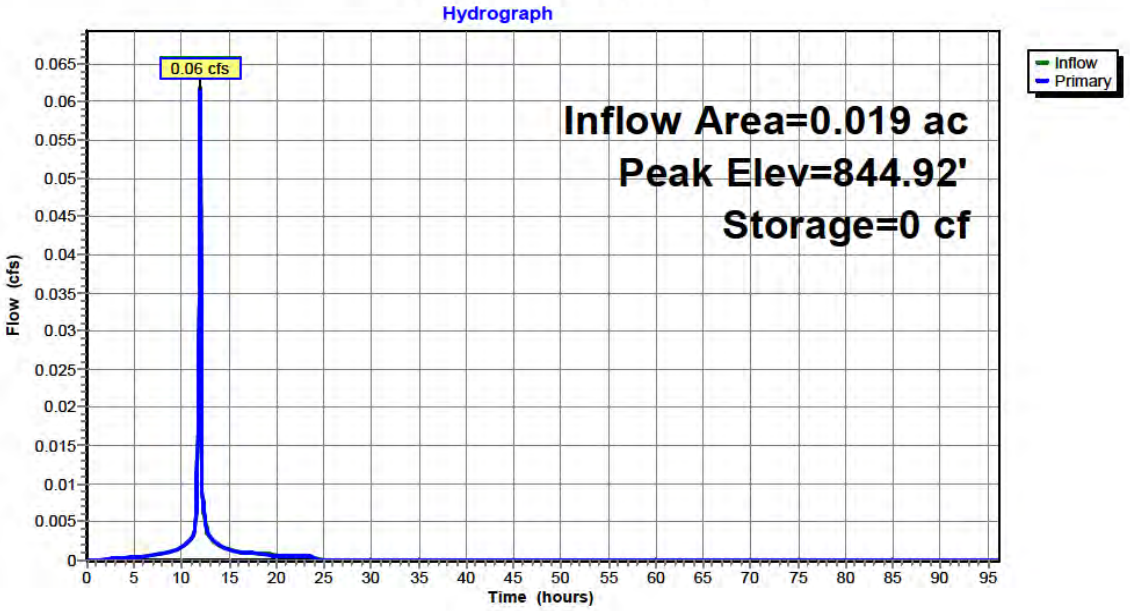
Volume	Invert	Avail.Storage	Storage Description
#1	844.90'	3 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
844.90	1	0	0
845.00	51	3	3

Device	Routing	Invert	Outlet Devices
#1	Primary	843.90'	**8.0" Round Culvert** L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 843.90' / 843.40' S= 0.0100 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#2	Device 1	844.90'	**12IN Drain Basin Stage Discharge Curve** Head (feet) 0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 Disch. (cfs) 0.000 0.125 0.320 0.560 0.860 1.170 1.280 1.400 1.480 1.580 1.650 1.725 1.845 1.900 1.975 2.050 2.125 2.165 2.225 2.300 2.325 2.358 2.450

Primary OutFlow Max=0.06 cfs @ 11.96 hrs HW=844.92' (Free Discharge)
↑—**1=Culvert** (Passes 0.06 cfs of 1.40 cfs potential flow)
↑—**2=12IN Drain Basin Stage Discharge Curve** (Custom Controls 0.06 cfs)

Pond 1P: Nyloplast CB



Stage-Area-Storage for Pond 1P: Nyloplast CB

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
844.90	1	0
844.92	11	0
844.94	21	0
844.96	31	1
844.98	41	2
845.00	**51**	**3**
845.02	51	3
845.04	51	3
845.06	51	3
845.08	51	3
845.10	51	3
845.12	51	3
845.14	51	3
845.16	51	3
845.18	51	3
845.20	51	3
845.22	51	3
845.24	51	3
845.26	51	3
845.28	51	3
845.30	51	3
845.32	51	3
845.34	51	3
845.36	51	3
845.38	51	3
845.40	51	3
845.42	51	3
845.44	51	3
845.46	51	3
845.48	51	3
845.50	51	3
845.52	51	3
845.54	51	3
845.56	51	3
845.58	51	3
845.60	51	3
845.62	51	3
845.64	51	3
845.66	51	3
845.68	51	3
845.70	51	3
845.72	51	3
845.74	51	3
845.76	51	3
845.78	51	3
845.80	51	3
845.82	51	3
845.84	51	3
845.86	51	3
845.88	51	3
845.90	51	3
845.92	51	3
845.94	51	3
845.96	51	3
845.98	51	3
846.00	51	3

Summary for Pond UD: UNDERGROUND DETENTION VAULT

Inflow Area = 0.556 ac,100.00% Impervious, Inflow Depth = 2.18" for 2YR event
Inflow = 1.83 cfs @ 11.96 hrs, Volume= 0.101 af
Outflow = 0.19 cfs @ 12.35 hrs, Volume= 0.101 af, Atten= 90%, Lag= 23.4 min
Primary = 0.19 cfs @ 12.35 hrs, Volume= 0.101 af
Routed to Reach S-POST : SOUTH-POST

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 838.09' @ 12.35 hrs Surf.Area= 1,112 sf Storage= 1,662 cf

Plug-Flow detention time= 65.5 min calculated for 0.101 af (100% of inflow)
Center-of-Mass det. time= 65.4 min (824.5 - 759.0)

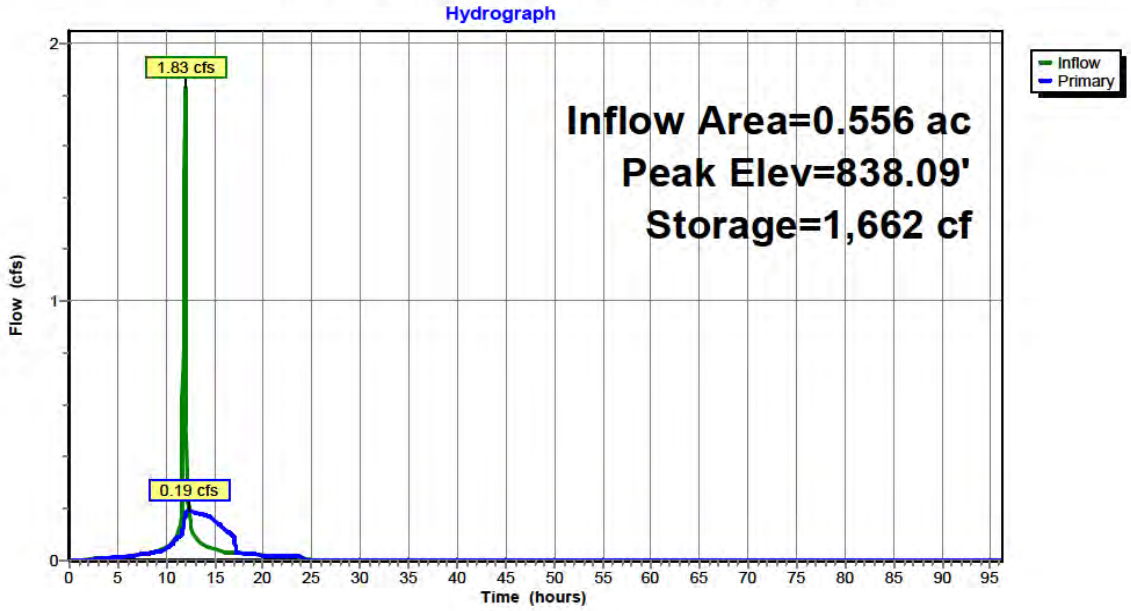
Volume	Invert	Avail.Storage	Storage Description
#1A	835.30'	890 cf	**38.75'W x 28.71'L x 7.00'H Field A** 7,787 cf Overall - 5,562 cf Embedded = 2,225 cf x 40.0% Voids
#2A	837.30'	4,398 cf	**StormTrap SingleTrap 4-6** x 3 Inside #1 Inside= 101.7"W x 54.0"H => 34.42 sf x 15.40'L = 529.9 cf Outside= 101.7"W x 60.0"H => 42.40 sf x 15.40'L = 652.7 cf 3 Chambers in 3 Rows 25.44' x 15.40' Core + 6.66' Border = 38.75' x 28.71' System
		5,288 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	834.28'	**12.0" Round Culvert** L= 42.5' Ke= 0.500 Inlet / Outlet Invert= 834.28' / 834.07' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	834.28'	**0.8" Vert. Orifice X 3.00 columns** X 2 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads
#3	Device 1	842.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.19 cfs @ 12.35 hrs HW=838.09' (Free Discharge)
└**1=Culvert** (Passes 0.19 cfs of 6.51 cfs potential flow)
└**2=Orifice** (Orifice Controls 0.19 cfs @ 9.04 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UD: UNDERGROUND DETENTION VAULT



Stage-Area-Storage for Pond UD: UNDERGROUND DETENTION VAULT

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
835.30	0	837.90	1,476	840.50	4,017
835.35	22	837.95	1,525	840.55	4,066
835.40	44	838.00	1,574	840.60	4,115
835.45	67	838.05	1,623	840.65	4,164
835.50	89	838.10	1,672	840.70	4,213
835.55	111	838.15	1,721	840.75	4,262
835.60	133	838.20	1,770	840.80	4,310
835.65	156	838.25	1,818	840.85	4,359
835.70	178	838.30	1,867	840.90	4,408
835.75	200	838.35	1,916	840.95	4,457
835.80	222	838.40	1,965	841.00	4,506
835.85	245	838.45	2,014	841.05	4,555
835.90	267	838.50	2,063	841.10	4,604
835.95	289	838.55	2,112	841.15	4,652
836.00	311	838.60	2,160	841.20	4,701
836.05	334	838.65	2,209	841.25	4,750
836.10	356	838.70	2,258	841.30	4,799
836.15	378	838.75	2,307	841.35	4,848
836.20	400	838.80	2,356	841.40	4,897
836.25	423	838.85	2,405	841.45	4,946
836.30	445	838.90	2,454	841.50	4,995
836.35	467	838.95	2,502	841.55	5,043
836.40	489	839.00	2,551	841.60	5,092
836.45	512	839.05	2,600	841.65	5,141
836.50	534	839.10	2,649	841.70	5,190
836.55	556	839.15	2,698	841.75	5,239
836.60	578	839.20	2,747	841.80	**5,288**
836.65	601	839.25	2,796	841.85	**5,288**
836.70	623	839.30	2,845	841.90	5,288
836.75	645	839.35	2,893	841.95	5,288
836.80	667	839.40	2,942	842.00	5,288
836.85	690	839.45	2,991	842.05	5,288
836.90	712	839.50	3,040	842.10	5,288
836.95	734	839.55	3,089	842.15	5,288
837.00	756	839.60	3,138	842.20	5,288
837.05	779	839.65	3,187	842.25	5,288
837.10	801	839.70	3,235	842.30	5,288
837.15	823	839.75	3,284		
837.20	845	839.80	3,333		
837.25	868	839.85	3,382		
837.30	890	839.90	3,431		
837.35	939	839.95	3,480		
837.40	988	840.00	3,529		
837.45	1,037	840.05	3,577		
837.50	1,085	840.10	3,626		
837.55	1,134	840.15	3,675		
837.60	1,183	840.20	3,724		
837.65	1,232	840.25	3,773		
837.70	1,281	840.30	3,822		
837.75	1,330	840.35	3,871		
837.80	1,379	840.40	3,920		
837.85	1,427	840.45	3,968		

Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-01: PR-01 Runoff Area=23,389 sf 100.00% Impervious Runoff Depth=3.15"
Tc=6.0 min CN=98 Runoff=2.50 cfs 0.141 af

Subcatchment PR-02: PR-02 Runoff Area=820 sf 100.00% Impervious Runoff Depth=3.15"
Tc=6.0 min CN=98 Runoff=0.09 cfs 0.005 af

Subcatchment PR-03: PR-03 Runoff Area=2,805 sf 13.62% Impervious Runoff Depth=1.68"
Tc=6.0 min CN=82 Runoff=0.19 cfs 0.009 af

Subcatchment PR-04: PR-04 Runoff Area=3,004 sf 60.05% Impervious Runoff Depth=2.43"
Tc=6.0 min CN=91 Runoff=0.28 cfs 0.014 af

Reach N-POST: NORTH-POST Inflow=0.19 cfs 0.009 af
Outflow=0.19 cfs 0.009 af

Reach S-POST: SOUTH-POST Inflow=0.47 cfs 0.160 af
Outflow=0.47 cfs 0.160 af

Reach SITE-POST: TOTAL-POST Inflow=0.65 cfs 0.169 af
Outflow=0.65 cfs 0.169 af

Pond 1P: Nyloplast CB Peak Elev=844.93' Storage=0 cf Inflow=0.09 cfs 0.005 af
Outflow=0.09 cfs 0.005 af

Pond UD: UNDERGROUND DETENTION Peak Elev=839.03' Storage=2,579 cf Inflow=2.58 cfs 0.146 af
Outflow=0.21 cfs 0.146 af

Total Runoff Area = 0.689 ac Runoff Volume = 0.169 af Average Runoff Depth = 2.94"
12.07% Pervious = 0.083 ac 87.93% Impervious = 0.606 ac

Summary for Subcatchment PR-01: PR-01

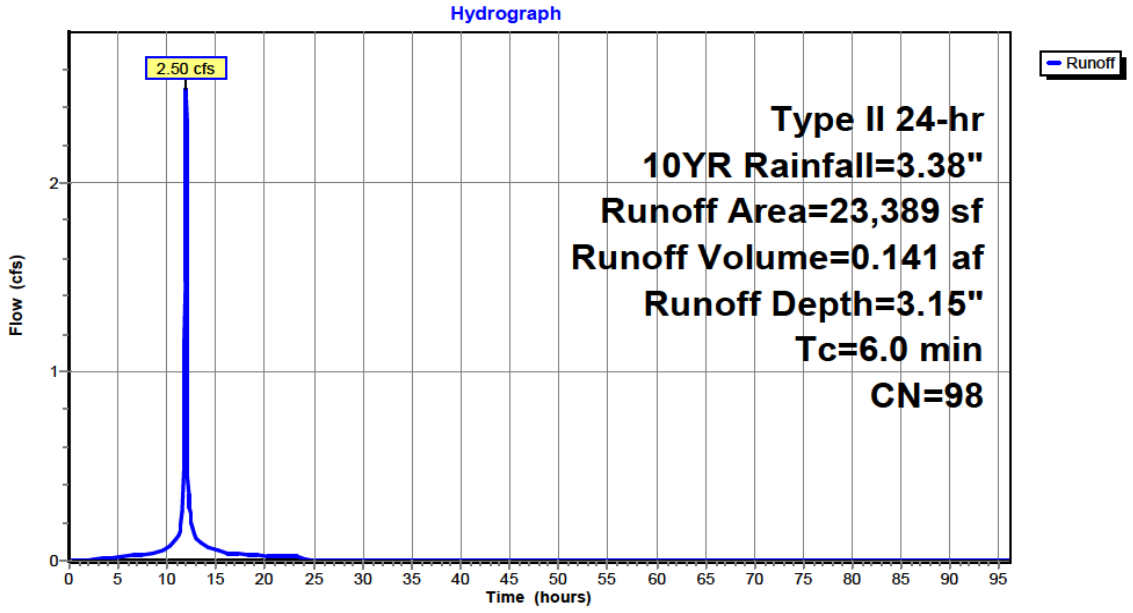
Runoff = 2.50 cfs @ 11.96 hrs, Volume= 0.141 af, Depth= 3.15"
Routed to Pond UD : UNDERGROUND DETENTION VAULT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

Area (sf)	CN	Description
23,389	98	Roofs, HSG D
23,389		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-01: PR-01



Summary for Subcatchment PR-02: PR-02

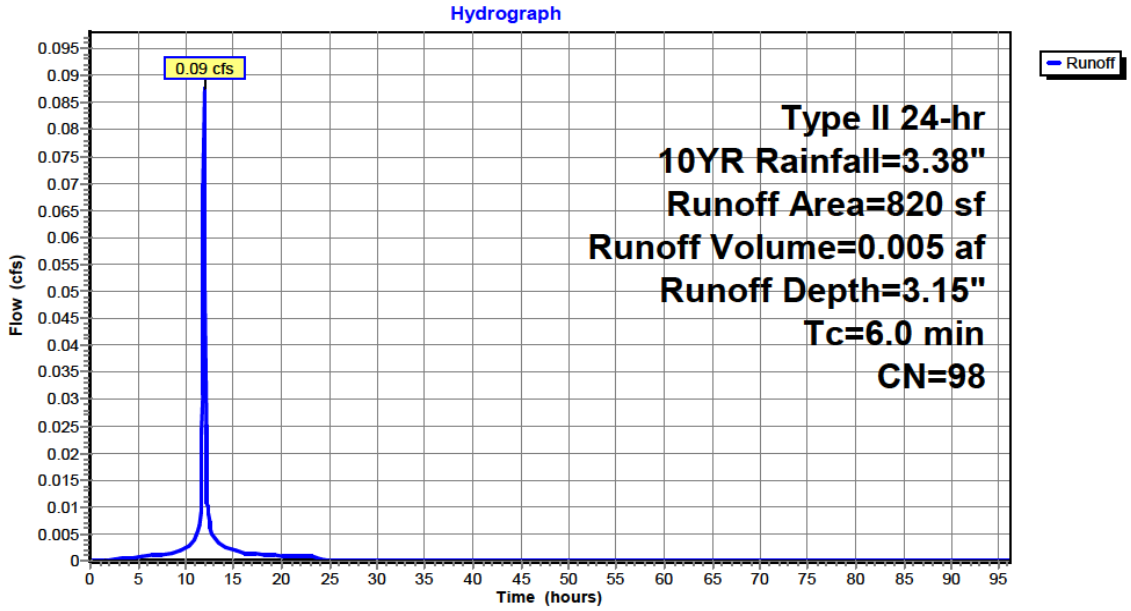
Runoff = 0.09 cfs @ 11.96 hrs, Volume= 0.005 af, Depth= 3.15"
Routed to Pond 1P : Nyloplast CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

	Area (sf)	CN	Description
*	820	98	
	820		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-02: PR-02



Summary for Subcatchment PR-03: PR-03

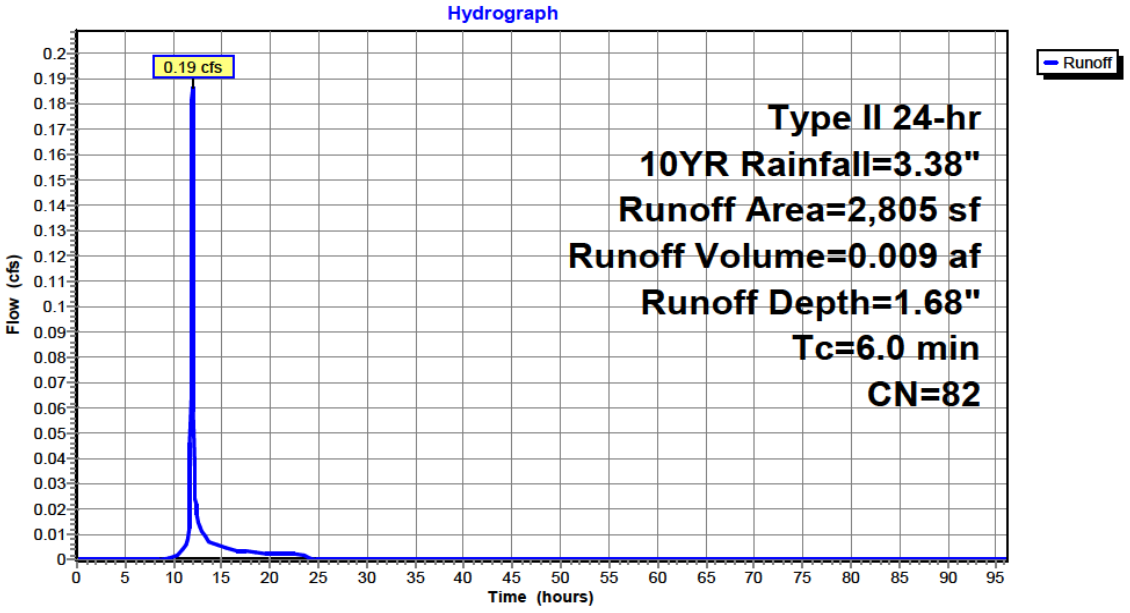
Runoff = 0.19 cfs @ 11.97 hrs, Volume= 0.009 af, Depth= 1.68"
Routed to Reach N-POST : NORTH-POST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

	Area (sf)	CN	Description
*	382	98	Paved parking
	2,423	80	>75% Grass cover, Good, HSG D
	2,805	82	Weighted Average
	2,423		86.38% Pervious Area
	382		13.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-03: PR-03



Summary for Subcatchment PR-04: PR-04

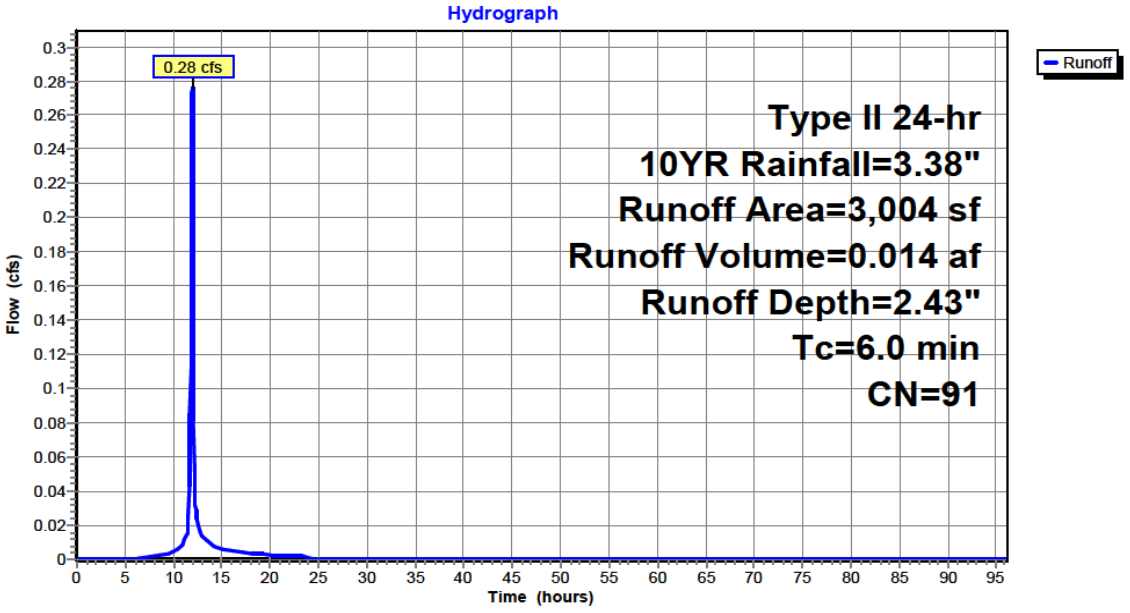
Runoff = 0.28 cfs @ 11.97 hrs, Volume= 0.014 af, Depth= 2.43"
Routed to Reach S-POST : SOUTH-POST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 10YR Rainfall=3.38"

	Area (sf)	CN	Description
	1,200	80	>75% Grass cover, Good, HSG D
*	1,804	98	
	3,004	91	Weighted Average
	1,200		39.95% Pervious Area
	1,804		60.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-04: PR-04

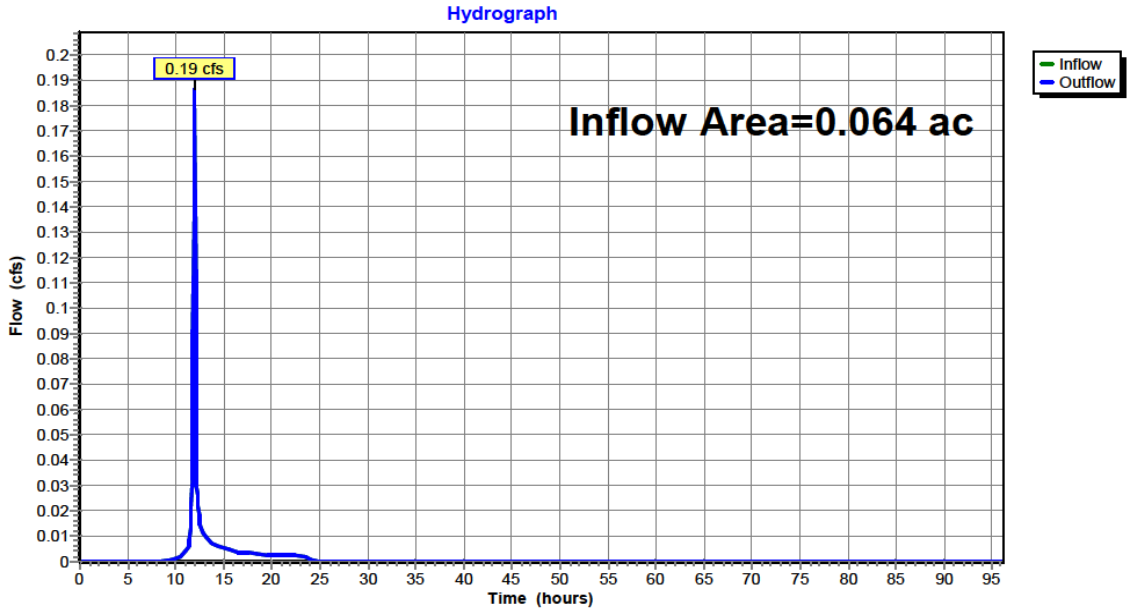


Summary for Reach N-POST: NORTH-POST

Inflow Area = 0.064 ac, 13.62% Impervious, Inflow Depth = 1.68" for 10YR event
Inflow = 0.19 cfs @ 11.97 hrs, Volume= 0.009 af
Outflow = 0.19 cfs @ 11.97 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SITE-POST : TOTAL-POST

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach N-POST: NORTH-POST

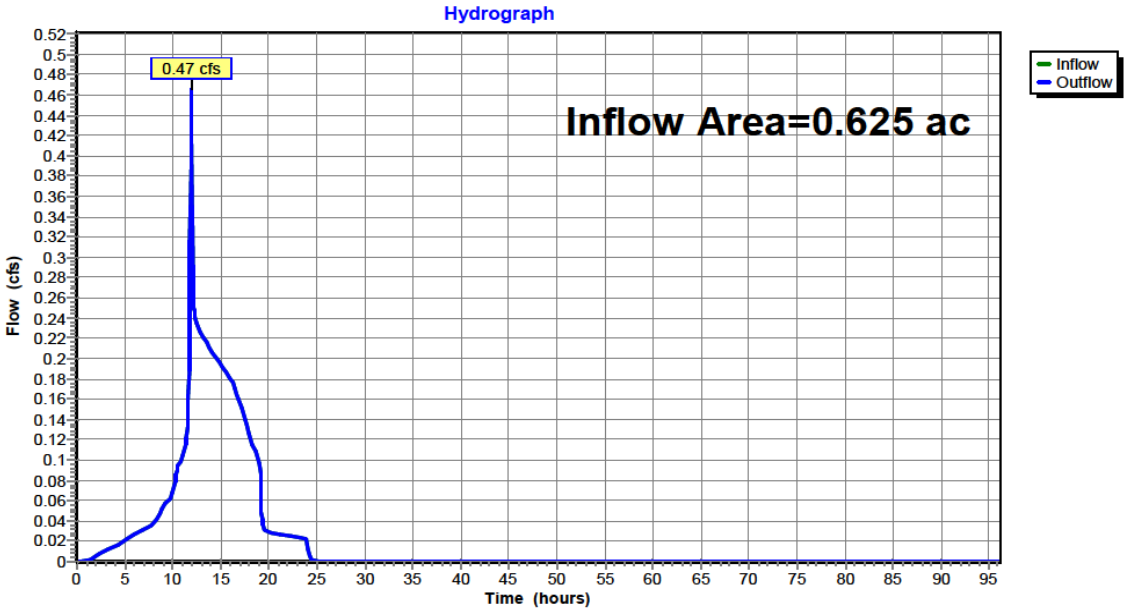


Summary for Reach S-POST: SOUTH-POST

Inflow Area = 0.625 ac, 95.59% Impervious, Inflow Depth = 3.07" for 10YR event
Inflow = 0.47 cfs @ 11.97 hrs, Volume= 0.160 af
Outflow = 0.47 cfs @ 11.97 hrs, Volume= 0.160 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SITE-POST : TOTAL-POST

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach S-POST: SOUTH-POST

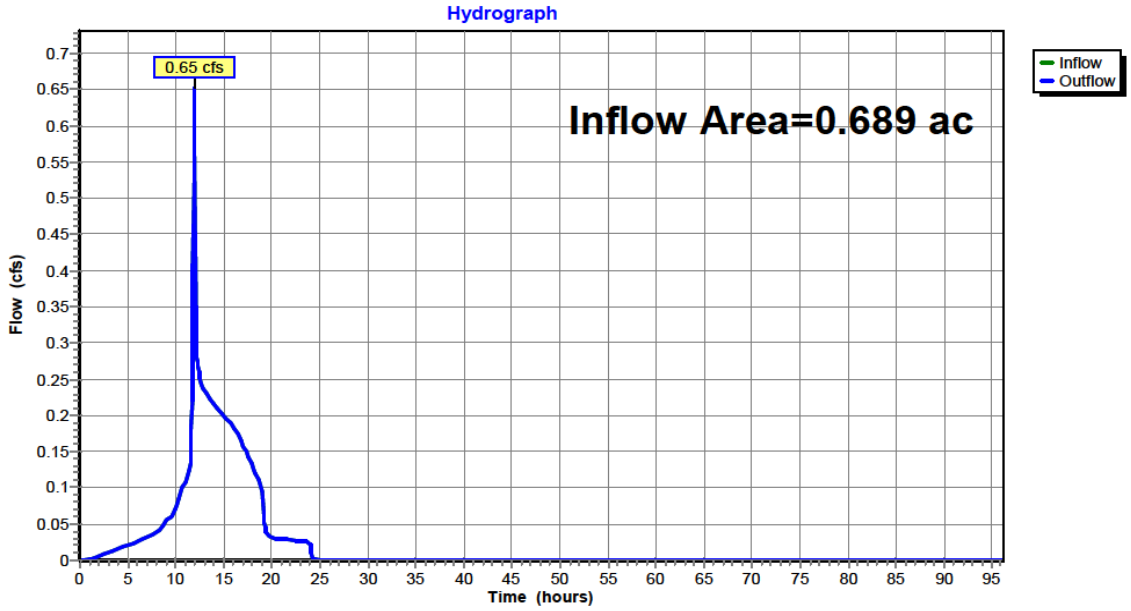


Summary for Reach SITE-POST: TOTAL-POST

Inflow Area = 0.689 ac, 87.93% Impervious, Inflow Depth = 2.94" for 10YR event
Inflow = 0.65 cfs @ 11.97 hrs, Volume= 0.169 af
Outflow = 0.65 cfs @ 11.97 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach SITE-POST: TOTAL-POST



Summary for Pond 1P: Nyloplast CB

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 3.15" for 10YR event
Inflow = 0.09 cfs @ 11.96 hrs, Volume= 0.005 af
Outflow = 0.09 cfs @ 11.96 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.1 min
Primary = 0.09 cfs @ 11.96 hrs, Volume= 0.005 af
Routed to Pond UD : UNDERGROUND DETENTION VAULT

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 844.93' @ 11.96 hrs Surf.Area= 18 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (751.4 - 751.3)

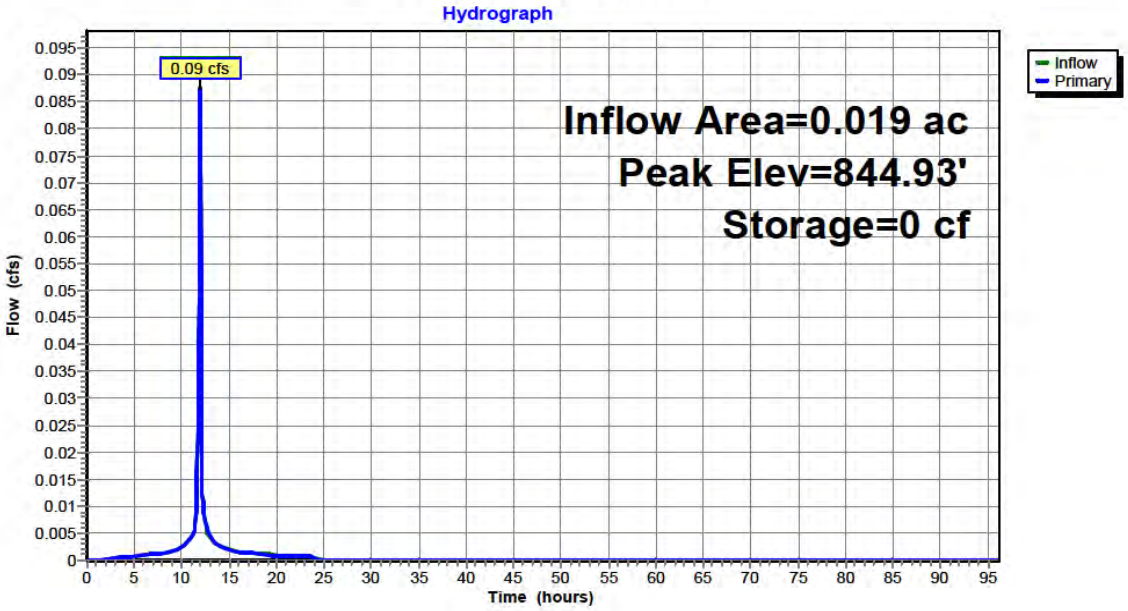
Volume	Invert	Avail.Storage	Storage Description
#1	844.90'	3 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
844.90	1	0	0
845.00	51	3	3

Device	Routing	Invert	Outlet Devices
#1	Primary	843.90'	**8.0" Round Culvert** L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 843.90' / 843.40' S= 0.0100 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#2	Device 1	844.90'	**12IN Drain Basin Stage Discharge Curve** Head (feet) 0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 Disch. (cfs) 0.000 0.125 0.320 0.560 0.860 1.170 1.280 1.400 1.480 1.580 1.650 1.725 1.845 1.900 1.975 2.050 2.125 2.165 2.225 2.300 2.325 2.358 2.450

Primary OutFlow Max=0.09 cfs @ 11.96 hrs HW=844.93' (Free Discharge)
↑—**1=Culvert** (Passes 0.09 cfs of 1.41 cfs potential flow)
↑—**2=12IN Drain Basin Stage Discharge Curve** (Custom Controls 0.09 cfs)

Pond 1P: Nyloplast CB



Stage-Area-Storage for Pond 1P: Nyloplast CB

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
844.90	1	0
844.92	11	0
844.94	21	0
844.96	31	1
844.98	41	2
845.00	**51**	**3**
845.02	51	3
845.04	51	3
845.06	51	3
845.08	51	3
845.10	51	3
845.12	51	3
845.14	51	3
845.16	51	3
845.18	51	3
845.20	51	3
845.22	51	3
845.24	51	3
845.26	51	3
845.28	51	3
845.30	51	3
845.32	51	3
845.34	51	3
845.36	51	3
845.38	51	3
845.40	51	3
845.42	51	3
845.44	51	3
845.46	51	3
845.48	51	3
845.50	51	3
845.52	51	3
845.54	51	3
845.56	51	3
845.58	51	3
845.60	51	3
845.62	51	3
845.64	51	3
845.66	51	3
845.68	51	3
845.70	51	3
845.72	51	3
845.74	51	3
845.76	51	3
845.78	51	3
845.80	51	3
845.82	51	3
845.84	51	3
845.86	51	3
845.88	51	3
845.90	51	3
845.92	51	3
845.94	51	3
845.96	51	3
845.98	51	3
846.00	51	3

Summary for Pond UD: UNDERGROUND DETENTION VAULT

Inflow Area = 0.556 ac,100.00% Impervious, Inflow Depth = 3.15" for 10YR event
Inflow = 2.58 cfs @ 11.96 hrs, Volume= 0.146 af
Outflow = 0.21 cfs @ 12.48 hrs, Volume= 0.146 af, Atten= 92%, Lag= 31.0 min
Primary = 0.21 cfs @ 12.48 hrs, Volume= 0.146 af
Routed to Reach S-POST : SOUTH-POST

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 839.03' @ 12.48 hrs Surf.Area= 1,112 sf Storage= 2,579 cf

Plug-Flow detention time= 95.9 min calculated for 0.146 af (100% of inflow)
Center-of-Mass det. time= 95.9 min (847.2 - 751.3)

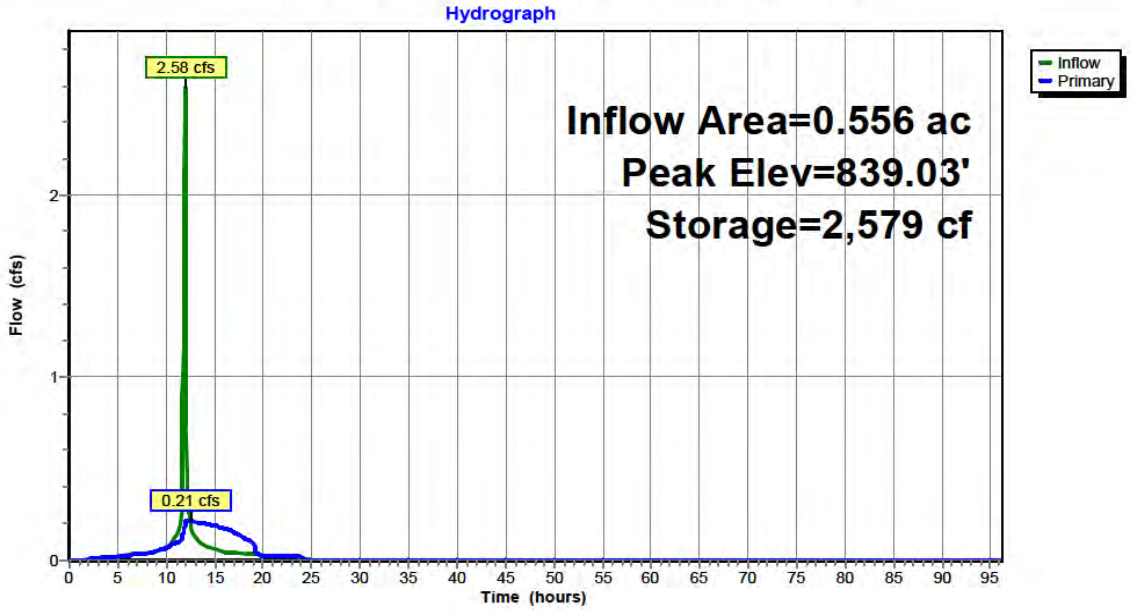
Volume	Invert	Avail.Storage	Storage Description
#1A	835.30'	890 cf	**38.75'W x 28.71'L x 7.00'H Field A** 7,787 cf Overall - 5,562 cf Embedded = 2,225 cf x 40.0% Voids
#2A	837.30'	4,398 cf	**StormTrap SingleTrap 4-6** x 3 Inside #1 Inside= 101.7"W x 54.0"H => 34.42 sf x 15.40'L = 529.9 cf Outside= 101.7"W x 60.0"H => 42.40 sf x 15.40'L = 652.7 cf 3 Chambers in 3 Rows 25.44' x 15.40' Core + 6.66' Border = 38.75' x 28.71' System
		5,288 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	834.28'	**12.0" Round Culvert** L= 42.5' Ke= 0.500 Inlet / Outlet Invert= 834.28' / 834.07' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	834.28'	**0.8" Vert. Orifice X 3.00 columns** X 2 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads
#3	Device 1	842.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.21 cfs @ 12.48 hrs HW=839.03' (Free Discharge)
└**1=Culvert** (Passes 0.21 cfs of 7.45 cfs potential flow)
└**2=Orifice** (Orifice Controls 0.21 cfs @ 10.17 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UD: UNDERGROUND DETENTION VAULT



Stage-Area-Storage for Pond UD: UNDERGROUND DETENTION VAULT

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
835.30	0	837.90	1,476	840.50	4,017
835.35	22	837.95	1,525	840.55	4,066
835.40	44	838.00	1,574	840.60	4,115
835.45	67	838.05	1,623	840.65	4,164
835.50	89	838.10	1,672	840.70	4,213
835.55	111	838.15	1,721	840.75	4,262
835.60	133	838.20	1,770	840.80	4,310
835.65	156	838.25	1,818	840.85	4,359
835.70	178	838.30	1,867	840.90	4,408
835.75	200	838.35	1,916	840.95	4,457
835.80	222	838.40	1,965	841.00	4,506
835.85	245	838.45	2,014	841.05	4,555
835.90	267	838.50	2,063	841.10	4,604
835.95	289	838.55	2,112	841.15	4,652
836.00	311	838.60	2,160	841.20	4,701
836.05	334	838.65	2,209	841.25	4,750
836.10	356	838.70	2,258	841.30	4,799
836.15	378	838.75	2,307	841.35	4,848
836.20	400	838.80	2,356	841.40	4,897
836.25	423	838.85	2,405	841.45	4,946
836.30	445	838.90	2,454	841.50	4,995
836.35	467	838.95	2,502	841.55	5,043
836.40	489	839.00	2,551	841.60	5,092
836.45	512	839.05	2,600	841.65	5,141
836.50	534	839.10	2,649	841.70	5,190
836.55	556	839.15	2,698	841.75	5,239
836.60	578	839.20	2,747	841.80	**5,288**
836.65	601	839.25	2,796	841.85	**5,288**
836.70	623	839.30	2,845	841.90	5,288
836.75	645	839.35	2,893	841.95	5,288
836.80	667	839.40	2,942	842.00	5,288
836.85	690	839.45	2,991	842.05	5,288
836.90	712	839.50	3,040	842.10	5,288
836.95	734	839.55	3,089	842.15	5,288
837.00	756	839.60	3,138	842.20	5,288
837.05	779	839.65	3,187	842.25	5,288
837.10	801	839.70	3,235	842.30	5,288
837.15	823	839.75	3,284		
837.20	845	839.80	3,333		
837.25	868	839.85	3,382		
837.30	890	839.90	3,431		
837.35	939	839.95	3,480		
837.40	988	840.00	3,529		
837.45	1,037	840.05	3,577		
837.50	1,085	840.10	3,626		
837.55	1,134	840.15	3,675		
837.60	1,183	840.20	3,724		
837.65	1,232	840.25	3,773		
837.70	1,281	840.30	3,822		
837.75	1,330	840.35	3,871		
837.80	1,379	840.40	3,920		
837.85	1,427	840.45	3,968		

Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-01: PR-01 Runoff Area=23,389 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=3.05 cfs 0.174 af

Subcatchment PR-02: PR-02 Runoff Area=820 sf 100.00% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=98 Runoff=0.11 cfs 0.006 af

Subcatchment PR-03: PR-03 Runoff Area=2,805 sf 13.62% Impervious Runoff Depth=2.31"
Tc=6.0 min CN=82 Runoff=0.25 cfs 0.012 af

Subcatchment PR-04: PR-04 Runoff Area=3,004 sf 60.05% Impervious Runoff Depth=3.13"
Tc=6.0 min CN=91 Runoff=0.35 cfs 0.018 af

Reach N-POST: NORTH-POST Inflow=0.25 cfs 0.012 af
Outflow=0.25 cfs 0.012 af

Reach S-POST: SOUTH-POST Inflow=0.55 cfs 0.198 af
Outflow=0.55 cfs 0.198 af

Reach SITE-POST: TOTAL-POST Inflow=0.81 cfs 0.210 af
Outflow=0.81 cfs 0.210 af

Pond 1P: Nyloplast CB Peak Elev=844.94' Storage=0 cf Inflow=0.11 cfs 0.006 af
Outflow=0.11 cfs 0.006 af

Pond UD: UNDERGROUND DETENTION Peak Elev=839.78' Storage=3,314 cf Inflow=3.16 cfs 0.180 af
Outflow=0.23 cfs 0.180 af

Total Runoff Area = 0.689 ac Runoff Volume = 0.210 af Average Runoff Depth = 3.66"
12.07% Pervious = 0.083 ac 87.93% Impervious = 0.606 ac

Summary for Subcatchment PR-01: PR-01

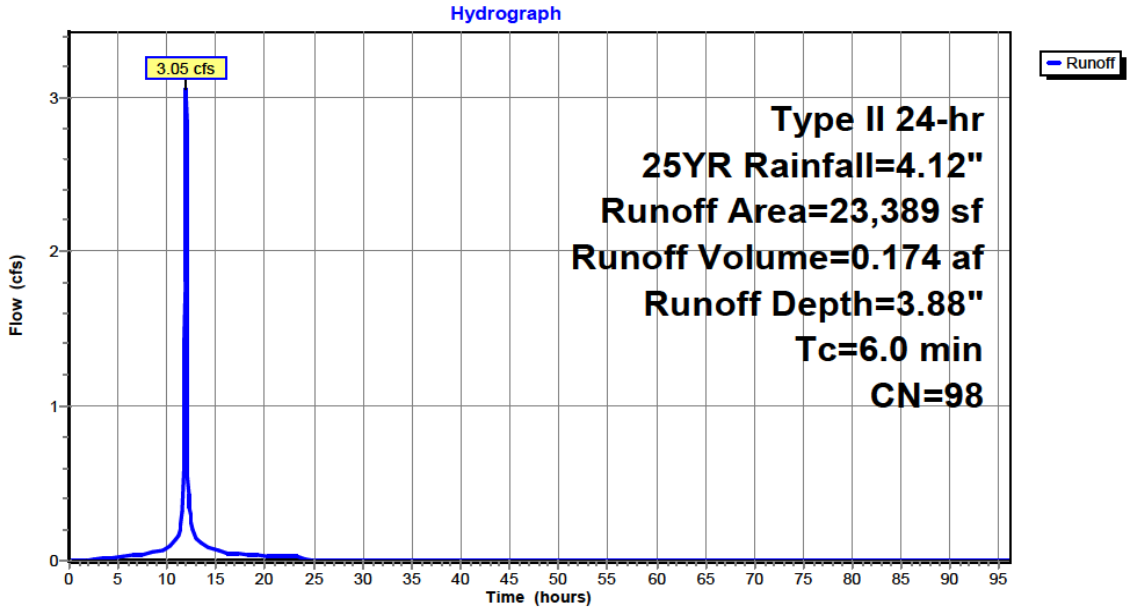
Runoff = 3.05 cfs @ 11.96 hrs, Volume= 0.174 af, Depth= 3.88"
Routed to Pond UD : UNDERGROUND DETENTION VAULT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

Area (sf)	CN	Description
23,389	98	Roofs, HSG D
23,389		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-01: PR-01



Summary for Subcatchment PR-02: PR-02

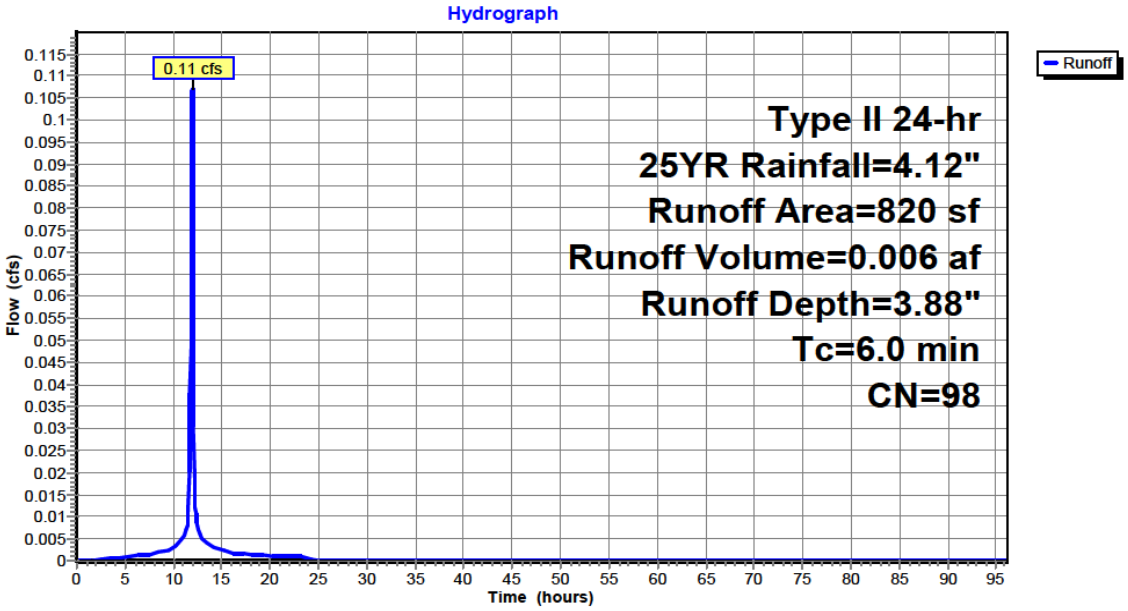
Runoff = 0.11 cfs @ 11.96 hrs, Volume= 0.006 af, Depth= 3.88"
Routed to Pond 1P : Nyloplast CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

	Area (sf)	CN	Description
*	820	98	
	820		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-02: PR-02



Summary for Subcatchment PR-03: PR-03

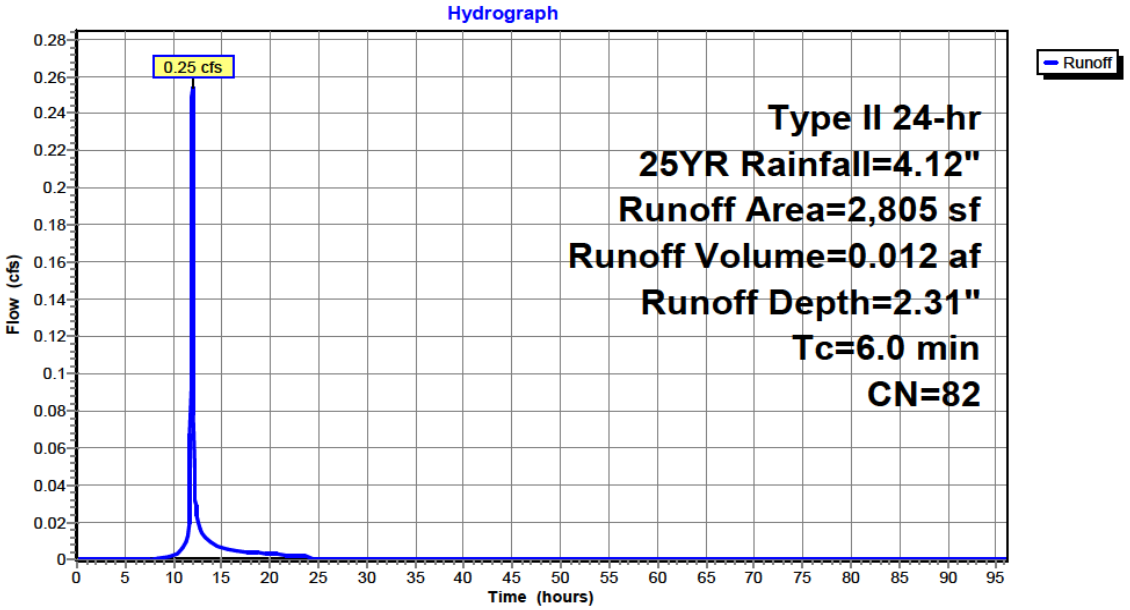
Runoff = 0.25 cfs @ 11.97 hrs, Volume= 0.012 af, Depth= 2.31"
Routed to Reach N-POST : NORTH-POST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

	Area (sf)	CN	Description
*	382	98	Paved parking
	2,423	80	>75% Grass cover, Good, HSG D
	2,805	82	Weighted Average
	2,423		86.38% Pervious Area
	382		13.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-03: PR-03



Summary for Subcatchment PR-04: PR-04

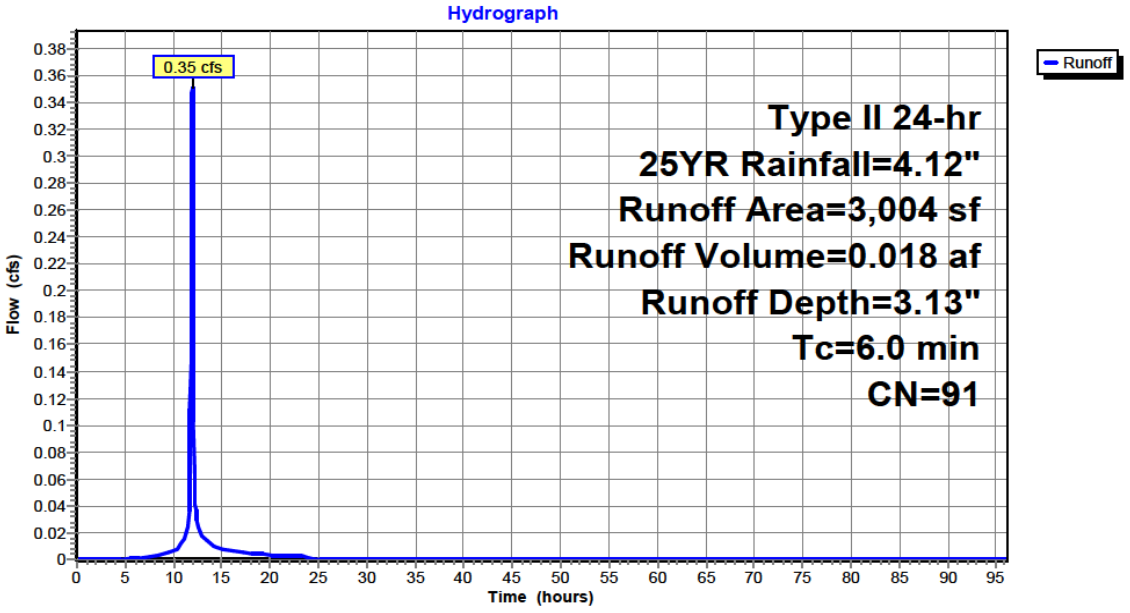
Runoff = 0.35 cfs @ 11.96 hrs, Volume= 0.018 af, Depth= 3.13"
Routed to Reach S-POST : SOUTH-POST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 25YR Rainfall=4.12"

	Area (sf)	CN	Description
	1,200	80	>75% Grass cover, Good, HSG D
*	1,804	98	
	3,004	91	Weighted Average
	1,200		39.95% Pervious Area
	1,804		60.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-04: PR-04

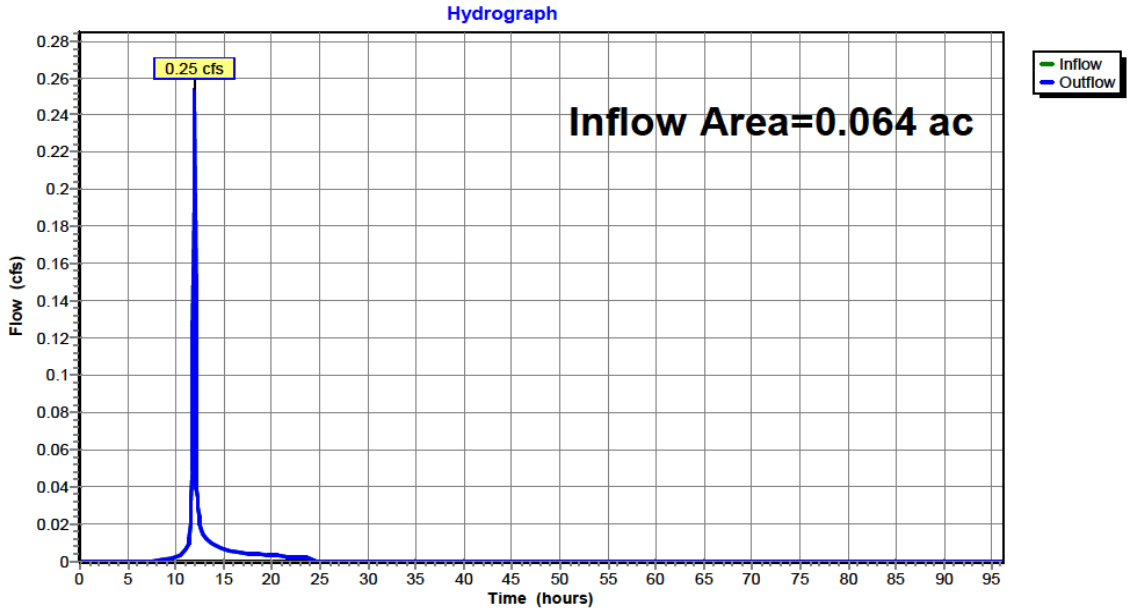


Summary for Reach N-POST: NORTH-POST

Inflow Area = 0.064 ac, 13.62% Impervious, Inflow Depth = 2.31" for 25YR event
Inflow = 0.25 cfs @ 11.97 hrs, Volume= 0.012 af
Outflow = 0.25 cfs @ 11.97 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SITE-POST : TOTAL-POST

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach N-POST: NORTH-POST

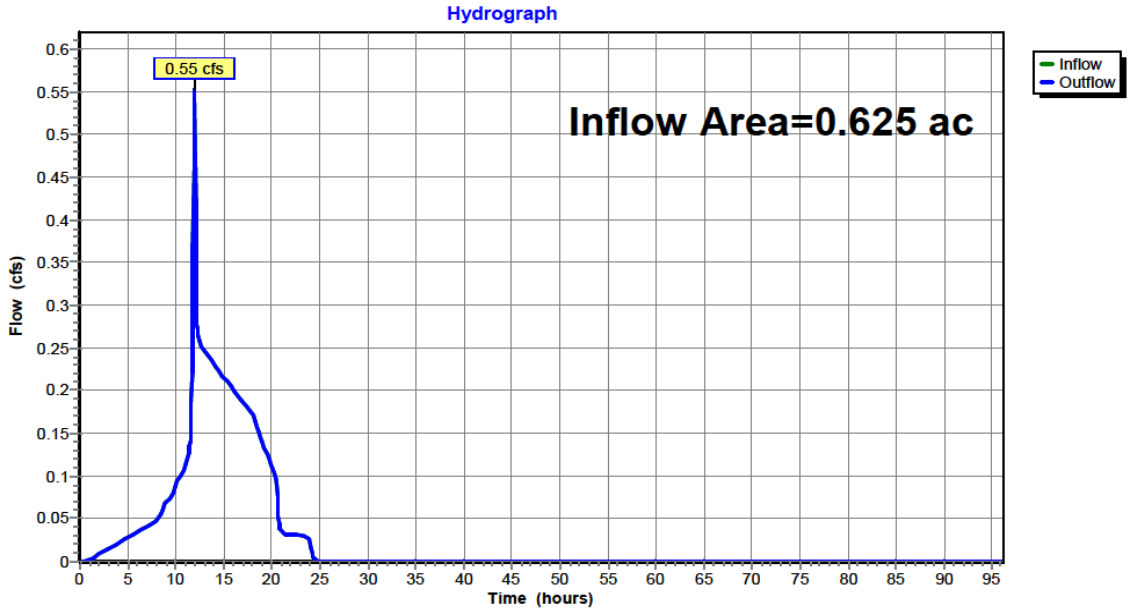


Summary for Reach S-POST: SOUTH-POST

Inflow Area = 0.625 ac, 95.59% Impervious, Inflow Depth = 3.80" for 25YR event
Inflow = 0.55 cfs @ 11.97 hrs, Volume= 0.198 af
Outflow = 0.55 cfs @ 11.97 hrs, Volume= 0.198 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SITE-POST : TOTAL-POST

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach S-POST: SOUTH-POST

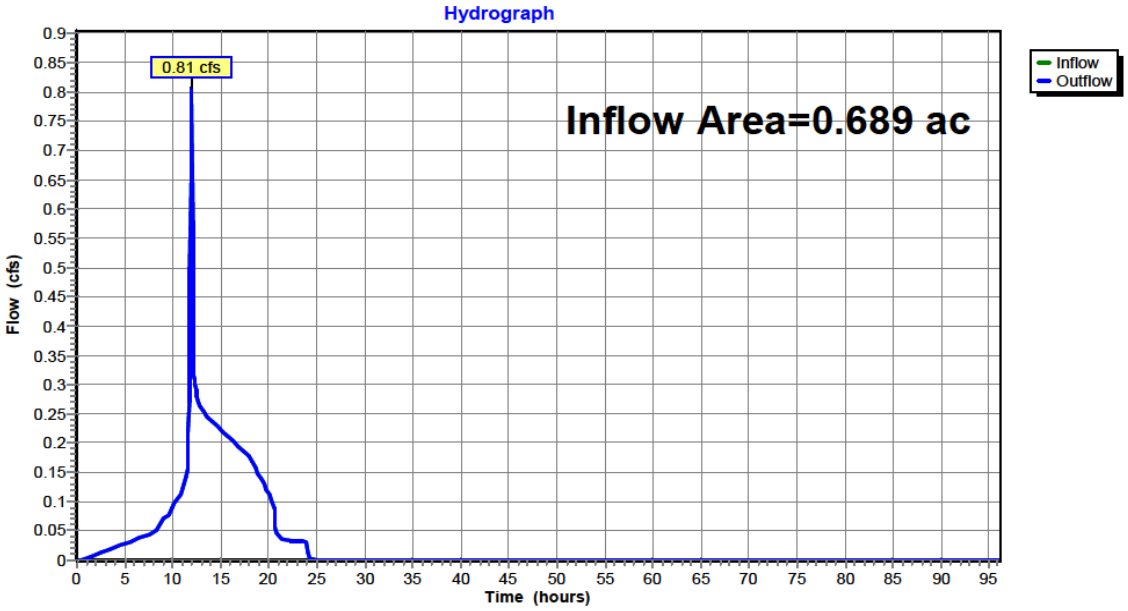


Summary for Reach SITE-POST: TOTAL-POST

Inflow Area = 0.689 ac, 87.93% Impervious, Inflow Depth = 3.66" for 25YR event
Inflow = 0.81 cfs @ 11.97 hrs, Volume= 0.210 af
Outflow = 0.81 cfs @ 11.97 hrs, Volume= 0.210 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach SITE-POST: TOTAL-POST



Summary for Pond 1P: Nyloplast CB

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 3.88" for 25YR event
Inflow = 0.11 cfs @ 11.96 hrs, Volume= 0.006 af
Outflow = 0.11 cfs @ 11.97 hrs, Volume= 0.006 af, Atten= 1%, Lag= 0.2 min
Primary = 0.11 cfs @ 11.97 hrs, Volume= 0.006 af
Routed to Pond UD : UNDERGROUND DETENTION VAULT

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 844.94' @ 11.97 hrs Surf.Area= 22 sf Storage= 0 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (747.4 - 747.4)

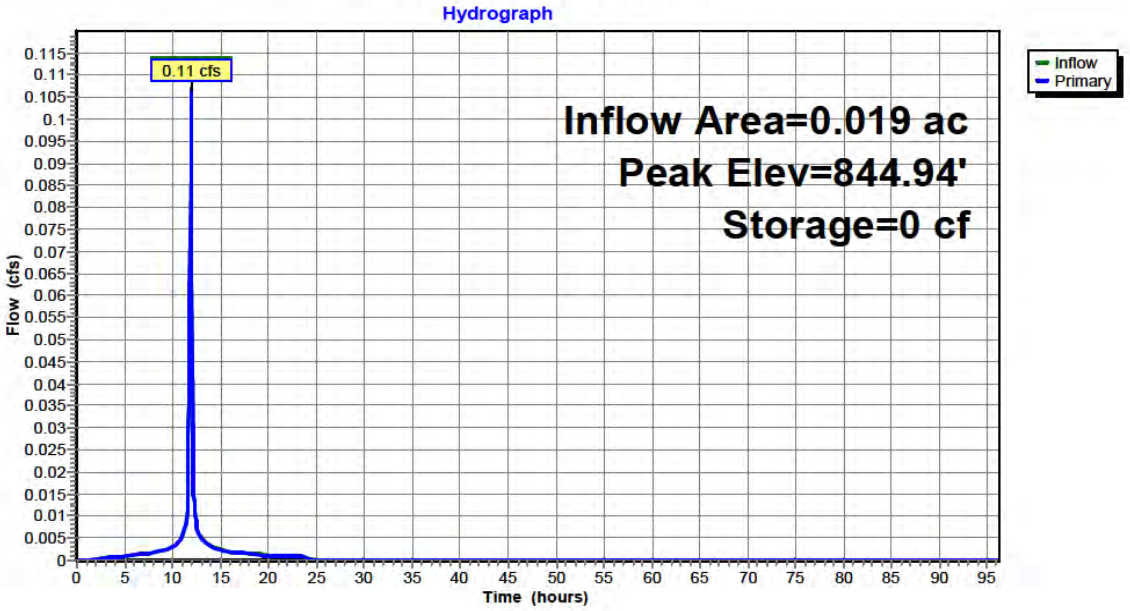
Volume	Invert	Avail.Storage	Storage Description
#1	844.90'	3 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
844.90	1	0	0
845.00	51	3	3

Device	Routing	Invert	Outlet Devices
#1	Primary	843.90'	**8.0" Round Culvert** L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 843.90' / 843.40' S= 0.0100 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#2	Device 1	844.90'	**12IN Drain Basin Stage Discharge Curve** Head (feet) 0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 Disch. (cfs) 0.000 0.125 0.320 0.560 0.860 1.170 1.280 1.400 1.480 1.580 1.650 1.725 1.845 1.900 1.975 2.050 2.125 2.165 2.225 2.300 2.325 2.358 2.450

Primary OutFlow Max=0.10 cfs @ 11.97 hrs HW=844.94' (Free Discharge)
↑—**1=Culvert** (Passes 0.10 cfs of 1.41 cfs potential flow)
↑—**2=12IN Drain Basin Stage Discharge Curve** (Custom Controls 0.10 cfs)

Pond 1P: Nyloplast CB



Stage-Area-Storage for Pond 1P: Nyloplast CB

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
844.90	1	0
844.92	11	0
844.94	21	0
844.96	31	1
844.98	41	2
845.00	**51**	**3**
845.02	51	3
845.04	51	3
845.06	51	3
845.08	51	3
845.10	51	3
845.12	51	3
845.14	51	3
845.16	51	3
845.18	51	3
845.20	51	3
845.22	51	3
845.24	51	3
845.26	51	3
845.28	51	3
845.30	51	3
845.32	51	3
845.34	51	3
845.36	51	3
845.38	51	3
845.40	51	3
845.42	51	3
845.44	51	3
845.46	51	3
845.48	51	3
845.50	51	3
845.52	51	3
845.54	51	3
845.56	51	3
845.58	51	3
845.60	51	3
845.62	51	3
845.64	51	3
845.66	51	3
845.68	51	3
845.70	51	3
845.72	51	3
845.74	51	3
845.76	51	3
845.78	51	3
845.80	51	3
845.82	51	3
845.84	51	3
845.86	51	3
845.88	51	3
845.90	51	3
845.92	51	3
845.94	51	3
845.96	51	3
845.98	51	3
846.00	51	3

Summary for Pond UD: UNDERGROUND DETENTION VAULT

Inflow Area = 0.556 ac,100.00% Impervious, Inflow Depth = 3.88" for 25YR event
Inflow = 3.16 cfs @ 11.96 hrs, Volume= 0.180 af
Outflow = 0.23 cfs @ 12.54 hrs, Volume= 0.180 af, Atten= 93%, Lag= 34.6 min
Primary = 0.23 cfs @ 12.54 hrs, Volume= 0.180 af
Routed to Reach S-POST : SOUTH-POST

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 839.78' @ 12.54 hrs Surf.Area= 1,112 sf Storage= 3,314 cf

Plug-Flow detention time= 119.0 min calculated for 0.180 af (100% of inflow)
Center-of-Mass det. time= 118.9 min (866.3 - 747.4)

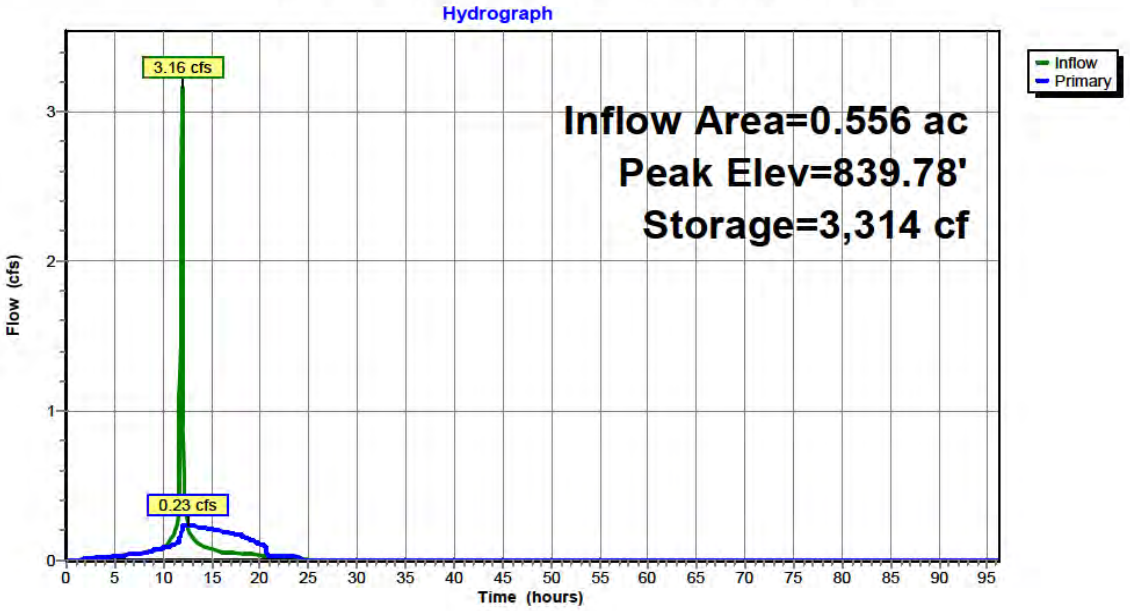
Volume	Invert	Avail.Storage	Storage Description
#1A	835.30'	890 cf	**38.75'W x 28.71'L x 7.00'H Field A** 7,787 cf Overall - 5,562 cf Embedded = 2,225 cf x 40.0% Voids
#2A	837.30'	4,398 cf	**StormTrap SingleTrap 4-6** x 3 Inside #1 Inside= 101.7"W x 54.0"H => 34.42 sf x 15.40'L = 529.9 cf Outside= 101.7"W x 60.0"H => 42.40 sf x 15.40'L = 652.7 cf 3 Chambers in 3 Rows 25.44' x 15.40' Core + 6.66' Border = 38.75' x 28.71' System
		5,288 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	834.28'	**12.0" Round Culvert** L= 42.5' Ke= 0.500 Inlet / Outlet Invert= 834.28' / 834.07' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	834.28'	**0.8" Vert. Orifice X 3.00 columns** X 2 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads
#3	Device 1	842.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.23 cfs @ 12.54 hrs HW=839.78' (Free Discharge)
↑└**1=Culvert** (Passes 0.23 cfs of 8.12 cfs potential flow)
└**2=Orifice** (Orifice Controls 0.23 cfs @ 10.99 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UD: UNDERGROUND DETENTION VAULT



Stage-Area-Storage for Pond UD: UNDERGROUND DETENTION VAULT

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
835.30	0	837.90	1,476	840.50	4,017
835.35	22	837.95	1,525	840.55	4,066
835.40	44	838.00	1,574	840.60	4,115
835.45	67	838.05	1,623	840.65	4,164
835.50	89	838.10	1,672	840.70	4,213
835.55	111	838.15	1,721	840.75	4,262
835.60	133	838.20	1,770	840.80	4,310
835.65	156	838.25	1,818	840.85	4,359
835.70	178	838.30	1,867	840.90	4,408
835.75	200	838.35	1,916	840.95	4,457
835.80	222	838.40	1,965	841.00	4,506
835.85	245	838.45	2,014	841.05	4,555
835.90	267	838.50	2,063	841.10	4,604
835.95	289	838.55	2,112	841.15	4,652
836.00	311	838.60	2,160	841.20	4,701
836.05	334	838.65	2,209	841.25	4,750
836.10	356	838.70	2,258	841.30	4,799
836.15	378	838.75	2,307	841.35	4,848
836.20	400	838.80	2,356	841.40	4,897
836.25	423	838.85	2,405	841.45	4,946
836.30	445	838.90	2,454	841.50	4,995
836.35	467	838.95	2,502	841.55	5,043
836.40	489	839.00	2,551	841.60	5,092
836.45	512	839.05	2,600	841.65	5,141
836.50	534	839.10	2,649	841.70	5,190
836.55	556	839.15	2,698	841.75	5,239
836.60	578	839.20	2,747	841.80	**5,288**
836.65	601	839.25	2,796	841.85	**5,288**
836.70	623	839.30	2,845	841.90	5,288
836.75	645	839.35	2,893	841.95	5,288
836.80	667	839.40	2,942	842.00	5,288
836.85	690	839.45	2,991	842.05	5,288
836.90	712	839.50	3,040	842.10	5,288
836.95	734	839.55	3,089	842.15	5,288
837.00	756	839.60	3,138	842.20	5,288
837.05	779	839.65	3,187	842.25	5,288
837.10	801	839.70	3,235	842.30	5,288
837.15	823	839.75	3,284		
837.20	845	839.80	3,333		
837.25	868	839.85	3,382		
837.30	890	839.90	3,431		
837.35	939	839.95	3,480		
837.40	988	840.00	3,529		
837.45	1,037	840.05	3,577		
837.50	1,085	840.10	3,626		
837.55	1,134	840.15	3,675		
837.60	1,183	840.20	3,724		
837.65	1,232	840.25	3,773		
837.70	1,281	840.30	3,822		
837.75	1,330	840.35	3,871		
837.80	1,379	840.40	3,920		
837.85	1,427	840.45	3,968		

Time span=0.00-96.00 hrs, dt=0.05 hrs, 1921 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment PR-01: PR-01 Runoff Area=23,389 sf 100.00% Impervious Runoff Depth=5.22"
Tc=6.0 min CN=98 Runoff=4.06 cfs 0.234 af

Subcatchment PR-02: PR-02 Runoff Area=820 sf 100.00% Impervious Runoff Depth=5.22"
Tc=6.0 min CN=98 Runoff=0.14 cfs 0.008 af

Subcatchment PR-03: PR-03 Runoff Area=2,805 sf 13.62% Impervious Runoff Depth=3.49"
Tc=6.0 min CN=82 Runoff=0.38 cfs 0.019 af

Subcatchment PR-04: PR-04 Runoff Area=3,004 sf 60.05% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=91 Runoff=0.49 cfs 0.025 af

Reach N-POST: NORTH-POST Inflow=0.38 cfs 0.019 af
Outflow=0.38 cfs 0.019 af

Reach S-POST: SOUTH-POST Inflow=0.71 cfs 0.267 af
Outflow=0.71 cfs 0.267 af

Reach SITE-POST: TOTAL-POST Inflow=1.09 cfs 0.286 af
Outflow=1.09 cfs 0.286 af

Pond 1P: Nyloplast CB Peak Elev=844.95' Storage=1 cf Inflow=0.14 cfs 0.008 af
Outflow=0.14 cfs 0.008 af

Pond UD: UNDERGROUND DETENTION Peak Elev=841.20' Storage=4,699 cf Inflow=4.20 cfs 0.242 af
Outflow=0.26 cfs 0.242 af

Total Runoff Area = 0.689 ac Runoff Volume = 0.286 af Average Runoff Depth = 4.98"
12.07% Pervious = 0.083 ac 87.93% Impervious = 0.606 ac

Summary for Subcatchment PR-01: PR-01

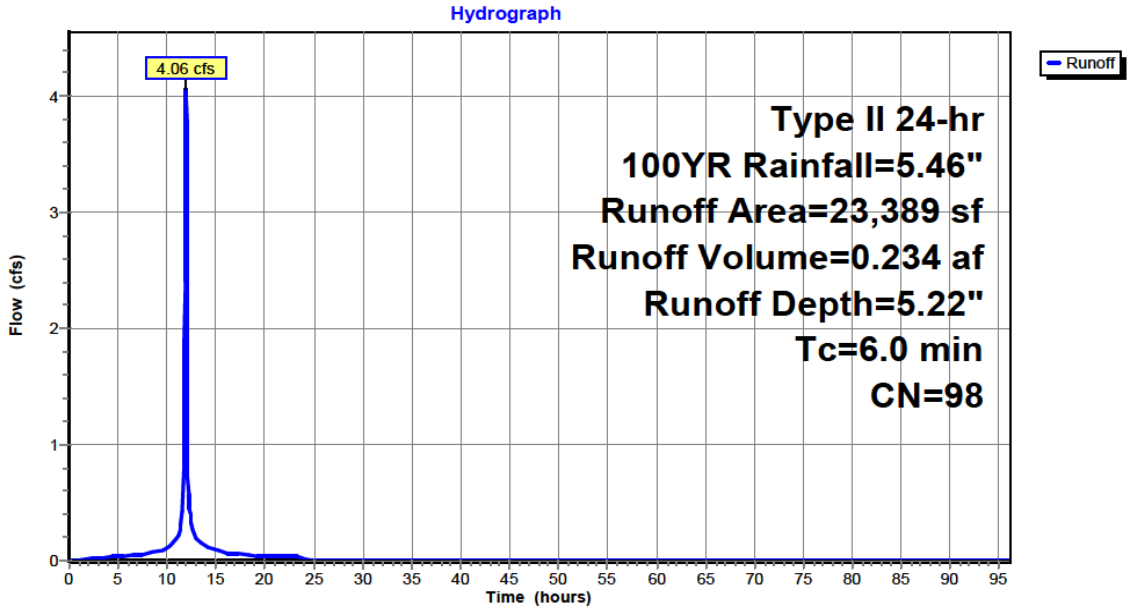
Runoff = 4.06 cfs @ 11.96 hrs, Volume= 0.234 af, Depth= 5.22"
Routed to Pond UD : UNDERGROUND DETENTION VAULT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

Area (sf)	CN	Description
23,389	98	Roofs, HSG D
23,389		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-01: PR-01



Summary for Subcatchment PR-02: PR-02

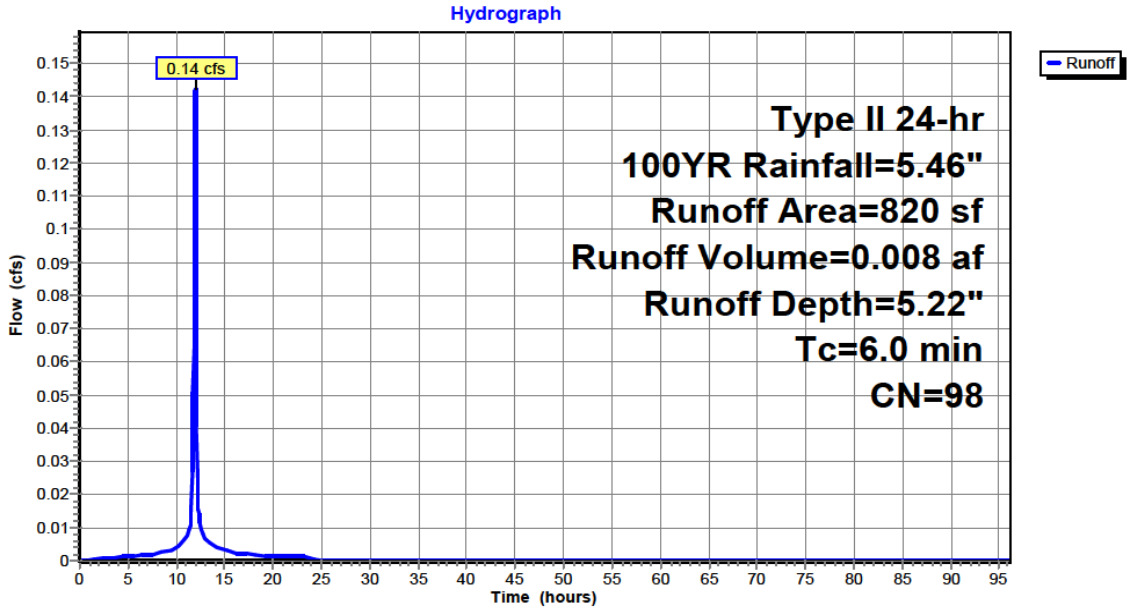
Runoff = 0.14 cfs @ 11.96 hrs, Volume= 0.008 af, Depth= 5.22"
Routed to Pond 1P : Nyloplast CB

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

	Area (sf)	CN	Description
*	820	98	
	820		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-02: PR-02



Summary for Subcatchment PR-03: PR-03

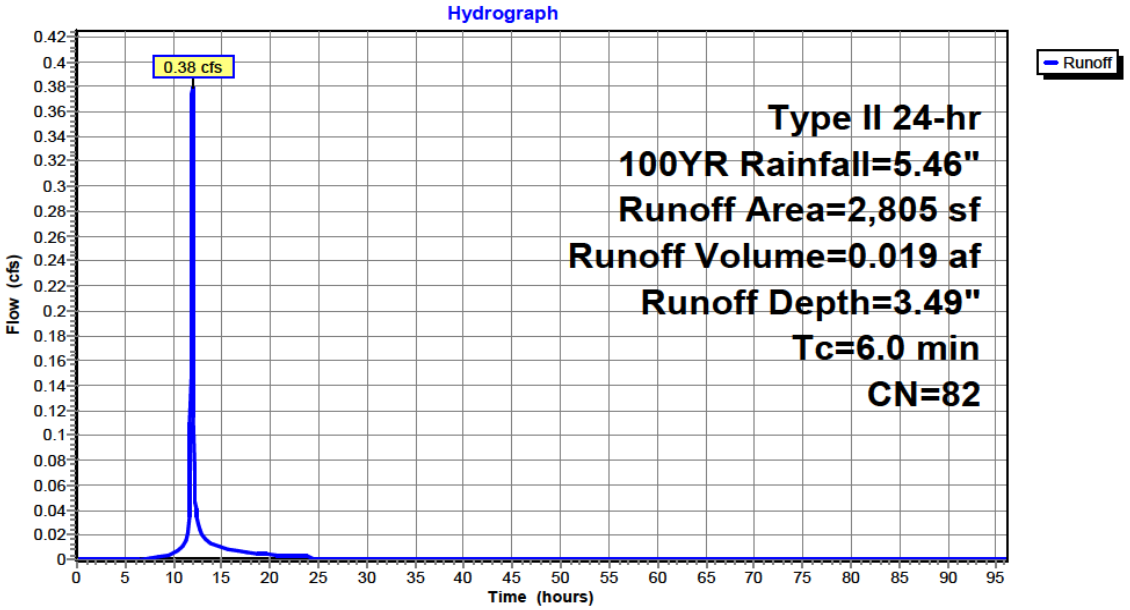
Runoff = 0.38 cfs @ 11.97 hrs, Volume= 0.019 af, Depth= 3.49"
Routed to Reach N-POST : NORTH-POST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

	Area (sf)	CN	Description
*	382	98	Paved parking
	2,423	80	>75% Grass cover, Good, HSG D
	2,805	82	Weighted Average
	2,423		86.38% Pervious Area
	382		13.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-03: PR-03



Summary for Subcatchment PR-04: PR-04

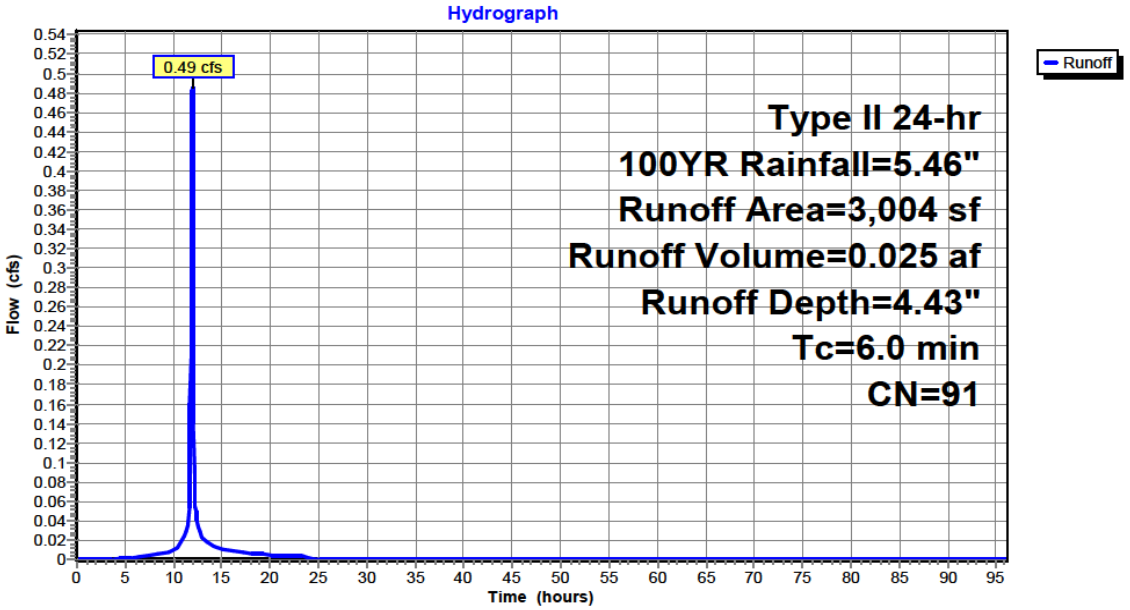
Runoff = 0.49 cfs @ 11.96 hrs, Volume= 0.025 af, Depth= 4.43"
Routed to Reach S-POST : SOUTH-POST

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Type II 24-hr 100YR Rainfall=5.46"

	Area (sf)	CN	Description
	1,200	80	>75% Grass cover, Good, HSG D
*	1,804	98	
	3,004	91	Weighted Average
	1,200		39.95% Pervious Area
	1,804		60.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment PR-04: PR-04

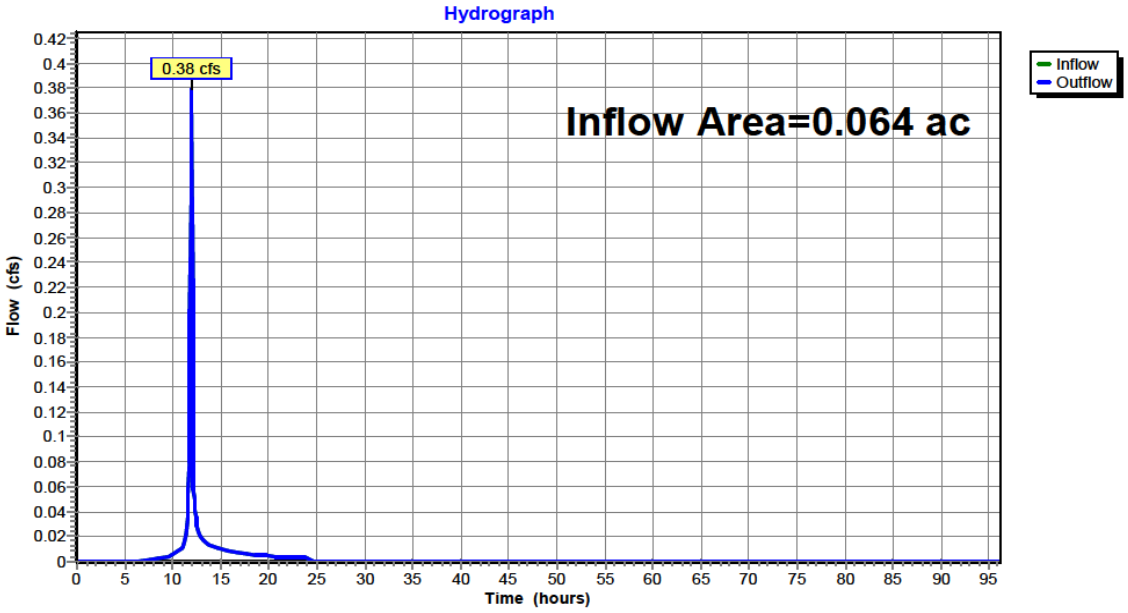


Summary for Reach N-POST: NORTH-POST

Inflow Area = 0.064 ac, 13.62% Impervious, Inflow Depth = 3.49" for 100YR event
Inflow = 0.38 cfs @ 11.97 hrs, Volume= 0.019 af
Outflow = 0.38 cfs @ 11.97 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SITE-POST : TOTAL-POST

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach N-POST: NORTH-POST

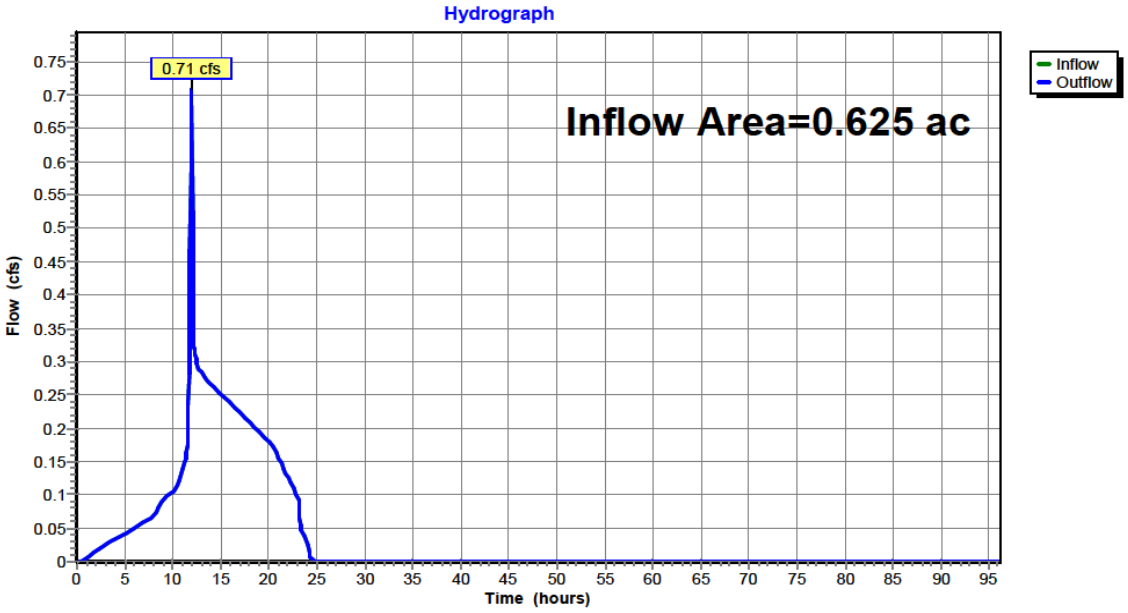


Summary for Reach S-POST: SOUTH-POST

Inflow Area = 0.625 ac, 95.59% Impervious, Inflow Depth = 5.13" for 100YR event
Inflow = 0.71 cfs @ 11.97 hrs, Volume= 0.267 af
Outflow = 0.71 cfs @ 11.97 hrs, Volume= 0.267 af, Atten= 0%, Lag= 0.0 min
Routed to Reach SITE-POST : TOTAL-POST

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach S-POST: SOUTH-POST

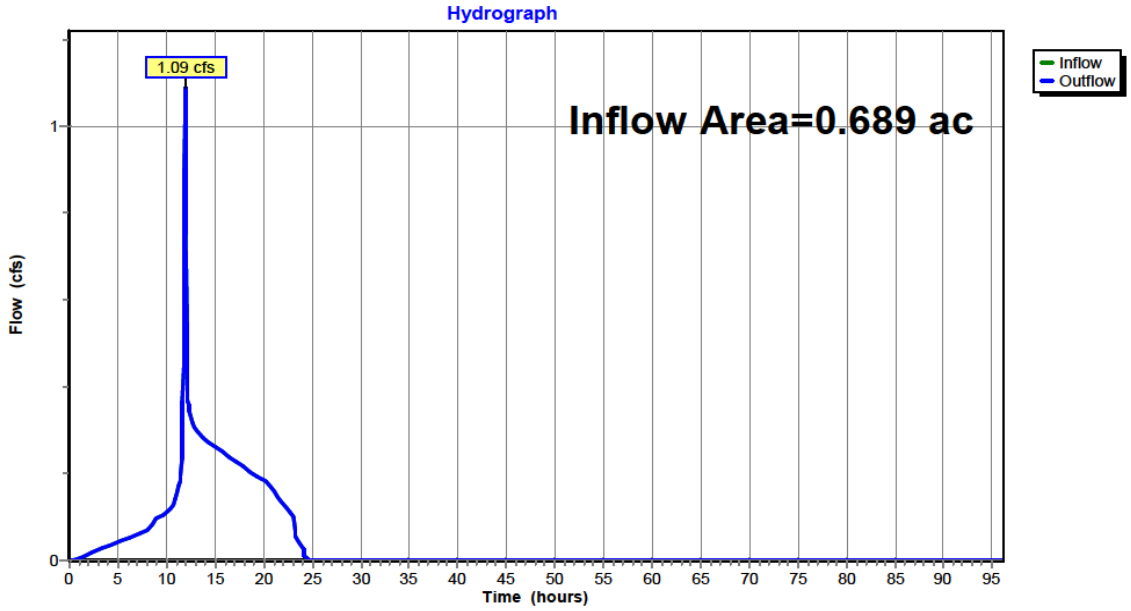


Summary for Reach SITE-POST: TOTAL-POST

Inflow Area = 0.689 ac, 87.93% Impervious, Inflow Depth = 4.98" for 100YR event
Inflow = 1.09 cfs @ 11.97 hrs, Volume= 0.286 af
Outflow = 1.09 cfs @ 11.97 hrs, Volume= 0.286 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs

Reach SITE-POST: TOTAL-POST



Summary for Pond 1P: Nyloplast CB

Inflow Area = 0.019 ac,100.00% Impervious, Inflow Depth = 5.22" for 100YR event
Inflow = 0.14 cfs @ 11.96 hrs, Volume= 0.008 af
Outflow = 0.14 cfs @ 11.96 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.2 min
Primary = 0.14 cfs @ 11.96 hrs, Volume= 0.008 af
Routed to Pond UD : UNDERGROUND DETENTION VAULT

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 844.95' @ 11.97 hrs Surf.Area= 28 sf Storage= 1 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.0 min (742.5 - 742.5)

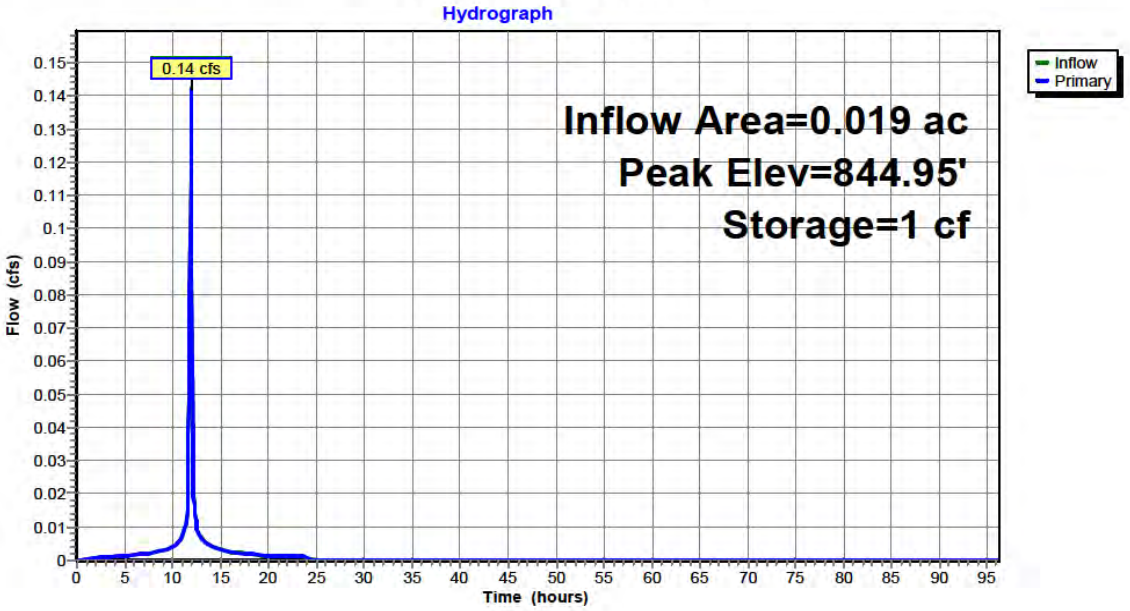
Volume	Invert	Avail.Storage	Storage Description
#1	844.90'	3 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
844.90	1	0	0
845.00	51	3	3

Device	Routing	Invert	Outlet Devices
#1	Primary	843.90'	**8.0" Round Culvert** L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 843.90' / 843.40' S= 0.0100 '/' Cc= 0.900 n= 0.011, Flow Area= 0.35 sf
#2	Device 1	844.90'	**12IN Drain Basin Stage Discharge Curve** Head (feet) 0.00 0.05 0.10 0.15 0.20 0.25 0.30 0.35 0.40 0.45 0.50 0.55 0.60 0.65 0.70 0.75 0.80 0.85 0.90 0.95 1.00 1.05 1.10 Disch. (cfs) 0.000 0.125 0.320 0.560 0.860 1.170 1.280 1.400 1.480 1.580 1.650 1.725 1.845 1.900 1.975 2.050 2.125 2.165 2.225 2.300 2.325 2.358 2.450

Primary OutFlow Max=0.14 cfs @ 11.96 hrs HW=844.95' (Free Discharge)
↑—**1=Culvert** (Passes 0.14 cfs of 1.42 cfs potential flow)
↑—**2=12IN Drain Basin Stage Discharge Curve** (Custom Controls 0.14 cfs)

Pond 1P: Nyloplast CB



Stage-Area-Storage for Pond 1P: Nyloplast CB

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
844.90	1	0
844.92	11	0
844.94	21	0
844.96	31	1
844.98	41	2
845.00	**51**	**3**
845.02	51	3
845.04	51	3
845.06	51	3
845.08	51	3
845.10	51	3
845.12	51	3
845.14	51	3
845.16	51	3
845.18	51	3
845.20	51	3
845.22	51	3
845.24	51	3
845.26	51	3
845.28	51	3
845.30	51	3
845.32	51	3
845.34	51	3
845.36	51	3
845.38	51	3
845.40	51	3
845.42	51	3
845.44	51	3
845.46	51	3
845.48	51	3
845.50	51	3
845.52	51	3
845.54	51	3
845.56	51	3
845.58	51	3
845.60	51	3
845.62	51	3
845.64	51	3
845.66	51	3
845.68	51	3
845.70	51	3
845.72	51	3
845.74	51	3
845.76	51	3
845.78	51	3
845.80	51	3
845.82	51	3
845.84	51	3
845.86	51	3
845.88	51	3
845.90	51	3
845.92	51	3
845.94	51	3
845.96	51	3
845.98	51	3
846.00	51	3

Summary for Pond UD: UNDERGROUND DETENTION VAULT

Inflow Area = 0.556 ac,100.00% Impervious, Inflow Depth = 5.22" for 100YR event
Inflow = 4.20 cfs @ 11.96 hrs, Volume= 0.242 af
Outflow = 0.26 cfs @ 12.65 hrs, Volume= 0.242 af, Atten= 94%, Lag= 41.3 min
Primary = 0.26 cfs @ 12.65 hrs, Volume= 0.242 af
Routed to Reach S-POST : SOUTH-POST

Routing by Stor-Ind method, Time Span= 0.00-96.00 hrs, dt= 0.05 hrs
Peak Elev= 841.20' @ 12.65 hrs Surf.Area= 1,112 sf Storage= 4,699 cf

Plug-Flow detention time= 159.5 min calculated for 0.242 af (100% of inflow)
Center-of-Mass det. time= 159.4 min (901.9 - 742.5)

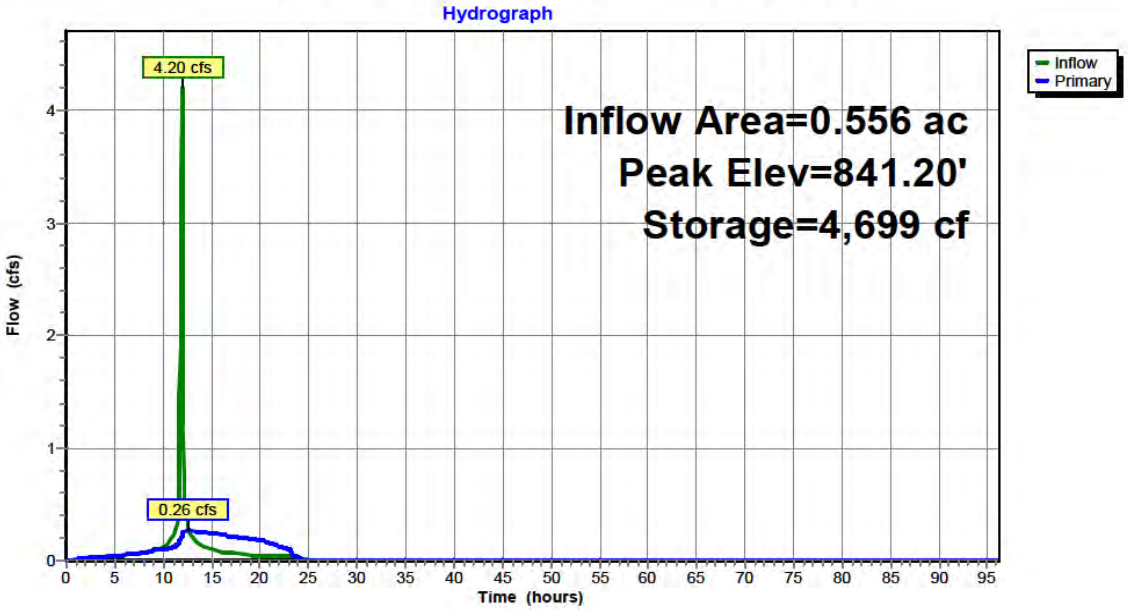
Volume	Invert	Avail.Storage	Storage Description
#1A	835.30'	890 cf	**38.75'W x 28.71'L x 7.00'H Field A** 7,787 cf Overall - 5,562 cf Embedded = 2,225 cf x 40.0% Voids
#2A	837.30'	4,398 cf	**StormTrap SingleTrap 4-6** x 3 Inside #1 Inside= 101.7"W x 54.0"H => 34.42 sf x 15.40'L = 529.9 cf Outside= 101.7"W x 60.0"H => 42.40 sf x 15.40'L = 652.7 cf 3 Chambers in 3 Rows 25.44' x 15.40' Core + 6.66' Border = 38.75' x 28.71' System
		5,288 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	834.28'	**12.0" Round Culvert** L= 42.5' Ke= 0.500 Inlet / Outlet Invert= 834.28' / 834.07' S= 0.0049 '/' Cc= 0.900 n= 0.013, Flow Area= 0.79 sf
#2	Device 1	834.28'	**0.8" Vert. Orifice X 3.00 columns** X 2 rows with 6.0" cc spacing C= 0.600 Limited to weir flow at low heads
#3	Device 1	842.00'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=0.26 cfs @ 12.65 hrs HW=841.20' (Free Discharge)
└**1=Culvert** (Passes 0.26 cfs of 9.27 cfs potential flow)
└**2=Orifice** (Orifice Controls 0.26 cfs @ 12.40 fps)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond UD: UNDERGROUND DETENTION VAULT



Stage-Area-Storage for Pond UD: UNDERGROUND DETENTION VAULT

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
835.30	0	837.90	1,476	840.50	4,017
835.35	22	837.95	1,525	840.55	4,066
835.40	44	838.00	1,574	840.60	4,115
835.45	67	838.05	1,623	840.65	4,164
835.50	89	838.10	1,672	840.70	4,213
835.55	111	838.15	1,721	840.75	4,262
835.60	133	838.20	1,770	840.80	4,310
835.65	156	838.25	1,818	840.85	4,359
835.70	178	838.30	1,867	840.90	4,408
835.75	200	838.35	1,916	840.95	4,457
835.80	222	838.40	1,965	841.00	4,506
835.85	245	838.45	2,014	841.05	4,555
835.90	267	838.50	2,063	841.10	4,604
835.95	289	838.55	2,112	841.15	4,652
836.00	311	838.60	2,160	841.20	4,701
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836.10	356	838.70	2,258	841.30	4,799
836.15	378	838.75	2,307	841.35	4,848
836.20	400	838.80	2,356	841.40	4,897
836.25	423	838.85	2,405	841.45	4,946
836.30	445	838.90	2,454	841.50	4,995
836.35	467	838.95	2,502	841.55	5,043
836.40	489	839.00	2,551	841.60	5,092
836.45	512	839.05	2,600	841.65	5,141
836.50	534	839.10	2,649	841.70	5,190
836.55	556	839.15	2,698	841.75	5,239
836.60	578	839.20	2,747	841.80	**5,288**
836.65	601	839.25	2,796	841.85	**5,288**
836.70	623	839.30	2,845	841.90	5,288
836.75	645	839.35	2,893	841.95	5,288
836.80	667	839.40	2,942	842.00	5,288
836.85	690	839.45	2,991	842.05	5,288
836.90	712	839.50	3,040	842.10	5,288
836.95	734	839.55	3,089	842.15	5,288
837.00	756	839.60	3,138	842.20	5,288
837.05	779	839.65	3,187	842.25	5,288
837.10	801	839.70	3,235	842.30	5,288
837.15	823	839.75	3,284		
837.20	845	839.80	3,333		
837.25	868	839.85	3,382		
837.30	890	839.90	3,431		
837.35	939	839.95	3,480		
837.40	988	840.00	3,529		
837.45	1,037	840.05	3,577		
837.50	1,085	840.10	3,626		
837.55	1,134	840.15	3,675		
837.60	1,183	840.20	3,724		
837.65	1,232	840.25	3,773		
837.70	1,281	840.30	3,822		
837.75	1,330	840.35	3,871		
837.80	1,379	840.40	3,920		
837.85	1,427	840.45	3,968		

APPENDIX C

WEB SOIL SURVEY REPORT

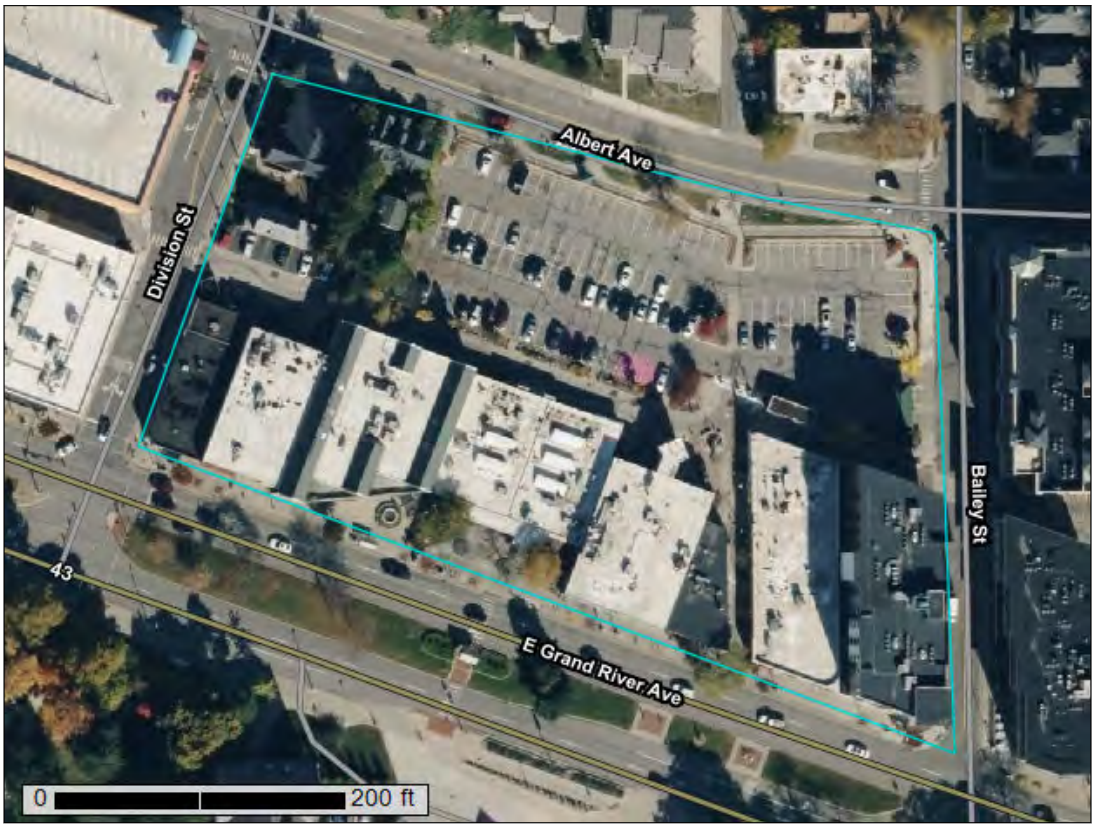
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Ingham County, Michigan



January 8, 2026

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



9

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Ingham County, Michigan
Survey Area Data: Version 23, Sep 3, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 9, 2022—Oct 28, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UpA	Urban land-Capac-Colwood complex, 0 to 4 percent slopes	1.9	51.1%
UtB	Urban land-Marlette complex, 2 to 12 percent slopes	1.8	48.9%
Totals for Area of Interest		**3.8**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the

development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Ingham County, Michigan

UpA—Urban land-Capac-Colwood complex, 0 to 4 percent slopes

Map Unit Setting

National map unit symbol: 68bl
Elevation: 360 to 1,500 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 40 percent
Capac and similar soils: 20 percent
Colwood and similar soils: 20 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Capac

Setting

Landform: Knolls, till plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

Ap - 0 to 9 inches: loam
Bt - 9 to 32 inches: loam
Cg - 32 to 60 inches: loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Available water supply, 0 to 60 inches: High (about 9.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F098XA011MI - Moist Loamy Drift Plains
Hydric soil rating: No

Description of Colwood

Setting

Landform: Lake plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Stratified sandy and/or silty and/or loamy glaciolacustrine deposits

Typical profile

Ap - 0 to 10 inches: loam
Bg - 10 to 28 inches: silty clay loam
Cg - 28 to 60 inches: stratified fine sand to silt loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 0 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 20 percent
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F098XA012MI - Wet Loamy Depressions
Hydric soil rating: Yes

Minor Components

Gilford

Percent of map unit: 4 percent
Landform: Depressions
Ecological site: F098XA012MI - Wet Loamy Depressions
Hydric soil rating: Yes

Kibbie

Percent of map unit: 4 percent
Ecological site: F098XA011MI - Moist Loamy Drift Plains
Hydric soil rating: No

Houghton

Percent of map unit: 4 percent
Landform: Depressions
Ecological site: F098XA006MI - Mucky Depressions
Hydric soil rating: Yes

Marlette

Percent of map unit: 4 percent
Ecological site: F098XA015MI - Dry Loamy Drift Plains
Hydric soil rating: No

Brady

Percent of map unit: 4 percent
Ecological site: F098XA011MI - Moist Loamy Drift Plains
Hydric soil rating: No

UtB—Urban land-Marlette complex, 2 to 12 percent slopes

Map Unit Setting

National map unit symbol: 68bm
Elevation: 600 to 1,200 feet
Mean annual precipitation: 30 to 36 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 140 to 150 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 40 percent
Marlette and similar soils: 35 percent
Minor components: 25 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Landform: Moraines
Landform position (two-dimensional): Backslope

Description of Marlette

Setting

Landform: End moraines
Landform position (three-dimensional): Side slope, crest
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy till

Typical profile

Ap - 0 to 9 inches: loam
B/E - 9 to 15 inches: loam
Bt - 15 to 31 inches: clay loam
C - 31 to 60 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)

Depth to water table: About 30 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F098XA015MI - Dry Loamy Drift Plains
Hydric soil rating: No

Minor Components

Aubbeenaubbee

Percent of map unit: 5 percent
Ecological site: F098XA011MI - Moist Loamy Drift Plains
Hydric soil rating: No

Boyer

Percent of map unit: 5 percent
Ecological site: F098XA015MI - Dry Loamy Drift Plains
Hydric soil rating: No

Capac

Percent of map unit: 5 percent
Ecological site: F098XA011MI - Moist Loamy Drift Plains
Hydric soil rating: No

Oshtemo

Percent of map unit: 5 percent
Ecological site: F098XA015MI - Dry Loamy Drift Plains
Hydric soil rating: No

Houghton

Percent of map unit: 5 percent
Landform: Depressions
Ecological site: F098XA006MI - Mucky Depressions
Hydric soil rating: Yes

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Memo

To:	Stephen Clayton, P.E. City of East Lansing	From:	John Penshorn, P.E. Stantec
Project/File:	255500018	D	une 4, 2026

Reference: 530 Albert TIS

Dear Mr. Clayton,

Please find enclosed a revised traffic impact study which has been updat updat Fishbeck on April 14, 202 April 14, 2026. Since the time v ated which the com has ts wer e in scale, primarily by removing two floors of commercial parking from the dev u change is that the enclosed traffic impact study over-reports the trips gener by the subject property. In ated by the sub reality, the intensity of the project has lessened from the values reported, and th work has lessened in kind.

Per discussion with City staff, it is understood that the City is accepting of completion of this report with the trip generation as reported, rather than requiring a new study to be d for the less intense use. By completing the remaining comments provided, there is no appreciable change in the results of the model, however the new model run tables have been included in Appendi in Appendix C.

We appreciate the City's understanding of this approach and look forward to continuing to work together to bring this project to the City of East Lansing.

Regards,

Stantec Consulting Michigan Inc.

Digitally signed by Penshorn, John
Date: 2026.06.04 07:17:08-04'00'

John Penshorn P.E. (CO, IN, KS, MI, MN, OH, TN)
Senior Associate
Phone: (517) 249 4398
john.penshorn@stantec.com

stantec.com

530 Albert Avenue

Impact Study

Stantec Consulting Michigan Inc.

Prepared for:
Tareen Development Partners

Date:
une 3, 2026

Prepared by:
Stantec

Project/File:
530 Albert Avenue

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Disclaimer

usions in the Rep ed 530 Albert Avenue Traffic Im Study are Stantec's
e Rep nd c described in the Repor
document are based on conditions and information ex of work was conducted and do not take into account any subsequent changes. The Report relates solely to the specific project for which Stantec was retained and the stated pur which the R was ed. The Re be used or relied on for any variation or ex pur d unauthorized us 's own risk

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d by Kav
Printed Name

Reviewed by:

Signature

Evan Drew, PE, PTOE, RSP1
Printed Name

Approved by

Signature

Callie Castro, PE, PTOE
Printed Name

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Ap dic

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Appendix B ITE Calculations
Appendix Synchro Reports
Appendix D Crash Data

Executive Summary

he 530 Albert Avenue Traffic lm t Analysis evaluated th d mixed-use dev nt which includes residential hous and king structur ex Ba king lot. In addi king needs and were also evaluated. The City of East Lansing's Parking Master Plan (FY2023) king occupa ounts 2025, and the City's Downtown Parking Guide were reviewed ovide a be understanding of the City's ex king condi

ed dev will include king deck with a total of 83 p king stalls and 10 f idential housing with a total of 236 dwelling units. An additional 6 short-term on-street metered p k will also b ovided along Albert Avenue fr ed dev e dev ted to generate 179 and 119 new vehicu during both AM and PM peak hour v

Inter 2026 Existing Cond 2027 O Year No Build and Build nd 2032 No Build and Build scenarios ind All study ex ed t ble LOS to background conditions, with only minor del movements. The 95t queues at the site driveway and adj will remain within available storage, ensuring no blockage of site access. Additionally, the site is well-connected to existing sidewalk and bicycle networks providing continuous pedestrian access to nearby king garages and tr ized intersections of Grand River Avenue at Div provided a signalized p destrian crossing that is recalled at each cycle to guara edestrian crossi these high-volume corridors.

A review 020–2024 crash data identified 162 within the study area, w concentrations occurring along Grand River Avenue at the Division Street and Bailey Street intersections. Rear-end collisions wer edo ev involved injur with d, and fiv destrian-involved crashes occurred dur iod. Mos crashes happened under daylight and dry conditions, and none of the study intersections appear on the 's 10 Accid

Based on ITE methodo ted to generate demand for 302 s , which can be accommodated through the on-site garage and the Division Street Garage. Additionally, nearby garages upanc below 70% oviding further flexibility. Ov k indicated that the dev n be supp ted without adversely affecting the surround king network. Park ovided in the on-site garage will be pub king and residen d dev will not be issued k within the dev king structur

ed 530 Albert Avenue dev ex ted to hav t on vehicu and king occupa within the study area. Existing infrastructure and p ned ovements supp d efficient access for all modes. No addit ov ed as a resul assessment.

1 Introduction

he pur to evaluat and safety associated wit
d dev ated at 530 Albert Avenue, East Lansing, Michigan. The new dev nt w
be a mixed use dev ludes a ground- idential housing with 236 dw
units and king structure with a total of 83 o king stalls. Levels 1 and 2 will consist of the ground
and king structure, and the residential housing will occupy 10 levels of the build
w dev ed to be bui he existing Bailey Lot adjacent to M
State University.

owing documents were referenced tudy

City of East Lansing Parking Master Plan (FY2023)

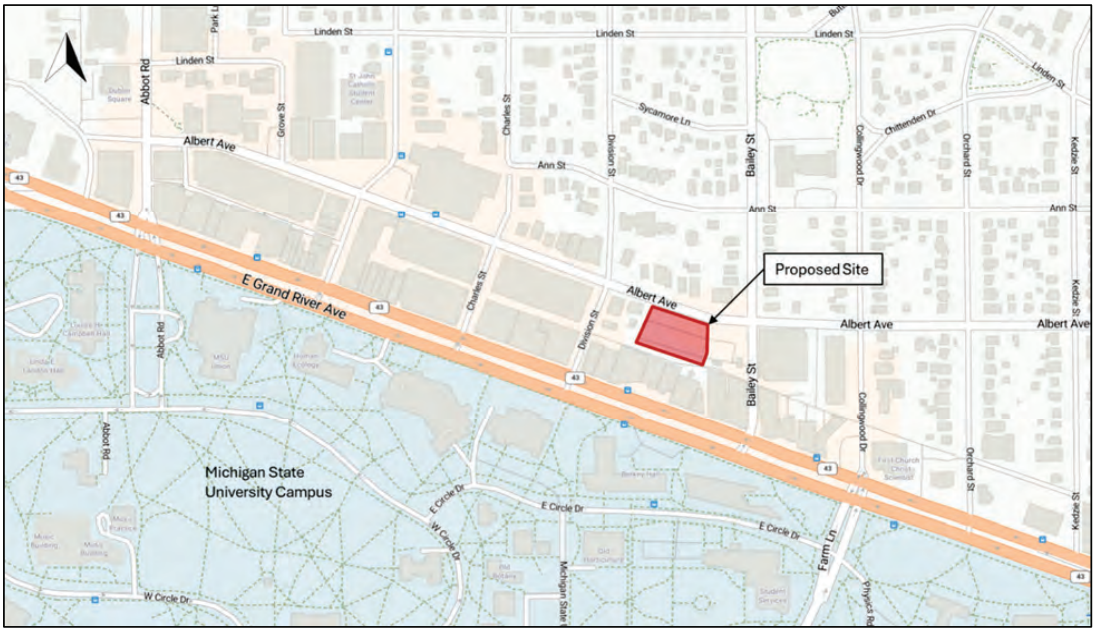
ITE Trip Generation Manual (12th Edition)

ITE Parking Generation Manual (5th Edition)

2 Existing Area Conditions

ed to be dev d on he existing Bailey Lot adjacent to M University. The site location is outlined in red in **Figu 1**, below.

Figure 1. Project Location



2.1 Study Area Roadway System

The primary roadways serving the site include Albert Avenue, Division Street, Bailey Street and Grand River Avenue detailed below.

Albert Avenue a two-lane, east–west roadway with 11-foot travel lanes and on- king. I d as a major collector and ed peed 25 mph within the study

Division Street is a two-lane, north–south roadway with 11-foot-wide lanes in the study vicinity. Also d as a major collector with ted s d limit of 25 mp ovides access to the Div Street Parking Garage located at the corner of Albert Avenue and Division Street.

Bailey Street is a two lane, north–south roadway featuring 11-foot-wide lanes and is similarly classified wi ted s eed 25 h. In addition to serving local traffic, B ovides access to both the Bailey Street sur king lot and the Ba k adj ed dev

ven lmp dy
2 Existing Area Conditions

Grand Riv **nd Riv** d five- lane, east–wes wo 11-foot-wid tbound lanes and three 10-foot-wide westbound lanes with ted s eed limit of 25 m udy ea. Grand River Avenue runs Albert Avenue along the edge of Michigan State Univ

Additionally, the study area consists of the following intersections:

1. ***Albert Avenue at Division Street*** four leg, all-way ed tbound and westbound Albert Avenue e ovide an exclusive right tur d a shared through/left turn lane. The northbound a Division Street includ an exclusive left turn lane and a shared through/right turn lane, while the southbound approach d left/through/right lane. All legs of the intersection include marked des crosswalks.

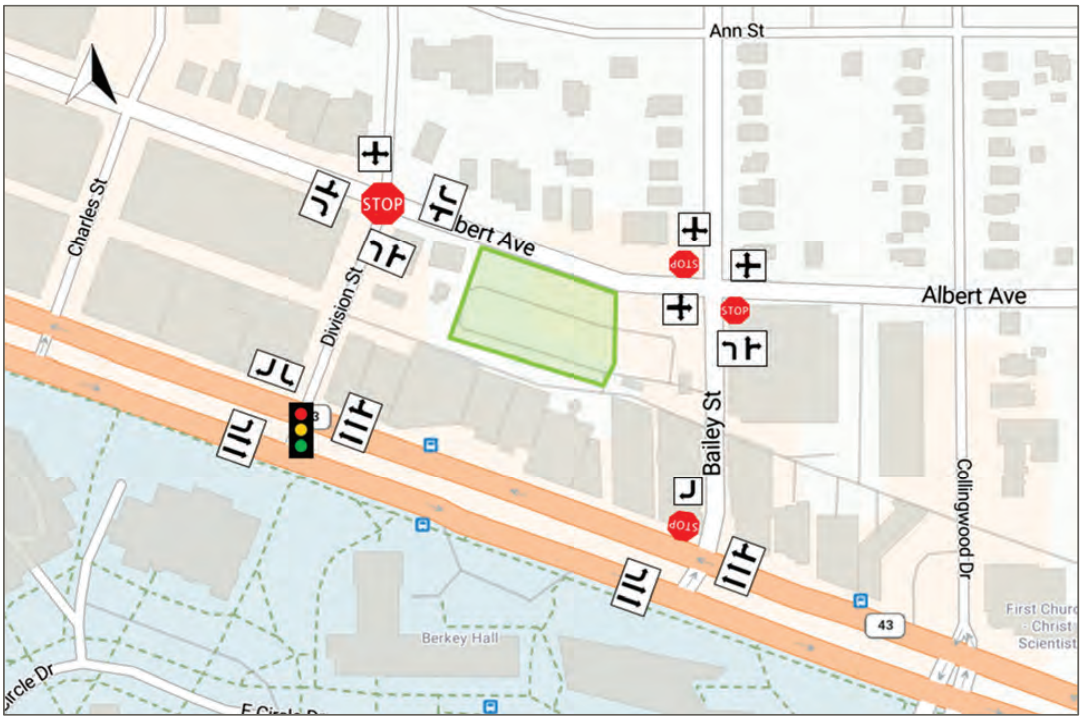
2. ***Albert Avenue at Bailey Street*** four leg, two-way op-controlled intersection, with Ba p-controlled o dedicated turn lanes along Alber Avenue. The northbound Bailey Street includes an exclusive left turn lane and ed through/right turn lane, while the southbound a ed left/throug e. All legs of the intersection include marked pedestrian crosswalk

3. ***Grand River Avenue at Division Street*** is a three leg, signalized intersection. The eastbound Grand River Avenue ovides an exclusive left turn lane and two through while the westbound two through lanes and a shared throu outhbound ap Div vides an exclusiv ght-turn lane. There are signalized destrian crossings along the east leg and intersection.

4. ***Grand River Avenue at Bailey Street*** is a three leg, stop-controlled intersection, with Bailey p-controlled tbound n Grand Riv Avenu ovides an exclusive left turn lane and two through lanes, while the westbound a consists of two through lanes and a shared through/right lane. The southbound approach from Bai ovides a single right-only lane. There is an unsignalized marked des crossing just east of the intersection.

Figur 2 illustrates the existing lane configuration and traffic control at each study intersection.

Figure 2. Existing Lane Configuration and Intersection Control



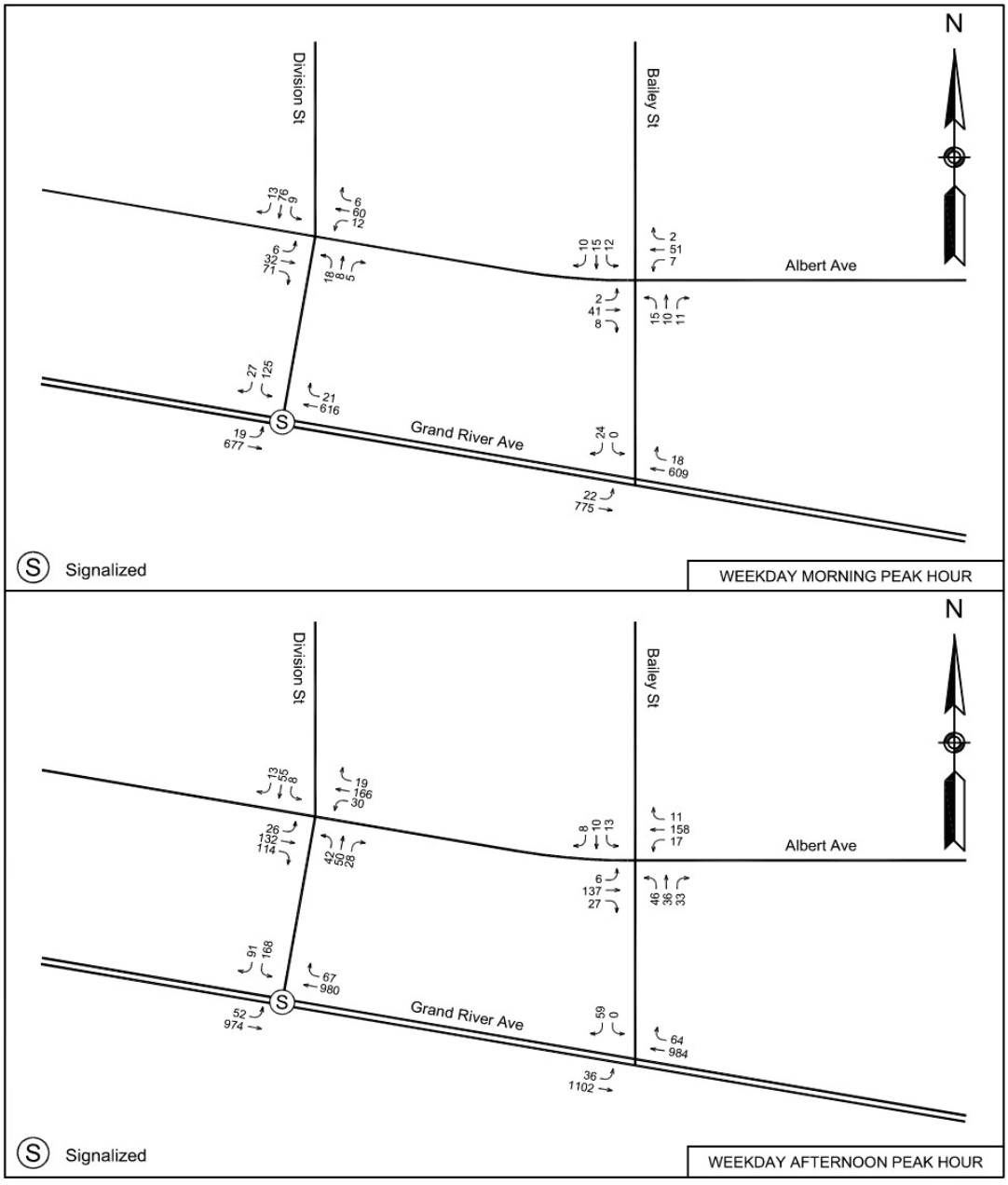
2.2 Traffic Data Collection

Intersection turning movement counts (TMCs) were collected on Thursday January 15, 2026 following intersections:

1. Albert Avenue at Div
2. Albert Avenue at Bailey Street
3. Grand River Avenue at Div
4. Grand River Avenue at B

Based on the traffic count data, it was determined eak hours of traffic occurred from 7:45-8:45 AM and 4:00-5:00 PM. **Figure 3** presents the existing vehicular traffic volumes. Raw traffic count data is included in **Appendix A**.

e 3. 2026 Existing Vehicular Traffic Volumes



2.3 Existing Traffic Operations Existing Traffic Operations Existing T

Inter were conducted to evaluate the study intersections based on methods described in the Highway Manual 7th Edition (HCM) and i ed in Synchro 1 oftw Ex nd timing information w ovided by the City and used in this study analysis was used to estimate delay and Level of Service (LOS) for given traffic and geometric conditions under 2026 Existing Conditions. This scenario analyzes ex o determine ex operating delays and LOS at each study intersection.

LO ovides a measure of the quality of traffic flow provided by a roadway facility, ex ed i ades with LOS A r quality traffic flow and minimal delay, and LO representing poor traffic operations and significant delay. **Table 1** and **Table 2** below detail the LOS ds in terms of d vehicle for signalized and unsignalized

Ta lized Intersection LOS Thresholds

Level of Service	Delay pe V (seconds)	Description
A	< 10	ee-flow conditions; minimal d
B	10 to 20	Stable flow; slight delays, good
C	20 to 35	Stable flow; noticeab ab
D	35 to 55	Appr ng unstable flow; high delays, tolerabl
E	55 to 80	Unstable flow;
F	> 80	Breakdown flow; oversaturated, v

Ta Unsignalized Intersection LOS Thresholds

Level of Service	Delay pe V (seconds)	Description
A	< 10	ee-flow conditions; minimal d
B	10 to 15	Stable flow; slight delays, good
C	15 to 25	Stable flow; noticeab ab
D	25 to 35	Appr ng unstable flow; high delays, tolerabl
E	35 to 50	Unstable flow;
F	> 50	Breakdown flow; oversaturated, v

ul 2026 Existing Cond d i **Table 3**.

Table 3. 2026 Existing Capacity Analysis Summ

Location	Weekday Morning eak Hour					Weekday eak Ho				
	LOS[1]	Delay[2] (s/veh)	v/c[3]	Queue[4] (ft) 50th	Queue[4] (ft) 95th	LOS[1]	Delay[2] (s/veh)	v/c[3]	Queue[4] (ft) 50th	Queue[4] (ft) 95th
SIGNALIZED INTERSECTION										
Divi Grand ver ve										
Grand River Ave EB		30.9	0.09	16	42		32.9	0.23	56	171
Grand River Ave EB	A	8.6	0.35	109	166	A	9.8	0.48	214	373
Grand River Ave EB Approach	*A*	*2*	-	-	-	*B*		-	-	-
Grand River Ave WB TR	B	18.	0.39	108	157		20.9	0.59	205	339
Division St SB L		27.5	0.36	61	121		28.7	0.43	89	135
Division St SB R	B	15.5	0.02	15	49	B	17.0	0.16	37	84
St SB A		*25.4*	-	-	-		*24.6*	-	-	-
OVERALL	**B**	**15.**				**B**	**17.**			
UNSIGNALIZED INTERSECTION										
Bailey v										
Albert Ave EB LTR	A	7.4	0.01	0	7	A	7.7	0.01		16
Albert Ave WB LTR	A	7.4	0.01	1	7	A	7.7	0.02	6	26
Bailey St NB L	A	9.8	0.02	11	35	B	13.9	0.14	25	48
Bailey St NB TR	A	9.3	0.03	14	40	B	11.9	0.16	29	52
Bailey St NB A	*A*	*5*	-	-	-	*B*	*12.7*	-	-	-
Bailey St SB LTR	A	9.7	0.05	21	44	B	12.7	0.09	19	45
Grand ver ve Bailey										
Grand River Ave EB	B	12.6	0.05	11	38		6	0.16		52
Grand River Ave WB TR	-	-	-	-	-	-	-	-	3	21
Bailey St SB LR	B	13.1	0.07	15	48		24.1	0.33	27	49
Divi Ave										
Albert Ave EB LT	A	8.4	0.07		52	B	10.7	0.29	43	71
Albert Ave EB R	A	7.7	0.12	35	66	A	8.7	0.18	40	68
Albert Ave EB A	*A*	*7.*	-	-	-	*A*		-	-	-
Albert Ave WB LT	A	8.5	0.11	25	47	B	11.6	0.36	44	76
Albert Ave WB R	A	7.1	0.01	4	17	A	7.8	0.03	12	38
Albert Ave WB A	*A*	*8.4*	-	-	-	*B*	*3*	-	-	-
Division St NB L	A	8.6	0.03	10	28	B	10.1	0.09	19	39
Division St NB TR	A	7.7	0.0	8	25	A	9.7	0.15	24	45
St NB A	*A*	*8.2*	-	-	-	*A*	*8*	-	-	-
Division St SB LTR	A	9.1	0.17	35	55	B	10.5	0.18	27	49

[1]Delay in seconds v
[2]Level of Service according to HCM
[3]Volum Ratio (from HCM Synchro Report)
[4]Queue 50th percentile and 95th percentile, via average of five SimTraffic simulations. If multi-lane, worst result

2.4 Crash History

Historical crash data for the study area was obtained from the Michigan Traffic Crash Database (Data Query Tool - Michigan Traffic Crash Facts) for 2020-20 4. **Figure 4** shows the crash density within the study area. **Table 4** through **Table 6** ummarizes crash dat od. T data s ovided in **Appendix D**. A total of 162 crashes were recorded in the study 020–2024, with most occurring along Grand River Avenue at the Division Street and Bailey Street dom e was rear-end collisions (46%), followed by sidesw ame-direction crashes (20%). Injury crashes accounted for 17% of all crashes, with the remaind d as -damage-only; no fatalities occurred dur d. Most crashes took under daylight and dry conditions. Of the 16 ive involved p destrians and crashes involved cyclists. Additionally, based on information available on the City's website, none of the udy 10 Accid

e 4. Crash Locations 2020-2024

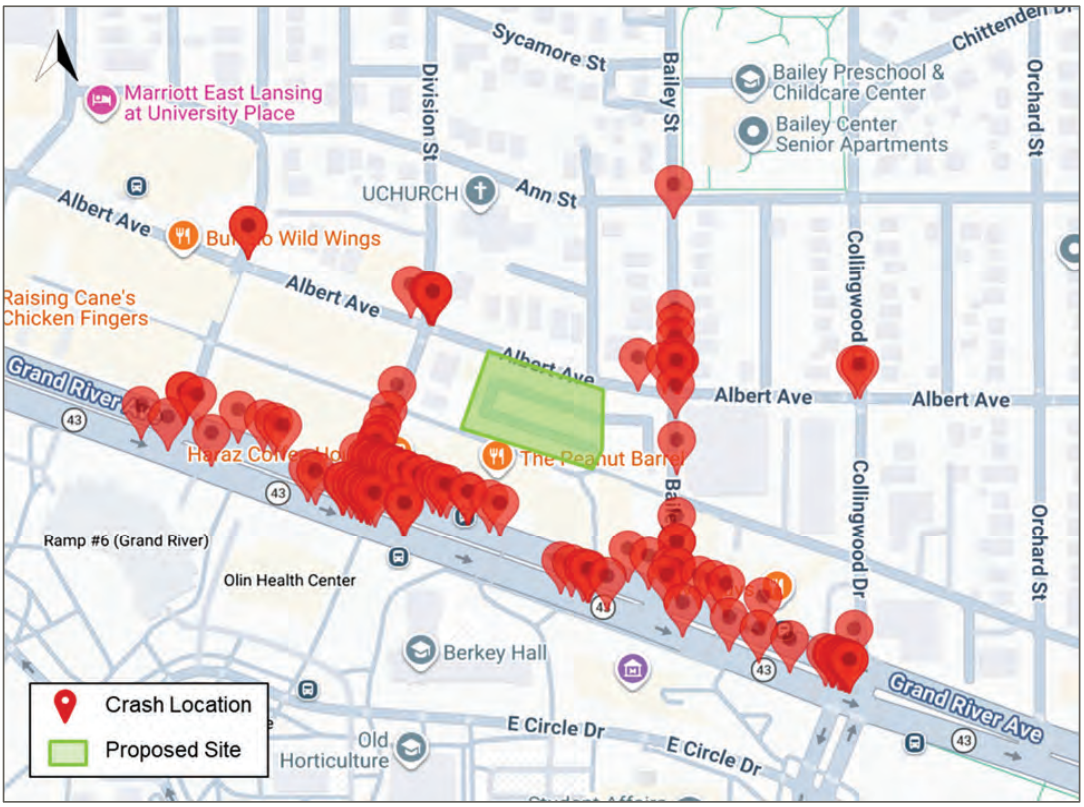


Table 4. Crash Summary – Manner of Collision

Type of Crash	2020	2021	2022	2023	2024	Total	Percent
Angle	3	0	6	7	8	*24*	**15%**
Backing	0	2	3	0	0	*5*	**3%**
Head-On	0	0	1	1	1	*3*	**2%**
Rear-End	10	17	19	20	9	*75*	**46%**
Sideswipe Same Direction	1	8	8	5	10	*32*	**20%**
Sideswipe Oppos Dir	0	0	1	1	0	*2*	**1%**
Single Motor Vehicle	0	0	6	3		*11*	**7%**
Pedestrian Involved	0	0	5	0	0	*5*	**3%**
Other/ Unknown	0	0	1	3	1	*5*	**3%**

Table 5 Crash Summary – Injury

Injury/PDO	2020	2021	2022	2023	2024	Total	Percent
PDO	1	23	41	33	26	*135*	**83%**
Injury Typ	0	0	1	0	1		1%
Injury Typ **Injury Type B**	0	0	3	1	1	5	3%
Injury Type C Injury Typ **Injury Typ** **Injury Typ**				6	3	20	12%
Fatality	0	0	0	0	0	0	0%

Table 6. Crash Summary – Crash

Year	2020	2021	2022	2023	2024	Total	Percent
Intersection Related	6	8	21	17	14	*66*	**41%**
Straight Road	8	15	17	16	14	*70*	**43%**
Driveway Related	0	3	7	4		*16*	**10%**
Other	0	1	5	3	1	*10*	**6%**

As indicated in **Table 4**, fiv destrian-involved crashes wer ted: one resulting in serious inju (pe A), three resulting in sus ted minor injury (pe B), and on ble injury (pe C). **Figure 5** lus destrian crashes. The following details describes des based on the identification number as shown in Figure 5.

h 1: A pedestrian was hit in the marked crosswalk by a left turning vehicle during Dark- hted and wet conditions. The crash resulted in sus ted minor injuries (B) pedestrian.

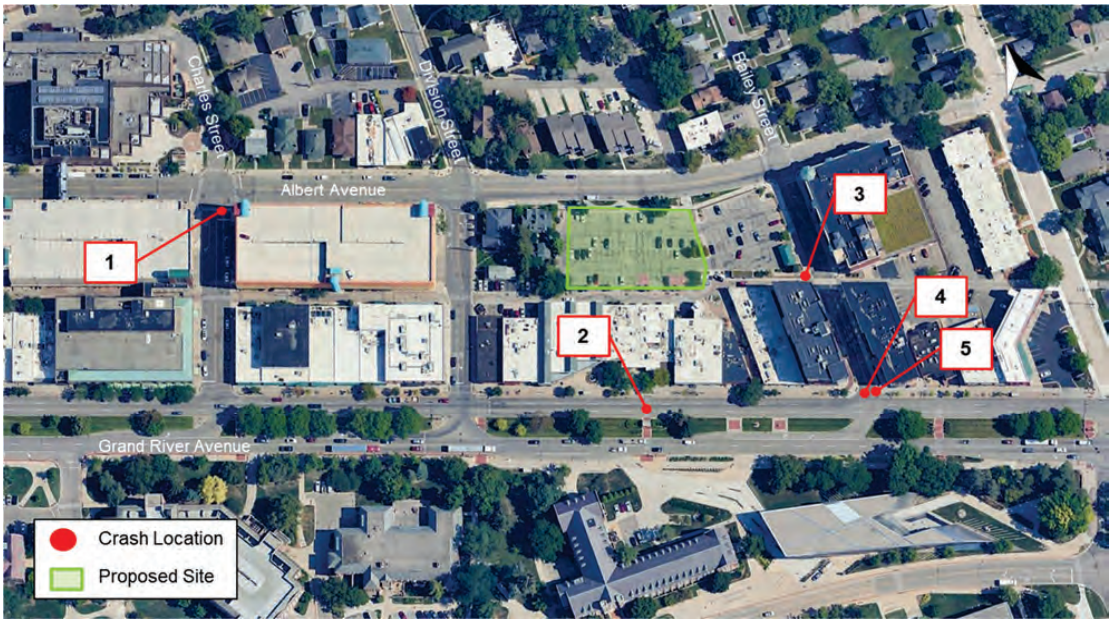
A pedestrian was hit in the westbound lanes while crossing Grand River Avenu heading northbound at the marked mid-block crosswalk. Vehicles in the first two lanes were d, but a vehicles in the third edestrian. The crash resulted i ble injur (pe C) and occurred during Daylight condit

h 3: A pedestrian was hit by d vehicle while walking along the alley way wes Bailey Street. The crash occurred in Dark-Lighted conditions and resulted in sus ted m uries (B) d

h 4: A pedestrian was hit while in the marked crosswalk at the intersection of Grand Riv Ave and Bailey Street. A vehicle traveling southbound on Bailey Street was making a right turn onto Grand River Avenue and h edestrian resulting in sus d minor injuries (pe B) the pedestrian. The collision occurred in clear Daylight conditions.

h 5: A pedestrian was struck and run over in the marked crosswalk by a vehicle mak urn from Grand River Avenue onto Bailey Street resulting in serious injur edes The crash occurred in clear, Daylight conditions.

F ed L s 2020-2024



3 Future Conditions

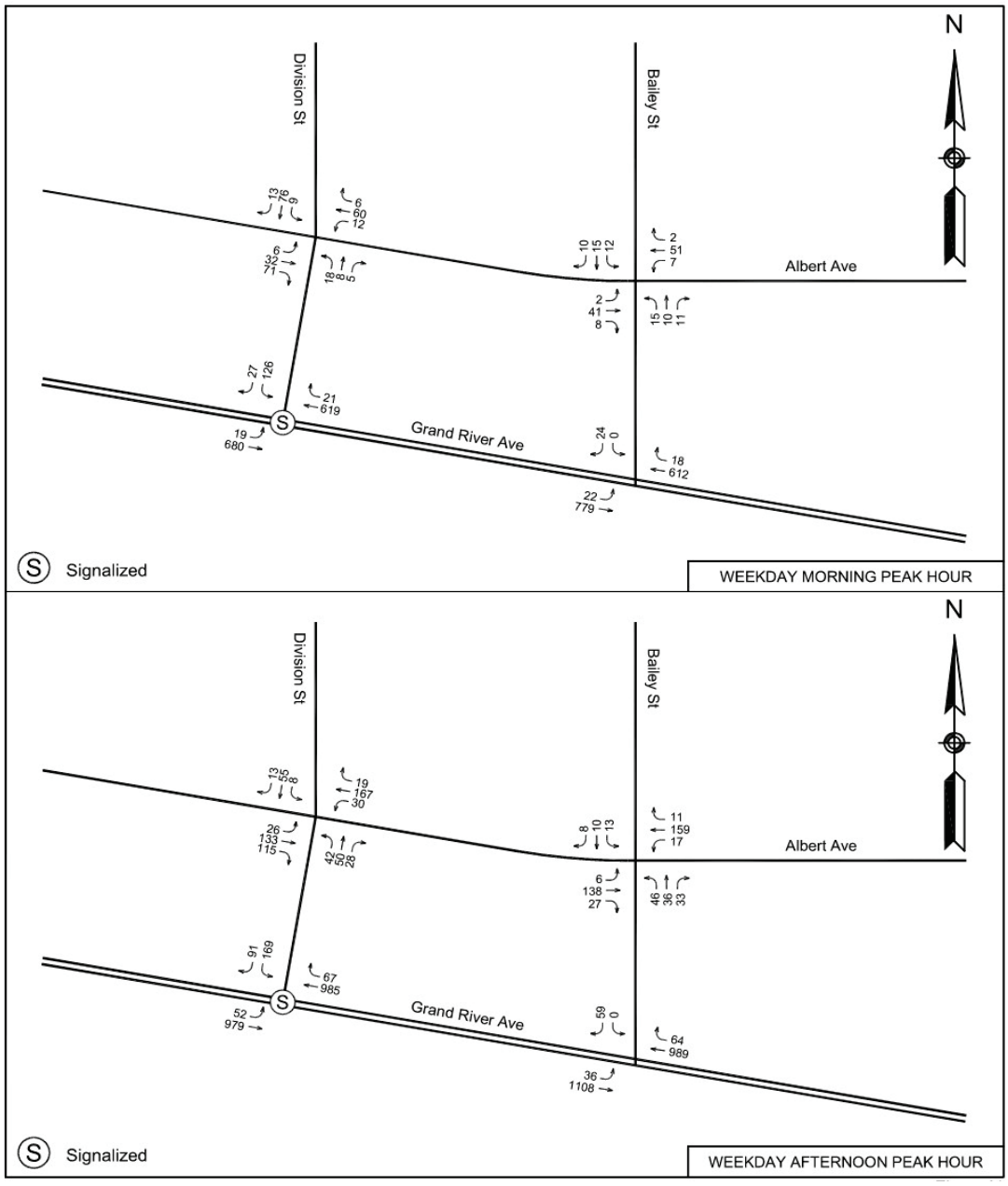
3.1 Background Growth

Background traffic takes into account future traffic conditions before the addit ed s generated traffic, also referred to as No Build conditions. The background traffic includes the natural growth well as additional traffic on the roadway generated by committed and oved dev tudy v d to be c e b ed site build-out occur

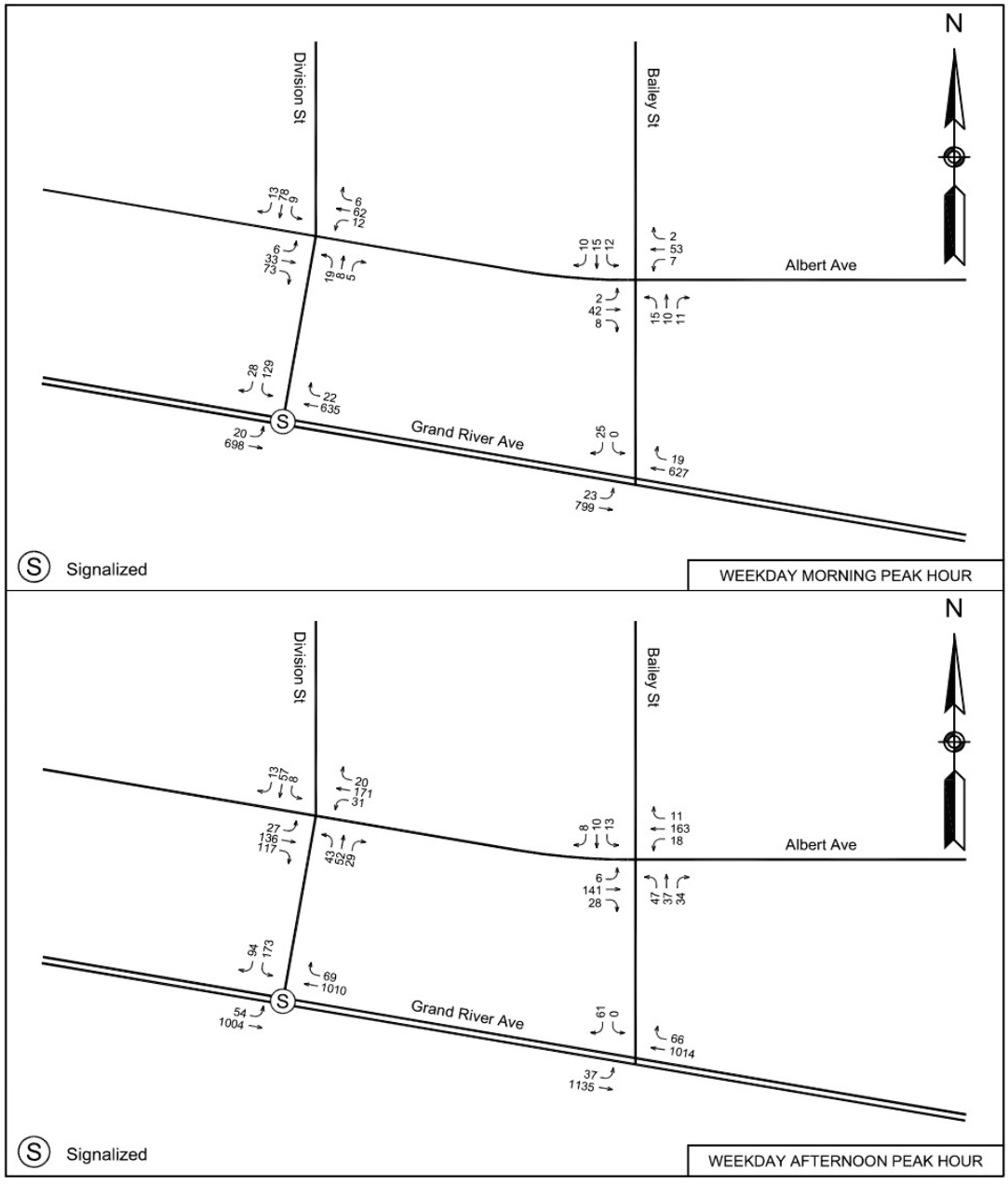
ex ed O Year 027 and Future Build Year 2032 (5 years beyond year) were analyzed. Historical traffic data was obtained along nearby roadways from the Michigan Depar on (MDOT) Traffic Count Database System (TCDS) to deter growth factor for this study area. Based on the data collected, an annual growth factor of 0.5% was assumed.

he 2026 Existing Traffic Volumes were grown 0.5% p dev 2027 No Build T Volum 2027 No Build traffic volumes were also grown by 0.5% 2032 N Build Traffic Volum 2027 and 2032 No Build Vehicular Traffic Volu d in **Figure 6** and **Figu e 7**.

e 6. 2027 Opening Year No Build Vehicular Traffic Volum



e 7. 2032 Future Year No Build Vehicular Traffic Volum



3.2 No B p

Inter were conducted for the future No Build scenarios, listed below.

2027 Opening Year No Build Conditions – This scenario analyzed the traffic conditions during the 2027, by growing the existing traffic volumes by the aforementioned growth rate of 0.5% per year at each study intersection.

2032 Future Year No Build Conditions – This scenario analyzed the traffic conditions during the 2032, by growing the existing traffic volumes by the aforementioned growth rate of 0.5% per year at each study intersection.

Table 7 and

ven lmp dy
3 Future Conditions

Table 8 summariz delay and LOS at each study

Table 7. 2027 Opening Year No Build Conditions Summary

Location	Weekday Morning eak Hour					Weekday eak Ho				
	LOS[1]	Delay[2] (s/veh)	v/c[3]	Queue[4] (ft) 50th	Queue[4] (ft) 95th	LOS[1]	Delay[2] (s/veh)	v/c[3]	Queue[4] (ft) 50th	Queue[4] (ft) 95th
SIGNALIZED INTERSECTION										
Divi Grand ver ve										
Grand River Ave EB		30.9	0.09	15	45		32.9	0.23	57	182
Grand River Ave EB	A	8.6	0.35	112	174	A	9.8	0.48	216	376
Grand River Ave EB Approach	*A*	*2*	-	-	-	*B*		-	-	-
Grand River Ave WB TR	B	18.3	0.39	114	169		21.0	0.60	200	300
Division St SB L		27.5	0.36	66	125		28.8	0.44	87	134
Division St SB R	B	15.6	0.02	14	44	B	17.0	0.16	41	82
Division St SB Approach		*25.4*	-	-	-		*24.7*	-	-	-
OVERALL	**B**	**15.**				**B**	**17.1**			
UNSIGNALIZED INTERSECTION										
Bailey St at Albert Ave										
Albert Ave EB LTR	A	7.4	0.01	-	-	A	7.7	0.01	3	17
Albert Ave WB LTR	A	7.4	0.01	-	-	A	7.7	0.02	6	30
Bailey St NB L	A	9.8	0.02	10	32	B	14.0	0.14	26	50
Bailey St NB TR	A	9.3	0.03	13	38	B	11.9	0.16	31	49
Bailey St NB Approach	*A*	*5*	-	-	-	*B*	*12.7*	-	-	-
Bailey St SB LTR	A	9.7	0.05	20	43	B	12.7	0.09	19	45
Grand ver ve Bailey										
Grand River Ave EB	B	12.6	0.05	10	36		7	0.16		54
Grand River Ave WB TR	-	-	-	-	-	-	-	-	3	19
Bailey St SB LR	B	13.1	0.07	18	46		24.3	0.33	26	48
Divi Ave										
Albert Ave EB LT	A	8.4	0.07	23	51	B	10.7	0.29	51	125
Albert Ave EB R	A	7.7	0.12	34	63	A	8.7	0.18	45	106
Albert Ave EB Approach	*A*	*7.*	-	-	-	*A*		-	-	-
Albert Ave WB LT	A	8.5	0.11	26	45	B	11.7	0.36	46	89
Albert Ave WB R	A	7.1	0.01	4	17	A	7.8	0.03	11	39
Albert Ave WB Approach	*A*	*8.4*	-	-	-	*B*	*4*	-	-	-
Division St NB L	A	8.6	0.03	10	30	B	10.1	0.10	18	43
Division St NB TR	A	7.7	0.0	7	23	A	9.7	0.15	23	48
Division St NB Approach	*A*	*8.2*	-	-	-	*A*	*8*	-	-	-
Division St SB LTR	A	9.1	0.17	33	53	B	10.5	0.18	29	55

[1]Delay in second v
[2]Level of Service according to HCM
[3]Volu ty Ratio (from HCM Synchro R)
[4]Queue i 50th percentile and 95th percentile, via average of five SimTraffic simulations. If multi-lane, worst result

Table 8. 2032 Future Year No Build Conditions Summary

Location	Weekday Morning eak Hour					Weekday eak Ho				
				Queue[4] (ft)					Queue[4] (ft)	
	LOS[1]	Delay[2] (s/veh)	v/c[3]	50th	95th	LOS[1]	Delay[2] (s/veh)	v/c[3]	50th	95th
SIGNALIZED INTERSECTION										
Divi Grand ver ve										
Grand River Ave EB		31.0	0.09	14	44		33.1	0.23	53	153
Grand River Ave EB	A	8.7	0.36	110	169	A	10.0	0.49	199	322
Grand River Ave EB Approach	*A*	*3*	-	-	-	*B*		-	-	-
Grand River Ave WB TR	B	18.5	0.40	111	159		21.	0.61	188	277
Division St SB L		27.7	0.37	72	129		29.0	0.45	88	135
Division St SB R	B	15.6	0.02	14	43	B	17.0	0.17	36	80
Division St SB Approach		*25.5*	-	-	-		*24.8*	-	-	-
OVERALL	**B**	**15.1**				**B**	**17.**			
UNSIGNALIZED INTERSECTION										
Bailey v										
Albert Ave EB LTR	A	7.4	0.01	1	7	A	7.7	0.01	3	17
Albert Ave WB LTR	A	7.4	0.01	0	5	A	7.7	0.02	8	36
Bailey St NB L	A	9.8	0.02	11	34	B	14.	0.14	25	48
Bailey St NB TR	A	9.3	0.03	15	41	B	12.0	0.16	32	53
Bailey St NB Approach	*A*	*5*	-	-	-	*B*	*12.*	-	-	-
Bailey St SB LTR	A	9.7	0.05	23	45	B	12.9	0.10	19	43
Grand ver ve Bailey										
Grand River Ave EB	B	12.8	0.05	10	36		23.5	0.17		50
Grand River Ave WB TR	-	-	-	-	-	-	-	-	1	11
Bailey St SB LR	B	13.	0.08	19	48	D	25.	0.35	25	52
Divi Ave										
Albert Ave EB LT	A	8.4	0.08	25	51	B	10.9	0.30	44	74
Albert Ave EB R	A	7.8	0.12	34	60	A	8.8	0.18	41	75
Albert Ave EB Approach	*A*	*8.*	-	-	-	*A*		-	-	-
Albert Ave WB LT	A	8.6	0.12	27	50	B	11.9	0.37	43	74
Albert Ave WB R	A	7.	0.01	4	18	A	7.9	0.03	11	35
Albert Ave WB Approach	*A*	*8.5*	-	-	-	*B*	*5*	-	-	-
Division St NB L	A	8.6	0.04	11	30	B	10.	0.10	19	39
Division St NB TR	A	7.8	0.0	8	23	A	9.8	0.16	25	51
Division St NB Approach	*A*	*8.3*	-	-	-	*A*		-	-	-
Division St SB LTR	A	9.1	0.17	35	55	B	10.6	0.18	27	46

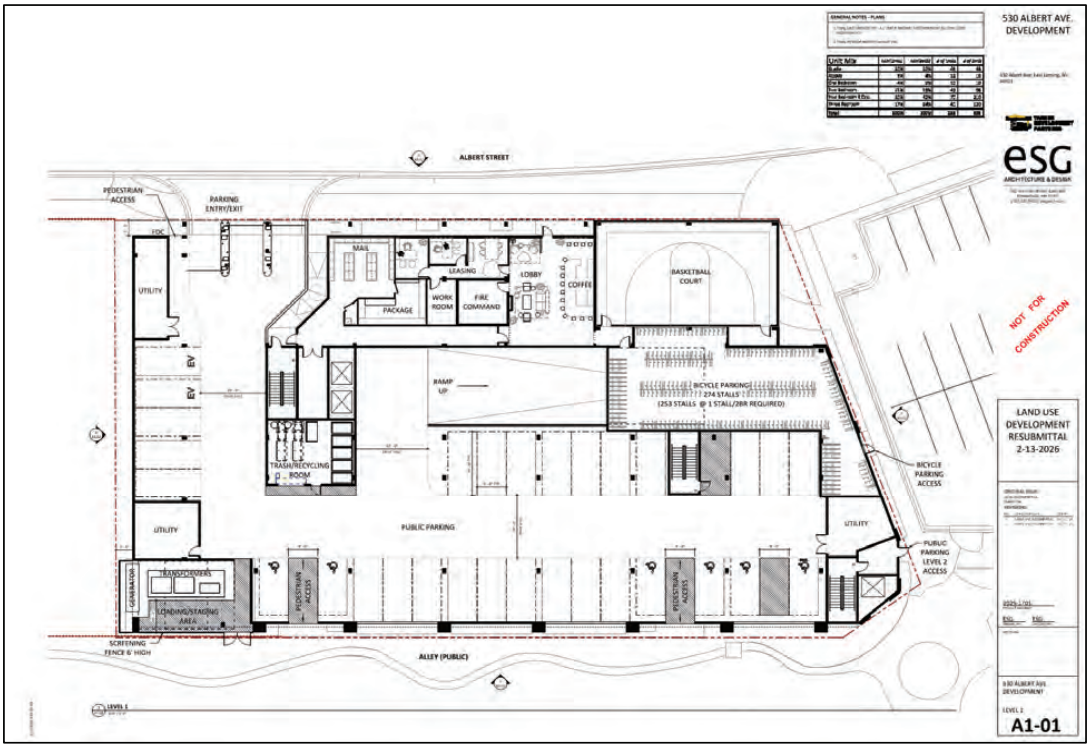
[1]Delay in second v
[2]Level of Service according to HCM
[3]Volu ty Ratio (from HCM Synchro R)
[4]Queue i 50th percentile and 95th percentile, via average of five SimTraffic simulations. If multi-lane, worst result

3.3 Prop Develop

ed dev will consist of a mixed-use dev uding residential housing, a 970-
quare- d a p king structure. Two lev king will be vided with a total of 83
parking along with 10 floors of residential housing with a total of 236 dwelling units. An additional 6 short-
d s king stalls will be ovided along Albert Avenue ed dev

The proposed site will be accessed via a single driveway along Albert Avenue that has been designed to
's sight distance standards ovides adequa v
and trash vehicle access. The site is well-connected to existing sidewalk and bicycle networks provi t
uous pedestrian access to nearby king garages and A s d i
Figur 8, below.

e 8. rop



3.4 rip Generation

Data contained in the Institute o (ITE) ip Generation Manual (12th Edition) was utilized to estimate the site traffic generated by ed dev de dev nd Us 1 Multifamily Housing (Mid-Rise) was used. By definition, this land us housing, includ e between 4 and 10 floors of liv e number of ex ted v were calculated for ed land use based on the number of dwelling u op were estimated using Land Use 936 Coffee/Donut p without Drive-Through, based on square footage. **Table 9** w site generated tr . ITE R luded in **Appendix B**.

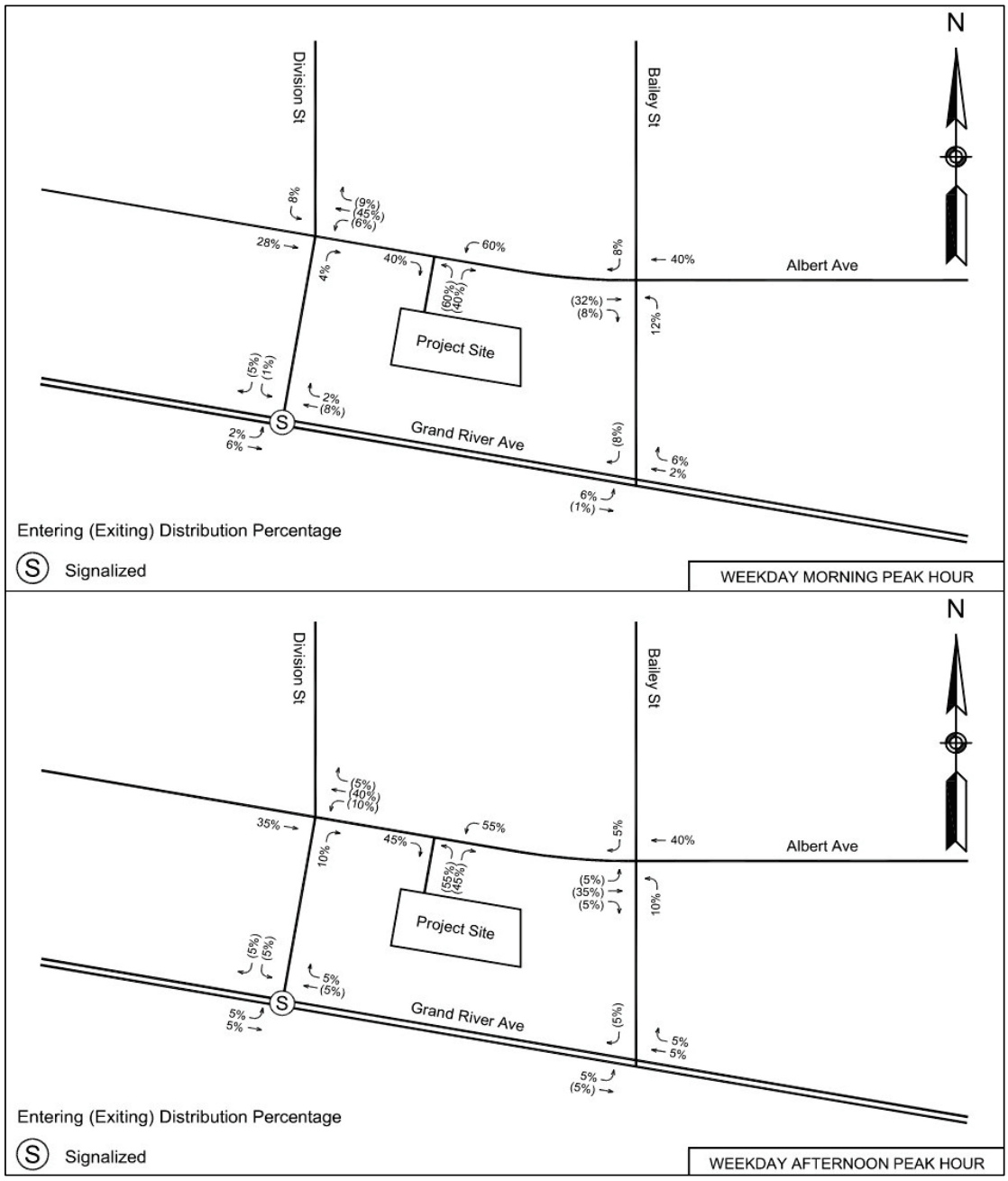
Table 9 Trip

Land Us nd	Units	Trip Type T	eak Hour Tr ps			k Hour Tr ps		
			Enter	Exit	Total	Enter	Exit	Total
221 - Multifamily Housing (Mid-Rise)	236 U	Veh	21	70	**91**	56	32	**88**
936 – Coffee/Donut Shop w/o Drive-Through	970	V	45	43	**88**	15	16	**31**
TOTAL			66	113	**179**	71	48	**119**

3.5 Site Trips Distribution

Based on ex d surrounding area land us distribution for vehicul was dev ed as shown **Figur 9**.

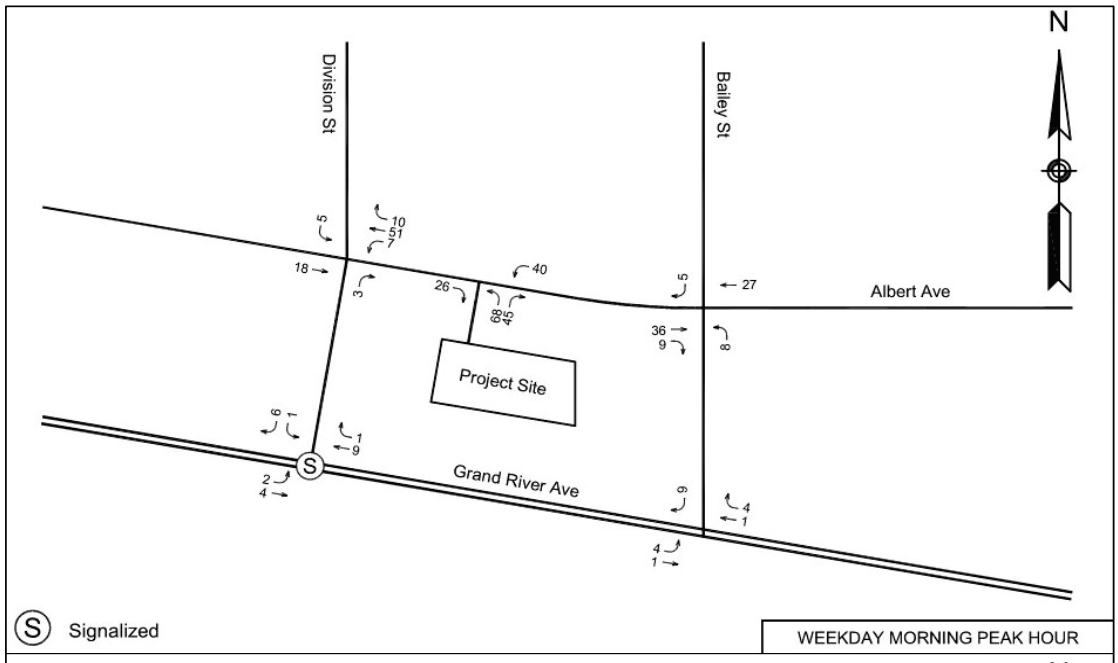
e 9. evelopment Vehicular Trip

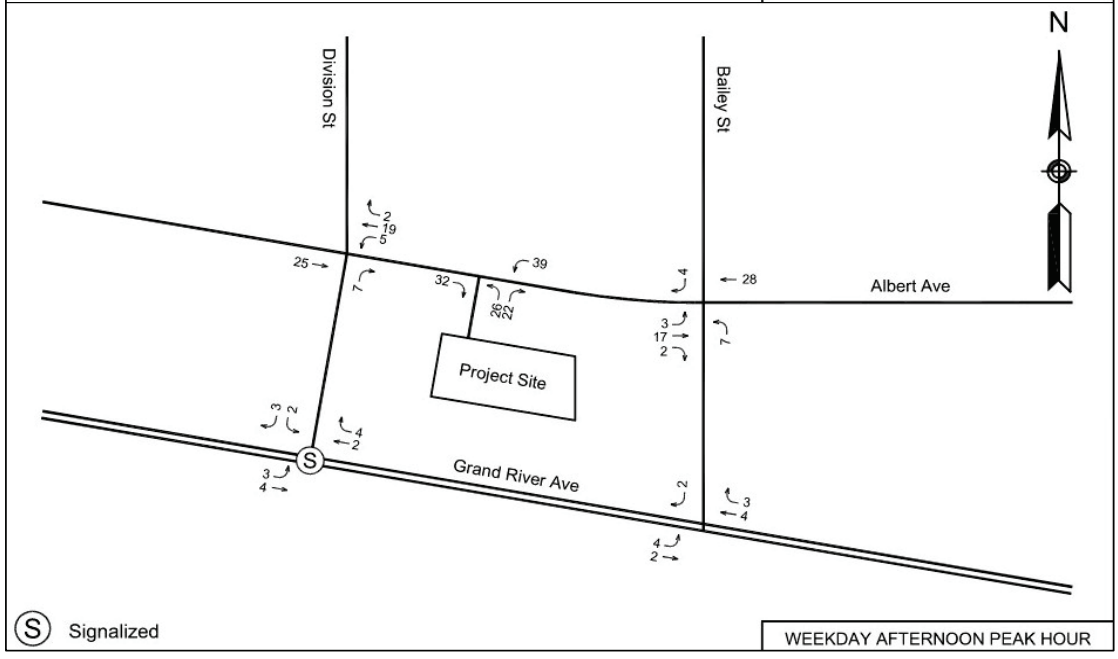


3.6 Site Trip Volumes p Vo p Vo p V

Based d tr and distribution for vehicular traffic, the dev ment-related new volum ed in was dev ed as shown **Figure 1** .

0. Development Vehicular Traffic Volumes





3.7 Build Vo

By adding the dev -related traffic volumes eviously identified 2027 O g Year No Build and 203 uture Year (5 years beyond) No Build condi e 2027 O Year Build and 2032 uture Year Build s

he 2027 and 203 Build Vehicular Traffic Volu ed in **Figu 11** and **Figure 12**.

Figure 11. 2027 Build Vehicular Traffic Volumes

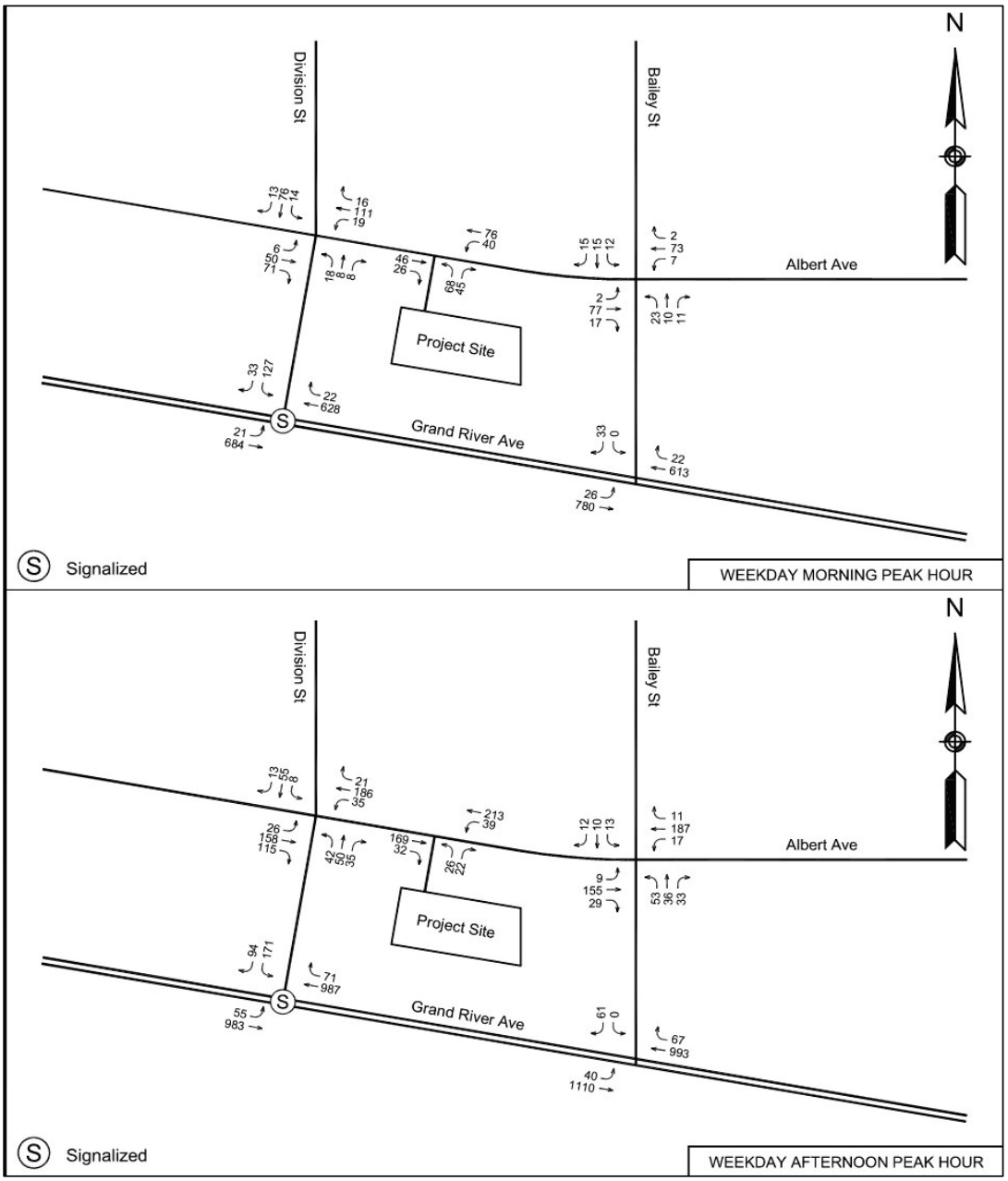
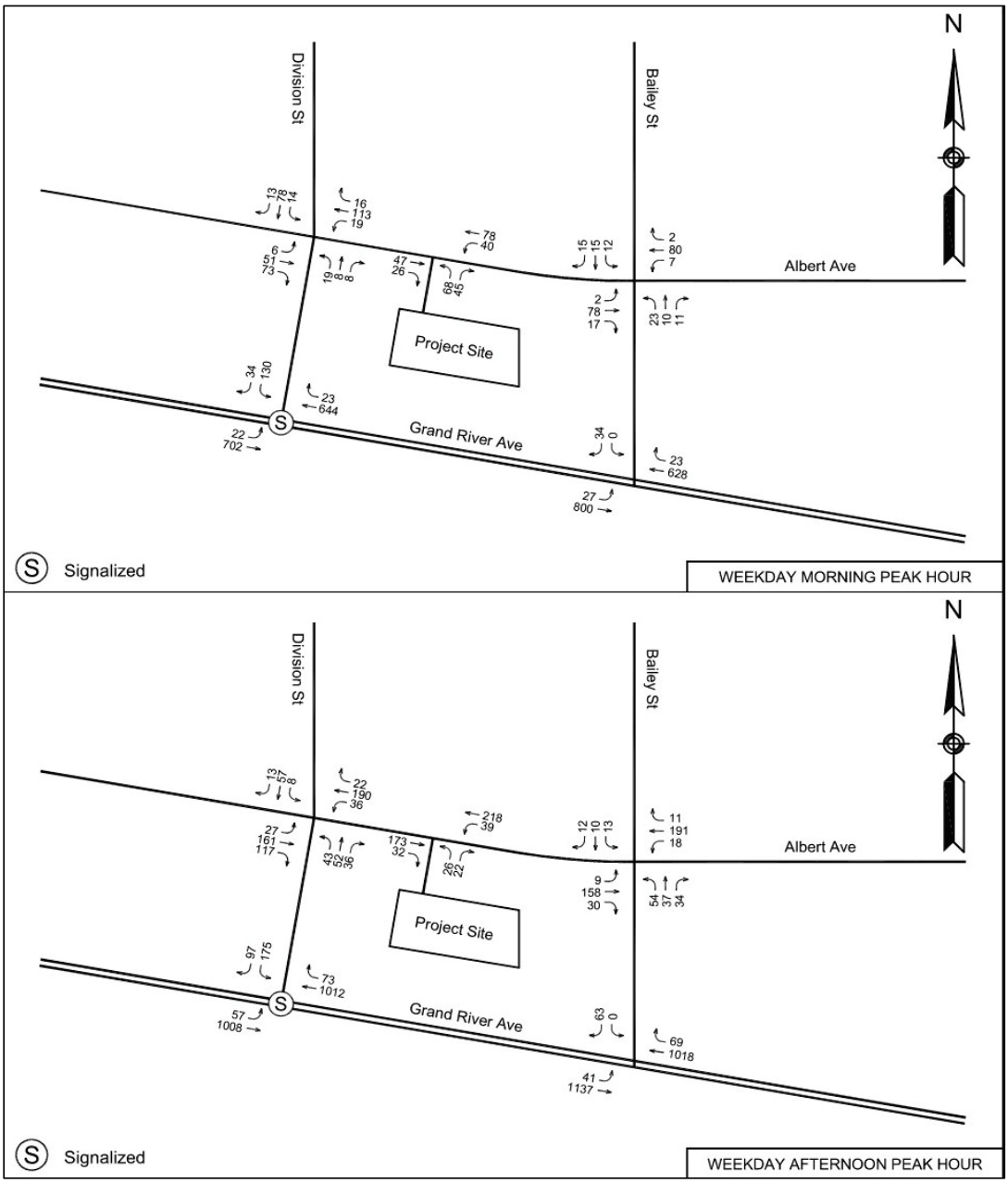


Figure 12. 2032 Build Vehicular Traffic Volumes



3.8 Build apacity Analysis

Inter were conducted for the future Build scenarios, listed below.
timing splits were retained from existing conditions to review if future retiming would be recommended as dev 's off-

2027 Build Conditions – This scenario analyzed the year 2027 traffic conditions with the addit the new site generated traffic volumes at each study intersection.

2032 Build Conditions – This scenario analyzed the year 203 onditions with the addit the new site generated traffic volumes at each study intersection.

1 nd Table 11 summariz delay and LOS at each study scenarios.

Table 10 2027 Build Conditions Summary

Location	Weekday Morning eak Hour					Weekday eak Ho				
	LOS[1]	Delay[2] (s/veh)	v/c[3]	Queue[4] (ft) 50th	Queue[4] (ft) 95th	LOS[1]	Delay[2] (s/veh)	v/c[3]	Queue[4] (ft) 50th	Queue[4] (ft) 95th
SIGNALIZED INTERSECTION										
Divi Grand ver ve										
Grand River Ave EB		31.0	0.10	19	51		33.	0.24	64	179
Grand River Ave EB	A	8.6	0.35	116	187	A	9.9	0.48	228	391
Grand River Ave EB Approach	*A*	*3*	-	-	-	*B*		-	-	-
Grand River Ave WB TR	B	18.4	0.40	121	169		21.0	0.60	199	350
Division St SB L		27.6	0.36	72	140		28.9	0.44	92	138
Division St SB R	B	15.6	0.03	19	58	B	17.0	0.17	40	84
Division St SB Approach		*25.*	-	-	-		*24.7*	-	-	-
OVERALL	**B**	**15.1**				**B**	**17.2**			
UNSIGNALIZED INTERSECTION										
Bailey St at Albert Ave										
Albert Ave EB LTR	A	7.5	0.01	1	9	A	7.7	0.01	5	25
Albert Ave WB LTR	A	7.5	0.01	1	8	A	7.7	0.02	5	28
Bailey St NB L	B	10.5	0.04	16	40		15.4	0.18	25	49
Bailey St NB TR	A	9.7	0.03	16	43	B	12.4	0.17	31	51
Bailey St NB Approach	*B*		-	-	-	*B*	*13.7*	-	-	-
Bailey St SB LTR	B	10.1	0.06	21	47	B	13.	0.11	20	47
Grand ver ve Bailey										
Grand River Ave EB	B	12.8	0.06	14	44		23.	0.18	23	53
Grand River Ave WB TR	-	-	-	1	10	-	-	-	1	9
Bailey St SB LR	B	13.4	0.10	23	59		24.7	0.35	26	51
Divi Ave										
Albert Ave EB LT	A	8.7	0.11	29	56	B	11.5	0.34	46	77
Albert Ave EB R	A	7.9	0.12	38	71	A	8.9	0.18	41	72
Albert Ave EB Approach	*A*	*8.3*	-	-	-	*B*	*5*	-	-	-
Albert Ave WB LT	A	9.3	0.20	31	53	B	12.6	0.41	51	90
Albert Ave WB R	A	7.3	0.02	10	26	A	7.9	0.03	14	38
Albert Ave WB Approach	*A*		-	-	-	*B*	*12.2*	-	-	-
Division St NB L	A	8.9	0.04	11	32	B	10.3	0.10	18	39
Division St NB TR	A	8.0	0.03	10	27	A	10.0	0.17	23	45
Division St NB Approach	*A*	*8.5*	-	-	-	*B*		-	-	-
Division St SB LTR	A	9.5	0.18	35	56	B	10.8	0.18	27	46
Driveway Ave										
Albert Ave WB L	A	7.4	0.03	3	18	A	7.8	0.03	9	49
Site Driveway NB LR	B	10.1	0.15	38	62	B	11.4	0.09	27	53

[1]Delay in second v
[2]Level of Service according to HCM
[3]Volu ty Ratio (from HCM Synchro R)
[4]Queue i 50th percentile and 95th percentile, via average of five SimTraffic simulations. If multi-lane, worst result

Table 1 2032 Build Conditions Summary

Location	Weekday Morning eak Hour					Weekday eak Ho				
	LOS[1]	Delay[2] (s/veh)	v/c[3]	Queue[4] (ft) 50th	95th	LOS[1]	Delay[2] (s/veh)	v/c[3]	Queue[4] (ft) 50th	95th
SIGNALIZED INTERSECTION										
Divi Grand ver ve										
Grand River Ave EB		31.1	0.10	18	50		33.	0.24	50	143
Grand River Ave EB	A	8.7	0.36	111	174	A	9.9	0.49	212	333
Grand River Ave EB Approach	*A*	*4*	-	-	-	*B*	*2*	-	-	-
Grand River Ave WB TR	B	18.5	0.41	116	166		21.3	0.62	194	301
Division St SB L		27.7	0.37	73	133		29.1	0.45	93	139
Division St SB R	B	15.6	0.03	20	55	B	17.1	0.18	45	92
Division St SB Approach		*25.2*	-	-	-		*24.8*	-	-	-
OVERALL	**B**	**15.2**				**B**	**17.**			
UNSIGNALIZED INTERSECTION										
Bailey St at Albert Ave										
Albert Ave EB LTR	A	7.5	0.01	0	4	A	7.7	0.01		14
Albert Ave WB LTR	A	7.5	0.01	1	8	A	7.7	0.02	4	
Bailey St NB L	B	10.5	0.04	15	41	B	14.7	0.17	25	48
Bailey St NB TR	A	9.7	0.03	13	38	B	12.3	0.17	32	52
Bailey St NB Approach	*B*		-	-	-	*B*	*13.3*	-	-	-
Bailey St SB LTR	B	10.1	0.06	25	46	B	13.0	0.11	21	46
Grand ver ve Bailey										
Grand River Ave EB	B	13.0	0.06	14	41		19.4	0.15	25	54
Grand River Ave WB TR	-	-	-	0	6	-	-	-	1	10
Bailey St SB LR	B	13.5	0.11	24	58		19.0	0.28	24	45
Divi Ave										
Albert Ave EB LT	A	8.7	0.11	28	53	B	11.7	0.35	48	77
Albert Ave EB R	A	7.9	0.13	35	65	A	9.0	0.19	39	73
Albert Ave EB Approach	*A*	*8.3*	-	-	-	*B*	*7*	-	-	-
Albert Ave WB LT	A	9.3	0.21	30	49	B	12.9	0.42	44	73
Albert Ave WB R	A	7.3	0.02	9	29	A	8.0	0.04	12	35
Albert Ave WB Approach	*A*		-	-	-	*B*	*12.5*	-	-	-
Division St NB L	A	8.9	0.04	11	31	B	10.4	0.10	18	38
Division St NB TR	A	8.0	0.03	9	25	B	10.	0.18	25	46
Division St NB Approach	*A*	*8.5*	-	-	-	*B*	*3*	-	-	-
Division St SB LTR	A	9.6	0.19	38	57	B	10.9	0.19	25	46
Driveway Ave										
Albert Ave WB L	A	7.4	0.03	4	21	A	7.7	0.03	6	29
Site Driveway NB LR	B	10.	0.15	37	59	B	11.4	0.09	25	52

[1]Delay in second v
[2]Level of Service according to HCM
[3]Volu ty Ratio (from HCM Synchro R)
[4]Queue i 50th percentile and 95th percentile, via average of five SimTraffic simulations. If multi-lane, worst result

4 Parking

d to be dev d existing Bailey Lot adjacent to M
University as shown in **F 1** ed site wil ovide a total of 83 public king stalls on Level 1
and ed dev An additional 6 short-term on-street metered k will be
ovided Albert Avenue. W d dev Bailey Lot will b
educed to 35 tot k

3 oposed Site and Adjacent Park



A parking generation analysis was conducted using methodol nted in the ITE Park
Generation Manual (6th Edition) detailed in **Table 12**.

Based on ITE methodologies, it is recommended that there will be a minimum of 302 t k
dev e ITE calculations do not account for reductions in vehicle use due to multi-mod
available to residents and as such the calculations are conservative. I d that residen
wil utilize the on- king garage and the Div

he Division Street Garage as wel ted Bailey Lot were considered i king evaluat
he Division Street garage has a total of 615 k d the existing Bailey Lot has 121 p k
, however wit ed dev e Bailey Lot will be reduced to about 35 k

ven lmp dy

4 Parking

12 k ng Ge

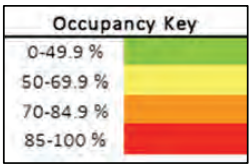
LAND US LAND US	For / Avg. Rate	Unit		Parking	Notes
ITE: Land Us 1, Mu Housing (Mid-Rise)	P =1.32(X) – 19.46	Dwelling Units	236	292	Weekd
ITE: Land Use 936, Coffee Shop without Drive-Through Window	P = 10.36(X)	1000 SF GFA	0.97	10	Weekd

's Parking Master Plan Update FY23 and king counts collected in A 2025 were referenced t he ex king demand. Parking occupa the Division Street garage was averaged f weekdays (Tuesday, Wednesday, Thursday) dur d from A 2025. The ex ed dev king demand was estimated based on ITE hour king rates (included in **Appendix B**). Based on the ex king occup and ed king demand for the new dev overall demand was determined f d. The new dev will have 83 s parking structure and it is recommended that vehicles will also utilize the existing Division Street Garage. **Table 13** shows king occupa existing Division Street garage and the total demand includ d dev with ponding **Fig 14,** detailing the legend. The total demand spot inventory is the comb d dev k nd the Div k e. It is ex ed t ed k e between the dev nd t Division Street garage inventory will reach 74% occup M peak and 72% occupa dur overnight hours.

T 3 evelopment and Division Street Garage Parking Occup

Parking	Inventory	A.M. Occupancy				P.M. Occupancy										A.M.	
		8:		10:		12:		2:		4:		6		8:		10:		12:	
Existing Parking (Division Street Garage)	615	254	41%	293	48%	327	53%	337	55%	305	50%	263	43%	256	42%	260	42%	211	34%
New lopm Demand		203		172		156		152		166		190		219		254		292	
Proposed Parking elopmen + Garage)	698	457	65%	465	67%	483	69%	489	70%	472	68%	453	65%	475	68%	514	74%	503	72%

4 Occupancy Key



he Bailey Street Lot was also evaluated based on the reduction of availabl king stalls. Cur Bailey Lot has 121 s w eak occupa of 65% based on A 2025 p king occup ounts (**Table 14**).

Ta 4 Existing Bailey Lot Occupa

rk	ventory	Occupancy				Occupancy												A.M.	
		8:00		10:00		12:30		2:00		4:00		6:00		8:00		10:00		12:00	
11: Bailey Lot (Current)	121	28	23%	48	39%	64	53%	70	58%	65	54%	79	65%	65	54%	52	43%	33	28%

Wit ed dev Bailey Lot will be reduced to 35 p k and as suc u king demand will need t k elsewhere. It d that these dis d vehicles w k in the Ba d dev he Div

Table 15 details the estimated t king occupanc udi d dev nt demand and educed Bailey Lot demand. As shown below, it is ex ed t d park betwee the dev ge, Division Street garage, Bailey Garage, and remaining Bailey Lot inventory w h 796% occup M peak and 72% occu during overnight hours indicating suff king availability for the new dev nt demand and d ed Ba k

Ta 5 Total Parking Occupa

Parking	Inventory	A.M. Occupancy				P.M. Occupancy												A.M.	
		8:		10:		12:		2:		4:		6		8:		10:		12:	
Development+Division Street + Reduced Bailey Lot+Bailey Garage	749	488	65%	516	69%	554	74%	566	76%	542	72%	537	72%	543	73%	569	76%	539	72%

Based on findings of the traffic study, it can be concluded that the dev d dis d B upanc an be sup d without adversely affecting the surround king network. In add Division Street Garage, there are addi king garages within 0.25 ed dev including the Charles Street Garage (Lot 3), Albert Avenue Garage (Lot 1), M.A.C Avenue Garage (Lot 12), and the Grove Street Garage (Lot 9) as shown in **Figu 15**. Based on averaged weekday king counts om A 2025 (**Table 16**), all garages have a current occupanc well below 70%, with the ex Albert Street Garage which has an occupa 70% at ak PM

ed the dev oximately 215 k e availabl purchase by the dev ovide long- king security for the dev ed k e available in the Division Street Garage and t Garage. In addition, residents who are also Michigan State University students have the additional option to pur k uter lot for the University, which has regular bus convenience.

ven Imp dy

4 Parking

5 City of Lansing Parking Areas



Source: C owntown Parking Guid

Ta 6 king Total Occupa

rkin Facility	ventory	A.M. Occupancy				P.M. Occupancy												A.M.	
		8:00		10:00		12:30		2:00		4:		6:00		8:00		10:00		12:00	
Lot 1: Albert Ave Garage	614	375	61%	407	66%	408	66%	402	65%	371	60%	362	59%	415	68%	428	70%	403	66%
t 3: Charles Street G	679	279	41%	400	59%	443	65%	450	66%	411	61%	319	47%	303	45%	277	41%	255	38%
Lot 9: Grove Street Garage	406	254	63%	262	64%	257	63%	255	63%	258	64%	237	58%	252	62%	247	61%	234	58%
Lot 12: MAC Garage	238	130	55%	143	60%	143	60%	138	58%	125	52%	90	38%	99	41%	107	45%	105	44%

5 Conclusions

Based on the study results, the following conclusions were made:

he dev ed to generate 179 new vehicul during the AM peak hour (66 113 exiting) and 119 new vehicul during the PM ak hour (71 entering, 48 exiting).

he vehicu ults indic ed dev will have negligib urrounding roadway network. All study area intersections are ex ted to ble LOS to background 2027 and 203 dit

Based on the vehicu ively enter and ex ed site driveway without significant delays or queues. Adjacent intersections queues will not block site driveway based on 95th percentile queue analysis.

A total of 162 crashes w d within the study area betwee 020- 024. Rear-end c wer ed ev nvolved injuries, w ed, and fiv pedestrian-involved crashes occurred dur d. N udy 's p 10 Acciden

king analysis indicated that the dev an be supp ted without adv urroundi king network. The dev ed to generate demand for 302 k , which can be accommodated through the on-site garage and the Div Garage. Additionally, nearby garages also maintain occupanc below 70% providing further flexibility.

k ovided in the on-site garage will be pub king and reside d dev will not be issued k within the dev king structur

No addit ovements are required as a result of this dev

Appendix A Traffic Volumes

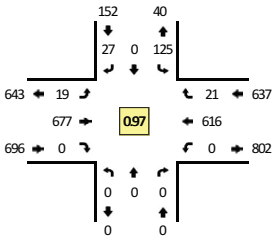
Type of peak hour being reported: Intersection Peak

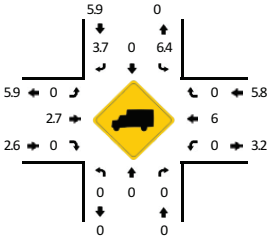
Method for determining peak hour: Total Entering Volume

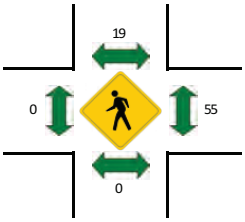
LOCATION: Division St -- Grand River Ave
CITY/STATE: East Lansing, MI

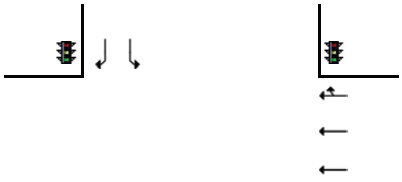
QC JOB #: 17405701
DATE: Thu, Jan 15 2026

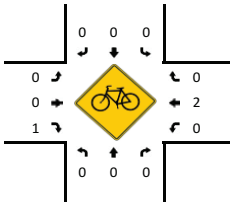
Peak-Hour: 7:45 -- 8:45
15-Min: 7:45 -- 8:00

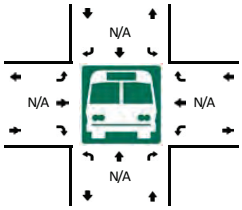




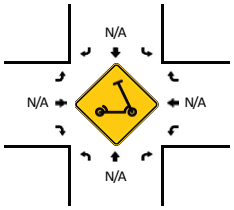












15-Min Count Period Beginning At	Division St (Northbound)				Division St (Southbound)				Grand River Ave (Eastbound)				Grand River Ave (Westbound)				Total	Hourly Totals
			Right	U	Left	Thru	Right	U	Left		Right	U	Left		Right	U		
7:00	0	0	0	0	8	0	0	0	1	65	0	0	0	80	3	0	157	
7:15	0	0	0	0	6	0	4	0	1	103	0	0	0	110	1	0	225	
7:30	0	0	0	0	21	0	3	0	4	134	0	0	0	140	2	0	304	
7:45	0	0	0	0	31	0	8	0	3	156	0	0	0	177	6	0	381	1067
8:00	0	0	0	0	38	0	5	0	6	183	0	0	0	140	3	0	375	1285
8:15	0	0	0	0	38	0	7	0	6	177	0	0	0	150	2	0	380	1440
8:30	0	0	0	0	18	0	7	0	4	161	0	0	0	149	10	0	349	1485
8:45	0	0	0	0	29	0	4	0	6	156	0	0	0	162	4	0	361	1465

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
			Right	U	Left		Right	U	Left		Right	U			Right	U	
	0	0	0	0	124	0	32	0	12	624	0	0	0	708	24	0	1524
Heavy	0	0	0		0	0	0		0	24	0		0	20	0		44
Buses		0				16				0				32			48
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/22/2026 10:02 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

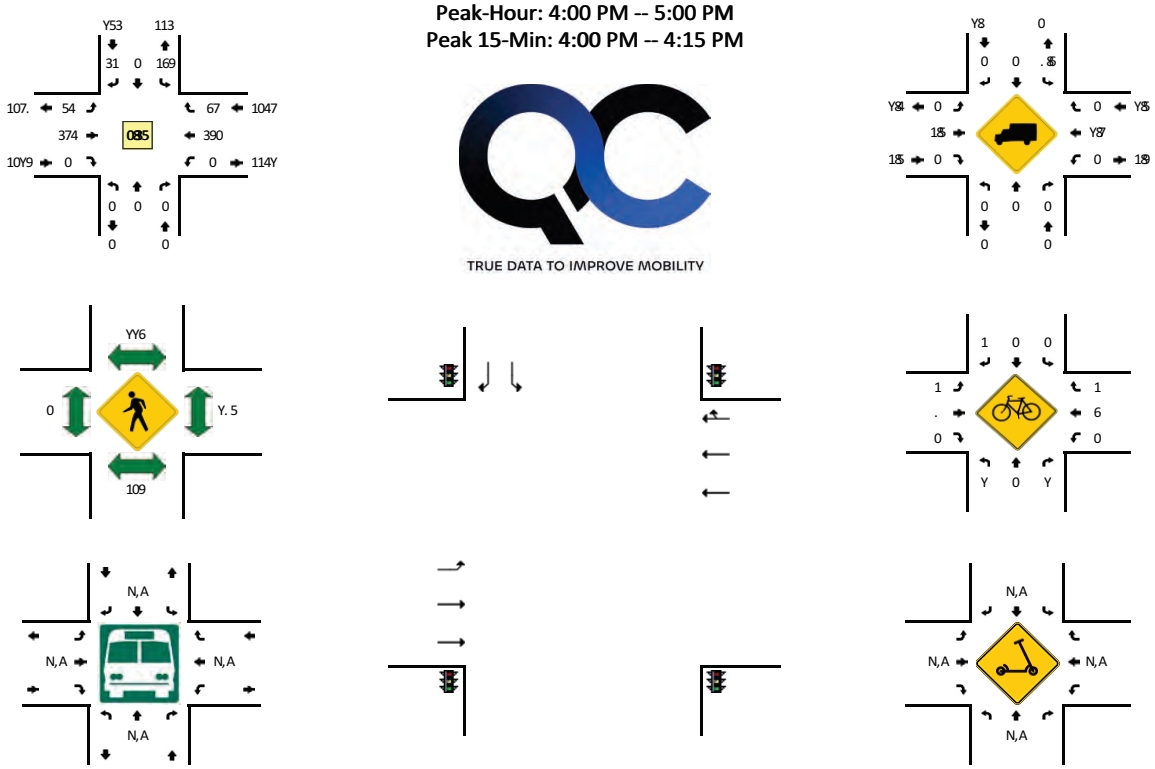
Method for determining peak hour: Total Entering Volume

LOCATION: Division St -- Grand River Ave
CIT/, STATE: East Lansing2MI

QC JOB #: 1740570Y
DATE: Thu2Jan 15 Y0Y6

Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:00 PM -- 4:15 PM

TRUE DATA TO IMPROVE MOBILITY



15-Min Count Period Beginning At	Division St (Northbound)				Division St (Southbound)				Grand River Ave (Eastbound)				Grand River Ave (Westbound)				Total	Hourly Totals
			Right	U	Left	Thru	Right	U	Left		Right	U	Left		Right	U		
4:00	0	0	0	0	4.	0	Y4	0	1.	Y55	0	0	0	Y65	17	0	617	
4:15	0	0	0	0	. .	0	Y6	0	19	Y. 5	0	1	0	Y5Y	13	0	594	
4:. 0	0	0	0	0	46	0	Y6	0	11	Y. 5	0	1	0	Y. 6	1.	0	569	
4:45	0	0	0	0	46	0	15	0	10	Y43	0	0	0	YY7	19	0	565	Y. . 4
5:00	0	0	0	0	. 9	0	1.	0	11	YY6	0	0	0	Y40	Y1	0	543	YY66
5:15	0	0	0	0	Y3	0	11	0	14	Y. Y	0	0	0	Y46	17	0	543	YY. 1
5:. 0	0	0	0	0	40	0	Y.	0	7	Y03	0	0	0	Y50	Y5	0	554	YY17
5:45	0	0	0	0	. 3	0	11	0	16	YY4	0	1	0	Y6Y	19	0	571	YYY.

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
			Right	U	Left		Right	U	Left		Right	U			Right	U	
	0	0	0	0	17Y	0	36	0	5Y	10Y0	0	0	0	1060	69	0	Y469
Heav Buses	0	0	0		4	0	0		0	Y4	0		0	Y0	0		49
		169				Y49				0				. 69			794
Bicycles Scooters	4	0	0		0	0	0		0	4	0		0	1Y	0		Y0

Comments:

Report generated on 1, YY, Y0Y6 10:0Y AM

SOURCE: Quality Counts2LLC (http:, , www8ualitycounts8net) 1-977-590-YY1Y

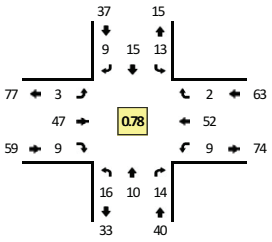
Type of peak hour being reported: Intersection Peak

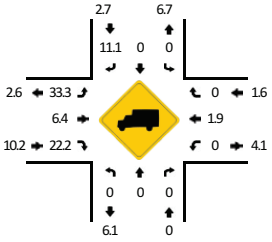
Method for determining peak hour: Total Entering Volume

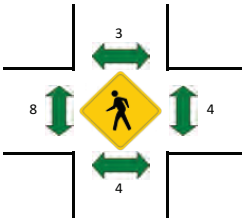
LOCATION: Bailey St -- Ave
CITY/STATE: East Lansing, MI

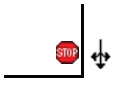
QC JOB #: 17405703
DATE: Thu, Jan 15 2026

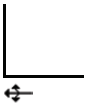
Peak-Hour: 8:00 -- 9:00
15-Min: 8:45 -- 9:00

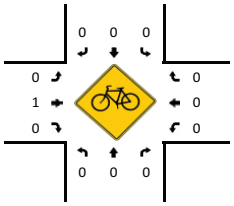


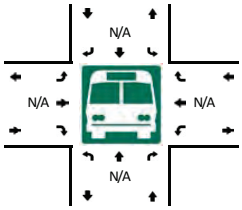


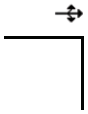


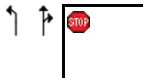


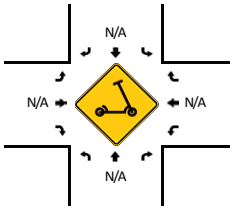












15-Min Count Period Beginning At	Bailey St (Northbound)				Bailey St (Southbound)				Ave (Eastbound)				Ave (Westbound)				Total	Hourly Totals
			Right	U	Left	Thru	Right	U	Left		Right	U	Left		Right	U		
7:00	0	4	1	0	2	0	1	0	0	5	1	0	0	4	0	0	18	
7:15	2	1	1	0	2	0	0	0	0	4	1	0	1	2	0	0	14	
7:30	4	3	2	0	0	1	0	0	1	11	3	0	1	9	1	0	36	
7:45	4	3	3	0	2	4	2	0	0	11	2	0	4	14	0	0	49	117
8:00	0	5	1	0	3	6	1	0	1	8	4	0	1	16	0	0	46	145
8:15	5	0	4	0	3	4	2	0	1	9	1	0	0	14	0	0	43	174
8:30	6	2	3	0	4	1	5	0	0	13	1	0	2	7	2	0	46	184
8:45	5	3	6	0	3	4	1	0	1	17	3	0	6	15	0	0	64	199

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
			Right	U	Left		Right	U	Left		Right	U			Right	U	
	20	12	24	0	12	16	4	0	4	68	12	0	24	60	0	0	256
Heavy	0	0	0		0	0	0		0	8	4		0	0	0		12
Buses		0				4				20				8			32
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 1/22/2026 10:02 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

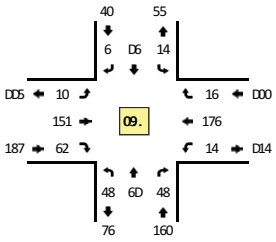
Type of peak hour being reported: Intersection Peak

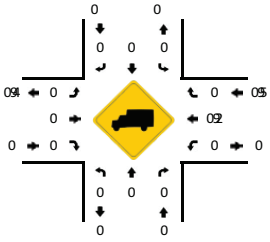
Method for determining peak hour: Total Entering Volume

LOCATION: Bailey St -- Ave
CIT3YSTATE: East Lansing/MI

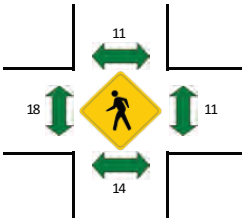
QC JOB #: 17405704
, A Thu/Jan 15 D0D2

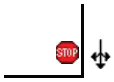
Peak-Hour: 5:00 PM -- 2:00 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

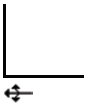


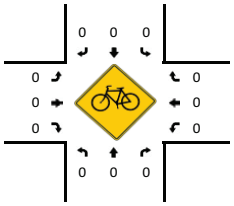


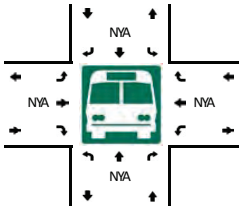
TRUE DATA TO IMPROVE MOBILITY

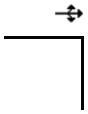


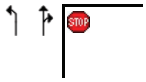


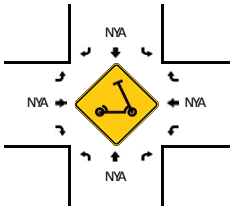












15-Min Count Period Beginning At	Bailey St (Northbound)				Bailey St (Southbound)				Ave (Eastbound)				Ave (Westbound)				Total	Hourly Totals
			Right	U	Left	Thru	Right	U	Left		Right	U	Left		Right	U		
4:00	7	.	7	0	4	4	4	0	1	61	.	0	4	68	1	0	11.	
4:15	14	14	1D	0	D	6	1	0	D	64	.	0	5	4.	D	0	145	
4:60	10	8	10	0	6	6	D	0	D	68	4	0	4	45	1	0	16D	
4:45	15	5	4	0	4	0	1	0	1	66	7	0	4	D2	7	0	107	50D
5:00	16	.	1D	0	1	6	D	0	4	50	7	0	6	52	6	0	12D	542
5:15	.	1D	8	0	4	1D	0	0	1	62	11	0	6	67	4	0	167	56.
5:60	17	4	14	0	4	4	1	0	D	D7	10	0	5	6.	0	0	1D2	56D
5:45	11	.	14	0	5	4	0	0	6	6.	.	0	6	4D	2	0	14D	527

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
			Right	U	Left		Right	U	Left		Right	U			Right	U	
	5D	6D	4.	0	4	1D	.	0	12	D00	D.	0	1D	DD4	1D	0	24.
Heavy	0	0	0		0	0	0		0	0	0		0	4	0		4
Buses		12				.				12				4			44
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

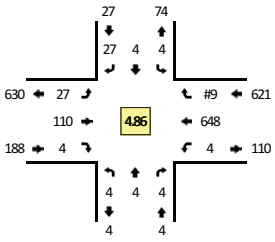
Report generated on 1YDDYD0D2 10:0D AM

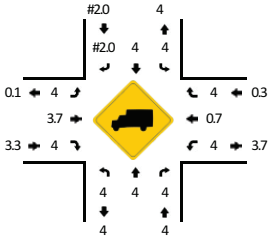
SOURCE: Quality Counts/LLC (http:YYwww9quality counts9net) 1-. 77-5. 0-DD1D

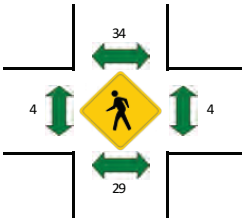
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

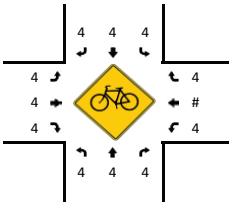
LOCATION: Dailey vt SS- GiR R | **QC JOD B:** #1740140
CIT5YvTATE: East Lansing/MI | , A Thu/Jan #0 2426

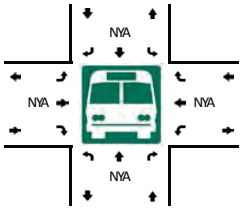
PeakSHour: 1:70 SS9:70
#0SMin: 9:44 SS9:#0

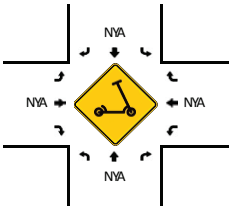












#0SMin Count Period Deginning At	Dailey vt (Northbound)				Dailey vt (vouthbound)				- rand GiR R (Eastbound)				- rand GiR R (Westbound)				Total	Hourly Totals
	Left	Thru	Gight	U	Left	Thru	Gight	U	Left	Thru	Gight	U	Left	Thru	Gight	U		
1:44	4	4	4	4	4	4	3	4	3	14	4	4	4	99	2	4	#66	
1:#0	4	4	4	4	4	4	2	4	2	#40	4	4	4	#41	3	4	2#8	
1:34	4	4	4	4	4	4	3	4	0	#79	4	4	4	#31	2	4	280	
1:70	4	4	4	4	4	4	8	4	7	#92	4	#	4	#10	0	4	316	#406
9:44	4	4	4	4	4	4	6	4	9	2#0	4	4	4	#76	7	4	318	#268
9:#0	4	4	4	4	4	4	7	4	7	2#4	4	4	4	#73	2	4	363	#7#3
9:34	4	4	4	4	4	4	0	4	6	#69	4	#	4	#70	1	4	332	#704
9:70	4	4	4	4	4	4	9	4	2	#96	4	4	4	#62	1	4	360	#738

Peak #0SMin Flowrates	Northbound				vouthbound				Eastbound				Westbound				Total
	Left	Thru	Gight	U	Left	Thru	Gight	U	Left	Thru	Gight	U			Gight	U	
	4	4	4	4	4	4	27	4	32	964	4	4	4	097	#6	4	#0#6
HeaR Duses	4	4	4		4	4	7		4	27	4		4	36	4		67
		77				67				4				4			#49
D vcooters	4	4	4		4	4	4		4	4	4		4	7	4		7

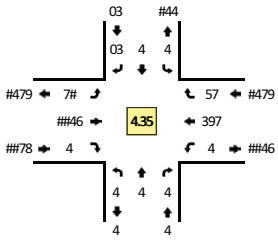
Comments:

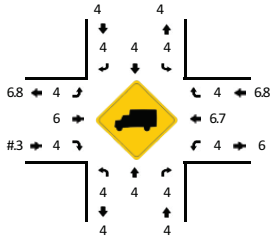
Geport generated on #Y22Y2426 #4:42 AM | vOUGCE: Quality Counts/LLC (http:YYwww.qualitycounts.net) #S9115094S22#2

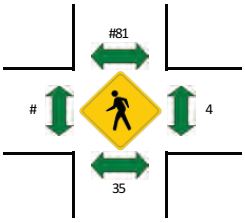
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

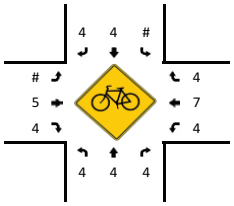
LOCATION: Dailey vt SS- GiR R | **QC JOD B:** #1740145
CITY/vTATE: East Lansing, MI | **2 A** Thu, Jan #0 6465

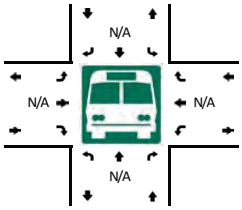
PeakSHour: 7:44 PM SS0:44 PM
Peak #0SMin: 7:44 PM SS7:#0 PM

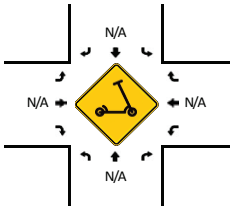












#0SMin Count Period Deginning At	Dailey vt (Northbound)				Dailey vt (vouthbound)				- rand GiR R (Eastbound)				- rand GiR R (Westbound)				Total	Hourly Totals
	Left	Thru	Gight	U	Left	Thru	Gight	U	Left	Thru	Gight	U	Left	Thru	Gight	U		
7:44	4	4	4	4	4	4	68	4	3	697	4	6	4	603	#4	4	091	
7:#0	4	4	4	4	4	4	3	4	#8	614	4	4	4	61#	64	4	098	
7:84	4	4	4	4	4	4	#0	4	9	61#	4	#	4	689	#0	4	079	
7:70	4	4	4	4	4	4	#6	4	5	611	4	6	4	6#5	#3	4	086	6604
0:44	4	4	4	4	#	4	#6	4	#4	603	4	#	4	600	#7	4	006	66#0
0:#0	4	4	4	4	4	4	68	4	#7	673	4	6	4	608	#1	4	009	6#34
0:84	4	4	4	4	4	4	#0	4	#0	688	4	#	4	614	#4	4	077	6#95
0:70	4	4	4	4	4	4	#0	4	1	671	4	6	4	678	#6	4	065	6#94

Peak #0SMin Flowrates	Northbound				vouthbound				Eastbound				Westbound				Total
	Left	Thru	Gight	U	Left	Thru	Gight	U	Left	Thru	Gight	U			Gight	U	
	4	4	4	4	4	4	36	4	85	##85	4	9	4	#485	74	4	6879
HeaR	4	4	4		4	4	4		4	69	4		4	#5	4		77
Duses		#49				#59				4				4			615
D vcooters	4	4	4		7	4	4		4	#6	4		4	7	4		64

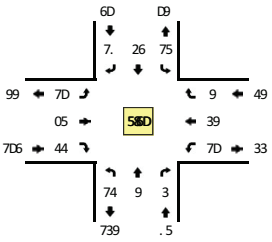
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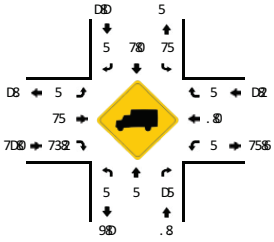
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Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

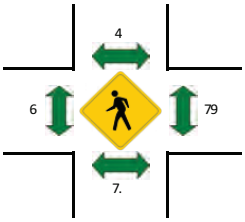
LOCATION: BiSision - t w AS | **QC JO# 1:** 74053454
CITY/- TATE: East Lansing, MI | **BA** Thu, Jan 73 D5D2

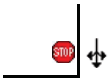
PeakvHour: 9:55 w6:55
73vMin: 9:03 w6:55

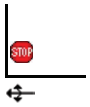


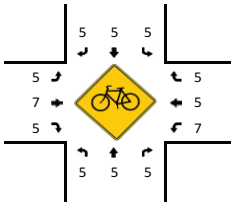


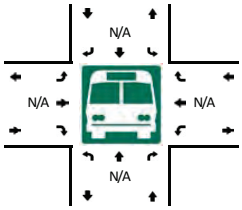
TRUE DATA TO IMPROVE MOBILITY

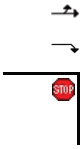


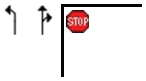


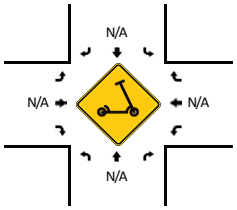












73vMin Count Period #eginning At	BiSision - t (Northbound)				BiSision - t (- outhbound)				AS (Eastbound)				AS (Westbound)				Total	Hourly Totals
			Right	U	Left	Thru	Right	U	Left		Right	U	Left		Right	U		
4:55	5	5	D	5	5	D	5	5	7	3	0	5	5	0	5	5	79	
4:73	5	7	D	5	5	D	7	5	7	D	3	5	D	.	7	5	D5	
4:. 5	7	7	.	5	D	7D	5	5	5	75	7.	5	.	77	5	5	32	
4:03	3	7	D	5	D	D0	.	5	5	2	7D	5	0	74	5	5	42	745
9:55	.	.	5	5	.	D.	.	5	.	7D	79	5	.	70	5	5	93	D. 4
9:73	2	7	7	5	7	74	0	5	7	4	D6	5	.	74	7	5	99	. 53
9:. 5	0	.	D	5	.	7D	.	5	D	4	7D	5	D	7D	3	5	24	. 72
9:03	0	7	D	5	.	74	.	5	2	70	79	5	0	73	D	5	96	. D6

Peak 73vMin Flowrates	Northbound				- outhbound				Eastbound				Westbound				Total
			Right	U	Left		Right	U	Left		Right	U			Right	U	
	72	0	9	5	7D	29	7D	5	D0	32	4D	5	72	25	9	5	. 32
HeaS	5	5	0		5	0	5		5	9	72		5	5	5		. D
#uses		0				5				0				9			72
# - cooters	5	5	5		5	5	5		5	5	5		5	5	5		5

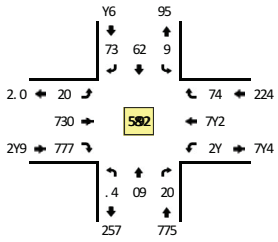
Comments:

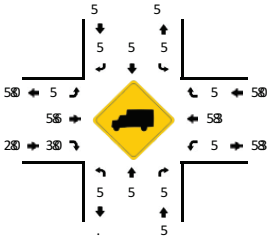
Report generated on 7/DD/D5D2 75:5D AM | - OURCE: Quality Counts, LLC (http://www8ualitycounts8net) 7v944v395vDD7D

Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

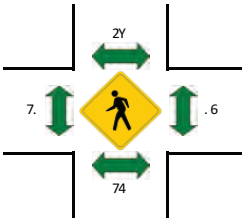
LOCATION: BiSision - t w AS | **QC JO# 1:** 7405345Y
CIT/, - TATE: East LansingDMI | **BA** ThuDJan 73 2526

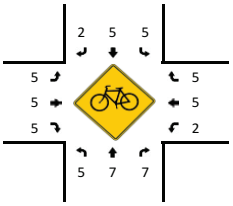
PeakvHour: 0:73 PM w3:73 PM
Peak 73vMin: 3:55 PM w3:73 PM

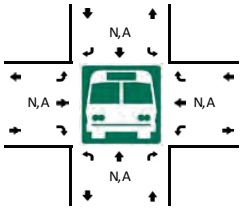


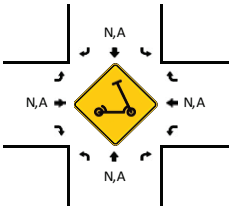


TRUE DATA TO IMPROVE MOBILITY









73vMin Count Period #eginning At	BiSision - t (Northbound)				BiSision - t (- outhbound)				AS (Eastbound)				AS (Westbound)				Total	Hourly Totals
			Right	U	Left	Thru	Right	U	Left		Right	U	Left		Right	U		
0:55	72	70	75	5	7	72	.	5	6	. 5	2.	5	Y	. 4	9	5	763	
0:73	7.	72	75	5	5	6	0	5	6	. 2	2Y	5	9	37	2	5	74.	
0:. 5	4	77	.	5	2	79	3	5	3	05	. 2	5	0	02	Y	5	74Y	
0:03	75	7.	3	5	3	7Y	7	5	9	. 5	. 7	5	9	. 6	5	5	764	6Y.
3:55	4	7.	6	5	2	79	3	5	0	32	25	5	6	3.	4	5	790	472
3:73	7.	75	0	5	0	75	2	5	.	. 9	23	5	3	02	2	5	739	69Y
3:. 5	7.	6	4	5	2	22	0	5	4	. .	29	5	Y	. 6	9	5	746	696
3:03	73	4	9	5	.	24	7	5	.	. Y	7Y	5	4	07	6	5	743	450

Peak 73vMin Flowrates	Northbound				- outhbound				Eastbound				Westbound				Total
			Right	U	Left		Right	U	Left		Right	U			Right	U	
	2Y	32	20	5	Y	46	25	5	76	25Y	Y5	5	20	272	2Y	5	446
HeaS	5	5	5		5	5	5		5	5	0		5	5	5		0
#uses		Y				76				Y				05			42
# - cooters	5	5	0		5	5	0		5	5	5		5	5	5		Y

Comments:

Report generated on 7, 22, 2526 75:52 AM | - OURCE: Quality CountsDLLC (http:, , www8ualitycounts8net) 7vY44v3Y5v2272

Appendix BAppendix BAppendix BAppendix B

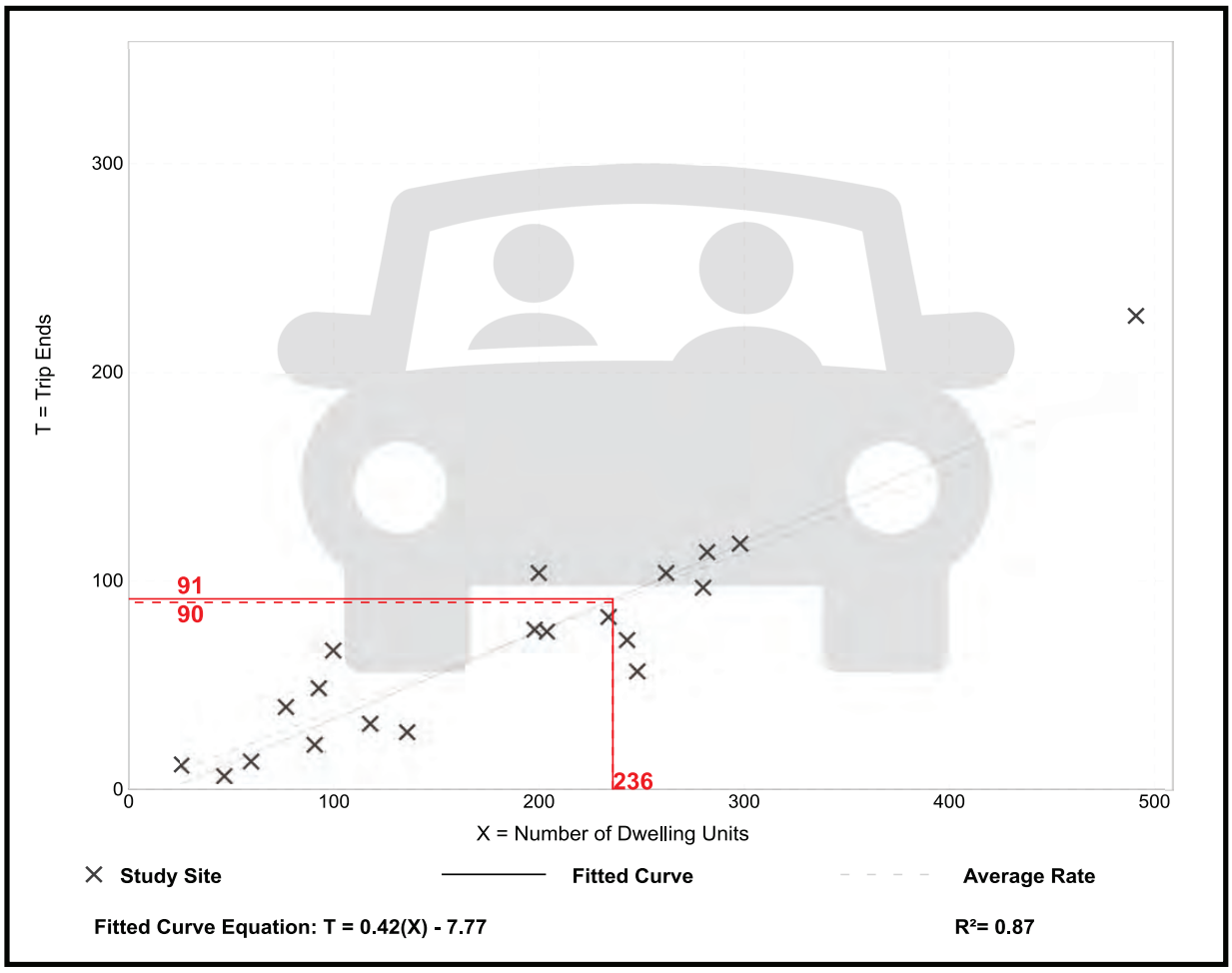
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	20
Avg. Num. of Dwelling Units:	184
Directional Distribution:	23% entering, 77% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.38	0.15 - 0.67	0.10

Data Plot and Equation



Trip Gen Manual, 12th Edition • Institute of Transportation Engineers

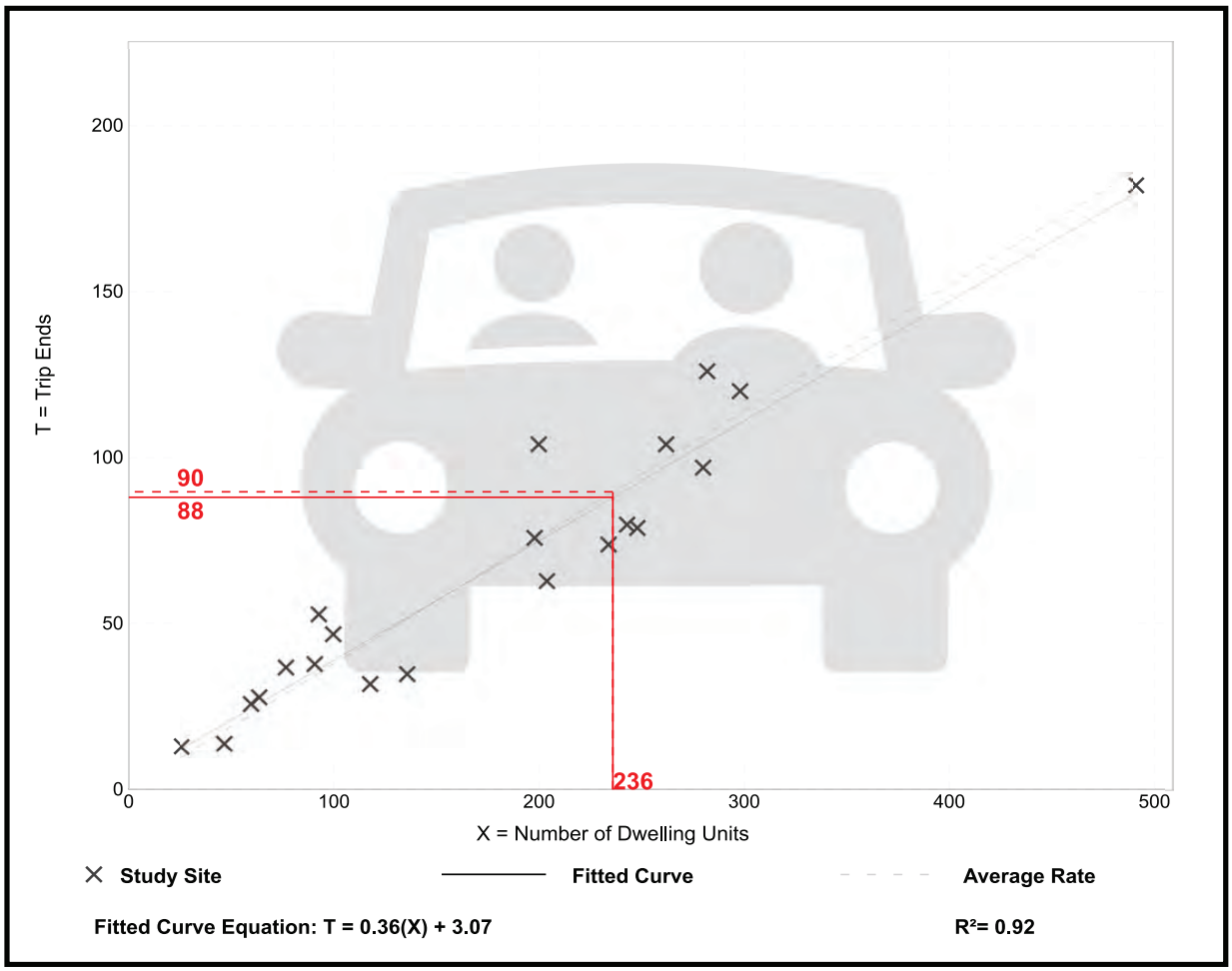
Multifamily Housing (Mid-Rise)
Not Close to Rail Transit (221)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 21
Avg. Num. of Dwelling Units: 179
Directional Distribution: 64% entering, 36% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.38	0.26 - 0.57	0.07

Data Plot and Equation



Trip Gen Manual, 12th Edition • Institute of Transportation Engineers

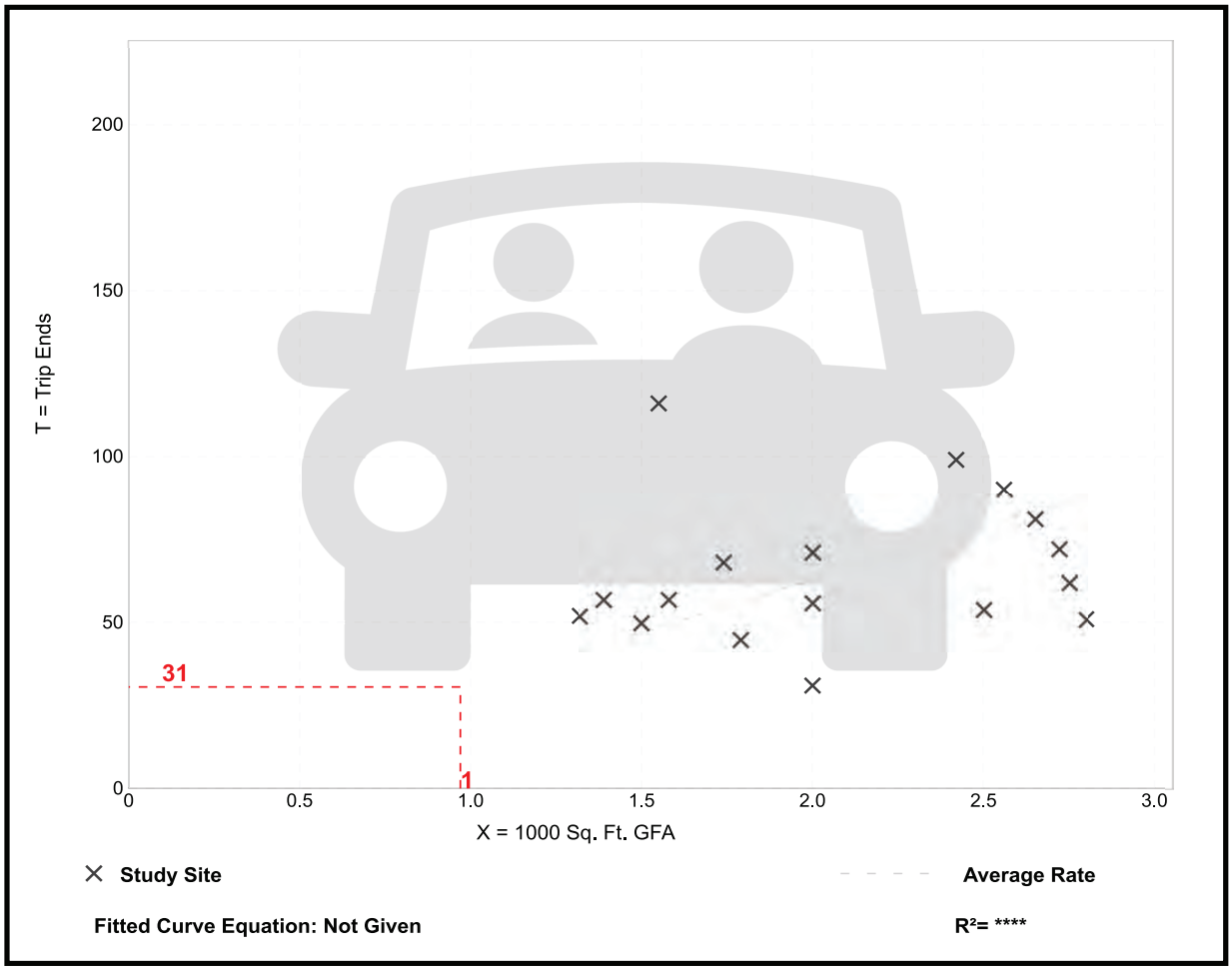
Coffee/Donut Shop without Drive-Through Window
(936)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	17
Avg. 1000 Sq. Ft. GFA:	2
Directional Distribution:	50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
31.53	15.50 - 74.84	12.49

Data Plot and Equation



Trip Gen Manual, 12th Edition • Institute of Transportation Engineers

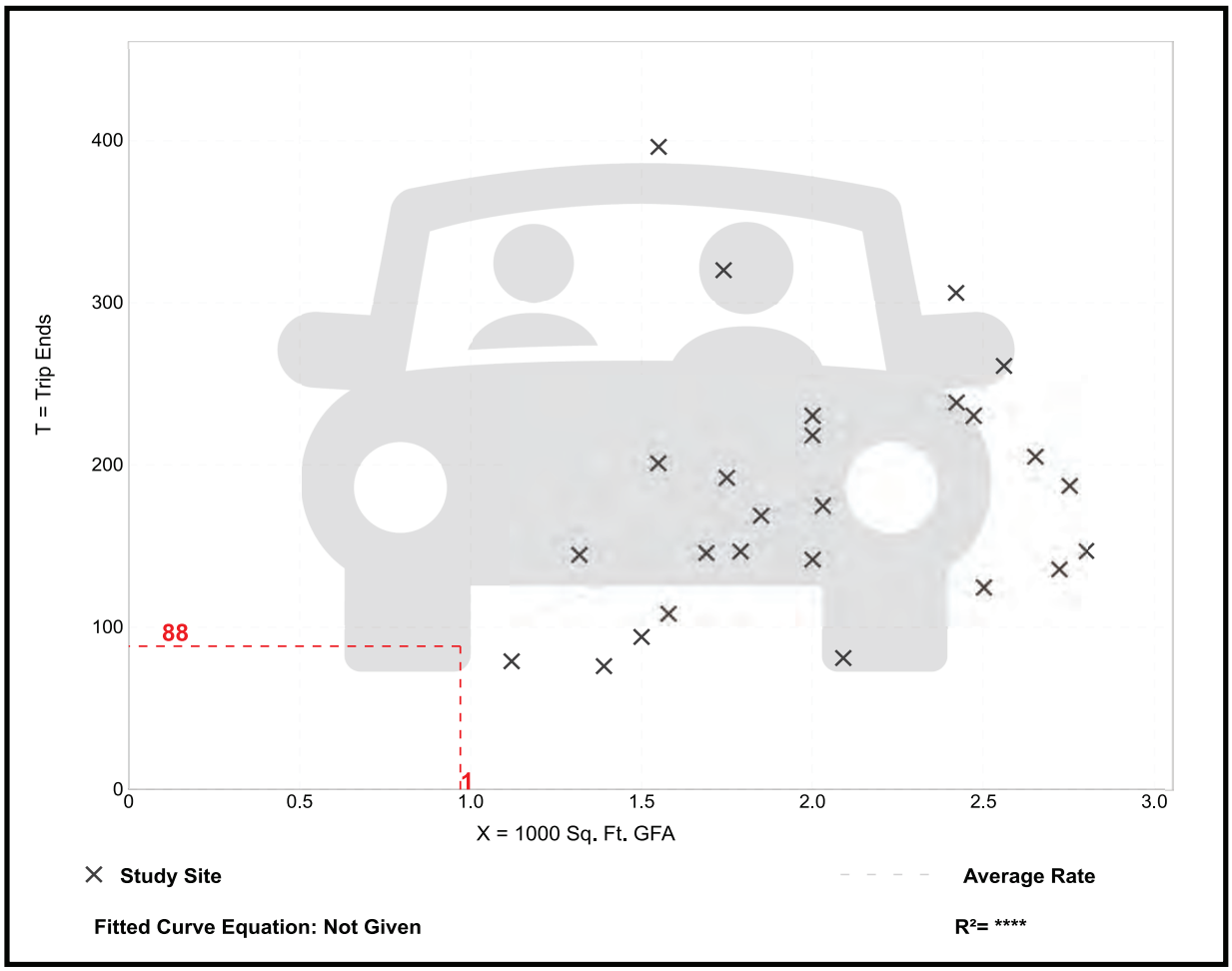
Coffee/Donut Shop without Drive-Through Window
(936)

Vehicle Trip Ends vs:	**1000 Sq. Ft. GFA**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	26
Avg. 1000 Sq. Ft. GFA:	2
Directional Distribution:	51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
91.02	38.76 - 255.48	42.68

Data Plot and Equation



Trip Gen Manual, 12th Edition • Institute of Transportation Engineers

Land Use: 221 Multifamily Housing—2+ BR (Mid-Rise)

Description

Mid-rise multifamily housing with two or more bedrooms is a residential building with between four and 10 floors (levels) of residence that contain at least one dwelling unit with two or more bedrooms. Access to individual dwelling units is through an outside building entrance, a lobby, elevator, and a set of hallways.

Land Use Subcategory

Data are separated into two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Time-of-Day Distribution for Parking Demand

The following table presents a composite (weekday and Saturday) Time-of-Day distribution of parking demand for three general urban/suburban study sites.

Hour Beginning	Percent of Peak Parking Demand
	Weekday/Saturday Composite
12:00-4:00 a.m.	100
5:00 a.m.	96
6:00 a.m.	86
7:00 a.m.	77
8:00 a.m.	66
9:00 a.m.	60
10:00 a.m.	57
11:00 a.m.	55
12:00 p.m.	52
1:00 p.m.	50
2:00 p.m.	52
3:00 p.m.	51
4:00 p.m.	57
5:00 p.m.	62
6:00 p.m.	65
7:00 p.m.	68
8:00 p.m.	75
9:00 p.m.	82
10:00 p.m.	87
11:00 p.m.	91

Additional Data

The average parking supply ratios and average peak parking occupancy for the study sites with parking supply information are shown in the table below.

Setting	Proximity to Rail Transit	Parking Supply Per Dwelling Unit	Average Peak Parking Occupancy
Center City Core	Within ½ mile of rail transit	0.73 (8 sites)	69%
Dense Multi-Use Urban	Within ½ mile of rail transit	0.88 (31 sites)	81%
	Not within ½ mile of rail transit	1.1 (35 sites)	76%
General Urban/ Suburban	Within ½ mile of rail transit	1.5 (6 sites)	74%
	Not within ½ mile of rail transit	1.7 (38 sites)	72%

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in California, Connecticut, District of Columbia, Maine, Maryland, Massachusetts, North Carolina, Ontario (CAN), Oregon, Tennessee, Virginia, Washington, and Wisconsin.

Source Numbers

209, 255, 277, 402, 419, 505, 512, 533, 535, 536, 537, 545, 546, 547, 575, 576, 577, 579, 581, 583, 584, 585, 587. 602, 603, 604, 620, 631

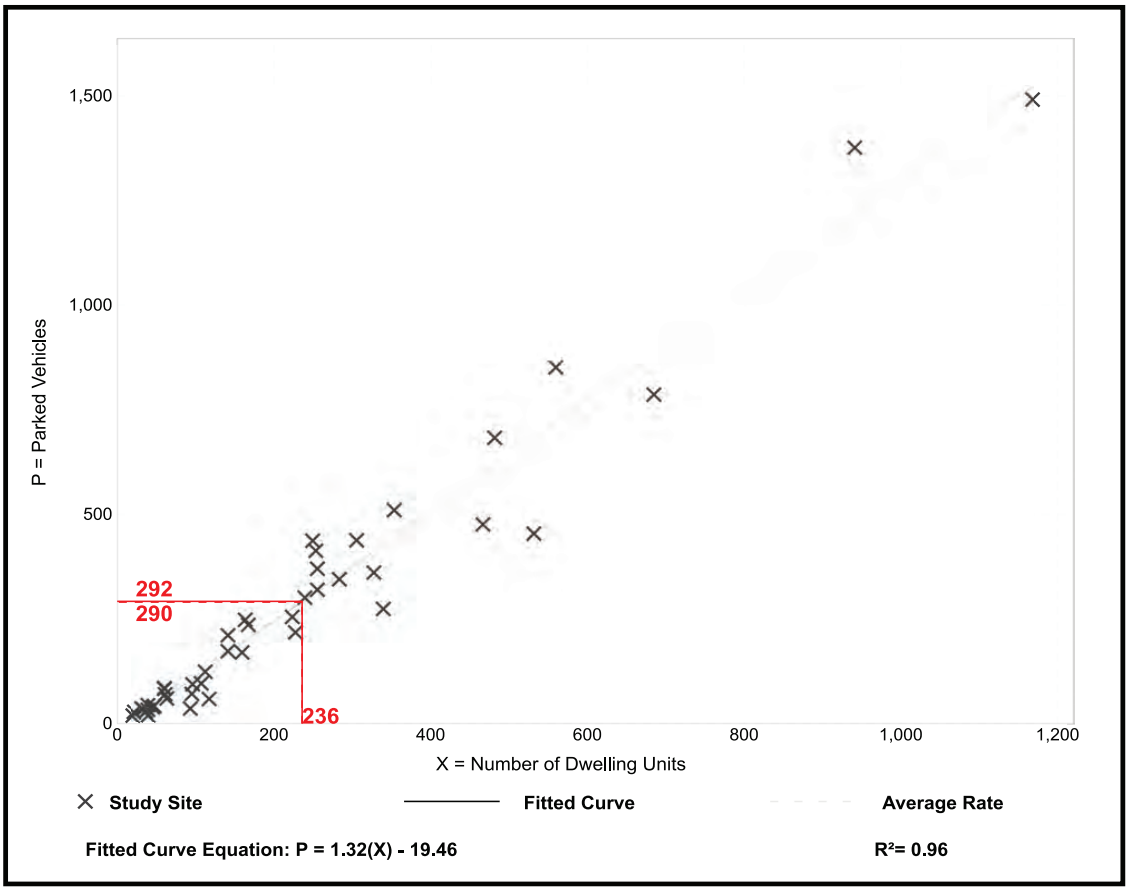
Multifamily Housing - 2+ BR (Mid-Rise) - Not Close to Rail Transit
(221)

Peak Period Parking Demand vs: **Dwelling Units**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Number of Studies: 44
Avg. Num. of Dwelling Units: 231

Peak Period Parking Demand per Dwelling Unit

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
1.23	0.39 - 1.75	0.98 / 1.45	1.15 - 1.31	0.27 (22%)

Data Plot and Equation



Parking Generation Manual, 6th Edition ● Institute of Transportation Engineers

Land Use: 936 Coffee/Donut Shop without Drive-Through Window

Description

This land use includes any coffee and donut restaurant that does not have a drive-through window. The restaurant sells freshly brewed coffee (along with coffee-related accessories) and a variety of food/drink products such as donuts, bagels, breads, muffins, cakes, sandwiches, wraps, salads, and other hot and cold beverages. The restaurant marketing and sales may emphasize coffee beverages over food (or vice versa). A coffee/donut shop typically holds long store hours (more than 15 hours) with an early morning opening. Limited indoor seating is generally provided for patrons and table service is not provided.

Time-of-Day Distribution for Parking Demand

The following table presents a time-of-day distribution of parking demand at three study sites on a weekday (Monday–Thursday) and three study sites on a Saturday in a general urban/suburban setting.

Hour Beginning	Percent of Peak Parking Demand	
	Monday–Thursday	Saturday
12:00–4:00 a.m.	–	–
5:00 a.m.	–	–
6:00 a.m.	–	–
7:00 a.m.	73	100
8:00 a.m.	100	90
9:00 a.m.	63	80
10:00 a.m.	57	65
11:00 a.m.	42	62
12:00 p.m.	39	40
1:00 p.m.	27	32
2:00 p.m.	–	–
3:00 p.m.	–	–
4:00 p.m.	–	–
5:00 p.m.	–	–
6:00 p.m.	–	–
7:00 p.m.	–	–
8:00 p.m.	–	–
9:00 p.m.	–	–
10:00 p.m.	–	–
11:00 p.m.	–	–

Additional Data

The average parking supply ratio for the six study sites with parking supply information is 16 spaces per 1,000 square feet GFA. The average peak parking occupancy at these six sites is 46 percent.

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in California, New Jersey, Oregon, Pennsylvania, Virginia, and Washington.

Source Numbers

298, 399, 428, 431, 433, 531, 626, 637

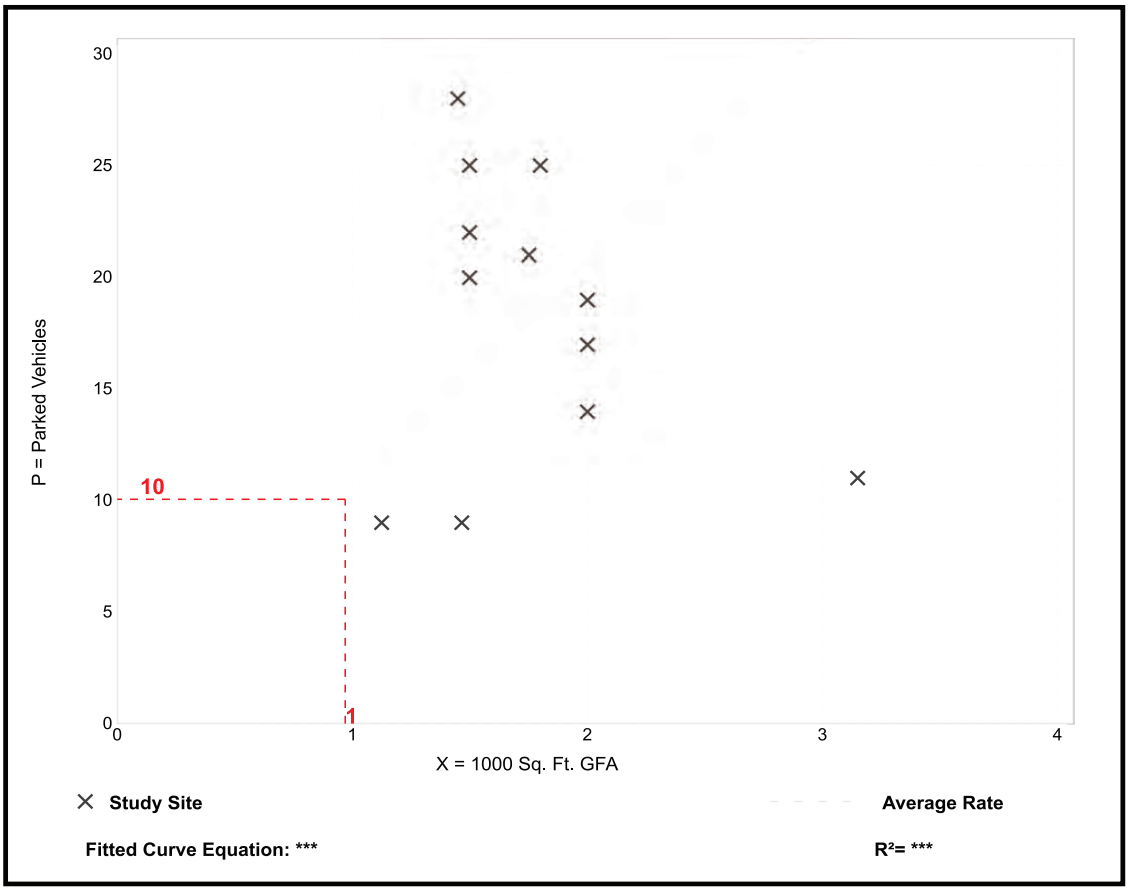
Coffee/Donut Shop without Drive-Through Window
(936)

Peak Period Parking Demand vs: **1000 Sq. Ft. GFA**
On a: **Weekday (Monday - Friday)**
Setting/Location: **General Urban/Suburban**
Number of Studies: 12
Avg. 1000 Sq. Ft. GFA: 1.7

Peak Period Parking Demand per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	33rd / 85th Percentile	95% Confidence Interval	Standard Deviation (Coeff. of Variation)
10.36	3.49 - 19.31	8.15 / 16.80	***	4.84 (47%)

Data Plot and Equation



Parking Generation Manual, 6th Edition ● Institute of Transportation Engineers

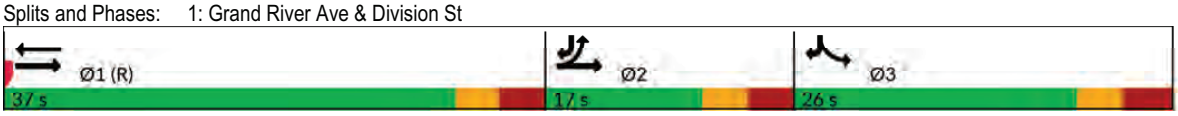
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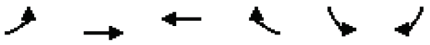
Appendix C Synchro Reports Synchro Repo Synchro Repo

Lane Group	EBL	EBT	WBT	SBL	SBR						
Lane Configurations											
Traffic Volume (vph)	19	677	616	125	27						
Future Volume (vph)	19	677	616	125	27						
oup Flow						oup Flow	21	736	732	49	32
rn Type	P	NA	NA	P	t+ov						
P otected P	2	1 2		3	3 2						
Permitted Phases											
Minimum Split (s)	13.1		24.1	24.5							
Total Split (s)	17.0		37.0	26.0							
Total Split (%)	21.3%		46.3%	32.5%							
Y llow	3.0		3.0	3.0							
All-Red Time (s)	3.1		3.1	3.5							
Lost Time Adjust (s)	0.0		0.0	0.0							
Total Lost Time (s)	6.1		6.1	6.5							
Lead/Lag	Lag		Lead								
Lead-Lag Optimize?	Y		Yes								
v/c Ratio	0.09	0.35	0.39	0.36	0.04						
Control Delay (s/v	31.3	8.7	8.3	28.1	4.9						
Queue Delay	0.0	0.0	0.0	0.0	0.0						
tal Delay (s/veh)	31.3	8.7	8.3	28.1	4.9						
Queue Length 50th (	9	88	93	62	0						
Queue Length 95th (	30	121	119	105	13						
Internal Link Dist (ft)		928	531	296							
ay Length (ft)	225										
apacity (vph)	238	2098	1881	415	712						
Starvation Cap Reductn	0	0	0	0	0						
Spillback Cap Reductn	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0						
Reduced v/c R	0.09	0.35	0.39	0.36	0.04						

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 32 (40%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	677	616	21	125	27
Future Volume (vph)	19	677	616	21	125	27
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	.00		1.00	1.00
Frt	1.00	1.00	.00		1.00	0.85
Flt Protected	0.95	1.00	.00		0.95	1.00
Satd. Flow (prot) atd. Flow (prot)	1752	3505	4859		Flow (prot) 1703	1524
Flt Permitted	0.95	1.00	.00		0.95	1.00
Satd. Flow (perm) atd. Flow (perm)	1752	3505	4859		atd. Flow (perm) 1703	1524
Peak-hour factor, PHF	0.92	0.92	0.87	0.87	0.84	0.84
Adj. Flow					dj. Flow	
RTOR Reduction (vph)	0	0	4	0	0	20
oup Flow	21	736	728	0	149	12
Confl. Peds. (#/hr)	19			19	55	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	3%	3%	6%	6%	6%	6%
Turn Type	P	NA	NA		P	t+ov
P otected P	2	1 2			3	3 2
Permitted Phases						
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5
e Green, g (	10.9	47.9	30.9		19.5	30.4
Actuated g/C	0.14	0.60	0.39		0.24	0.38
Clearance Time (s)	6.1		6.1		6.5	
	238	2098	1876		415	579
v/s Ratio Protv/s Ratio P	v/s Ratio P	0.21	v/s Ratio P 0.15		0.09	0.01
v/s Ratio P v/s Ratio Permv/s Ratio P		v/s Ratio P				
v/c Ratio	0.09	0.35	0.39		0.36	0.02
Uniform Delay, d1	30.2		7.7		Uniform Delay, d1 35.1	15.5
P ogression Factor	1.00	1.00	.00		1.00	1.00
Incremental Delay, d2	0.7	0.5	0.6		2.4	0.1
Delay (s)	30.9	8.6	18.3		27.5	5.6
Level of Service	C	A	B		C	B
Approach Delay (s/veh)		9.2	18.3		25.4	
Approach LOS		A	B		C	

								30.2	8.2	
								21	736	708

Inter ummary			
HCM 2000 Control D	HCM 2000 Control 15.0	HCM 2000 Level of S	HCM 2000 Control Delay (s/veh)
HCM 2000 V lume to Capacity	0.39		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.7
Inter ty Utilization	36.1%	ICU Level	A
Analysis P iod (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	4.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V		41	8	7	51		15	10	11	1	15	10
Future V		41	8	7	51		15	10	11	12	15	10
Conf g Peds, #/hr	5	0	5	5	0	5	9	0	3	3	0	9
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												RT Channelized
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	91	91	91	83	83	83	82	82	82	93	93	93
Heavy V %	6	6	6	2	2	2	0	0	0	3	3	3
Flow		5	9	8	61		18	12	13	13	16	11

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	69	0	0	59	0	0	154	145	57	143	148	77
Stage 1	-	-	-	-	-	-	59	59	-	85	85	-
Stage 2	-	-	-	-	-	-	95	86	-	59	63	-
Critical Hdwy	.16	-	-	.12	-	-	7.1	6.5	6	7.13	6.53	6.23
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
C Hdw g	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Follow-up Hdwy	2.254	-	-	2.218	-	-	3.5		3.3	3.527	4.027	3.327
Pot Cap-1 Maneuver	1507	-	-	1545	-	-	817	750	1014	8	742	982
Stage 1	-	-	-	-	-	-	958	850	-	921	823	-
Stage 2	-	-	-	-	-	-	916	828	-	951	840	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1500	-	-	1538	-	-	774	738	1007	788	730	969
Mov Cap-2 Maneuver	-	-	-	-	-	-	774	738	-	788	730	-
Stage 1	-	-	-	-	-	-	952	844	-	911	814	-
Stage 2	-	-	-	-	-	-	876	819	-	920	835	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.29	0.86	9.51	9.72
HCM LOS			A	A

Lane/Major Mvmt	Ln1								Ln1			
Capacity (veh/h)	Capacity (veh/h)	774	Capacity (veh/h)	858	Capacity (veh/h)	83	Capacity (veh/h)	208	-	-	802	
HCM Lane V/C Ratio	0.024	0.03	0.001	-	-	0.005	-	-	0.05			
HCM Ctrl Dly (s/v)	9.8	9.3	7	0	-	7.4	0	-	9.7			
HCM Lane LOS	A	A	A	A	-	A	A	-	A			
HCM 95th %tile Q(veh)									HCM 95th %tile Q(veh)	0.1	0.1	0 -

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V	22	775	609	18		24
Future V	22	775	609	18		24
Conflicting Peds, #/hr	3			3		
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-		-
Veh in Median S orage, #	-			-		-
Grade, %	-			-		-
Peak Hour Factor	89	89	87	87	67	67
Heavy Vehicles, %	3	3			13	13
Mvmt Flow	25	871	700	21		36

j	Major1		Major2		Minor2	
Conflicting Flow A	751		-		1225	390
Stage 1	-	-	-	-	740	-
Stage 2	-	-	-	-	485	-
Critical Hdwy	5.36	-	-	-	6.51	7.36
Hdwy Stg 1	-	-	-	-	6.86	-
Hdwy Stg 2	-	-	-	-	6.06	-
Follow-up Hdwy	3.13	-	-	-	3.78	4.03
Pot Cap-1 Maneuver	512	-	-	-	185	496
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	537	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	498	-	-	-	166	482
Mov Cap-2 Maneuver	-	-	-	-	166	-
Stage 1	-	-	-	-	309	-
Stage 2	-	-	-	-	522	-

Approach	EB	WB	SB
HCM Ctrl D	0.35		13.06
HCM LOS			B

Lane/Major Mvmt					Ln1
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	482
HCM Lane V		-	-	-	0.074
HCM Ctrl Dly (s/v)		12.6	-	-	-	13.1
HCM Lane LOS			-	-	-	
HCM 95th %tile Q(veh)					HCM 95th %tile Q(veh)	0.2	-	-	-	0.2

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement				R	WBL	W	WB	N	N	NB			
Lane Configurations	Lane Configurations	Lane	Configurations		Lane Configurations								
Traffic Vol, veh/h	affic V	affic V	32	affic V	12	60	6	1		5	9	76	13
Future Vol, veh/h		6	32	71	12	60	6	18		5	9	76	13
Peak Hour Factor		0.74	0.74	0.74	0.93	0.93	0.93	0.86	0.86	0.86	0.84	0.84	0.84
Heavy V %		9	9	9	3	3	3	0	0	0	1	1	1
Mvmt Flow			43	96	13	65	6	21	9	6	11	90	15
Number of Lanes		0	1	1	0	1	1	1	1	0	0	1	0

Approach	EB		WB		NB		SB	
Opposing Appr	W		EB		SB		NB	
Opposing Lanes	Opposing Lanes	Opposing Lanes	Opposing Lanes		1		2	
Conflicting Approach Left			N				W	
Conflicting Lanes Left	1		2		2		2	
Conflicting Approach Right	NB				W			
Conflicting Lanes Right	2		1		2		2	
HCM Control D	7.9				8.2		9.1	
HCM LOS	A		A		A		A	

Lane		NBLn1	NBLn2	Ln1	Ln2	WBLn1	WBLn2	Ln1		
Vol Left, %		100%	0%	16%	0%	17%	0%	9%		
Vol Thru, %		0%	62%	84%	0%	83%	0%	78%		
Vol Right, %		0%	38%	0%	100%	0%	100%	13%		
Sign Control		top	top	top	top	top	top	top		
affic V	affic V	Traffic Vol by Lane		affic V						
LT Vol		18	0	6	0	12	0	9		
Through Vol		0		32	0	60	0	76		
RT Vol		0	5	0	71	0	6	13		
Lane Flow Rate		21	15	51	96	77	6	117		
Geometry Grp		5	5	5	5	5	5	4b		
Degree of Util (X	Degree of Util (X	Degree of Util (X	Degree of Util (X							
Departure Headway (Hd)		5.676	4.903	5.217	4.434	5.17	4.383	5.057		
Convergence, Y/N		Y	Y	Y	Y	Y	Y	Y		
Cap		632	731	689	810	694	818	710		
Service Time		3.399	2.626	2.935	2.153	2.89	2.103	3.076		
HCM Lane V/C Ratio		0.033	0.021	0.074	0.119	0.111	0.007	0.165		
HCM Control Delay, s/veh		.6	7.7		7.7	8.5	7.1	9.1		
HCM Lane LOS		A	A	A	A	A	A	A		
HCM 95th-tile Q									HCM 95th-tile Q	0.1

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:15	7:15	7:15	7:15	7:15	7:15
End Time	8:45	8:45	8:45	8:45	8:45	8:45
otal Time (min)	90	90	90	90	90	90
ecorded (in)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E	1666	1625		1632	1603	1622
Vehs Exited	1671	1632	1599	1621	1619	1628
arting Vehs			40	36		
nding Vehs	38	47	28	47	29	37
avel Distance (mi)	783			6		761
avel Time (hr)	38.2	36.6	36.4	37.2	37.2	37.1
otal Delay (hr)	7.8	7.4	7.7	7.6	7.9	7.7
Total Stops				1236		1246
Fuel Used (gal)	28.2	27.0	26.7	27.1	27.1	27.2

Interval #0 Information Seeding

Start Time	7:15
End Time	7:45
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	7:45
End Time	8:00
Total Time (min)	15

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E		390			359	379
Vehs Exited	406	409	380		368	398
arting Vehs			40	36		
nding Vehs	15	35	32	28	36	27
avel Distance (mi)	182			96		
avel Time (hr)	8.9	8.9	8.3	9.5	8.2	8.7
otal Delay (hr)	1.8	1.7	1.7	1.9	1.5	1.7
Total Stops	303			16	264	295
Fuel Used (gal)	6.6	6.5	6.2	.0	6.1	6.5

Interval #2 Information Peak

Start Time	8:00
End Time	8:15
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E	505	446		63	490	476
Vehs Exited	479	440	462		479	464
arting Vehs	15	35	32	28	36	27
nding Vehs	41	41	47	37	47	40
avel Distance (mi)	232	203	216		226	
avel Time (hr)	11.4	9.9	10.7	10.5	11.4	10.8
otal Delay (hr)	2.4	2.0	2.4	2.2	2.6	2.3
Total Stops	400				390	376
Fuel Used (gal)	8.3	.2	7.8	.6	8.1	.8

Interval #3 Information Post

Start Time	8:15
End Time	8:45
Total Time (min)	30

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E		789				762
Vehs Exited	786					767
arting Vehs	41	41	47	37	47	40
nding Vehs	38	47	28	47	29	37
avel Distance (mi)	369	369			360	361
avel Time (hr)	17.9	17.8	17.4	17.2	17.7	17.6
otal Delay (hr)	3.7	3.7	3.6	3.5	3.8	3.7
Total Stops	580	559	602	67		
Fuel Used (gal)	13.3	13.2	12.7	12.5	12.9	13.0

1: Grand River Ave & D by

Movement	EBL	B	WBT	WB	SBL	B	B					
Denied Del								Denied Del y (hr)			0.0	0.0
otal Delay (hr)	0.1	.8	3.0	0.0	1.0	0.0	0.1	6.0				
ops		294	392		101	0		830				
avel Time (hr)	0.3	6.7	5.8	0.2	1.4	0.0	0.2	14.5				
peed (mph)	12			16	6		10					

: Division St & by m

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del												Denied Del y (
tal D lay (hr)	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
ops					61	6	20	10		9		
avel Time (hr)	0.0	0.2	0.7	0.1	0.3	0.0	0.1	0.1	0.0	0.1	0.6	0.1
peed (mph)	20	20	20							20	20	20

: Division St & by m

Movement	All					
Denied Del	Denied Del y (hr)	0.1				
tal D lay (h)	0.4					
tops	319					
Travel Time (hr)	2.3					
Avg Speed (mph)	19	peed (mph)	19	peed (mph)	19	peed (mph)	19

4: Bailey St & y

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del												Denied Del y (
tal D lay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ps	0	0	0	1	0	0	13	8	10	13	13	10
avel Time (hr)	0.0	0.2	0.0	0.0	0.5	0.0	0.1	0.1	0.1	0.1	0.1	0.1
peed (mph)	18		19							20		20

4: Bailey St & y

Movement	All					
Denied Del	Denied Del y (hr)	0.0				
tal D lay (h)	0.1					
tops	68					
Travel Time (hr)	1.2					
Avg Speed (mph)	21	peed (mph)	21	peed (mph)	21	peed (mph)	21

7: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB				
Denied Del							Denied Del y (hr)	0.0	0.0	0.0
otal Delay (hr)	0.0	0.3	0.1	0.0	0.0	0.0	0.4			
ps	1	0	0	0	0	18	29			
avel Time (hr)	0.1	.9	4.0	0.1	0.0	0.1	8.3			
peed (mph)	17						peed (mph)	17		

Total Network Performance

Denied Del	Denied Del y (hr)	0.1		
tal D lay (h)	7.5			
ops	1246			
Travel Time (hr)	37.1			
Avg Speed (mph)	21	peed (mph)	21	peed (mph)

Intersection: 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
Maximum Queue (ft)		188	166	179	174	139	170	75
Average Queue (ft)	16	109	74	108	103	61	74	
95th Queue (ft)	42	166	144	157	156	121	137	49
Link Distance (ft)		968	968	524	524	524	278	278
Upstream Blk Time (%)								
Queuing Penalty (veh)								
torage Bay	225							
Storage Blk Time (%)								
Queuing Penalty (veh)								

Intersection: 2: Division St & Albert Ave

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
Maximum Queue (ft)	64	82	49	21	23	25	69
Average Queue (ft)	22		25	4	10	8	
95th Queue (ft)	52	66	47	17	28	25	
Link Distance (ft)	917		416			278	784
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)			0				
Queuing Penalty (veh)			0				

Intersection: 4: Bailey St & Albert Ave

Movement			NB	NB		
Directions Served	LTR	LTR	L	TR	LTR	
Maximum Queue (ft)	9		39	36	42	
Average Queue (ft)	0			14	21	
95th Queue (ft)	7	7		40	44	
Link Distance (ft)	416	1146		327	907	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		

Intersection: 7: Grand River Ave & Bailey St

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	36	66
Average Queue (ft)	11	15
95th Queue (ft)	36	48
Link Distance (ft)		327
Upstream Blk Time (%)		
Queuing Penalty (veh)		
torage Bay	200	
Storage Blk Time (%)		
Queuing Penalty (veh)		

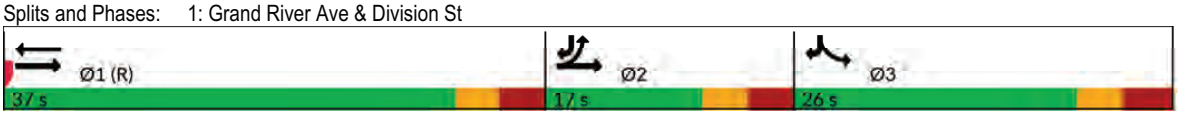
Network Summary

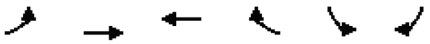
Network wide Queuing Penalty: 0

Lane Group	EBL	EBT	WBT	SBL	SBR						
Lane Configurations											
Traffic Volume (vph)	52	974	980	168	91						
Future Volume (vph)	52	974	980	168	91						
oup Flow						oup Flow	5	1025	1126	187	101
rn Type	P	NA	NA	P	t+ov						
P otected P	2	1 2	1	3	3 2						
Permitted Phases											
Minimum Split (s)	13.1		24.1	24.5							
Total Split (s)	17.0		37.0	26.0							
Total Split (%)	21.3%		46.3%	32.5%							
Y llow	3.0		3.0	3.0							
All-Red Time (s)	3.1		3.1	3.5							
Lost Time Adjust (s)	0.0		0.0	0.0							
Total Lost Time (s)	6.1		6.1	6.5							
Lead/Lag	Lag		Lead								
Lead-Lag Optimize?											
v/c Ratio	0.23	0.48	0.60	0.43	0.14						
Control Delay (s/v	33.5	10.0	20.9	29.3	12.7						
Queue Delay	0.0	0.0	0.0	0.0	0.0						
tal Delay (s/veh)	33.5	10.0	20.9	29.3	12.7						
Queue Length 50th (	25	137	157	79	27						
Queue Length 95th (	58	181	201	139							
Internal Link Dist (ft)		928	531	127							
ay Length (ft)	225										
apacity (vph)	243	2139	1890	431	724						
Starvation Cap Reductn	0	0	0	0	0						
Spillback Cap Reductn	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0						
Reduced v/c R	0.23	0.48	0.60	0.43	0.14						

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 59 (74%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	974	980	67	168	91
Future Volume (vph)	52	974	980	67	168	91
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot) atd. Flow (prot)	1787	atd. Flow (prot)	4872	Flow (prot)	1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm) atd. Flow (perm)	1787	atd. Flow (perm)	4872	atd. Flow (perm)	1770	1583

Peak-hour factor, P							eak-hour factor, PHF	0.95	0.95	0.93	0.93	0
Adj. Flow							dj. Flow	5	1025	1054	72	
RTOR Reduc	0	0	10	0	0	3						
oup Flow							oup Flow	5	1025	1116	0	
Confl. Peds. (#/hr)	226			226	235							
Confl. Bikes (#/hr)				2								
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%						
Turn Type	P	NA	NA		P	t+ov						
P otected P	2	1 2	1		3	3 2						
Permitted Phases												
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5						
e Green, g (	10.9	47.9	30.9		19.5	30.4						
Actuated g/C	0.14	0.60	0.39		0.24	0.38						
Clearance Time (s)	6.1		6.1		6.5							
	243	2139	1881		431	601						
v/s Ratio Protv/s Ratio P	v/s Ratio P	c0.29	atio P	0.23	c0.11	0.06						
v/s Ratio P	v/s Ratio Permv/s Ratio P		v/s Ratio P									
v/c Ratio	0.23	0.48	0.59		0.43	0.16						
Uniform Delay, d1	Uniform Delay,	Uniform D	Delay,		Uniform Delay,	16.4						
P ogression Factor	1.00	1.00	1.00		1.00	1.00						
Incremental Delay, d2	2.2	0.8	1.4		3.2	0.6						
Delay (s)	32.9	9.8	20.9		28.7	17.0						
Level of Service	C	A	C		C	B						
Approach Delay (s/veh)		11.0	20.9		24.6							
Approach LOS		B	C		C							

Inter ummary				
HCM 2000 Control D	HCM 2000 Control		HCM 2000 Level of S	HCM 2000 Control Delay (s/veh)
HCM 2000 V lume to Capacity		0.54		
Actuated Cycle Length (s)		80.0	Sum of lost time (s)	18.7
Inter ty Utilization		51.7%	ICU Level	A
Analysis P iod (min)		15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V	6	137	27	1	158	11	46	36	33	13	10	8
Future V	6	137	27	1	158	11	46	36	33	13	10	8
Conflicting Peds, #/hr	8	0	1	1	0	8	30	0	10	10	0	30
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												RT Channelized
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	94	94	94	85	85	85	72	72	72	65	65	65
Heavy V %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	146	29	20	186	13	64	50	46	20	15	12

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	207	0	0	188	0	0	450	434	184	34	442	230
Stage 1	-	-	-	-	-	-	187	187	-	240	240	-
Stage 2	-	-	-	-	-	-	264	247	-	194	201	-
Critical Hdwy	.11	-	-	.11	-	-	.1	6.5	6.2	7.1	6.5	6.2
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
C Hdw g 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5		3.3	3.5		3.3
Pot Cap-1 Maneuver	1370	-	-	1392	-	-	522	518	863	536	513	814
Stage 1	-	-	-	-	-	-	820	749	-	768	710	-
Stage 2	-	-	-	-	-	-	746	706	-	813	739	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1360	-	-	1373	-	-	468	497	844	39	492	785
Mov Cap-2 Maneuver	-	-	-	-	-	-	468	497	-	439	492	-
Stage 1	-	-	-	-	-	-	804	735	-	749	693	-
Stage 2	-	-	-	-	-	-	686	689	-	706	725	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.27	0.7	12.7	12.69
HCM LOS			B	B

Lane/Major Mvmt	Ln1 NB	Ln2						Ln1				
Capacity (veh/h)	Capacity (veh/h)	438	Capacity (veh/h)	618	Capacity (veh/h)	82	Capacity (veh/h)	162	-	-	515	
HCM Lane V/C Ratio	0.137	0.155	0.005	-	-	0.015	-	-	0.093			
HCM Ctrl Dly (s/v)	13.9	11.9		0	-		0	-	12.7			
HCM Lane LOS	B	B	A	A	-	A	A	-	B			
HCM 95th %tile Q(veh)									HCM 95th %tile Q(veh)	0.5	0.5	0 -

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V						
Future V	36	1102	984	64	0	59
Conflicting Peds, #/hr	137	0	0	137	0	
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-	0	-
Veh in Median S orage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	90	90	64	64
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	38	1160	1093	7	0	92

j	Major1		Major2		Minor2	
Conflicting Flow A	1301	0	-	0	1922	720
Stage 1	-	-	-	-	1266	-
Stage 2	-	-	-	-	656	-
Critical Hdwy	5.34	-	-	-	6.25	7.1
Hdwy Stg	-	-	-	-	6.6	-
Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.12	-	-	-	3.65	3.9
Pot Cap-1 Maneuver	279	-	-	-	80	321
Stage 1	-	-	-	-	172	-
Stage 2	-	-	-	-	469	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	243	-	-	-	51	279
Mov Cap-2 Maneuver	-	-	-	-	51	-
Stage 1	-	-	-	-	126	-
Stage 2	-	-	-	-	408	-

Approach	EB	WB	SB
HCM Ctrl D	0.71	0	24.14
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	243	-	-	-	279
HCM Lane V	0.156	-	-	-	0.33
HCM Ctrl Dly (s/v)	22.6	-	-	-	24.1
HCM Lane LOS		-	-	-	
HCM 95th %tile Q(veh)					0.5

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement				R	WBL	W	WB	N	N	NB			
Lane Configurations	Lane Configurations	Lane	Configurations		Lane Configurations								
Traffic Vol, veh/h	affic V	26	affic V	132	affic V	30	166	19	42	50	28	8	55	13
Future Vol, veh/h		26		132		30	166	19	42	50	28	8	55	13
Peak Hour Factor		0.88	0.88	.88	0.87	0.87	0.87	0.83	0.83	0.83	0.73	0.73	0.73	
Heavy V	%	3	3	3	0	0	0	1						
Mvmt Flow		30	150	130	34	191	22	51	60	34		75	18	
Number of Lanes		0	1	1	0	1	1	1	1	0	0	1	0	

Approach	EB			WB			NB			SB		
Opposing A		Opposing Appr		EB	W		SB			NB		
Opposing Lanes	Opposing Lanes	Opposing Lanes		Opposing Lanes			1			2		
Conflicting Approach Left				N						W		
Conflicting Lanes Left	1			2			2			2		
Conflicting Approach Right	NB						W					
Conflicting Lanes Right	2			1			2			2		
HCM Control D	9.9			11.3			9.8			10.5		
HCM LOS	A			B			A			B		

Lane		NB	NBLn2		Ln2	W	WBLn2					
Vol Left, %		100%	0%	16%	0%	15%	0%	11%				
Vol Thru, %		0%	64%	84%	0%	85%	0%	72%				
Vol Right, %		0%	36%	0%	100%	0%	100%	17%				
Sign Control		top	top	top	top	top	top	top				
affic V	affic V	Traffic Vol by Lane	78	affic V		196	19	76				
LT Vol		42		26		30		8				
Through Vol			50	132		166		55				
RT Vol			28				19	13				
Lane Flow Rate		51	94	180	130	225	22					
Geometry Grp		5	5	5	5	5	5	4b				
Degree of Util (X	Degree of Util (X	Degree of Util (X	0.154	Degree of Util (X	0.178	0.358	0.03	0.177				
Departure Headway (Hd)		6.648	5.888	5.722	4.953	5.726	4.941	6.125				
Convergence, Y/N		Y	Y	Y	Y	Y	Y	Y				
Cap		540	610	630	729	629	725	586				
Service Time		4.378	3.618	3.444	2.653	3.449	2.664	4.155				
HCM Lane V/C Ratio		0.094	0.154	0.286	0.178	0.358	0.03	0.177				
HCM Control Delay, s/veh			9.7	10.7	8.7	11.6	7.8	10.5				
HCM Lane LOS		B	A	B	A	B	A	B				
HCM 95th-tile Q								HCM 95th-tile Q				.3

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:30	3:30	3:30	3:30	3:30	3:30
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	90	90	90	90	90	90
Time Recorded (min)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E	2835	2865	2689	2811	2858	2814
Vehs Exited	2846	2838	2676	2818	2834	2801
arting Vehs	79	67	62	86	80	74
nding Vehs	68		75	79		80
Travel Distance (mi)			1238	1307		
Travel Time (hr)	72.8	74.9	71.7	78.0	85.5	76.6
otal Delay (hr)	1.4	23.4	23.6	27.0	34.3	25.9
Total Stops		3118	2849	3073	3380	3072
Fuel Used (gal)	0.3	51.1	47.7	51.0	53.4	50.7

Interval #0 Information Seeding

Start Time	3:30
End Time	4:00
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	4:00
End Time	4:15
Total Time (min)	15

lumes adjusted by Growth Factors, A V sted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	677	719	645	666	661	675
Vehs Exited	685	707	636	648	665	667
arting Vehs	79	67	62	86	80	74
nding Vehs	71	79	71		76	75
Travel Distance (mi)	319	334	297	304	311	313
Travel Time (hr)	7.6	20.4	18.3	17.4	17.7	18.3
otal Delay (hr)	5.1	7.3	6.9	5.5	5.7	6.1
Total Stops	723	852	675	667	690	721
Fuel Used (gal)	2.1	13.3	11.8	11.7	12.0	12.2

Interval #2 Information Peak

Start Time	4:15
End Time	4:30
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E	760	772	753	798	767	771
Vehs Exited	745	793	708	8	762	765
arting Vehs	71	79	71		76	75
nding Vehs	86	58	116	88	81	82
Travel Distance (mi)	347			6		
Travel Time (hr)	8.4	19.4	19.8	22.8	24.6	21.0
otal Delay (hr)	4.9	5.6	6.9	8.4	11.1	7.4
Total Stops	769	775	837	866	68	845
Fuel Used (gal)	3.0	13.5	12.7	14.5	14.5	13.6

Interval #3 Information Post

Start Time	4:30
End Time	5:00
Total Time (min)	30

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	1398	1374		1347		1367
Vehs Exited	1416	1338		1356	1407	1370
arting Vehs	86	58	116	88	81	82
nding Vehs	68		75	79		80
Travel Distance (mi)	657	632	611	6	663	640
Travel Time (hr)	6.8	35.2	33.6	37.8	43.2	37.3
otal Delay (hr)	1.4	10.5	9.9	13.0	17.5	12.5
Total Stops			1337		1722	
Fuel Used (gal)	5.2	24.3	23.3	24.7	26.9	24.9

1: Grand River Ave & D by

Movement	EBL	B	WBT	WB	SBL	B	B	
Denied Del **Denied Del** y (h	0.0	.1	0.0	.0	0.0	.0	0.0	.1
otal Delay (hr)	0.5	7.4	1.0	0.6	1.6	0.0	0.3	21.3
Total Stops	48	827		67				
Travel Time (hr)	0.9	14.7	5.6	1.0	1.9	0.0	0.5	34.5

: Division St & by m

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del **Denied Del** y (h	0.0	.0	0.1	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)	0.0	.3	0.2	.1	0.4	.0	0.1	.1	0.0	.0	0.1	.0
Total Stops					168					8	58	
Travel Time (hr)	0.2	.2	1.1	0.2	1.0	0.1	0.1	.2	0.1	0.1	0.5	0.1

: Division St & by m

Movement	All
Denied Del **Denied Del** y (h	0.1
tal D lay (h	1.3
Total Stops	688
Travel Time (hr)	4.9

4: Bailey St & y

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)	0.0	.1	0.0	.0	0.0	.0	0.1	.1	0.0	.0	0.0	.0
Total Stops	1	1	1	4	2	0	49	37	34	14	8	7
Travel Time (hr)	0.0	.6	0.1	0.2	1.4	0.1	0.2	.1	0.1	0.1	0.1	0.1

4: Bailey St & y

Movement	All
Denied Del **Denied Del** y (h	0.0
tal D lay (h	0.4
Total Stops	158
Travel Time (hr)	3.2

7: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB	
Denied Del **Denied Del** y (h	0.0	.0	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.1	.7	0.2	0.0	0.0	0.1	1.0
Total Stops	29	3	1	2	0	54	89
Travel Time (hr)	0.3	.9	6.7	0.5	0.0	0.2	13.6

11: D by

Movement		EBL	EB	BT	B	
Denied Del	Denied Del	y (h0.0	.0	0.0	.0	0.0
otal Delay (hr)		0.0	.1	0.0	0.2	0.3
Total Stops		0	51	0	15	66
Travel Time (hr)		0.0	.2	0.3	0.5	1.0

14: Bailey by

Movement		WBL	WB	NB	B	
Denied Del	Denied Del	y (h0.0	.0	0.0	.0	0.0
otal Delay (hr)		0.0	.0	0.0	0.0	0.0
Total Stops		4	15	0	0	19
Travel Time (hr)		0.0	.0	0.2	0.1	0.4

Total Network Performance

Denied Del	Denied Del	y (h 0.3
tal D lay (h		25.7
Total Stops		3072
Travel Time (hr)		76.6

Intersection: 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
		435	395	392	387	348	119	98
Average Queue (ft)	56	214	190	205	201	167	89	37
95th Queue (ft)	171	373	347	339	331	300	135	84
Link Distance (ft)		972	972	536	536	536	113	113
Upstream Blk Time (%)				0	0		9	0
Queuing Penalty (veh)				0	0		12	0
torage Bay	225							
orage Blk Time (%)	0	11						
Queuing Penalty (veh)	0	6						

Intersection: 2: Division St & Albert Ave

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
Maximum Queue (ft)	82	92	88	61	49	56	68
Average Queue (ft)	43	40		12	19		27
95th Queue (ft)	71	68	76	38	39	45	49
Link Distance (ft)	916		416			94	745
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)			2	0	0	0	
Queuing Penalty (veh)			0	0	0	0	

Intersection: 4: Bailey St & Albert Ave

Movement			NB	NB	
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	40	36	52	67	50
Average Queue (ft)		6	25	29	19
95th Queue (ft)	16	26	48	52	45
Link Distance (ft)	416	1146		155	907
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			0	1	
Queuing Penalty (veh)			0	0	

Intersection: 7: Grand River Ave & Bailey St

Movement	EB	EB	EB	WB	WB	SB
Directions Served	L	T	T	T	TR	LR
Maximum Queue (ft)	63	14		16	43	58
Average Queue (ft)	22	1	1	1	3	27
95th Queue (ft)	52	11	17	8	21	49
Link Distance (ft)		536	536	846	846	114
Upstream Blk Time (%)						
Queuing Penalty (veh)						
torage Bay	200					
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 11: Division St

Movement	EB	EB	SB
Directions Served	L	R	T
Maximum Queue (ft)	12	75	87
Average Queue (ft)	0	30	15
95th Queue (ft)	6	60	63
Link Distance (ft)	176	176	94
Upstream Blk Time (%)			1
Queuing Penalty (veh)			2
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 14: Bailey St

Movement	WB
Directions Served	LR
Maximum Queue (ft)	30
Average Queue (ft)	12
95th Queue (ft)	32
Link Distance (ft)	172
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

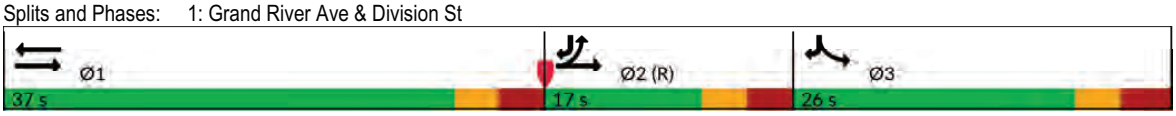
Network wide Queuing Penalty: 21

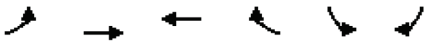
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	19	680	619	126	27
Future Volume (vph)	19	680	619	126	27
oup Flow					
rn Type	P	NA	NA	P	t+ov
P otected P	2	1 2		3	3 2
Permitted Phases					
Minimum Split (s)	13.1		24.1	24.5	
Total Split (s)	17.0		37.0	26.0	
Total Split (%)	21.3%		46.3%	32.5%	
Y llow	3.0		3.0	3.0	
All-Red Time (s)	3.1		3.1	3.5	
Lost Time Adjust (s)	0.0		0.0	0.0	
Total Lost Time (s)	6.1		6.1	6.5	
Lead/Lag	Lag		Lead		
Lead-Lag Optimize?	Y		Yes		
v/c Ratio	0.09	0.35	0.39	0.36	0.04
Control Delay (s/v	31.3	8.8	8.3	28.1	4.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
tal Delay (s/veh)	31.3	8.8	8.3	28.1	4.9
Queue Length 50th (	9	89	93	62	0
Queue Length 95th (	30	121	119	105	13
Internal Link Dist (ft)		928	531	296	
ay Length (ft)	225				
apacity (vph)	238	2098	1881	415	712
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c R	0.09	0.35	0.39	0.36	0.04

oup Flow					
oup Flow	21	739	735	50	32

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 32 (40%), Referenced to phase 2:EBTL, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	19	680	619	21	126	27
Future Volume (vph)	19	680	619	21	126	27
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	.00		1.00	1.00
Frt	1.00	1.00	.00		1.00	0.85
Flt Protected	0.95	1.00	.00		0.95	1.00
Satd. Flow (prot) atd. Flow (prot)	1752	3505	4859		1703	1524
Flt Permitted	0.95	1.00	.00		0.95	1.00
Satd. Flow (perm) atd. Flow (perm)	1752	3505	4859		1703	1524
Peak-hour factor, PHF	0.92	0.92	0.87	0.87	0.84	0.84
Adj. Flow	21	739	711	24	150	32
RTOR Reduction (vph)	0	0	4	0	0	20
oup Flow	21	739	731	0	150	12
Confl. Peds. (#/hr)	19			19	55	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	3%	3%	6%	6%	6%	6%
Turn Type	P	NA	NA		P	t+ov
P otected P	2	1 2			3	3 2
Permitted Phases						
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5
e Green, g (	10.9	47.9	30.9		19.5	30.4
Actuated g/C	0.14	0.60	0.39		0.24	0.38
Clearance Time (s)	6.1		6.1		6.5	
	238	2098	1876		415	579
v/s Ratio Protv/s Ratio P v/s Ratio P	0.01	0.21	0.15		0.09	0.01
v/s Ratio P v/s Ratio Permv/s Ratio P		v/s Ratio P				
v/c Ratio	0.09	0.35	0.39		0.36	0.02
Uniform Delay, d1	30.2		7.7		Uniform Delay, d1	30.2 8.2
P ogression Factor	1.00	1.00	.00		1.00	1.00
Incremental Delay, d2	0.7	0.5	0.6		2.4	0.1
Delay (s)	30.9	8.6	18.3		27.5	5.6
Level of Service	C	A	B		C	B
Approach Delay (s/veh)		9.2	18.3		25.4	
Approach LOS		A	B		C	

Inter ummary				
HCM 2000 Control D	HCM 2000 Control 15.0	HCM 2000 Level of S		HCM 2000 Control Delay (s/veh)
HCM 2000 V lume to Capacity	0.39			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)		18.7
Inter ty Utilization	36.3%	ICU Level		A
Analysis P iod (min)	15			

c Critical Lane Group

Intersection												
Int Delay, s/veh	4.2											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V		41	8	7	51		15	10	11	1	15	10
Future V		41	8	7	51		15	10	11	12	15	10
Conf g Peds, #/hr	5	0	5	5	0	5	9	0	3	3	0	9
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												RT Channelized
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	91	91	91	83	83	83	82	82	82	93	93	93
Heavy V %	6	6	6	2	2	2	0	0	0	3	3	3
Flow		5	9	8	61		18	12	13	13	16	11

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	69	0	0	59	0	0	154	145	57	143	148	77
Stage 1	-	-	-	-	-	-	59	59	-	85	85	-
Stage 2	-	-	-	-	-	-	95	86	-	59	63	-
Critical Hdwy	.16	-	-	.12	-	-	7.1	6.5	6	7.13	6.53	6.23
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
C Hdw g	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Follow-up Hdwy	2.254	-	-	2.218	-	-	3.5		3.3	3.527	4.027	3.327
Pot Cap-1 Maneuver	1507	-	-	1545	-	-	817	750	1014	8	742	982
Stage 1	-	-	-	-	-	-	958	850	-	921	823	-
Stage 2	-	-	-	-	-	-	916	828	-	951	840	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1500	-	-	1538	-	-	774	738	1007	788	730	969
Mov Cap-2 Maneuver	-	-	-	-	-	-	774	738	-	788	730	-
Stage 1	-	-	-	-	-	-	952	844	-	911	814	-
Stage 2	-	-	-	-	-	-	876	819	-	920	835	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.29	0.86	9.51	9.72
HCM LOS			A	A

Lane/Major Mvmt	Ln1								Ln1			
Capacity (veh/h)	Capacity (veh/h)	774	Capacity (veh/h)	858	Capacity (veh/h)	83	Capacity (veh/h)	208	-	-	802	
HCM Lane V/C Ratio	0.024	0.03	0.001	-	-	0.005	-	-	0.05			
HCM Ctrl Dly (s/v)	9.8	9.3	7	0	-	7.4	0	-	9.7			
HCM Lane LOS	A	A	A	A	-	A	A	-	A			
HCM 95th %tile Q(veh)									HCM 95th %tile Q(veh)	0.1	0.1	0 -

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V						
Future V	22	779	612	18		24
Conflicting Peds, #/hr	3			3		
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-		-
Veh in Median S orage, #	-			-		-
Grade, %	-			-		-
Peak Hour Factor	89	89	87	87	67	67
Heavy Vehicles, %	3	3			13	13
Mvmt Flow	25	875	703	21		36

j	Major1		Major2		Minor2	
Conflicting Flow A	754		-		1231	392
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	487	-
Critical Hdwy	5.36	-	-	-	6.51	7.36
Hdwy Stg 1	-	-	-	-	6.86	-
Hdwy Stg 2	-	-	-	-	6.06	-
Follow-up Hdwy	3.13	-	-	-	3.78	4.03
Pot Cap-1 Maneuver	510	-	-	-	183	495
Stage 1	-	-	-	-	333	-
Stage 2	-	-	-	-	536	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	496	-	-	-	164	481
Mov Cap-2 Maneuver	-	-	-	-	164	-
Stage 1	-	-	-	-	307	-
Stage 2	-	-	-	-	521	-

Approach	EB	WB	SB
HCM Ctrl D	0.35		13.09
HCM LOS			B

Lane/Major Mvmt					Ln1
Capacity (veh/h)					481
HCM Lane V		-	-	-	0.074
HCM Ctrl Dly (s/v)		12.6	-	-	13.1
HCM Lane LOS			-	-	-
HCM 95th %tile Q(veh)					0.2

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement				R	WBL	W	WB	N	N	NB			
Lane Configurations	Lane Configurations	Lane	Configurations		Lane Configurations								
Traffic Vol, veh/h	affic V	6	affic V	32	affic V	12	60	6	1	5	9	76	13
Future Vol, veh/h		6	32	71	12	60	6	18		5	9	76	13
Peak Hour Factor		0.74	0.74	0.74	0.93	0.93	0.93	0.86	0.86	0.86	0.84	0.84	0.84
Heavy V	%	9	9	9	3	3	3	0	0	0	1	1	1
Mvmt Flow			43	96	13	65	6	21	9	6	11	90	15
Number of Lanes		0	1	1	0	1	1	1	1	0	0	1	0

Approach	EB			WB			NB			SB		
Opposing A		Opposing Appr		EB	W		SB			NB		
Opposing Lanes	Opposing Lanes	Opposing Lanes		Opposing Lanes			1			2		
Conflicting Approach Left				N						W		
Conflicting Lanes Left	1			2			2			2		
Conflicting Approach Right	NB						W					
Conflicting Lanes Right	2			1			2			2		
HCM Control D	7.9						8.2			9.1		
HCM LOS	A			A			A			A		

Lane	NBLn1	NBLn2	Ln1	Ln2	WBLn1	WBLn2	Ln1		
Vol Left, %	100%	0%	16%	0%	17%	0%	9%		
Vol Thru, %	0%	62%	84%	0%	83%	0%	78%		
Vol Right, %	0%	38%	0%	100%	0%	100%	13%		
Sign Control	top	top	top	top	top	top	top		
affic V affic V	affic 18	13	Traffic Vol by Lane	71	72	6	9		
LT Vol	18	0	6	0	12	0	9		
Through Vol	0		32	0	60	0	76		
RT Vol	0	5	0	71	0	6	13		
Lane Flow Rate	21	15	51	96	77	6	117		
Geometry Grp	5	5	5	5	5	5	4b		
Degree of Util (X Degree of Util (X Degree of Util (X Degree of Util (X)	0.033	0.021	0.074	0.118	0.111	0.008	0.164		
Departure Headway (Hd)	5.676	4.903	5.217	4.434	5.17	4.383	5.057		
Convergence, Y/N	Y	Y	Y	Y	Y	Y	Y		
Cap	632	731	689	810	694	818	710		
Service Time	3.399	2.626	2.935	2.153	2.89	2.103	3.076		
HCM Lane V/C Ratio	0.033	0.021	0.074	0.119	0.111	0.007	0.165		
HCM Control Delay, s/veh	.6	7.7		7.7	8.5	7.1	9.1		
HCM Lane LOS	A	A	A	A	A	A	A		
HCM 95th-tile Q							HCM 95th-tile Q		0.1

Summary of All Intervals

Run Number	2	3	4	5	Avg
Start Time	7:15	7:15	7:15	7:15	7:15
End Time	8:45	8:45	8:45	8:45	8:45
otal Time (min)	90	90	90	90	90
ecorded (in)	60	60	60	60	60
# of Inter s	4	4	4	4	4
# of c l s	3	3	3	3	3
Vehs E	1648	1628	1621	1658	1640
Vehs Exited	1645	1642	1619	1662	1643
arting Vehs	23	41	28	32	29
nding Vehs	26		30		
avel Distance (mi)	769	764	760	6	767
avel Time (hr)	37.3	36.8	37.3	38.2	37.4
otal Delay (hr)	7.7	7.5	7.8	8.3	7.8
Total Stops		1236			1268
Fuel Used (gal)	27.5	27.5	27.4	28.1	27.6

Interval #0 Information Seeding

Start Time	7:15
End Time	7:45
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	7:45
End Time	8:00
Total Time (min)	15

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	2	3	4	5	Avg	
Vehs E			403	93	405	
Vehs Exited	401		396		398	
arting Vehs	23	41	28	32	29	
nding Vehs	37	37	35	53	39	
avel Distance (mi)	191					istance (mi)
avel Time (hr)	9.3	9.4	9.2	8.8	9.2	
otal Delay (hr)	1.9	1.9	2.0	2.1	2.0	
Total Stops	306	307	308		309	
Fuel Used (gal)	6.8	.0	6.6	6.3	6.7	

Interval #2 Information Peak

Start Time	8:00
End Time	8:15
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	2	3	4	5	Avg
Vehs E	439		467	86	461
Vehs Exited		449	456	86	
arting Vehs	37	37	35	53	39
nding Vehs	48	45	46	53	45
avel Distance (mi)	202		219		
avel Time (hr)	9.8	10.4	10.7	11.6	10.6
otal Delay (hr)	2.0	2.2	2.2	2.6	2.2
Total Stops	329	369	346	08	363
Fuel Used (gal)	7.4	.7	7.9	.6	7.9

Interval #3 Information Post

Start Time	8:15
End Time	8:45
Total Time (min)	30

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	2	3	4	5	Avg
Vehs E	794			79	767
Vehs Exited	816		767	04	
arting Vehs	48	45	46	53	45
nding Vehs	26		30		
avel Distance (mi)	375	356		6	364
avel Time (hr)	18.2	17.0	17.5	17.8	17.6
otal Delay (hr)	3.7	3.4	3.7	3.7	3.6
Total Stops	598	560		6	592
Fuel Used (gal)	13.3	12.8	12.9	13.2	13.0

rse : 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB		
D ctions	L	T	T	T	T	TR	L			
Maximum Queue (ft)	62								mum Queue (ft)	62 189
erage Queue (ft)	15				109	68	66			
95th Queue (ft)	45		150	169	164					
Link Distance (ft)		968	968							
Upstream B	Upstream Blk	e (%)								
Queuing P	Queuing P	ty (veh)								
Storage Bay Dist (ft)	225									
orage Blk Time (%)		0								
ty (veh)		0	Queuing P	ty (veh)			0			

rse : 2: Division St &

Movement	EB	EB	WB	WB	B	B	SB		
Directions Served	Directions S	LT	Directions S	LT	Directions S	L		LTR	
Maximum Queue (ft)	66				29		59		
erage Queue (ft)	23		26		10				
95th Queue (ft)	51	63			30				
Link Distance (ft)	917		416						
Upstream Blk	e (%)								
Queuing P	Queuing P	ty (veh)							
Storage Bay Dist (ft)		200		60	70				
orage Blk Time (%)			0						
ty (veh)			0	Queuing P	ty (veh)			0	

rse : 4: Bailey St &

Movement	NB	NB	B					
Directions Served	Directions S	D	Directions S	LTR	Directions S			
Maximum Queue (ft)	30	31	41	mum Queue (ft)	30		mum Queue (ft)	30
erage Queue (ft)	10			erage Queue (ft)	10	20		
95th Queue (ft)	32							
Link Distance (ft)		327	907					
Upstream B	Upstream Blk	e (%)						
Queuing P	Queuing P	ty (veh)						
Storage Bay Dist (ft)	50							
orage Blk Time (%)		0						
Queuing P			Queuing P	ty (veh)	0			

rse : 7: Grand River Ave & Bailey St

Movement	EB	WB	SB					
Directions Served	Directions S	Directions S	LBirections S					
Maximum Queue (ft)	45	12	52	mum Queue (ft)	45		mum Queue (ft)	45
erage Queue (ft)	10			erage Queue (ft)	10	0		
95th Queue (ft)	36		46					
Link Distance (ft)		842						
Upstream B	Upstream Blk	e (%)						
Queuing P	Queuing P	ty (veh)						
Storage Bay Dist (ft)	200							
orage Blk Time (%)								
Queuing P	Queuing P	ty (veh)						

Network Summary

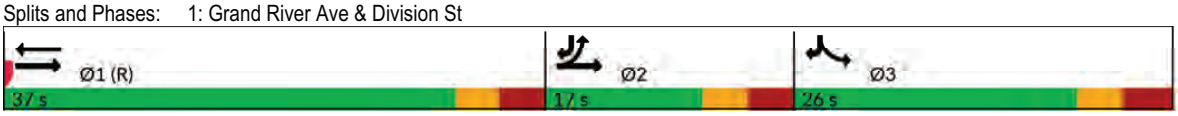
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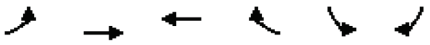
Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	52	979	985	169	91
Future Volume (vph)	52	979	985	169	91
oup Flow					
rn Type	P	NA	NA	P	t+ov
P otected P	2	1 2	1	3	3 2
Permitted Phases					
Minimum Split (s)	13.1		24.1	24.5	
Total Split (s)	17.0		37.0	26.0	
Total Split (%)	21.3%		46.3%	32.5%	
Y llow	3.0		3.0	3.0	
All-Red Time (s)	3.1		3.1	3.5	
Lost Time Adjust (s)	0.0		0.0	0.0	
Total Lost Time (s)	6.1		6.1	6.5	
Lead/Lag	Lag		Lead		
Lead-Lag Optimize?					
v/c Ratio	0.23	0.48	0.60	0.44	0.14
Control Delay (s/v	33.5	10.0	20.9	29.4	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
tal Delay (s/veh)	33.5	10.0	20.9	29.4	12.7
Queue Length 50th (	25	138	158	80	27
Queue Length 95th (	58	183	202	139	
Internal Link Dist (ft)		928	531	126	
ay Length (ft)	225				
apacity (vph)	243	2139	1890	431	724
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c R	0.23	0.48	0.60	0.44	0.14

oup Flow				
oup Flow	1031	1131	188	101

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 59 (74%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	52	979	985	67	169	91
Future Volume (vph)	52	979	985	67	169	91
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot) atd. Flow (prot)	1787	atd. Flow (prot)	4873	Flow (prot)	1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm) atd. Flow (perm)	1787	atd. Flow (perm)	4873	atd. Flow (perm)	1770	1583

Peak-hour factor, P							eak-hour factor, PHF	0.95	0.95	0.93	0.93	0
Adj. Flow							dj. Flow		1031	1059	72	
RTOR Reduction (vph)	0	0	9	0	0	3						
oup Flow		1031	1122	0	188	98						
Confl. Peds. (#/hr)	226			226	235							
Confl. Bikes (#/hr)				2								
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%						
Turn Type	P	NA	NA		P	t+ov						
P otected P	2	1 2	1		3	3 2						
Permitted Phases												
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5						
e Green, g (	10.9	47.9	30.9		19.5	30.4						
Actuated g/C	0.14	0.60	0.39		0.24	0.38						
Clearance Time (s)	6.1		6.1		6.5							
	243	2139	1882		431	601						
v/s Ratio Protv/s Ratio P	v/s Ratio P	c0.29	atio P	0.23	c0.11	0.06						
v/s Ratio P	v/s Ratio Permv/s Ratio P		v/s Ratio P									
v/c Ratio	0.23	0.48	0.60		0.44	0.16						
Uniform Delay, d1	Uniform Delay,	Uniform D	Delay, t	Uniform Delay,		16.4						
P ogression Factor	1.00	1.00	1.00		1.00	1.00						
Incremental Delay, d2	2.2	0.8	1.4		3.2	0.6						
Delay (s)	32.9	9.8	21.0		28.8	17.0						
Level of Service	C	A	C		C	B						
Approach Delay (s/veh)		11.0	21.0		24.7							
Approach LOS		B	C		C							

Inter ummary			
HCM 2000 Control D	HCM 2000 Control	HCM 2000 Level of S	HCM 2000 Control Delay (s/veh)
HCM 2000 V lume to Capacity	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.7
Inter ty Utilization	51.8%	ICU Level	A
Analysis P iod (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V	6	138	27	1	159	11	46	36	33	13	10	8
Future V	6	138	27	1	159	11	46	36	33	13	10	8
Conflicting Peds, #/hr	8	0	1	1	0	8	30	0	10	10	0	30
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												RT Channelized
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	94	94	94	85	85	85	72	72	72	65	65	65
Heavy V %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	147	29	20	187	13	64	50	46	20	15	12

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	208	0	0	190	0	0	453	436	185	36		232
Stage 1	-	-	-	-	-	-	188	188	-	242	242	-
Stage 2	-	-	-	-	-	-	265	248	-	195	202	-
Critical Hdwy	.11	-	-	.11	-	-	.1	6.5	6.2	7.1	6.5	6.2
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
C Hdw g 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5		3.3	3.5		3.3
Pot Cap-1 Maneuver	1369	-	-	1390	-	-	521	517	862	534	512	813
Stage 1	-	-	-	-	-	-	818	748	-	766	710	-
Stage 2	-	-	-	-	-	-	745	705	-	812	738	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1359	-	-	1372	-	-	466	495	843	38	490	783
Mov Cap-2 Maneuver	-	-	-	-	-	-	466	495	-	438	490	-
Stage 1	-	-	-	-	-	-	803	735	-	748	693	-
Stage 2	-	-	-	-	-	-	685	688	-	705	724	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.27	0.7	12.73	12.72
HCM LOS			B	B

Lane/Major Mvmt	Ln1 NBLn2								Ln1			
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)						162	-	-	514
HCM Lane V/C Ratio	0.137	0.155	0.005	-	-	0.015	-	-	0.093			
HCM Ctrl Dly (s/v)	1	11.9	0	-			0	-	12.7			
HCM Lane LOS	B	B	A	A	-	A	A	-	B			
HCM 95th %tile Q(veh)									HCM 95th %tile Q(veh)	0.5	0.5	0 -

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V	6	1108	989	64	0	59
Future V	36	1108	989	64	0	59
Conflicting Peds, #/hr	137	0	0	137	0	
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-	0	-
Veh in Median S orage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	90	90	64	64
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	38	1166	1099	7	0	92

j	Major1		Major2		Minor2	
Conflicting Flow A	1307	0	-	0	1930	723
Stage 1	-	-	-	-	1271	-
Stage 2	-	-	-	-	659	-
Critical Hdwy	5.34	-	-	-	6.25	7.1
Hdwy Stg	-	-	-	-	6.6	-
Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.12	-	-	-	3.65	3.9
Pot Cap-1 Maneuver	277	-	-	-	79	320
Stage 1	-	-	-	-	171	-
Stage 2	-	-	-	-	468	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	241	-	-	-	50	278
Mov Cap-2 Maneuver	-	-	-	-	50	-
Stage 1	-	-	-	-	125	-
Stage 2	-	-	-	-	407	-

Approach	EB	WB	SB
HCM Ctrl D	0.71	0	24.25
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	241	-	-	-	278
HCM Lane V	0.157	-	-	-	0.332
HCM Ctrl Dly (s/v)	22.7	-	-	-	24.3
HCM Lane LOS		-	-	-	
HCM 95th %tile Q(veh)					1.4

HCM 95th %tile Q(veh)	0.5	-	-	-	1.4

Intersection	
Intersection Delay, s/veh	10.4
Intersection LOS	B

Movement				R	WBL	W	WB	N	N	NB			
Lane Configurations	Lane Configurations	Lane	Configurations		Lane Configurations								
Traffic Vol, veh/h	affic V	26	affic V	133	115	affic V	30	167	19	42	50	28	8	55	13
Future Vol, veh/h		26		133	115		30	167	19	42	50	28	8	55	13
Peak Hour Factor		0.88		0.88	.88		0.87	0.87	0.87	0.83	0.83	0.83	0.73	0.73	0.73
Heavy V	%	3		3	3		0	0	0	1					
Mvmt Flow		30		151	131		34	192	22	51	60	34		75	18
Number of Lanes		0		1	1		0	1	1	1	1	0	0	1	0

Approach	EB			WB			NB			SB		
Opposing Appr	W			EB			SB			NB		
Opposing Lanes	Opposing Lanes	Opposing Lanes		Opposing Lanes			1			2		
Conflicting Approach Left				N						W		
Conflicting Lanes Left	1			2			2			2		
Conflicting Approach Right	NB						W					
Conflicting Lanes Right	2			1			2			2		
HCM Control D	9.9						9.8			10.5		
HCM LOS	A			B			A			B		

Lane	NB	NBLn2		Ln2	W	WBLn2			
Vol Left, %	100%	0%	16%	0%	15%	0%	11%		
Vol Thru, %	0%	64%	84%	0%	85%	0%	72%		
Vol Right, %	0%	36%	0%	100%	0%	100%	17%		
Sign Control	top	top	top	top	top	top	top		
Traffic Vol by Lane affic V	affic 42	78	affic 59	115	197	19	76		
LT Vol	42		26		30		8		
Through Vol		50	133		167		55		
RT Vol		28		115		19	13		
Lane Flow Rate	51	94	181	131	226	22			
Geometry Grp	5	5	5	5	5	5	4b		
Degree of Util (X Degree of Util (X Degree of Util (X Degree of Util (X	0.094	0.154	0.287	0.179	0.36	0.03	0.177		
Departure Headway (Hd)	6.657	5.897	5.725	4.935	5.73	4.945	6.133		
Convergence, Y/N	Y	Y	Y	Y	Y	Y	Y		
Cap	539	609	629	728	629	725	585		
Service Time	4.386	3.626	3.447	2.657	3.453	2.669	4.164		
HCM Lane V/C Ratio	0.095	0.154	0.288	0.18	0.359	0.03	0.178		
HCM Control Delay, s/veh		9.7	10.7	8.7	11.7	7.8	10.5		
HCM Lane LOS	B	A	B	A	B	A	B		
HCM 95th-tile Q						HCM 95th-tile Q		.3	

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:30	3:30	3:30	3:30	3:30	3:30
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	90	90	90	90	90	90
Time Recorded (min)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E		2856	2765	2793	2814	2824
Vehs Exited	2882	2808	2769	2807	2816	2816
arting Vehs	65	61	75	74	87	68
nding Vehs	85	109	71	60	85	79
Travel Distance (mi)	1336	1307	1280	1296		
Travel Time (hr)	83.3	74.8	71.4	75.7	80.1	77.1
otal Delay (hr)	1.5	24.0	21.7	25.5	29.5	26.5
Total Stops	3348		2967		3086	
Fuel Used (gal)	3.1	50.4	49.1	50.8	51.6	51.0

Interval #0 Information Seeding

Start Time	3:30
End Time	4:00
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	4:00
End Time	4:15
Total Time (min)	15

lumes adjusted by Growth Factors, A V sted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	685	688	667	6	636	665
Vehs Exited	694	665	677	6	658	668
arting Vehs	65	61	75	74	87	68
nding Vehs	56	84	65	79	65	68
Travel Distance (mi)	321	313	312	304	299	310
Travel Time (hr)	9.9	18.6	17.8	17.0	15.7	17.8
otal Delay (hr)	7.4	6.3	5.8	5.3	4.1	5.8
Total Stops	766	777	693	676	602	704
Fuel Used (gal)	2.8	12.3	12.1	11.7	11.1	12.0

Interval #2 Information Peak

Start Time	4:15
End Time	4:30
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E	827	752	735	8	803	785
Vehs Exited	799	777	739	789	764	773
arting Vehs	56	84	65	79	65	68
nding Vehs	84	59	61			79
Travel Distance (mi)	370	348		6	357	
Travel Time (hr)	2.8	19.3	18.8	21.5	23.9	21.3
otal Delay (hr)	8.4	5.8	5.8	7.6	10.1	7.5
Total Stops		800	822	17	891	878
Fuel Used (gal)	4.6	13.3	12.8	14.2	14.6	13.9

Interval #3 Information Post

Start Time	4:30
End Time	5:00
Total Time (min)	30

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E		1416	1363	1328	1375	1371
Vehs Exited	1389	1366		1368		1374
arting Vehs	84	59	61			79
nding Vehs	85	109	71	60	85	79
Travel Distance (mi)	645	645	636	6	648	641
Travel Time (hr)	0.7	37.0	34.8	37.2	40.6	38.0
otal Delay (hr)	5.6	11.9	10.0	12.7	15.4	13.1
Total Stops	1627	1534	1452	1510	1593	1541
Fuel Used (gal)	5.7	24.8	24.2	25.0	25.9	25.1

1: Grand River Ave & Divis by

Movement	EBL	B	WBT	WB	SBL	B	B	
Denied Del Denied Del y (h	0.0	.1	0.0	.0	0.0	.0	0.0	.1
otal Delay (hr)	0.4	7.8	0.3	0.6	1.7	0.0	0.3	21.1
Total Stops		846	960	66				
Travel Time (hr)	0.8	15.2	4.9	0.9	2.0	0.0	0.5	34.3
Avg Speed (mph)	peed (mph)	peed (mph)	8	peed	8(mph)	17	6	

: Division St & by m

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del Denied Del y (h	0.0	.0	0.1	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)	0.0	.3	0.5	.1	0.4	.0	0.1	.1	0.0	.0	0.2	.0
Total Stops					170		37		27	8		
Travel Time (hr)	0.2	.3	1.4	0.2	1.1	0.1	0.1	.2	0.1	0.1	0.5	0.1
Avg Speed (mph)	peed (mph)	peed (mph)		peed (mph)						18	16	

: Division St & by m

Movement	All
Denied Del Denied Del y (h	0.1
tal D lay (h	1.8
Total Stops	683
Travel Time (hr)	5.3
Avg Speed (mph)	peed (mph)16 peed (mph) peed (mph)

4: Bailey St & y

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)	0.0	.1	0.0	.0	0.0	.0	0.1	.1	0.0	.0	0.0	.0
Total Stops	2	1	1	5	2	0	49	36	37	12	10	7
Travel Time (hr)	0.0	.6	0.1	0.2	1.5	0.1	0.2	.1	0.1	0.1	0.1	0.1
Avg Speed (mph)	peed (mph)17	peed (mph)		peed (mph)							18	

4: Bailey St & y

Movement	All
Denied Del Denied Del y (h	0.0
tal D lay (h	0.4
Total Stops	162
Travel Time (hr)	3.2
Avg Speed (mph)	peed (mph)21 peed (mph) peed (mph)

: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.1	.7	0.2	0.0	0.0	0.1	1.0
Total Stops	30	1	2	2	0	54	89
Travel Time (hr)	0.3	.9	6.7	0.5	0.0	0.2	13.6
Avg Speed (mph) peed (mph)	13	pee 22 (mph)	24	pee 23 (mph)	22	9	23

12: Divisi y

Movement	EBL	EB	BT	B	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.0	.2	0.0	0.3	0.5
Total Stops	0	55	0	21	76
Travel Time (hr)	0.0	.3	0.2	0.7	1.2
Avg Speed (mph) peed (mph)	14	pee 7 (mph)	15	pee 9 (mph)	10

13: Bailey by

Movement	WBL	WB	NB	B	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.0	.0	0.0	0.0	0.0
Total Stops	3	20	0	0	23
Travel Time (hr)	0.0	.1	0.2	0.1	0.4
Avg Speed (mph) peed (mph)		peed (mph)		pee 17 (mph)	16

Total Network Performance

Denied Del Denied Del y (h	0.3
tal D lay (h	26.2
Total Stops	3123
Travel Time (hr)	77.1
Avg Speed (mph) peed (mph)	peed (mph) 17 peed (mph)

rse : 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
	215	422	397	330	324	285	118	93
Average Queue (ft)	57	216	191	200	195	167	87	41
95th Queue (ft)	182	376	350	300	296	267	134	82
Link Distance (ft)		970	970	535	535	535		
Upstream Blk Time (%)							12	0
Queuing Penalty (veh)							16	0
Storage Bay Dist (ft)	225							
Storage Blk Time (%)		12						
Queuing Penalty (veh)		6						

rse : 2: Division St &

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
	148	113	134	68	56	68	69
Average Queue (ft)		45	46		18	23	29
95th Queue (ft)		106	89	39	43	48	
Link Distance (ft)	914		416			95	750
Upstream Blk Time (%)						0	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)	0	2	3	0	0	0	
Queuing Penalty (veh)	0	4	1	0	0	0	

rse : 4: Bailey St &

Movement			NB	NB	
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	32	44	57	62	
Average Queue (ft)	3	6	26	31	19
95th Queue (ft)	17	30	50	49	45
Link Distance (ft)	416	1146		156	907
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			1	1	
Queuing Penalty (veh)			0	0	

rse : 7: Grand River Ave & Bailey St

Movement	EB	WB	WB	WB	SB
Directions Served	L	T	T	TR	LR
Maximum Queue (ft)	64	26		44	
Average Queue (ft)				3	26
95th Queue (ft)	54	10	10	19	48
Link Distance (ft)		848	848	848	110
Upstream Blk Time (%)					
Queuing Penalty (veh)					
torage Bay	200				
Storage Blk Time (%)					
Queuing Penalty (veh)					

rse : 12: Divisi

Movement	EB	EB	SB
Directions Served	L	R	T
Maximum Queue (ft)	6	79	104
Average Queue (ft)	0	31	20
95th Queue (ft)	4	63	78
Link Distance (ft)	211	211	95
Upstream Blk Time (%)			4
Queuing Penalty (veh)			5
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

rse : 13: Bailey St

Movement	WB
Directions Served	LR
Maximum Queue (ft)	29
Average Queue (ft)	13
95th Queue (ft)	32
Link Distance (ft)	174
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

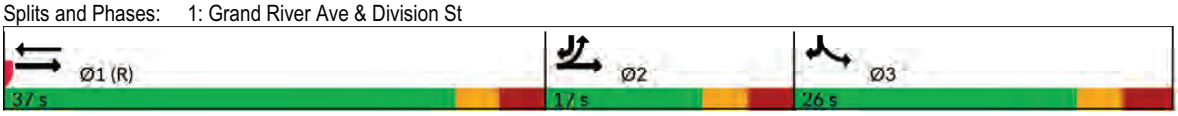
Network Summary

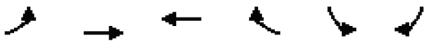
Network wide Queuing Penalty: 34

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	21	684	628	127	33
Future Volume (vph)	21	684	628	127	33
oup Flow	23	743	747	151	39
rn Type	P	NA	NA	P	t+ov
P otected P	2	1	1	3	3 2
Permitted Phases					
Minimum Split (s)	13.1		24.1	4.5	
Total Split (s)	17.0		37.0	26.0	
Total Split (%)	21.3%		46.3%	32.5%	
Y llow	3.0		3.0	3.0	
All-Red Time (s)	3.1		3.1	3.5	
Lost Time Adjust (s)	0.0		0.0	0.0	
Total Lost Time (s)	6.1		6.1	6.5	
Lead/Lag	Lag		Lead		
Lead-Lag Optimize?	Y		Yes		
v/c Ratio	0.10	0.35	0.40	0.36	0.05
Control Delay (s/v	31.5	8.8	18.4	28.2	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
tal Delay (s/veh)	31.5	8.8	18.4	28.2	4.5
Queue Length 50th (	10	90	95	63	0
Queue Length 95th (	31	122	121	106	14
Internal Link Dist (ft)		928	531	296	
ay Length (ft)	225				
apacity (vph)	238	2098	1881	415	716
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c R	0.10	0.35	0.40	0.36	0.05

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 32 (40%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	21	684	628		127	33
Future Volume (vph)	21	684	628		127	33
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	atd. Flow (prot) 1752	atd. Flow (prot) 3505			Flow (prot) 1703	1524
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	atd. Flow (perm) 1752	atd. Flow (perm) 3505			atd. Flow (perm) 1703	1524

Peak-hour factor, P							eak-hour factor, PHF	0.92	0.92	0.87	0.87	0
Adj. Flow							dj. Flow	23	743	722	25	
RTOR Reduction (vph)	0	0	4	0	0	24						
oup Flow	23	743	743	0	151	15						
Confl. Peds. (#/hr)	19			19	55							
Confl. Bikes (#/hr)				2								
Heavy Vehicles (%)	3%	3%	6%	6%	6%	6%						
Turn Type	P	NA	NA		P	t+ov						
P otected P	2	1	1		3	3 2						
Permitted Phases												
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5						
e Green, g (	10.9	47.9	30.9		19.5	30.4						
Actuated g/C	0.14	0.60	0.39		0.24	0.38						
Clearance Time (s)	6.1		6.1		6.5							
	238	2098	1876		415	579						
v/s Ratio Protv/s Ratio P	v/s Ratio P	c0.21	ratio P 0.15		c0.09	0.01						
v/s Ratio P	v/s Ratio Permv/s Ratio P		v/s Ratio P									
v/c Ratio	0.10	0.35	0.40		0.36	0.03						
Uniform Delay, d1	Uniform Delay, 30.2	Uniform Delay, 8.2			Uniform Delay, d1 17.8	5.1	15.5					
P ogression Factor	1.00	1.00	1.00		1.00	1.00						
Incremental Delay, d2	0.8	0.5	0.6		.5	0.1						
Delay (s)	31.0	8.6	18.4		27.6	15.6						
Level of Service	C	A	B		C	B						
Approach Delay (s/veh)		9.3	18.4		25.1							
Approach LOS		A	B		C							

Inter ummary				
HCM 2000 Control D	HCM 2000 Control 15.1	HCM 2000 Level of S	HCM 2000 Control Delay (s/veh)	
HCM 2000 V lume to Capacity	0.39			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.7	
Inter ty Utilization	36.4%	ICU Level	A	
Analysis P iod (min)	15			

c Critical Lane Group

Intersection												
Int Delay, s/veh	3.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V	2	77	17	7	78	2	23	10	11	12	1	15
Future V	2	77	17	7	78	2	23	10	11	12	1	15
Conf g Peds, #/hr	5	0	5	5	0	5	9	0	3	3	0	9
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	91	91	91	83	83	83	82	82	82	93	93	9
Heavy V %	6	6	6	2	2	2	0	0	0	3	3	3
Mvmt Flow	2	85	19	8	94	2	28	12	13	13	16	16

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	101	0	0	108	0	0	231	222	102	215	230	109
Stage 1	-	-	-	-	-	-	103	103	-	117	117	-
Stage 2	-	-	-	-	-	-	128	118	-	98	113	-
Critical Hdwy	4.16	-	-	4.12	-	-	7.1	6.5	6.2	7.13	6.53	6.23
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
C Hdw g 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Follow-up Hdwy	2.254	-	-	2.218	-	-		4		.527	4.027	3.327
Pot Cap-1 Maneuver	1466	-	-	1482	-	-	728	681	959	739	668	942
Stage 1	-	-	-	-	-	-	907	814	-	885	797	-
Stage 2	-	-	-	-	-	-	881	802	-	906	800	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1459	-	-	1475	-	-	683	669	951	705	657	929
Mov Cap-2 Maneuver	-	-	-	-	-	-	683	669	-	705	657	-
Stage 1	-	-	-	-	-	-	902	808	-	876	788	-
Stage 2	-	-	-	-	-	-	835	793	-	876	795	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.16	0.6	10.11	10.11
HCM LOS			B	B

Lane/Major Mvmt	Ln1	NBLn2							Ln1			
Capacity (veh/h)	Capacity (veh/h)	683	Capacity (veh/h)	792	Capacity (veh/h)	-	-	144	-	-	750	
HCM Lane V/C Ratio	0.041	0.032	0.002	-	-	0.006	-	-	0.06			
HCM Ctrl Dly (s/v)	10.5	9.7	7.5	0	-	7	0	-	10.1			
HCM Lane LOS	B	A	A	A	-	A	A	-	B			
HCM 95th %tile Q(veh)									HCM 95th %tile Q(veh)	0.1	0.1	0 -

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V						
Future V	26	780	613	22		33
Conflicting Peds, #/hr	3			3		
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-		-
Veh in Median S orage, #	-			-		-
Grade, %	-			-		-
Peak Hour Factor	89	89	87	87	67	67
Heavy Vehicles, %	3	3	5	5	13	13
Mvmt Flow	29	876	705	25		49

j	Major1		Major2		Minor2	
Conflicting Flow A	760		-		1244	395
Stage 1	-	-	-	-	747	-
Stage 2	-	-	-	-	497	-
Critical Hdwy	5.36	-	-	-	6.51	7.36
Hdwy Stg 1	-	-	-	-	6.86	-
Hdwy Stg 2	-	-	-	-	6.06	-
Follow-up Hdwy	3.13	-	-	-	3.78	4.03
Pot Cap-1 Maneuver	507	-	-	-	180	493
Stage 1	-	-	-	-	331	-
Stage 2	-	-	-	-	530	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	493	-	-	-	160	479
Mov Cap-2 Maneuver	-	-	-	-	160	-
Stage 1	-	-	-	-	302	-
Stage 2	-	-	-	-	515	-

Approach	EB	WB	SB
HCM Ctrl D	0.41		13.38
HCM LOS			B

Lane/Major Mvmt					Ln1
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	479
HCM Lane V	0.059	-	-	-	0.103
HCM Ctrl Dly (s/v)	12.8	-	-	-	13.4
HCM Lane LOS		-	-	-	
HCM 95th %tile Q(veh)					0.3

affic V	2	780	613	22	33
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement				R	WBL	W	WB	N	N	NB			
Lane Configurations	Lane Configurations	Lane	Configurations		Lane Configurations								
Traffic Vol, veh/h	affic V	6	affic V	50	affic V	19	111	16	18		14	76	13
Future Vol, veh/h		6	50	71	19	111	16	18			14	76	13
Peak Hour Factor		0.74	0.74	0.74	0.93	0.93	0.93	0.86	0.86	0.86	0.84	0.84	0.84
Heavy V	%	9	9	9	3	3	3	0	0	0	1	1	1
Mvmt Flow			68	96	20	119	17	21			17	90	15
Number of Lanes		0	1	1	0	1	1	1	1	0	0	1	0

Approach	EB			WB			NB			SB		
Opposing A		Opposing Appr		EB	W		SB			NB		
Opposing Lanes	Opposing Lanes	Opposing Lanes		Opposing Lanes			1			2		
Conflicting Approach Left				N						W		
Conflicting Lanes Left	1			2			2			2		
Conflicting Approach Right	NB						W					
Conflicting Lanes Right	2			1			2			2		
HCM Control D	8.3			.1			8.5			.5		
HCM LOS	A			A			A			A		

Lane		NBLn1	NBLn2	Ln1	Ln2	WBLn1	WBLn2	Ln1		
Vol Left, %		100%	0%	11%	0%	15%	0%	14%		
Vol Thru, %		0%	50%	89%	0%	85%	0%	74%		
Vol Right, %		0%	50%	0%	100%	0%	100%	13%		
Sign Control		top	top	top	top	top	top	top		
affic V	affic V	Traffic Vol by Lane		affic V						
LT Vol		18	0	6	0	19	0	14		
Through Vol		0		50	0	111	0	76		
RT Vol		0	8	0	71	0	16	13		
Lane Flow Rate		21	19	76	96	140	17	123		
Geometry Grp		5	5	5	5	5	5	4b		
Degree of Util (X	Degree of Util (X	Degree of Util (X	Degree of Util (X	Degree of Util (X		0.121	0.203	0.021	0.181	
Departure Headway (Hd)		5.939	5.083	5.301	4.543	5.226	4.449	5.311		
Convergence, Y/N		Y	Y	Y	Y	Y	Y	Y		
Cap		602	703	677	789	686	804	674		
Service Time		3.683	2.827	3.033	2.275	2.958	2.181	3.348		
HCM Lane V/C Ratio		0.035	0.027	0.112	0.122	0.204	0.021	0.182		
HCM Control Delay, s/veh				8.7	7	9.3	7.3	.5		
HCM Lane LOS		A	A	A	A	A	A	A		
HCM 95th-tile Q								HCM 95th-tile Q		0.1

Intersection	
Int Delay, s/veh	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
ff V	6	26	40	76	68	45
Future V	6	26	40	76	68	45
Conflicting Peds, #/hr	0	0	0	0	0	0
S gn Contr	Fr	Fr	Fr	Fr	Stop	Stop
RT Channelized	-		-		-	
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Flow	50	28	43	83	74	49

j	Major1		Major2		Minor1	
Conflicting Flow A	0	0	78	0	234	64
Stage 1	-	-	-	-	64	-
Stage 2	-	-	-	-	170	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Hdwy Stg 1	-	-	-	-	5.4	-
Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1533	-	759	1006
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	865	-
Platoon blocked, %	-	-		-		
Cap-1 Maneuver	-	-	1533	-	736	1006
Mov Cap-2 Maneuver	-	-	-	-	736	-
Stage 1	-	-	-	-	964	-
Stage 2	-	-	-	-	839	-

Approach	EB	WB	NB
HCM Ctrl D	0	2.56	10.13
HCM LOS			B

Lane/Major Mvmt	Ln1					
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)		
HCM Lane V	0.149	-	-	0.028	-	
HCM Ctrl Dly (s/v)	10.1	-	-	7	0	
HCM Lane LOS		-	-	A	A	
HCM 95th %tile Q(veh)				HCM 95th %tile Q(veh)	0.5	- - 0.1 -

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:15	7:15	7:15	7:15	7:15	7:15
End Time	8:45	8:45	8:45	8:45	8:45	8:45
otal Time (min)	90	90	90	90	90	90
ecorded (in)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E	1805		1918		1819	
Vehs Exited	1814	1871	1913	1841	1822	1854
arting Vehs	40	41	43	47	41	42
nding Vehs	31	42	48	34	38	36
avel Distance (mi)	806			9		826
avel Time (hr)	39.9	41.4	42.1	40.2	40.3	40.8
otal Delay (hr)	8.4	8.9	8.9	8.4	8.5	8.6
Total Stops	1520	1563	1598		1561	
Fuel Used (gal)	29.3	30.6	31.2	30.0	29.8	30.2

Interval #0 Information Seeding

Start Time	7:15
End Time	7:45
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	7:45
End Time	8:00
Total Time (min)	15

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	447	427	447	454	445	445
Vehs Exited	453	435	445	470	453	451
arting Vehs	40	41	43	47	41	42
nding Vehs	34	33	45	31	33	31
avel Distance (mi)	203					istance (mi)
avel Time (hr)	10.0	9.1	9.7	10.2	9.8	9.8
otal Delay (hr)	2.1	1.7	2.0	2.2	2.0	2.0
Total Stops				96		364
Fuel Used (gal)	7.2	6.9	7.1	.6	7.3	.2

Interval #2 Information Peak

Start Time	8:00
End Time	8:15
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E	508	536	526			
Vehs Exited	484	528	528	514	517	513
arting Vehs	34	33	45	31	33	31
nding Vehs				40	49	
avel Distance (mi)	217	236	236			
avel Time (hr)	10.7	11.6	11.7	11.3	11.9	11.4
otal Delay (hr)	2.2	2.4	2.6	2.4	2.8	2.5
Total Stops		469	461			
Fuel Used (gal)	7.9	.6	8.7	.3	8.5	.4

Interval #3 Information Post

Start Time	8:15
End Time	8:45
Total Time (min)	30

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	850	909	945			
Vehs Exited		908	940			
arting Vehs				40	49	
nding Vehs	31	42	48	34	38	36
avel Distance (mi)	386	408				396
avel Time (hr)	19.2	20.6	20.7	18.7	18.6	19.6
otal Delay (hr)	4.2	4.8	4.3	3.8	3.7	4.2
Total Stops	708			16	700	739
Fuel Used (gal)	14.2	15.1	15.4	14.1	13.9	14.5

1: Grand River Ave & Divis by

Movement	EBL	B	WBT	WB	SBL	B	B			
Denied Del								Denied Del y (hr)	0.0	0.0
otal Delay (hr)	0.2	.9	3.3	0.1	0.9	0.0	0.1	6.4		
ops		319			91	0		889		
avel Time (hr)	0.4	6.9	6.2	0.2	1.3	0.0	0.2	15.2		
peed (mph)	12							peed (mph)	12	

: Division St & by m

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del												Denied Del y (
tal D lay (hr)	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0
ops	6						19	9			69	
avel Time (hr)	0.1	0.4	0.7	0.1	0.3	0.1	0.1	0.1	0.0	0.1	0.5	0.1
peed (mph)	20	20	20							20	19	20

: Division St & by m

Movement	All					
Denied Del	Denied Del y (hr)	0.1				
tal D lay (h)	0.6					
Total Stops	413					
Travel Time (hr)	2.6					
Avg Speed (mph)	18	peed (mph)	18	peed (mph)	18	peed (mph) 18

4: Bailey St & y

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del												Denied Del y (
tal D lay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ps	0	0	0	1	0	0	24	9	12	10		
avel Time (hr)	0.0	0.2	0.0	0.1	0.7	0.0	0.1	0.1	0.1	0.1	0.1	0.1
peed (mph)	15	20								20	20	20

4: Bailey St & y

Movement	All					
Denied Del	Denied Del y (hr)	0.0				
tal D lay (h)	0.1					
Total Stops	83					
Travel Time (hr)	1.6					
Avg Speed (mph)	21	peed (mph)	21	peed (mph)	21	peed (mph) 21

: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB				
Denied Del							Denied Del y (hr)	0.0	0.0	0.0
otal Delay (hr)	0.1	0.3	0.1	0.0	0.0	0.0	0.5			
ps	9	0	0	1	0	30	50			
avel Time (hr)	0.2	.9	4.1	0.2	0.0	0.1	8.6			
Avg Speed (mph)	17	22	24	23	18	14	23	peed (mph)	17	

12: Site Driveway & by

Movement	EB	BR	WBL	WB	NBL	BR				
Denied Del							Denied Del y (hr)	0.0	0.0	0.0
otal Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.2			
ps	0	0	3	0	69	44	116			
avel Time (hr)	0.1	0.1	0.1	0.2	0.1	0.1	0.7			
peed (mph)	18						peed (mph)	18		

Total Network Performance

Denied Del	Denied Del y (hr)	0.2		
tal D lay (h)	8.5			
Total Stops	1551			
Travel Time (hr)	40.8			
Avg Speed (mph)	20	peed (mph)	20	peed (mph)

rse : 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
Maximum Queue (ft)		229	200	187	177	161	173	85
Average Queue (ft)	19	116	79	121	112	72	72	19
95th Queue (ft)	51	187	157	169	165	135	140	58
Link Distance (ft)		968	968	524	524	524	278	278
Upstream Blk Time (%)								
Queuing Penalty (veh)								
torage Bay	225							
orage Blk Time (%)		0						
Queuing Penalty (veh)		0						

rse : 2: Division St &

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
Maximum Queue (ft)	73	87	69	20	33	25	
Average Queue (ft)	29	38	31	10	11	10	35
95th Queue (ft)	56	71	53		32		56
Link Distance (ft)	917		115			278	784
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)			0				
Queuing Penalty (veh)			0				

rse : 4: Bailey St &

Movement			NB	NB		
Directions Served	LTR	LTR	L	TR	LTR	
Maximum Queue (ft)	15	16	30	49	52	
Average Queue (ft)	1	1	16	16	21	
95th Queue (ft)	9	8	40	43	47	
Link Distance (ft)	245	1146		327	908	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		

rse : 7: Grand River Ave & Bailey St

Movement	EB	WB	WB	SB
Directions Served	L	T	TR	LR
Maximum Queue (ft)	61	4	25	82
Average Queue (ft)	14	0	1	23
95th Queue (ft)	44	3	10	59
Link Distance (ft)		842	842	327
Upstream Blk Time (%)				
Queuing Penalty (veh)				
torage Bay	200			
Storage Blk Time (%)				
Queuing Penalty (veh)				

rse : 12: Site Driveway &

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	35	74
Average Queue (ft)	3	38
95th Queue (ft)	18	62
Link Distance (ft)	245	76
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

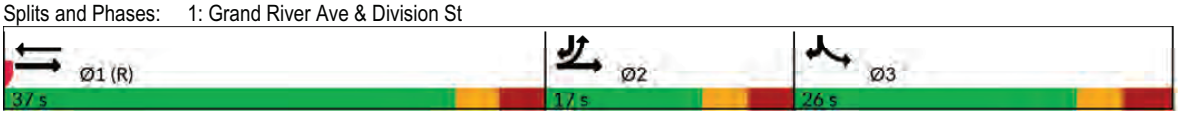
Network Summary

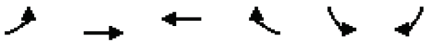
Network wide Queuing Penalty: 0

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)		983	987	171	94
Future Volume (vph)		983	987	171	94
oup Flow	58	1035	1137	190	104
rn Type	P	NA	NA	P	t+ov
P otected P	2	1 2	1	3	3 2
Permitted Phases					
Minimum Split (s)	13.1		24.1	24.5	
Total Split (s)	17.0		37.0	26.0	
Total Split (%)	21.3%		46.3%	32.5%	
Y llow	3.0		3.0	3.0	
All-Red Time (s)	3.1		3.1	3.5	
Lost Time Adjust (s)	0.0		0.0	0.0	
Total Lost Time (s)	6.1		6.1	6.5	
Lead/Lag	Lag		Lead		
Lead-Lag Optimize?	Y		Yes		
v/c Ratio	0.24	0.48	0.60	0.44	0.14
Control Delay (s/v	33.7	10.0	21.0	29.5	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
tal Delay (s/veh)	33.7	10.0	21.0	29.5	12.7
Queue Length 50th (	26	138	160	81	28
Queue Length 95th (	60	183	204	141	56
Internal Link Dist (ft)		928	531	126	
ay Length (ft)	225				
apacity (vph)	243	2139	1887	431	724
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c R	0.24	0.48	0.60	0.44	0.14

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 59 (74%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)		983	987	71	171	94
Future Volume (vph)		983	987	71	171	94
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot) atd. Flow (prot)	1787	atd. Flow (prot)	4862	Flow (prot)	1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm) atd. Flow (perm)	1787	atd. Flow (perm)	4862	atd. Flow (perm)	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.93	0.93	0.90	0.90
Adj. Flow						dj. Flow
RTOR Reduc	0	0	10	0	0	3
oup Flow	58	1035	1127	0	190	101
Confl. Peds. (#/hr)	226			226	235	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	P	NA	NA		P	t+ov
P otected P	2	1 2	1		3	3 2
Permitted Phases						
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5
e Green, g (	10.9	47.9	30.9		19.5	30.4
Actuated g/C	0.14	0.60	0.39		0.24	0.38
Clearance Time (s)	6.1		6.1		6.5	
	243	2139	1877		431	601
v/s Ratio Protv/s Ratio P	v/s Ratio P	c0.29	ratio P	0.23	c0.11	0.06
v/s Ratio P	v/s Ratio Permv/s Ratio P		v/s Ratio P			
v/c Ratio	0.24	0.48	0.60		0.44	0.17
Uniform Delay, d1	Uniform Delay,	Uniform D	Delay,	Uniform Delay,		16.4
P ogression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	0.8	1.4		3.3	0.6
Delay (s)	33.2	9.9	21.0		28.9	17.0
Level of Service	C	A	C		C	B
Approach Delay (s/veh)		11.1	21.0		24.7	
Approach LOS		B	C		C	

Inter ummary				
HCM 2000 Control D	HCM 2000 Control		HCM 2000 Level of S	HCM 2000 Control Delay (s/veh)
HCM 2000 V lume to Capacity		0.55		
Actuated Cycle Length (s)		80.0	Sum of lost time (s)	18.7
Inter ty Utilization		52.1%	ICU Level	A
Analysis P iod (min)		15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	4.8											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V	9	155	29	17	187	11	53	36	33	13	10	12
Future V	9	155	29	17	187	11	53	36	33	13	10	12
Conflicting Peds, #/hr		0	1	1	0		30	0	10	10	0	30
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-		-	-		-	-		-	-	
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
eh in Median Storage, #											Veh in Median Storage, #	- 0 -
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	94	94	94	85	85	85	72	72	72	65	65	65
Heavy V %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	10	165	31	20	220	13	74	50	46	20	15	18

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	241	0	0	210	0	0	511	494	204	94	503	264
Stage 1	-	-	-	-	-	-	213	213	-	274	274	-
Stage 2	-	-	-	-	-	-	298	281	-	219	229	-
Critical Hdwy	.11	-	-	.11	-	-	7.1	6.5	6.2	7.1	6.5	6.2
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
C Hdw g 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5		3.3	3.5		3.3
Pot Cap-1 Maneuver	1332	-	-	1367	-	-	476	479	841	89	474	779
Stage 1	-	-	-	-	-	-	793	730	-	736	687	-
Stage 2	-	-	-	-	-	-	715	682	-	788	718	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1321	-	-	1349	-	-	420	457	822	395	452	751
Mov Cap-2 Maneuver	-	-	-	-	-	-	420	457	-	395	452	-
Stage 1	-	-	-	-	-	-	776	714	-	718	670	-
Stage 2	-	-	-	-	-	-	651	665	-	680	703	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.36	0.61	13.71	13.19
HCM LOS			B	B

Lane/Major Mvmt	Ln1 NB	Ln2					Ln1					
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)			141	-	-	93		
HCM Lane V/C Ratio	0.175	0.165	0.007	-	-	0.015	-	-	0.109			
HCM Ctrl Dly (s/v)	15.4	12.4	7.7	0	-	7.7	0	-	13.2			
HCM Lane LOS	C		A	A	-	A	A	-				
HCM 95th %tile Q(veh)										HCM 95th %tile Q(veh)	0.6	0.6 0 -

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V	40	1110	993	67	0	6
Future V	40	1110	993	67	0	61
Conflicting Peds, #/hr	137	0	0	137	0	
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-	0	-
Veh in Median S orage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	90	90	64	64
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	42	1168	1103	74	0	95

j	Major1		Major2		Minor2	
Conflicting Flow A	1315	0	-	0	1946	727
Stage 1	-	-	-	-	1278	-
Stage 2	-	-	-	-	668	-
Critical Hdwy	5.34	-	-	-	6.25	7.1
Hdwy Stg	-	-	-	-	6.6	-
Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.12	-	-	-	3.65	3.9
Pot Cap-1 Maneuver	275	-	-	-	77	318
Stage 1	-	-	-	-	169	-
Stage 2	-	-	-	-	463	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	239	-	-	-	48	276
Mov Cap-2 Maneuver	-	-	-	-	48	-
Stage 1	-	-	-	-	121	-
Stage 2	-	-	-	-	402	-

Approach	EB	WB	SB
HCM Ctrl D	0.81	0	24.74
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	239	-	-	-	276
HCM Lane V	0.176	-	-	-	0.345
HCM Ctrl Dly (s/v)	23.2	-	-	-	24.7
HCM Lane LOS		-	-	-	
HCM 95th %tile Q(veh)					1.5

HCM 95th %tile Q(veh)					
	0.6	-	-	-	

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	Lane Configurations	Lane Configurations		Lane Configurations								
Traffic Vol, veh/h affic V	26 affic V	158	115 affic V	35	186	21	42	50	35	8	55	13
Future Vol, veh/h	26	158	115	35	186	21	42	50	35	8	55	13
Peak Hour Factor	0.88	0.88	0.88	0.87	0.87	0.87	0.83	0.83	0.83	0.73	0.73	0.73
Heavy V %	3	3	3	0	0	0	1	1	1	0	0	0
Mvmt Flow	30	180	131	40	214	24	51	60	42		75	18
Number of Lanes	0	1	1	0	1	1	1	1	0	0	1	0

Approach	EB		WB		NB		SB		
Opposing A	Opposing A		EB	Opposing A	SB		Opposing Approach		WB
Opposing Lanes	Opposing Lanes	Opposing Lanes	Opposing Lanes		1		2		
Conflicting Approach Left									
Conflicting Lanes Left	1		2		2		2		
Conflicting Approach Right									
Conflicting Lanes Right	2		1		2		2		
HCM Control D	10.5		12.2		10.1		10.8		
HCM LOS	B		B		B		B		

Lane		Ln2		Ln2		Ln2			
Vol Left, %	100%	0%	14%	0%	16%	0%	11%		
Vol Thru, %	0%	59%	86%	0%	84%	0%	72%		
V ght, %	0%	41%	0%	100%	0%	100%	17%		
Sign Control	top	top	top	top	top	top	top		
affic V affic V	Traffic Vol by Lane	85	affic V	115	221	21	76		
LT Vol	42	0	26	0	35	0	8		
Through Vol	0	50	158	0	186	0	55		
RT Vol	0	35	0	115	0	21	13		
Lane Flow Rate	51	102	209	131	254	24	104		
Geometry Grp	5	5	5	5	5	5	4b		
Degree of Util (X Degree of Util (X Degree of Util (X Degree of Util (X).	0.096	0.172	0.337	0.182	0.411	0.034	0.183		
Departure Headway (Hd)	6.831	6.033	5.802	5.022	5.82	5.031	6.324		
Convergence, Y/N	Y	Y	Y	Y	Y	Y	Y		
Cap	525	594	621	714	620	711	567		
Service Time	4.571	3.772	3.535	2.755	3.553	2.765	4.366		
HCM Lane V/C Ratio	0.097	0.172	0.337	0.183	0.41	0.034	0.183		
HCM Control Delay, s/veh	10.3	0	11.5	8.9	12.6	7.9	10.8		
HCM Lane LOS	B	A	B	A	B	A	B		
HCM 95th-tile Q							HCM 95th-tile Q		0.3

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
affic V						
Future V	169	32	39	213	26	22
Conflicting Peds, #/hr	0	0	0	0	0	0
S gn Contr	Fr	Fr	Fr	Fr	Stop	Stop
RT Channelized	-			-		
Storage Length	-	-	-	-	0	-
eh in Median S						
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	184	35	42	232	28	24

j	Major1		Major2			
Conflicting Flow A	0	0	218	0	517	201
Stage 1	-	-	-	-	201	-
Stage 2	-	-	-	-	316	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Hdwy Stg	-	-	-	-	5.42	-
Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1351	-	518	840
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	739	-
Platoon blocked, %	-	-		-		
Cap-1 Maneuver	-	-	1351	-	500	840
Mov Cap-2 Maneuver	-	-	-	-	500	-
Stage 1	-	-	-	-	833	-
Stage 2	-	-	-	-	712	-

Approach	EB	WB	NB
HCM Ctrl D	0	.2	.41
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	613	-	-	279	-
HCM Lane V	0.085	-	-	0.031	-
HCM Ctrl Dly (s/v)	11.4	-	-	.8	0
HCM Lane LOS		-	-	A	A
HCM 95th %tile Q(veh)				0.3	-

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:30	3:30	3:30	3:30	3:30	3:30
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	90	90	90	90	90	90
Time Recorded (min)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E	3079		2967	2884	2973	2965
Vehs Exited	3077	2978	2972	2883	2976	2978
arting Vehs	86		76	82	72	80
nding Vehs	88	56	71	83	69	71
Travel Distance (mi)	1396			1306	1361	
Travel Time (hr)	82.2	81.1	77.4	75.3	76.8	78.5
otal Delay (hr)	8.0	28.7	24.9	24.4	23.7	26.0
Total Stops		3383	3281	3082	3164	3270
Fuel Used (gal)	4.8	53.4	52.4	50.7	52.6	52.8

Interval #0 Information Seeding

Start Time	3:30
End Time	4:00
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	4:00
End Time	4:15
Total Time (min)	15

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	710	745	678	7	721	710
Vehs Exited	708	775	690	706	712	718
arting Vehs	86		76	82	72	80
nding Vehs	88	73	64	77	81	75
Travel Distance (mi)	325	352	313	320	329	328
Travel Time (hr)	8.7	20.6	18.0	17.0	18.2	18.5
otal Delay (hr)	6.1	6.9	5.9	4.5	5.4	5.8
Total Stops	757	827	764	674	766	755
Fuel Used (gal)	2.6	13.9	12.1	12.0	12.5	12.6

Interval #2 Information Peak

Start Time	4:15
End Time	4:30
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E	892	821	836	807	843	837
Vehs Exited		820	808	7	843	827
arting Vehs	88	73	64	77	81	75
nding Vehs	76	74			81	87
Travel Distance (mi)	397	362	361		380	369
Travel Time (hr)	3.2	20.1	20.6	20.8	21.2	21.2
otal Delay (hr)	7.8	6.0	6.6	7.4	6.3	6.8
Total Stops	990	875	903	912	904	914
Fuel Used (gal)	5.6	13.8	13.9	13.6	14.6	14.3

Interval #3 Information Post

Start Time	4:30
End Time	5:00
Total Time (min)	30

lumes adjusted by Growth Factors, A V sted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	1477	1365		1376	1409	1416
Vehs Exited	1465	1383	1474			
arting Vehs	76	74			81	87
nding Vehs	88	56	71	83	69	71
Travel Distance (mi)	674	631	679	6	652	656
Travel Time (hr)	0.3	40.3	38.7	37.5	37.3	38.8
otal Delay (hr)	4.2	15.8	12.4	12.5	12.0	13.4
Total Stops	1685	1681	1614	1496		
Fuel Used (gal)	6.7	25.6	26.4	25.2	25.4	25.9

1: Grand River Ave & Divis by

Movement		EBL	B	WBT	WB	SBL	B	B	
Denied Del	Denied Del y (h	0.0	.1	0.0	.0	0.0	.0	0.0	.1
otal Delay (hr)		0.6	7.7	8.9	0.5	2.1	0.0	0.3	20.2
Total Stops		59	866	08	70				2089
Travel Time (hr)		1.1	15.3	3.6	0.9	2.3	0.0	0.5	33.7
Avg Speed (mph)	peed (mph)		peed (mph)	8	peed (mph)			6	

: Division St & by m

Movement		EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del	Denied Del y (h	0.0	.0	0.1	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)		0.0	.3	0.2	.1	0.5	.0	0.1	.1	0.0	.0	0.1	.0
Total Stops			157			183	26			36			
Travel Time (hr)		0.2	.5	1.1	0.2	0.7	0.1	0.1	.2	0.1	0.1	0.4	0.1
Avg Speed (mph)	peed (mph)		peed (mph)		peed	7(mph)					18	17	18

: Division St & by m

Movement		All
Denied Del	Denied Del y (h	0.1
tal D lay (h		1.6
Total Stops		743
Travel Time (hr)		4.8
Avg Speed (mph)	peed (mph)	16 peed (mph) peed (mph)

4: Bailey St & y

Movement		EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del	y (h	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)		0.0	.0	0.0	.0	0.0	.0	0.1	.1	0.0	.0	0.0	.0
Total Stops		3	4	1	4	3	0	52	34	37	12	8	13
Travel Time (hr)		0.0	.4	0.1	0.2	1.7	0.1	0.2	.1	0.1	0.1	0.1	0.1
Avg Speed (mph)	peed (mph)	17	peed	23 (mph)	19	peed	22(mph)	24	23	10	12	12	19	19	20

4: Bailey St & y

Movement		All
Denied Del	Denied Del y (h	0.0
tal D lay (h		0.3
Total Stops		171
Travel Time (hr)		3.2
Avg Speed (mph)	peed (mph)	21 peed (mph) peed (mph)

: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.1	.7	0.2	0.0	0.0	0.1	1.1
Total Stops						8	98
Travel Time (hr)	0.3	6.1	6.8	0.5	0.0	0.2	13.9
Avg Speed (mph)	peed (mph)	14	pee	22 (mph)	24	pee	22 (mph) 20 9 23

11: Site Driveway & by m

Movement	EB	BR	WBL	WB	NBL	BR	
Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.1	.0	0.0	0.1	0.0	0.0	0.3
Total Stops	0	0	6	4	27	23	60
Travel Time (hr)	0.3	.1	0.1	0.6	0.1	0.0	1.2
Avg Speed (mph)	peed (mph)	18	peed (mph)	16	peed (mph)	6	8 18

14: Divisi y

Movement	EBL	EB	BT	B	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.0	.3	0.0	0.4	0.7
Total Stops	1	58	0	33	92
Travel Time (hr)	0.0	.4	0.3	0.8	1.5
Avg Speed (mph)	peed (mph)		peed (mph)	peed	8 (mph) 8

15: Bailey by

Movement	WBL	WB	NB	B	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.0	.0	0.0	0.0	0.0
Total Stops	3	14	0	0	17
Travel Time (hr)	0.0	.0	0.2	0.1	0.4
Avg Speed (mph)	peed (mph)		peed (mph)	16	peed (mph) 17 16

Total Network Performance

Denied Del Denied Del y (h	0.3
tal D lay (h	25.7
Total Stops	3270
Travel Time (hr)	78.5
Avg Speed (mph) peed (mph)	peed (mph) 17 peed (mph)

rse : 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
	249	456	400	357	338	329	120	108
Average Queue (ft)	64	228	199	183	180	154		40
95th Queue (ft)	179	391	350	278	272	247	138	84
Link Distance (ft)		970	970	535	535	535	112	112
Upstream Blk Time (%)				0			20	0
Queuing Penalty (veh)				0			27	0
torage Bay	225							
orage Blk Time (%)	0	12						
Queuing Penalty (veh)	0	6						

rse : 2: Division St &

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
	108	100	117	48	49	53	52
Average Queue (ft)	46	41	51	14	18	23	27
95th Queue (ft)	77	72	90	38	39	45	46
Link Distance (ft)	914		112			95	750
Upstream Blk Time (%)			2				
Queuing Penalty (veh)			4				
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)			6	0	0	0	
Queuing Penalty (veh)			1	0	0	0	

rse : 4: Bailey St &

Movement			NB	NB		
Directions Served	LTR	LTR	L	TR	LTR	
Maximum Queue (ft)	45	49	55	63	56	
Average Queue (ft)	5	5	25	31	20	
95th Queue (ft)	25	28		51	47	
Link Distance (ft)	246	1146		156	907	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)			1	0		
Queuing Penalty (veh)			1	0		

rse : 7: Grand River Ave & Bailey St

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	TR	LR
Maximum Queue (ft)	61	29	40	19	6	31	66
Average Queue (ft)	23	1	2	1	0	2	26
95th Queue (ft)	53	13	17		0	16	51
Link Distance (ft)		535	535	848	848	848	109
Upstream Blk Time (%)							
Queuing Penalty (veh)							
torage Bay	200						
Storage Blk Time (%)							
Queuing Penalty (veh)							

rse : 11: Site Driveway &

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	79	63
Average Queue (ft)	9	27
95th Queue (ft)	49	53
Link Distance (ft)	246	85
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

rse : 14: Divisi

Movement	EB	EB	SB
Directions Served	L	R	T
Maximum Queue (ft)	30	101	112
Average Queue (ft)	1	34	
95th Queue (ft)	10	69	96
Link Distance (ft)	168	168	95
Upstream Blk Time (%)			5
Queuing Penalty (veh)			5
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

rse : 15: Bailey St

Movement	WB
Directions Served	LR
Maximum Queue (ft)	28
Average Queue (ft)	11
95th Queue (ft)	31
Link Distance (ft)	174
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

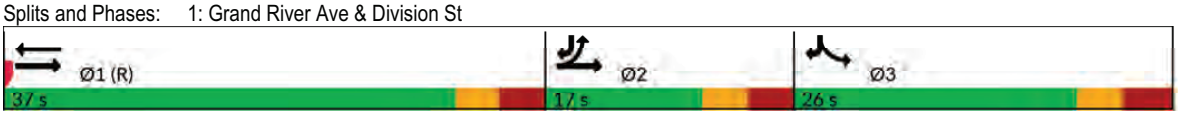
Network Summary

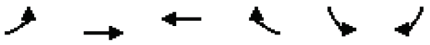
Network wide Queuing Penalty: 45

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	20	698	635	129	28
Future Volume (vph)	20	698	635	129	28
oup Flow		759	755	154	33
rn Type	P	NA	NA	P	t+ov
P otected P	2	1	1	3	3 2
Permitted Phases					
Minimum Split (s)	13.1		24.1	4.5	
Total Split (s)	17.0		37.0	26.0	
Total Split (%)	21.3%		46.3%	32.5%	
Y llow	3.0		3.0	3.0	
All-Red Time (s)	3.1		3.1	3.5	
Lost Time Adjust (s)	0.0		0.0	0.0	
Total Lost Time (s)	6.1		6.1	6.5	
Lead/Lag	Lag		Lead		
Lead-Lag Optimize?					
v/c Ratio	0.09	0.36	0.40	0.37	0.05
Control Delay (s/v	31.4	8.8	18.4	28.3	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
tal Delay (s/veh)	31.4	8.8	18.4	28.3	4.8
Queue Length 50th (	10	92	97	64	0
Queue Length 95th (	31	125	123	108	13
Internal Link Dist (ft)		928	531	296	
ay Length (ft)	225				
apacity (vph)	238	2098	1881	415	713
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c R	0.09	0.36	0.40	0.37	0.05

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 32 (40%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR					
Lane Configurations											
Traffic Volume (vph)	20	698	635		129	28					
Future Volume (vph)	20	698	635		129	28					
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900					
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5					
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00					
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00					
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00					
Frt	1.00	1.00	1.00		1.00	0.85					
Flt Protected	0.95	1.00	1.00		0.95	1.00					
Satd. Flow (prot)	atd. Flow (prot) 1752	3505	atd. Flow (prot) 4859		Flow (prot) 1703	1524					
Flt Permitted	0.95	1.00	1.00		0.95	1.00					
Satd. Flow (perm)	atd. Flow (perm) 1752	atd. 3505	v (perm) 4859		atd. Flow (perm) 1703	1524					
Peak-hour factor, P							eak-hour factor, PHF	0.92	0.92	0.87	0.87
Adj. Flow							dj. Flow		759	730	25
RTOR Reduction (vph)	0	0	4	0	0	20					
oup Flow		759	751	0	154	13					
Confl. Peds. (#/hr)	19			19	55						
Confl. Bikes (#/hr)				2							
Heavy Vehicles (%)	3%	3%	6%	6%	6%	6%					
Turn Type	P	NA	NA		P	t+ov					
P otected P	2	1	1		3	3 2					
Permitted Phases											
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5					
e Green, g (	10.9	47.9	30.9		19.5	30.4					
Actuated g/C	0.14	0.60	0.39		0.24	0.38					
Clearance Time (s)	6.1		6.1		6.5						
	238	2098	1876		415	579					
v/s Ratio Protv/s Ratio P	v/s Ratio P 0.01	c0.22	atio P 0.15		c0.09	0.01					
v/s Ratio P	v/s Ratio Permv/s Ratio P		v/s Ratio P								
v/c Ratio	0.09	0.36	0.40		0.37	0.02					
Uniform Delay, d1	Uniform Delay, 30.2	Uniform Delay, 17.8			Uniform Delay, d5.2	15.5					
P ogression Factor	1.00	1.00	1.00		1.00	1.00					
Incremental Delay, d2	0.8	0.5	0.6		.5	0.1					
Delay (s)	31.0	8.7	18.5		27.7	15.6					
Level of Service	C	A	B		C	B					
Approach Delay (s/veh)		9.3	18.5		25.5						
Approach LOS		A	B		C						

Inter ummary				
HCM 2000 Control D	HCM 2000 Control 15.1	HCM 2000 Level of S	HCM 2000 Control Delay (s/veh)	
HCM 2000 V lume to Capacity	0.40			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.7	
Inter ty Utilization	36.9%	ICU Level	A	
Analysis P iod (min)	15			

c Critical Lane Group

Intersection												
Int Delay, s/veh	4.1											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V	2	42	8	7	53	2	5	0		2	5	0
Future V	2	42	8	7	53	2	15	10		12	5	10
Conf g Peds, #/hr	5	0	5	5	0	5	9	0	3	3	0	9
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												RT Channelized
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	91	91	91	83	83	83	82	82	82	93	93	93
Heavy V %	6	6	6	2	2	2	0	0	0	3	3	3
Flow	2	46	9	8	6	2	18	12	13	13	16	1

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	71	0	0	60	0	0	158	148	59	7	151	79
Stage 1	-	-	-	-	-	-	60	60	-	87	87	-
Stage 2	-	-	-	-	-	-	98	88	-	60	64	-
Critical Hdwy	.16	-	-	.12	-	-	7	6.5	6.2	7.13	6.53	6.23
C Hdw g	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
C Hdw g 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Follow-up Hdwy	2.254	-	-	2.218	-	-	3.5		3.3	3.527	4.027	3.327
Pot Cap-1 Maneuver	1504	-	-	1544	-	-	813	747	1013	820	739	979
Stage 1	-	-	-	-	-	-	957	849	-	918	821	-
Stage 2	-	-	-	-	-	-	914	826	-	949	839	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1497	-	-	1536	-	-	770	735	1005	784	726	966
Mov Cap-2 Maneuver	-	-	-	-	-	-	770	735	-	784	726	-
Stage 1	-	-	-	-	-	-	951	844	-	909	812	-
Stage 2	-	-	-	-	-	-	873	817	-	919	834	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.28	0.83	9.53	9.74
HCM LOS			A	A

Lane/Major Mvmt	Ln2											
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)		202	-	-	799		
HCM Lane V/C Ratio	0.024	0.03	0.001	-	-		0.005	-	-	0.05		
HCM Ctrl Dly (s/v)	9.8	9.3	7	0	-		7.4	0	-	9.7		
HCM Lane LOS	A	A	A	A	-		A	A	-	A		
HCM 95th %tile Q(veh)										HCM 95th %tile Q(veh)	0.1	0

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V						
Future V	23	799	627	19		25
Conflicting Peds, #/hr	3			3		
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-		-
Veh in Median S orage, #	-			-		-
Grade, %	-			-		-
Peak Hour Factor	89	89	87	87	67	67
Heavy Vehicles, %	3	3			13	13
Mvmt Flow	26	898	721	22		37

j	Major1		Major2		Minor2	
Conflicting Flow A	773		-		1262	401
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	501	-
Critical Hdwy	5.36	-	-	-	6.51	7.36
Hdwy Stg 1	-	-	-	-	6.86	-
Hdwy Stg 2	-	-	-	-	6.06	-
Follow-up Hdwy	3.13	-	-	-	3.78	4.03
Pot Cap-1 Maneuver		-	-	-	175	488
Stage 1	-	-	-	-	324	-
Stage 2	-	-	-	-	527	-
Platoon blocked, %		-	-	-		
Cap-1 Maneuver	486	-	-	-	157	474
Mov Cap-2 Maneuver	-	-	-	-	157	-
Stage 1	-	-	-	-	298	-
Stage 2	-	-	-	-	512	-

Approach	EB	WB	SB
HCM Ctrl D	0.36		13.24
HCM LOS			B

Lane/Major Mvmt					Ln1
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	474
HCM Lane V	0.053	-	-	-	0.079
HCM Ctrl Dly (s/v)	12.8	-	-	-	13.2
HCM Lane LOS		-	-	-	
HCM 95th %tile Q(veh)					HCM 95th %tile Q(veh) 0.2 - - - 0.3

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement				R	WBL	W	WB	N	N	NB			
Lane Configurations	Lane Configurations	Lane	Configurations		Lane Configurations								
Traffic Vol, veh/h	affic V	6	affic V	33	affic V	12	62	6	19			9	78	13
Future Vol, veh/h		6		33	73	12	62	6	19			9	78	13
Peak Hour Factor		0.74	0.74	0.74	0.74	0.93	0.93	0.93	0.86	0.86	0.86	0.84	0.84	0.84
Heavy V	%	9	9	9	9	3	3	3	0	0	0	1	1	1
Mvmt Flow			45	99	13	67	6	22	9	6	11	93	15	
Number of Lanes		0	1	1	0	1	1	1	1	0	0	1	0	

Approach	EB			WB			NB			SB		
Opposing A		Opposing Appr		EB	W		SB			NB		
Opposing Lanes	Opposing Lanes	Opposing Lanes		Opposing Lanes			1			2		
Conflicting Approach Left				N						W		
Conflicting Lanes Left	1			2			2			2		
Conflicting Approach Right	NB						W					
Conflicting Lanes Right	2			1			2			2		
HCM Control D							8.3			9.1		
HCM LOS	A			A			A			A		

Lane		NBLn1	NBLn2	Ln1	Ln2	WBLn1	WBLn2	Ln1		
Vol Left, %		100%	0%	15%	0%	16%	0%	9%		
Vol Thru, %		0%	62%	85%	0%	84%	0%	78%		
Vol Right, %		0%	38%	0%	100%	0%	100%	13%		
Sign Control		top	top	top	top	top	top	top		
affic V	Traffic Vol by Lane	affic V	13	affic V	73	74	6	100		
LT Vol		19	0	6	0	12	0	9		
Through Vol		0		33	0	62	0	78		
RT Vol		0	5	0	73	0	6	13		
Lane Flow Rate		22	15	53	99	80	6	119		
Geometry Grp		5	5	5	5	5	5	4b		
Degree of Util (X	Degree of Util (X	Degree of Util (X		Degree of Util (X)		0.122	0.115	0.008	0.168	
Departure Headway (Hd)		5.693	4.92	5.227	4.446	5.181	4.396	5.074		
Convergence, Y/N		Y	Y	Y	Y	Y	Y	Y		
Cap		629	728	687	807	693	815	708		
Service Time		3.423	2.65	2.948	2.168	2.905	2.12	3.099		
HCM Lane V/C Ratio		0.035	0.021	0.077	0.123	0.115	0.007	0.168		
HCM Control Delay, s/veh		.6	7	8.4	7	8.6	7.2	9.1		
HCM Lane LOS		A	A	A	A	A	A	A		
HCM 95th-tile Q								HCM 95th-tile Q		0.1

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:15	7:15	7:15	7:15	7:15	7:15
End Time	8:45	8:45	8:45	8:45	8:45	8:45
otal Time (min)	90	90	90	90	90	90
ecorded (in)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E	1689		1642	1670	1668	1684
Vehs Exited	1686		1655	1666	1658	1683
arting Vehs			46	40		
nding Vehs	46	42	33	44	47	42
istance (mi)	790					avel Distance (mi)
avel Time (hr)	38.7	39.2	38.2	37.8	37.7	38.3
otal Delay (hr)	8.2	7.9	8.4	7.5	7.8	8.0
Total Stops		1286	1340			1293
Fuel Used (gal)	28.5	29.0	28.0	28.1	27.7	28.3

Interval #0 Information Seeding

Start Time	7:15
End Time	7:45
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	7:45
End Time	8:00
Total Time (min)	15

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	402		410		390	406
Vehs Exited	421	433	422	424	394	418
arting Vehs			46	40		
nding Vehs				30		29
avel Distance (mi)	190	198	194	9		192
avel Time (hr)	9.3	9.5	9.6	9.7	8.9	9.4
otal Delay (hr)	1.9	1.8	2.1	2.1	1.8	2.0
Total Stops	308	300		30	298	
Fuel Used (gal)	6.8	.1	7.0	.1	6.4	6.9

Interval #2 Information Peak

Start Time	8:00
End Time	8:15
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E				68	480	
Vehs Exited	474	482	473	462	473	472
arting Vehs				30		29
nding Vehs		26	39	36	40	
avel Distance (mi)	225		220			220
avel Time (hr)	11.1	10.8	10.9	10.1	10.9	10.8
otal Delay (hr)	2.5	2.2	2.4	1.9	2.3	2.3
Total Stops	410	368	394		369	
Fuel Used (gal)	8.2	.9	8.0	.5	8.0	.9

Interval #3 Information Post

Start Time	8:15
End Time	8:45
Total Time (min)	30

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	800	849			798	797
Vehs Exited	791		760	80	791	793
arting Vehs		26	39	36	40	
nding Vehs	46	42	33	44	47	42
avel Distance (mi)	375	390				
avel Time (hr)	18.3	18.9	17.6	17.9	17.9	18.1
otal Delay (hr)	3.8	3.9	3.9	3.6	3.6	3.7
Total Stops	634	618	615	93		606
Fuel Used (gal)	13.5	14.0	13.0	13.4	13.3	13.4

1: Grand River Ave & Divis by

Movement	EBL	B	WBT	WB	SBL	B	B					
Denied Del								Denied Del y (hr)			0.0	0.0
otal Delay (hr)	0.1	.8	3.2	0.0	0.9	0.0	0.1	6.2				
ops		306	407		98	0						
avel Time (hr)	0.3	6.8	6.1	0.2	1.3	0.0	0.2	14.9				
peed (mph)	12			16	6		9					

: Division St & by m

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B	
Denied Del													Denied Del y (
tal D lay (hr)	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	
ps		9	74	12	6	6	1	9		9	76	1	
avel Time (hr)	0.0	0.3	0.7	0.1	0.3	0.0	0.1	0.1	0.0	0.1	0.6	0.1	
peed (mph)	20	20	20							20	19	20	

: Division St & by m

Movement	All					
Denied Del	Denied Del y (hr)	0.1				
tal D lay (h)	0.5					
Total Stops	331					
Travel Time (hr)	2.5					
Avg Speed (mph)	19	peed (mph)	19	peed (mph)	19	peed (mph)	19

4: Bailey St & y

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B	
Denied Del													Denied Del y (
tal D lay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ps	0	1	0	0	0	0	13	10	11	10			
avel Time (hr)	0.0	0.2	0.0	0.1	0.5	0.0	0.1	0.1	0.1	0.1	0.1	0.1	
peed (mph)	19												peed (mp

4: Bailey St & y

Movement	All					
Denied Del	Denied Del y (hr)	0.0				
tal D lay (h)	0.1					
Total Stops	74					
Travel Time (hr)	1.3					
Avg Speed (mph)	21	peed (mph)	21	peed (mph)	21	peed (mph)	21

7: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB					
Denied Del							Denied Del y (hr)		0.0	0.0	0.0
otal Delay (hr)	0.0	0.3	0.1	0.0	0.0	0.0	0.4				
ps	1	0	0	0	0	25	36				
avel Time (hr)	0.1	.0	4.1	0.1	0.0	0.1	8.5				
Avg Speed (mph)	17	22	24	23	18	14	23	peed (mph)	17		

Total Network Performance

Denied Del	Denied Del y (hr)	0.1		
tal D lay (h)	7.8			
ops	1293			
Travel Time (hr)	38.3			
Avg Speed (mph)	21	peed (mph)	21	peed (mph)

rse : 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
Maximum Queue (ft)			167	186	177	143	152	52
Average Queue (ft)	14	110	79		105	68	72	14
95th Queue (ft)	44	169	143	159	156	124	129	43
Link Distance (ft)		968	968	524	524	524	278	278
Upstream Blk Time (%)								
Queuing Penalty (veh)								
torage Bay	225							
Storage Blk Time (%)								
Queuing Penalty (veh)								

rse : 2: Division St &

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
Maximum Queue (ft)	59	72	59	21	32	20	62
Average Queue (ft)	25	34	27	4			35
95th Queue (ft)	51	60	50		30	23	
Link Distance (ft)	917		416			278	784
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)			0				
Queuing Penalty (veh)			0				

rse : 4: Bailey St &

Movement			NB	NB		
Directions Served	LTR	LTR	L	TR	LTR	
Maximum Queue (ft)	16		33	35	43	
Average Queue (ft)		0			23	
95th Queue (ft)	7		34	41	45	
Link Distance (ft)	416	1146		327	907	
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			50			
Storage Blk Time (%)			0	0		
Queuing Penalty (veh)			0	0		

rse : 7: Grand River Ave & Bailey St

Movement	EB	SB
Directions Served	L	LR
Maximum Queue (ft)	44	58
Average Queue (ft)	10	19
95th Queue (ft)	36	48
Link Distance (ft)		327
Upstream Blk Time (%)		
Queuing Penalty (veh)		
torage Bay	200	
Storage Blk Time (%)		
Queuing Penalty (veh)		

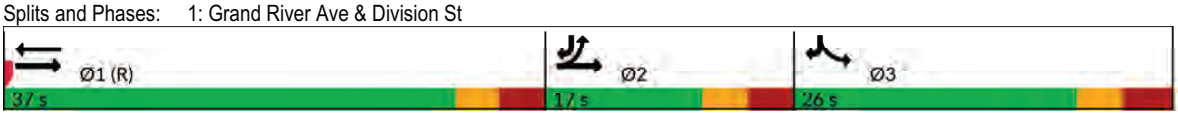
Network Summary

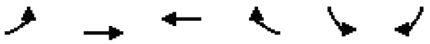
Network wide Queuing Penalty: 0

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	54	1004	1010	173	94
Future Volume (vph)	54	1004	1010	173	94
oup Flow	57	1057	1160	192	104
rn Type	P	NA	NA	P	t+ov
P otected P	2	1 2	1	3	3 2
Permitted Phases					
Minimum Split (s)	13.1		24.1	24.5	
Total Split (s)	17.0		37.0	26.0	
Total Split (%)	21.3%		46.3%	32.5%	
Y llow	3.0		3.0	3.0	
All-Red Time (s)	3.1		3.1	3.5	
Lost Time Adjust (s)	0.0		0.0	0.0	
Total Lost Time (s)	6.1		6.1	6.5	
Lead/Lag	Lag		Lead		
Lead-Lag Optimize?	Y		Yes		
v/c Ratio	0.23	0.49	0.61	0.45	0.14
Control Delay (s/v	33.6	10.1	21.2	29.6	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
tal Delay (s/veh)	33.6	10.1	21.2	29.6	12.9
Queue Length 50th (	26	143	164	82	28
Queue Length 95th (	59	188	209	143	57
Internal Link Dist (ft)		928	531	126	
ay Length (ft)	225				
apacity (vph)	243	2139	1890	431	724
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c R	0.23	0.49	0.61	0.45	0.14

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 59 (74%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	54	1004	1010	69	173	94
Future Volume (vph)	54	1004	1010	69	173	94
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot) atd. Flow (prot)	1787	atd. Flow (prot)	4872	Flow (prot)	1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm) atd. Flow (perm)	1787	atd. Flow (perm)	4872	atd. Flow (perm)	1770	1583
Peak-hour factor, PHF	0.95	0.95	0.93	0.93	0.90	0.90
Adj. Flow					dj. Flow	57 1057 1086 74
RTOR Reduction (vph)	0	0	9	0	0	2
oup Flow	57	1057	1151	0	192	102
Confl. Peds. (#/hr)	226			226	235	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	P	NA	NA		P	t+ov
P otected P	2	1 2	1		3	3 2
Permitted Phases						
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5
e Green, g (	10.9	47.9	30.9		19.5	30.4
Actuated g/C	0.14	0.60	0.39		0.24	0.38
Clearance Time (s)	6.1		6.1		6.5	
	243	2139	1881		431	601
v/s Ratio Protv/s Ratio P	v/s Ratio P	c0.32	ratio P	0.24	c0.11	0.06
v/s Ratio P	v/s Ratio Permv/s Ratio P		v/s Ratio P			
v/c Ratio	0.23	0.49	0.61		0.45	0.17
Uniform Delay, d1	Uniform Delay,	Uniform D	Delay,	Uniform Delay,		16.4
P ogression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.3	0.8	1.5		3.3	0.6
Delay (s)	33.1	10.0	21.2		29.0	17.0
Level of Service	C	A	C		C	B
Approach Delay (s/veh)		11.1	21.2		24.8	
Approach LOS		B	C		C	

Inter ummary				
HCM 2000 Control D	HCM 2000 Control		HCM 2000 Level of S	HCM 2000 Control Delay (s/veh)
HCM 2000 V lume to Capacity		0.56		
Actuated Cycle Length (s)		80.0	Sum of lost time (s)	18.7
Inter ty Utilization		52.6%	ICU Level	A
Analysis P iod (min)		15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	4.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V	6	141	28	18	163	11		37	34	13	10	8
Future V	6	141	28	18	163	11		37	34	13	10	8
Conflicting Peds, #/hr	8	0	1	1	0	8	30	0	10	10	0	30
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	94	94	94	85	85	85	72	72	72	65	65	65
Heavy V %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	6	150	30	21	192	13	65	51		20	15	12

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	213	0	0	194	0	0	463		189		455	236
Stage 1	-	-	-	-	-	-	192	192	-	249	249	-
Stage 2	-	-	-	-	-	-	272	255	-	198	207	-
Critical Hdwy	.11	-	-	.11	-	-	.1	6.5	6.2	7.1	6.5	6.2
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
C Hdw g 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5		3.3	3.5		3.3
Pot Cap-1 Maneuver	1364	-	-	1385	-	-	512	510	858	525	504	808
Stage 1	-	-	-	-	-	-	815	746	-	760	705	-
Stage 2	-	-	-	-	-	-	738	700	-	808	735	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1353	-	-	1367	-	-	457	488	839	27	482	779
Mov Cap-2 Maneuver	-	-	-	-	-	-	457	488	-	427	482	-
Stage 1	-	-	-	-	-	-	800	732	-	741	687	-
Stage 2	-	-	-	-	-	-	678	683	-	699	721	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.26	0.72	12.89	12.88
HCM LOS			B	B

Lane/Major Mvmt	Ln1 NB	Ln2					Ln1					
Capacity (veh/h)	Capacity (veh/h)	457	Capacity (veh/h)	610	Capacity (veh/h)	80	Capacity (veh/h)	167	-	-	504	
HCM Lane V/C Ratio	0.143	0.162	0.005	-	-	0.015	-	-	0.095			
HCM Ctrl Dly (s/v)	14.2	12		0	-		0	-	12.9			
HCM Lane LOS	B	B	A	A	-	A	A	-	B			
HCM 95th %tile Q(veh)									HCM 95th %tile Q(veh)	0.5	0.6	0 -

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V	7	1135	1014	66	0	6
Future V	37	1135	1014	66	0	61
Conflicting Peds, #/hr	137	0	0	137	0	
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-	0	-
Veh in Median S orage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	90	90	64	64
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	39	1195	1127	7	0	95

j	Major1		Major2		Minor2	
Conflicting Flow A	1337	0	-	0	1976	738
Stage 1	-	-	-	-	1300	-
Stage 2	-	-	-	-	675	-
Critical Hdwy	5.34	-	-	-	6.25	7.1
Hdwy Stg	-	-	-	-	6.6	-
Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.12	-	-	-	3.65	3.9
Pot Cap-1 Maneuver	268	-	-	-	74	
Stage 1	-	-	-	-	164	-
Stage 2	-	-	-	-	459	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	233	-	-	-	47	272
Mov Cap-2 Maneuver	-	-	-	-	47	-
Stage 1	-	-	-	-	119	-
Stage 2	-	-	-	-	399	-

Approach	EB	WB	SB
HCM Ctrl D	0.74	0	25.24
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	233	-	-	-	272
HCM Lane V	0.167	-	-	-	0.351
HCM Ctrl Dly (s/v)	23.5	-	-	-	25.2
HCM Lane LOS		-	-	-	
HCM 95th %tile Q(veh)					1.5

HCM 95th %tile Q(veh)	0.6	-	-	-	1.5

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement				R	WBL	W	WB	N	N	NB			
Lane Configurations	Lane Configurations	Lane	Configurations		Lane Configurations								
Traffic Vol, veh/h	affic V	27	affic V	136	117	ffic V	31	171	20	43	52	29	8	57	13
Future Vol, veh/h		27		136	117		31	171	20	43	52	29	8	57	13
Peak Hour Factor		0.88		0.88	.88		0.87	0.87	0.87	0.83	0.83	0.83	0.73	0.73	0.73
Heavy V	%	3		3	3		0	0	0	1					
Mvmt Flow		31			133		36	197	23	52	63	35		78	18
Number of Lanes		0		1	1		0	1	1	1	1	0	0	1	0

Approach	EB			WB			NB			SB		
Opposing A			Opposing Appr		EB	W		SB			NB	
Opposing Lanes	Opposing Lanes		Opposing Lanes	Opposing Lanes				1			2	
Conflicting Approach Left					N						W	
Conflicting Lanes Left	1				2			2			2	
Conflicting Approach Right	NB							W				
Conflicting Lanes Right	2				1			2			2	
HCM Control D								9.9			10.6	
HCM LOS	A				B			A			B	

Lane		NB	NBLn2			Ln2	W	WBLn2			
Vol Left, %		100%	0%	17%		0%	15%	0%	10%		
Vol Thru, %		0%	64%	83%		0%	85%	0%	73%		
Vol Right, %		0%	36%	0%		100%	0%	100%	17%		
Sign Control		top	top	top		top	top	top	top		
affic V	affic V	affic	43	81	Traffic Vol by Lane		202	20	78		
LT Vol		43		27			31		8		
Through Vol			52	136			171		57		
RT Vol			29			117		20	13		
Lane Flow Rate		52	98	185		133	232	23	107		
Geometry Grp		5	5	5		5	5	5	4b		
Degree of Util (X	Degree of Util (X	Degree of Util (X		Degree of Util (X)		0.184	0.372	0.032	0.184		
Departure Headway (Hd)		6.708	5.948	5.769		4.978	5.774	4.989	6.19		
Convergence, Y/N		Y	Y	Y		Y	Y	Y	Y		
Cap		535	603	624		722	625	718	580		
Service Time		4.441	3.681	3.494		2.702	3.501	2.715	4.224		
HCM Lane V/C Ratio		0.097	0.163	0.296		0.184	0.371	0.032	0.184		
HCM Control Delay, s/veh		10.2	9.8	10.9		8.8	11.9	7.9	10.6		
HCM Lane LOS		B	A	B		A	B	A	B		
HCM 95th-tile Q									HCM 95th-tile Q		.3

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:30	3:30	3:30	3:30	3:30	3:30
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	90	90	90	90	90	90
Time Recorded (min)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E	2838	2863	2810		2851	2860
Vehs Exited	2822	2847	2812		2855	2856
arting Vehs	72	82	81	88	74	73
nding Vehs	88	98	79	68	70	80
Travel Distance (mi)	1313	1326	1303	1359	1319	1324
Travel Time (hr)	75.9	78.1	76.2	75.2	72.0	75.5
otal Delay (hr)	4.9	26.5	25.6	22.2	20.9	24.0
Total Stops					2979	3085
Fuel Used (gal)	1.0	51.9	50.6	52.0	50.2	51.1

Interval #0 Information Seeding

Start Time	3:30
End Time	4:00
Total Time (min)	30

sted by Growth Factors.V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	4:00
End Time	4:15
Total Time (min)	15

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	690	730	659	6	638	680
Vehs Exited	687	731	682	7	648	690
arting Vehs	72	82	81	88	74	73
nding Vehs	75	81	58	77	64	68
Travel Distance (mi)				6	98	
Travel Time (hr)	7.8	19.5	18.9	17.5	16.2	18.0
otal Delay (hr)	5.4	6.0	6.8	4.7	4.7	5.5
Total Stops	711	809	766	679	658	725
Fuel Used (gal)	2.4	13.4	12.4	12.4	11.4	12.4

Interval #2 Information Peak

Start Time	4:15
End Time	4:30
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E	783	757	799	8	837	799
Vehs Exited	736	765	776	809	828	782
arting Vehs	75	81	58	77	64	68
nding Vehs		73	81		73	86
Travel Distance (mi)		349	356	7	380	360
Travel Time (hr)	1.1	20.7	20.8	21.0	21.7	21.1
otal Delay (hr)	7.8	7.2	6.9	6.4	6.9	7.1
Total Stops		881	849	8		881
Fuel Used (gal)	3.5	13.6	13.8	14.2	14.6	14.0

Interval #3 Information Post

Start Time	4:30
End Time	5:00
Total Time (min)	30

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	1365	1376		1407	1376	1375
Vehs Exited	1399	1351	1354	1430	1379	1383
arting Vehs		73	81		73	86
nding Vehs	88	98	79	68	70	80
Travel Distance (mi)	652	633	633	66	640	644
Travel Time (hr)	7.0	37.9	36.5	36.8	34.1	36.4
otal Delay (hr)	1.7	13.3	11.9	11.1	.3	11.5
Total Stops			9	1469	1399	1481
Fuel Used (gal)	5.1	24.9	24.4	25.4	24.1	24.8

1: Grand River Ave & Divis by

Movement	EBL	B	WBT	WB	SBL	B	B	
Denied Del Denied Del y (h	0.0	.1	0.0	.0	0.0	.0	0.0	.1
otal Delay (hr)	0.5	6.4	9.5	0.6	1.8	0.0	0.3	19.0
Total Stops		774	946	75	136			
Travel Time (hr)	0.9	13.8	4.2	1.0	2.1	0.0	0.5	32.4
Avg Speed (mph)	peed (mph)	peed (mph)	8	peed (mph)			6	

: Division St & by m

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del Denied Del y (h	0.0	.0	0.1	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)	0.0	.3	0.2	.1	0.4	.0	0.1	.1	0.0	.0	0.1	.0
Total Stops		136		28	169	19	42	60	26	7	58	
Travel Time (hr)	0.2	.3	1.2	0.2	1.0	0.1	0.1	.2	0.1	0.1	0.5	0.1
Avg Speed (mph)	peed (mph)	peed (mph)		peed (mph)		16				18	18	18

: Division St & by m

Movement	All
Denied Del Denied Del y (h	0.1
tal D lay (h	1.4
Total Stops	702
Travel Time (hr)	5.0
Avg Speed (mph)	peed (mph) 17 peed (mph) peed (mph)

4: Bailey St & y

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)	0.0	.1	0.0	.0	0.0	.0	0.1	.1	0.0	.0	0.0	.0
Total Stops	1	2	1	6	3	1	47	36				8
Travel Time (hr)	0.0	.6	0.1	0.2	1.4	0.1	0.2	.1	0.1	0.1	0.1	0.1
Avg Speed (mph)	peed (mph) 17	peed (mph) 19		peed (mph) 24		22	10	12	12	19	19	20

4: Bailey St & y

Movement	All
Denied Del Denied Del y (h	0.0
tal D lay (h	0.4
Total Stops	165
Travel Time (hr)	3.2
Avg Speed (mph)	peed (mph) 21 peed (mph) peed (mph)

7: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.1	.7	0.2	0.0	0.0	0.1	1.1
Total Stops						7	96
Travel Time (hr)	0.3	6.0	6.9	0.5	0.0	0.2	13.8
Avg Speed (mph)	peed (mph)	13	peed (mph)	24	peed (mph)	20	9	23

12: Divisi y

Movement	EBL	EB	BT	B	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.0	.2	0.0	0.2	0.5
Total Stops	1	55	0	22	78
Travel Time (hr)	0.0	.3	0.3	0.6	1.2
Avg Speed (mph)	peed (mph)	12	peed (mph)	15	peed (mph)	10

14: Bailey by

Movement	WBL	WB	NB	B	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.0	.0	0.0	0.0	0.0
Total Stops	4	15	0	0	19
Travel Time (hr)	0.0	.0	0.2	0.1	0.4
Avg Speed (mph)	peed (mph)		peed (mph)	16	peed (mph)	17	16

Total Network Performance

Denied Del Denied Del y (h	0.3
tal D lay (h	23.7
Total Stops	3085
Travel Time (hr)	75.5
Avg Speed (mph)	peed (mph)	peed (mph)	18	peed (mph)

rse : 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
	249	388	370	318	332	275	119	100
Average Queue (ft)	53	199	177	188	184	159	88	36
95th Queue (ft)	153	322	302	277	275	245	135	80
Link Distance (ft)		970	970	537	537	537	112	112
Upstream Blk Time (%)							13	0
Queuing Penalty (veh)							17	0
torage Bay	225							
orage Blk Time (%)		7						
Queuing Penalty (veh)		4						

rse : 2: Division St &

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
Maximum Queue (ft)	87	101		55		70	52
Average Queue (ft)		41	43	11	19	25	27
95th Queue (ft)	74	75	74	35	39	51	46
Link Distance (ft)	914		416			95	750
Upstream Blk Time (%)						0	
Queuing Penalty (veh)						0	
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)			2	0	0	0	
Queuing Penalty (veh)			0	0	0	0	

rse : 4: Bailey St &

Movement			NB	NB	
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	31	62	55	63	46
Average Queue (ft)	3	8	25	32	19
95th Queue (ft)	17	36	48	53	43
Link Distance (ft)	416	1146		155	907
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			1	1	
Queuing Penalty (veh)			0	0	

rse : 7: Grand River Ave & Bailey St

Movement	EB	EB	EB	WB	WB	WB	SB
Directions Served	L	T	T	T	T	TR	LR
Maximum Queue (ft)	49	12	11	26	17	31	71
Average Queue (ft)	22	0	1	1	0	3	25
95th Queue (ft)	50	6	11	13	8	16	52
Link Distance (ft)		537	537	846	846	846	113
Upstream Blk Time (%)							
Queuing Penalty (veh)							
torage Bay	200						
Storage Blk Time (%)							
Queuing Penalty (veh)							

rse : 12: Divisi

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	T
Maximum Queue (ft)	18	82		
Average Queue (ft)	1	33	1	20
95th Queue (ft)	8	66	12	75
Link Distance (ft)	202	202	112	95
Upstream Blk Time (%)				2
Queuing Penalty (veh)				2
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

rse : 14: Bailey St

Movement	WB
Directions Served	LR
Maximum Queue (ft)	24
Average Queue (ft)	11
95th Queue (ft)	31
Link Distance (ft)	165
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

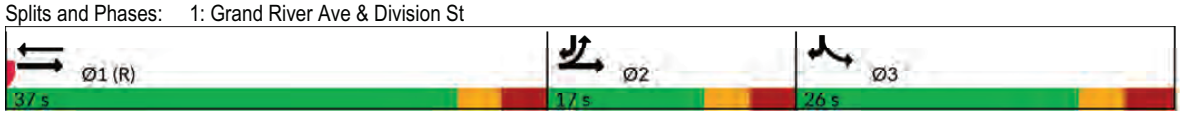
Network Summary

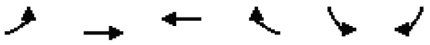
Network wide Queuing Penalty: 25

Lane Group	EBL	EBT	WBT	SBL	SBR						
Lane Configurations											
Traffic Volume (vph)	2	702	644	130	34						
Future Volume (vph)	2	702	644	130	34						
oup Flow						oup Flow	24	763	766	155	40
rn Type	P	NA	NA	P	t+ov						
P otected P	2	1	1	3	3 2						
Permitted Phases											
Minimum Split (s)	13.1		24.1	4.5							
Total Split (s)	17.0		37.0	26.0							
Total Split (%)	21.3%		46.3%	32.5%							
Y llow	3.0		3.0	3.0							
All-Red Time (s)	3.1		3.1	3.5							
Lost Time Adjust (s)	0.0		0.0	0.0							
Total Lost Time (s)	6.1		6.1	6.5							
Lead/Lag	Lag		Lead								
Lead-Lag Optimize?	Y		Yes								
v/c Ratio	0.10	0.36	0.41	0.37	0.06						
Control Delay (s/v	31.5	8.8	18.5	28.3	4.5						
Queue Delay	0.0	0.0	0.0	0.0	0.0						
tal Delay (s/veh)	31.5	8.8	18.5	28.3	4.5						
Queue Length 50th (	11	93	98	65	0						
Queue Length 95th (	32	126	125	108	14						
Internal Link Dist (ft)		928	531	296							
ay Length (ft)	225										
apacity (vph)	238	2098	1880	415	717						
Starvation Cap Reductn	0	0	0	0	0						
Spillback Cap Reductn	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0						
Reduced v/c R	0.10	0.36	0.41	0.37	0.06						

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 32 (40%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	2	702	644	3	130	34
Future Volume (vph)	2	702	644	3	130	34
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot) atd. Flow (prot)	1752	atd. Flow (prot)	4858		Flow (prot) 1703	1524
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm) atd. Flow (perm)	1752	atd. Flow (perm)	4858		atd. Flow (perm) 1703	1524

Peak-hour factor, P						eak-hour factor, PHF	0.92	0.92	0.87	0.87
Adj. Flow						dj. Flow	24	763	740	26
RTOR Reduction (vph)	0	0	4	0	0	25				
oup Flow	24	763	762	0	155	15				
Confl. Peds. (#/hr)	19			19	55					
Confl. Bikes (#/hr)				2						
Heavy Vehicles (%)	3%	3%	6%	6%	6%	6%				
Turn Type	P	NA	NA		P	t+ov				
P otected P	2	1	1		3	3 2				
Permitted Phases										
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5				
e Green, g (	10.9	47.9	30.9		19.5	30.4				
Actuated g/C	0.14	0.60	0.39		0.24	0.38				
Clearance Time (s)	6.1		6.1		6.5					
	238	2098	1876		415	579				
v/s Ratio Protv/s Ratio P	v/s Ratio P	0.01	v/s Ratio P	0.22	v/s Ratio P	0.16	0.09	0.01		
v/s Ratio P	v/s Ratio Permv/s Ratio P		v/s Ratio P							
v/c Ratio	0.10	0.36	0.41		0.37	0.03				
Uniform Delay, d1	Uniform Delay, 30.3		Uniform Delay, 8.2		Uniform Delay, 17.9		15.2	15.5		
P ogression Factor	1.00	1.00	1.00		1.00	1.00				
Incremental Delay, d2	0.8	0.5	0.7		.6	0.1				
Delay (s)	31.1	8.7	18.5		27.7	15.6				
Level of Service	C	A	B		C	B				
Approach Delay (s/veh)		9.4	18.5		25.2					
Approach LOS		A	B		C					

Inter ummary				
HCM 2000 Control D	HCM 2000 Control 15.2	HCM 2000 Level of S		HCM 2000 Control Delay (s/veh)
HCM 2000 V lume to Capacity	0.40			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.7	
Inter ty Utilization	37.1%	ICU Level	A	
Analysis P iod (min)	15			

c Critical Lane Group

Intersection												
Int Delay, s/veh	3.5											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		Lane Configurations			Lane Configurations		Lane Configurations					
affic V	2	78	17	7	80	2	23	10	11	12	1	15
Future V	2	78	17	7	80	2	23	10	11	12	1	15
Conf g Peds, #/hr	5	0	5	5	0	5	9	0	3	3	0	9
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												RT Channelized
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	91	91	91	83	83	83	82	82	82	93	93	9
Heavy V %	6	6	6	2	2	2	0	0	0	3	3	3
Mvmt Flow	2	86	19	8	96	2	28	12	13	13	16	16

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	104	0	0	109	0	0	235	225	103	219	233	112
Stage 1	-	-	-	-	-	-	104	104	-	119	119	-
Stage 2	-	-	-	-	-	-	130	121	-	99	114	-
Critical Hdwy	4.16	-	-	4.12	-	-	7.1	6.5	6.2	7.13	6.53	6.23
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
C Hdw g 2	-	-	-	-	-	-	6.1	5.5	-	6.13	5.53	-
Follow-up Hdwy	2.254	-	-	2.218	-	-		4		.527	4.027	3.327
Pot Cap-1 Maneuver	1463	-	-	1481	-	-	724	677	957	7	665	939
Stage 1	-	-	-	-	-	-	906	813	-	883	795	-
Stage 2	-	-	-	-	-	-	878	800	-	905	799	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1456	-	-	1474	-	-	680	666	950	701	654	926
Mov Cap-2 Maneuver	-	-	-	-	-	-	680	666	-	701	654	-
Stage 1	-	-	-	-	-	-	900	807	-	873	786	-
Stage 2	-	-	-	-	-	-	833	791	-	874	794	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.15	0.59	10.14	10.13
HCM LOS			B	B

Lane/Major Mvmt	Ln1	NBLn2							Ln1			
Capacity (veh/h)	Capacity (veh/h)	680	Capacity (veh/h)	790	Capacity (veh/h)	-	-	141	-	-	747	
HCM Lane V/C Ratio		0.041	0.032	0.002	-	-	0.006	-	-	0.06		
HCM Ctrl Dly (s/v)		10.5	9.7	7.5	0	-	7	0	-	10.1		
HCM Lane LOS		B	A	A	A	-	A	A	-	B		
HCM 95th %tile Q(veh)										HCM 95th %tile Q(veh)	0.1	0.1

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V	27	800	628	23		34
Future V	27	800	628	23		34
Conflicting Peds, #/hr	3			3		
gn Contr	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-		-
Veh in Median S orage, #	-			-		-
Grade, %	-			-		-
Peak Hour Factor	89	89	87	87	67	67
Heavy Vehicles, %	3	3	5	5	13	13
Mvmt Flow	30	899	722	2		51

j	Major1		Major2		Minor2	
Conflicting Flow A	778		-		1275	404
Stage 1	-	-	-	-	765	-
Stage 2	-	-	-	-	510	-
Critical Hdwy	5.36	-	-	-	6.51	7.36
Hdwy Stg 1	-	-	-	-	6.86	-
Hdwy Stg 2	-	-	-	-	6.06	-
Follow-up Hdwy	3.13	-	-	-	3.78	4.03
Pot Cap-1 Maneuver	497	-	-	-	172	486
Stage 1	-	-	-	-	322	-
Stage 2	-	-	-	-	521	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	483	-	-	-	152	472
Mov Cap-2 Maneuver	-	-	-	-	152	-
Stage 1	-	-	-	-	294	-
Stage 2	-	-	-	-	506	-

Approach	EB	WB	SB
HCM Ctrl D	0.42		13.54
HCM LOS			B

Lane/Major Mvmt					Ln1					
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)	472					
HCM Lane V		0.063	-	-	-	0.107				
HCM Ctrl Dly (s/v)		13	-	-	-	13.5				
HCM Lane LOS			-	-	-					
HCM 95th %tile Q(veh)						HCM 95th %tile Q(veh)	0.2	-	-	-	0.4

Intersection	
Intersection Delay, s/veh	8.9
Intersection LOS	A

Movement				R	WBL	W	WB	N	N	NB			
Lane Configurations	Lane Configurations	Lane	Configurations		Lane Configurations								
Traffic Vol, veh/h	affic V	affic V	51	affic V	19	113	16	19			14	78	13
Future Vol, veh/h		6	51	73	19	113	16	19			14	78	13
Peak Hour Factor		0.74	0.74	0.74	0.93	0.93	0.93	0.86	0.86	0.86	0.84	0.84	0.84
Heavy V	%	9	9	9	3	3	3	0	0	0	1	1	1
Mvmt Flow			69		20	122	17	22			17	93	15
Number of Lanes		0	1	1	0	1	1	1	1	0	0	1	0

Approach	EB		WB			NB			SB	
Opposing A		Opposing Appr		EB	W		SB			NB
Opposing Lanes	Opposing Lanes	Opposing Lanes	Opposing Lanes				1			2
Conflicting Approach Left				N						W
Conflicting Lanes Left	1			2			2			2
Conflicting Approach Right	NB						W			
Conflicting Lanes Right	2			1			2			2
HCM Control D	8.3			.1			8.5			.6
HCM LOS	A			A			A			A

Lane		NBLn1	NBLn2	Ln1	Ln2	WBLn1	WBLn2	Ln1		
Vol Left, %		100%	0%	11%	0%	14%	0%	13%		
Vol Thru, %		0%	50%	89%	0%	86%	0%	74%		
Vol Right, %		0%	50%	0%	100%	0%	100%	12%		
Sign Control		top	top	top	top	top	top	top		
affic V	affic V	Traffic Vol by Lane		affic V						
LT Vol		19	0	6	0	19	0	14		
Through Vol		0		51	0	113	0	78		
RT Vol		0	8	0	73	0	16	13		
Lane Flow Rate		22	19	77		142	17	125		
Geometry Grp		5	5	5	5	5	5	4b		
Degree of Util (X	Degree of Util (X	Degree of Util (X	Degree of Util (X	Degree of Util (X)		0.125	0.207	0.021	0.185	
Departure Headway (Hd)		5.96	5.104	5.313	4.556	5.24	4.463	5.331		
Convergence, Y/N		Y	Y	Y	Y	Y	Y	Y		
Cap		600	699	675	786	684	801	673		
Service Time		3.707	2.851	3.047	2.29	2.974	2.198	3.37		
HCM Lane V/C Ratio		0.037	0.027	0.114	0.126	0.208	0.021	0.186		
HCM Control Delay, s/veh				8.7	7	9.3	7.3	.6		
HCM Lane LOS		A	A	A	A	A	A	A		
HCM 95th-tile Q								HCM 95th-tile Q		0.1

Intersection	
Int Delay, s/veh	4.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
ff V	7	26	40	78	68	45
Future V	7	26	40	78	68	45
Conflicting Peds, #/hr	0	0	0	0	0	0
S gn Contr	Fr	Fr	Fr	Fr	Stop	Stop
RT Channelized	-			-		
Storage Length	-	-	-	-	0	-
eh in Median S					Veh in Median Storage, #	0 - - 0 0 -
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Flow	51	28	43	85	74	49

j	Major1		Major2		Minor1	
Conflicting Flow A	0	0	79	0	237	65
Stage 1	-	-	-	-	65	-
Stage 2	-	-	-	-	172	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Hdwy Stg 1	-	-	-	-	5.4	-
Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1532	-	756	1004
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	863	-
Platoon blocked, %	-	-		-		
Cap-1 Maneuver	-	-	1532	-	733	1004
Mov Cap-2 Maneuver	-	-	-	-	733	-
Stage 1	-	-	-	-	963	-
Stage 2	-	-	-	-	837	-

Approach	EB	WB	NB
HCM Ctrl D	0	2.52	10.15
HCM LOS			B

Lane/Major Mvmt	Ln1				
Capacity (veh/h)	Capacity (veh/h)	820	Capacity (veh/h)	Capacity	610 (veh/h)
HCM Lane V	0.15	-	-	0.028	-
HCM Ctrl Dly (s/v)	10.2	-	-		0
HCM Lane LOS		-	-	A	A
HCM 95th %tile Q(veh)				HCM 95th %tile Q(veh)	0.5 - - 0.1 -

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:15	7:15	7:15	7:15	7:15	7:15
End Time	8:45	8:45	8:45	8:45	8:45	8:45
otal Time (min)	90	90	90	90	90	90
ecorded (in)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E	1924		1929	1808	1892	
Vehs Exited	1905		1951	1805	1891	1886
arting Vehs	34	51	57	41	40	42
nding Vehs		40				40
avel Distance (mi)	852		866	0		
avel Time (hr)	42.0	41.3	42.3	40.0	41.5	41.4
otal Delay (hr)	8.9	8.8	8.7	8.5	8.6	8.7
Total Stops				1505	1567	1561
Fuel Used (gal)	31.0	30.7	31.5	29.6	30.9	30.8

Interval #0 Information Seeding

Start Time	7:15
End Time	7:45
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	7:45
End Time	8:00
Total Time (min)	15

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	464	470			420	450
Vehs Exited			463		430	463
arting Vehs	34	51	57	41	40	42
nding Vehs			39		30	29
avel Distance (mi)	206					istance (mi)
avel Time (hr)	10.2	10.6	9.7	9.9	9.1	9.9
otal Delay (hr)	2.2	2.4	1.9	2.0	1.8	2.0
Total Stops	369	404		69	336	365
Fuel Used (gal)	7.5	.9	7.2	.3	6.8	.3

Interval #2 Information Peak

Start Time	8:00
End Time	8:15
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E		506		94		
Vehs Exited		508	556	96		
arting Vehs			39		30	29
nding Vehs					50	36
avel Distance (mi)	242		250			236
avel Time (hr)	12.3	11.1	12.1	11.3	11.8	11.7
otal Delay (hr)	2.8	2.4	2.4	2.6	2.4	2.5
Total Stops	506	426	436		450	450
sed (gal)	8.9					Fuel Used (gal)

Interval #3 Information Post

Start Time	8:15
End Time	8:45
Total Time (min)	30

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	902	895	926	61	917	899
Vehs Exited	897	886	932		926	897
arting Vehs					50	36
nding Vehs		40				40
avel Distance (mi)	403	398			416	403
avel Time (hr)	19.6	19.6	20.5	18.7	20.6	19.8
otal Delay (hr)	3.9	4.1	4.4	3.9	4.5	4.2
Total Stops	708			695		746
Fuel Used (gal)	14.6	14.7	15.3	14.0	15.3	14.7

1: Grand River Ave & Divis by

Movement	EBL	B	WBT	WB	SBL	B	B			
Denied Del								Denied Del y (hr)	0.0	0.0
otal Delay (hr)	0.2	.8	3.3	0.0	1.0	0.0	0.1	6.5		
ops		298			101	0	20			
avel Time (hr)	0.4	.0	6.3	0.1	1.4	0.0	0.3	15.5		
peed (mph)	12							peed (mph)	12	

: Division St & by m

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B	
Denied Del													Denied Del y (
tal D lay (hr)	0.0	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	
ops		50	76	20	107	16			10				
avel Time (hr)	0.1	0.4	0.7	0.1	0.3	0.0	0.1	0.1	0.0	0.1	0.6	0.1	
peed (mph)	20	20	20							19	19	19	

: Division St & by m

Movement	All					
Denied Del	Denied Del y (hr)	0.1				
tal D lay (h)	0.6					
Total Stops	424					
Travel Time (hr)	2.7					
Avg Speed (mph)	18	peed (mph)	18	peed (mph)	18	peed (mph)	18

4: Bailey St & y

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B	
Denied Del													Denied Del y (
tal D lay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
ps	0	0	0	1	0	0	21	9	9				
avel Time (hr)	0.0	0.2	0.1	0.0	0.7	0.0	0.1	0.1	0.0	0.1	0.1	0.1	
peed (mph)	17									20	20	20	

4: Bailey St & y

Movement	All					
Denied Del	Denied Del y (hr)	0.0				
tal D lay (h)	0.1					
Total Stops	87					
Travel Time (hr)	1.7					
Avg Speed (mph)	21	peed (mph)	21	peed (mph)	21	peed (mph)	21

7: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB					
Denied Del							Denied Del y (hr)		0.0	0.0	0.0
otal Delay (hr)	0.1	0.3	0.1	0.0	0.0	0.0	0.5				
ps	7	0	0	0	0	36					
avel Time (hr)	0.2	.1	4.1	0.1	0.0	0.2	8.7				
Avg Speed (mph)	16	22	24	23	18	14	23	peed (mph)	16		

12: Site Driveway & by

Movement	EB	BR	WBL	WB	NBL	BR					
Denied Del							Denied Del y (hr)		0.0	0.0	0.0
otal Delay (hr)	0.0	0.0	0.0	0.0	0.1	0.0	0.2				
ps	0	0	4	0	64	48	116				
avel Time (hr)	0.1	0.1	0.1	0.2	0.1	0.1	0.7				
peed (mph)	18							peed (mph)	18		

Total Network Performance

Denied Del	Denied Del y (hr)	0.2		
tal D lay (h)	8.6			
ops	1561			
Travel Time (hr)	41.4			
Avg Speed (mph)	20	peed (mph)	20	peed (mph)

rse : 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
Maximum Queue (ft)			176	193	184	160	156	72
Average Queue (ft)	18		80		108	73	73	20
95th Queue (ft)	50	174	149		164	133	133	55
Link Distance (ft)		968	968	524	524	524	278	278
Upstream Blk Time (%)								
Queuing Penalty (veh)								
torage Bay	225							
Storage Blk Time (%)								
Queuing Penalty (veh)								

rse : 2: Division St &

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
Maximum Queue (ft)	60	81	56	38	28	25	63
Average Queue (ft)	28	35	30			9	38
95th Queue (ft)	53	65	49	29	31	25	57
Link Distance (ft)	917		115			278	784
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)			0	0			
Queuing Penalty (veh)			0	0			

rse : 4: Bailey St &

Movement			NB	NB	
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)			43	39	48
Average Queue (ft)	0		15	13	25
95th Queue (ft)	4	8	41	38	46
Link Distance (ft)	245	1146		327	908
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			0	0	
Queuing Penalty (veh)			0	0	

rse : 7: Grand River Ave & Bailey St

Movement	EB	WB	SB
Directions Served	L	TR	LR
Maximum Queue (ft)	47	10	
Average Queue (ft)	14	0	24
95th Queue (ft)	41		58
Link Distance (ft)		842	327
Upstream Blk Time (%)			
Queuing Penalty (veh)			
torage Bay	200		
Storage Blk Time (%)			
Queuing Penalty (veh)			

rse : 12: Site Driveway &

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	31	64
Average Queue (ft)	4	37
95th Queue (ft)	21	59
Link Distance (ft)	245	76
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

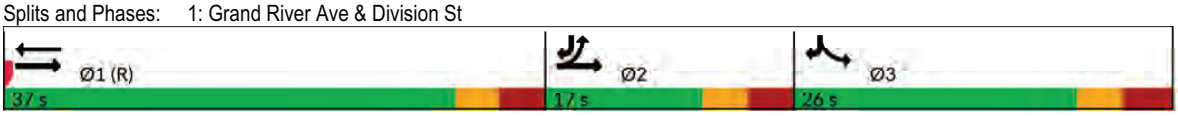
Network Summary

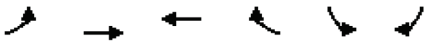
Network wide Queuing Penalty: 0

Lane Group	EBL	EBT	WBT	SBL	SBR
Lane Configurations					
Traffic Volume (vph)	57	1008	1012	175	97
Future Volume (vph)	57	1008	1012	175	97
oup Flow	59	1050	1166	194	108
rn Type	P	NA	NA	P	t+ov
P otected P	2	1 2	1	3	3 2
Permitted Phases					
Minimum Split (s)	13.1		24.1	24.5	
Total Split (s)	17.0		37.0	26.0	
Total Split (%)	21.3%		46.3%	32.5%	
Y llow	3.0		3.0	3.0	
All-Red Time (s)	3.1		3.1	3.5	
Lost Time Adjust (s)	0.0		0.0	0.0	
Total Lost Time (s)	6.1		6.1	6.5	
Lead/Lag	Lag		Lead		
Lead-Lag Optimize?					
v/c Ratio	0.24	0.49	0.62	0.45	0.15
Control Delay (s/v	33.8	10.1	21.2	29.7	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
tal Delay (s/veh)	33.8	10.1	21.2	29.7	12.9
Queue Length 50th (	27	141	165	83	29
Queue Length 95th (	61	187	210	144	59
Internal Link Dist (ft)		928	531	130	
ay Length (ft)	225				
apacity (vph)	243	2139	1887	431	724
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c R	0.24	0.49	0.62	0.45	0.15

Inter ummary
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 59 (74%), Referenced to phase 1:EBWB, S
Natural Cycle: 65
Control Type: Pretimed

Splits and Phases: 1: Grand River Ave & Division St





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	57	1008	1012	73	175	97
Future Volume (vph)	57	1008	1012	73	175	97
Ideal F ow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.1	6.1	6.1		6.5	6.5
Lane Util. Factor	1.00	0.95	0.91		1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.97		1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.99		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	atd. Flow (prot) 1787	atd. Flow (prot) 3574		4862	Flow (prot) 1770	1583
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	atd. Flow (perm) 1787	atd. Flow (perm) 3574		4862	atd. Flow (perm) 1770	1583
Peak-hour factor, P					eak-hour factor, PHF	0.96 0.96 0.93 0.93 0
Adj. Flow					dj. Flow	59 1050 1088 78
RTOR Reduc	0	0	10	0	0	2
oup Flow	59	1050	1156	0	194	106
Confl. Peds. (#/hr)	226			226	235	
Confl. Bikes (#/hr)				2		
Heavy Vehicles (%)	1%	1%	2%	2%	2%	2%
Turn Type	P	NA	NA		P	t+ov
P otected P	2	1 2	1		3	3 2
Permitted Phases						
Actuated Green, G (s)	10.9	47.9	30.9		19.5	36.5
e Green, g (	10.9	47.9	30.9		19.5	30.4
Actuated g/C	0.14	0.60	0.39		0.24	0.38
Clearance Time (s)	6.1		6.1		6.5	
	243	2139	1877		431	601
v/s Ratio Protv/s Ratio P	v/s Ratio P	c0.29	ratio P	0.24	c0.11	0.07
v/s Ratio P	v/s Ratio Permv/s Ratio P		v/s Ratio P			
v/c Ratio	0.24	0.49	0.62		0.45	0.18
Uniform Delay, d1	Uniform Delay, 30.9	Uniform Delay, 9.0		Uniform Delay, 19.8	25.7	16.5
P ogression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	2.4	0.8	1.5		3.4	0.6
Delay (s)	33.2	9.9	21.3		29.1	17.1
Level of Service	C	A	C		C	B
Approach Delay (s/veh)		11.2	21.3		24.8	
Approach LOS		B	C		C	

Inter ummary			
HCM 2000 Control D	HCM 2000 Control 17.3	HCM 2000 Level of S	HCM 2000 Control Delay (s/veh)
HCM 2000 V lume to Capacity	0.56		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.7
Inter ty Utilization	52.8%	ICU Level	A
Analysis P iod (min)	15		

c Critical Lane Group

Intersection												
Int Delay, s/veh	4.7											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
affic V	9	158	30	18	191	11	54	37	34	13	10	12
Future V	9	158	30	18	191	11	54	37	34	13	10	12
Conf g Peds, #/hr	5	0	5	5	0	5	9	0	3	3	0	9
ign C	Fr	Fr	Fr	Fr	Fr	Fr	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized												RT Channelized
Storage Length	-	-	-	-	-	-	50	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour F	94	94	94	85	85	85	72	72	72	65	65	65
Heavy V %	1	1	1	1	1	1	0	0	0	0	0	0
Mvmt Flow	10	168	32	21	225	13	75	51		20	15	18

j	Major1			Major2			Minor1			Minor2		
Conflicting Flow A	243	0	0	205	0	0	492	493	192	94	503	245
Stage 1	-	-	-	-	-	-	208	208	-	279	279	-
Stage 2	-	-	-	-	-	-	284	285	-	216	224	-
Critical Hdwy	.11	-	-	.11	-	-	.1	6.5	6.2	7.1	6.5	6.2
C Hdw g 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
C Hdw g 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.209	-	-	3.5		3.3	3.5		3.3
Pot Cap-1 Maneuver	1330	-	-	1372	-	-	490	480	855	89		799
Stage 1	-	-	-	-	-	-	798	733	-	732	684	-
Stage 2	-	-	-	-	-	-	728	679	-	791	722	-
Platoon blocked, %		-	-		-	-						
Cap-1 Maneuver	1323	-	-	1366	-	-	445	463	848	398	457	788
Mov Cap-2 Maneuver	-	-	-	-	-	-	445	463	-	398	457	-
Stage 1	-	-	-	-	-	-	788	724	-	716	668	-
Stage 2	-	-	-	-	-	-	676	664	-	686	713	-

Approach	EB	WB	NB	SB
HCM Ctrl D	0.35	0.63	13.34	13.04
HCM LOS			B	B

Lane/Major Mvmt	Ln1 NBLn2								Ln1			
Capacity (veh/h)	Capacity (veh/h)	445	Capacity (veh/h)	592	Capacity (veh/h)	30	Capacity (veh/h)	146	-	-	501	
HCM Lane V/C Ratio	0.168	0.167	0.007	-	-	0.016	-	-	0.107			
HCM Ctrl Dly (s/v)	14.7	12.3		0	-		0	-	13			
HCM Lane LOS	B	B	A	A	-	A	A	-	B			
HCM 95th %tile Q(veh)									HCM 95th %tile Q(veh)	0.6	0.6	0 -

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
affic V	4	1137	1018	69	0	63
Future V	41	1137	1018	69	0	63
ng Peds, #/hr	30	0	0	30	0	0
gn C	Fr	Fr	Fr	Fr	op	op
RT Channelized	-	N	-	N	-	N
orage Length	200	-	-	-	0	-
Veh in Median S orage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	90	90	64	64
Heavy Vehicles, %	2	2	2	2	0	0
Mvmt Flow	42	1172	1131	77	0	98

j	Major1		Major2		Minor2	
ng Flow A	1238	0	-	0	1870	634
Stage 1	-	-	-	-	1199	-
Stage 2	-	-	-	-	671	-
Critical Hdwy	5.34	-	-	-	6.25	7.1
Hdwy Stg	-	-	-	-	6.6	-
Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	3.12	-	-	-	3.65	3.9
Pot Cap-1 Maneuver	300	-	-	-	86	366
Stage 1	-	-	-	-	189	-
Stage 2	-	-	-	-	461	-
Platoon blocked, %			-	-	-	
Cap-1 Maneuver	291	-	-	-	69	355
Mov Cap-2 Maneuver	-	-	-	-	69	-
Stage 1	-	-	-	-	157	-
Stage 2	-	-	-	-	448	-

Approach	EB	WB	SB
HCM Ctrl D	0.68	0	8.98
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	291	-	-	-	355
HCM Lane V	0.145	-	-	-	0.277
HCM Ctrl Dly (s/v)	19.4	-	-	-	19
HCM Lane LOS		-	-	-	
HCM 95th %tile Q(veh)					0.5

Capacity (veh/h) Capacity (veh/h) Capacity (veh/h) Capacity (veh/h)
HCM 95th %tile Q(veh) - - -

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement													
Lane Configurations	Lane Configurations	Lane	Configurations	Lane Configurations				N	N	NB			
Traffic Vol, veh/h	affic V	27	affic V 161	117	affic V 36	190		43	52	36	8	57	13
Future Vol, veh/h		27	161	117	36	190		43	52	36	8	57	13
Peak Hour Factor		0.88	0.88	0.88	0.87	0.87	0.87	0.83	0.83	0.83	0.73	0.73	0.73
Heavy V %		3	3	3	0	0	0	1	1	1	0	0	0
Mvmt Flow		31	183	133	41	218	25	52	63	43		78	18
Number of Lanes		0	1	1	0	1	1	1	1	0	0	1	0

Approach	EB		WB		NB		SB		
Opposing A		Opposing A	EB	Opposing A	SB		Opposing Approach		WB
Opposing Lanes	Opposing Lanes	Opposing Lanes	Opposing Lanes	2	1		2		
Conflicting Approach Left			N						
Conflicting Lanes Left	1		2		2		2		
Conflicting Approach Right	NB								
Conflicting Lanes Right	2		1		2		2		
HCM Control D	10.7		12.5		10.3		10.9		
HCM LOS	B		B		B		B		

Lane	NB	NB							
Vol Left, %	100%	0%	14%	0%	16%	0%	10%		
Vol Thru, %	0%	59%	86%	0%	84%	0%	73%		
V ght, %	0%	41%	0%	100%	0%	100%	17%		
Sign Control	top	top	top	top	top	top	top		
affic V affic V	affic 43	88	Traffic Vol by Lane	117	226		78		
LT Vol	43	0	27	0	36	0	8		
Through Vol	0	52	161	0	190	0	57		
RT Vol	0	36	0	117	0		13		
Lane Flow Rate	52	106	214	133	260	25	107		
Geometry Grp	5	5	5	5	5	5	4b		
Degree of Util (X Degree of Util (X Degree of Util (X Degree of Util (X	0.09	0.179	0.347	0.187	0.423	0.036	0.19		
Departure Headway (Hd)	6.886	6.088	5.851	5.07	5.869	5.08	6.386		
Convergence, Y/N	Y	Y	Y	Y	Y	Y	Y		
Cap	521	589	615	707	613	705	562		
Service Time	4.625	3.827	3.582	2.801	3.601	2.811	4.426		
HCM Lane V/C Ratio	0	0.18	0.348	0.188	0.424	0.035	0.19		
HCM Control Delay, s/veh	10.4	0.2	11.7	9	12.9	8	10.9		
HCM Lane LOS	B	B	B	A	B	A	B		
HCM 95th-tile Q						HCM 95th-tile Q			0.3

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
affic V						
Future V	173	32	39	218	26	22
Conflicting Peds, #/hr	0	0	0	0	0	0
S gn Contr	Fr		Fr	Fr	Stop	Stop
RT Channelized	-			-		
Storage Length	-	-	-	-	0	-
eh in Median S						
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	0	0	2	0	0
Mvmt Flow	188	35	42	237	28	24

j	Major1		Major2			
Conflicting Flow A	0	0	223	0	527	205
Stage 1	-	-	-	-	205	-
Stage 2	-	-	-	-	322	-
Critical Hdwy	-	-	4.1	-	6.4	6.2
Hdwy Stg	-	-	-	-	5.4	-
Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	1358	-	515	840
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	739	-
Platoon blocked, %	-	-		-		
Cap-1 Maneuver	-	-	1358	-	496	840
Mov Cap-2 Maneuver	-	-	-	-	496	-
Stage 1	-	-	-	-	834	-
Stage 2	-	-	-	-	713	-

Approach	EB	WB	NB
HCM Ctrl D	0		1.44
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	Capacity (veh/h)	Capacity (veh/h)		Capacity (veh/h)	
HCM Lane V	0.085	-	-	0.031	-
HCM Ctrl Dly (s/v)	11.4	-	-		0
HCM Lane LOS		-	-	A	A
HCM 95th %tile Q(veh)				HCM 95th %tile Q(veh)	0.3

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	3:30	3:30	3:30	3:30	3:30	3:30
End Time	5:00	5:00	5:00	5:00	5:00	5:00
Total Time (min)	90	90	90	90	90	90
Time Recorded (min)	60	60	60	60	60	60
# of Inter s	4	4	4	4	4	4
# of c l s	3	3	3	3	3	3
Vehs E	3100	2945	3093	2950	3079	3033
Vehs Exited		2988		2948	3037	
arting Vehs	81		83	79	83	87
nding Vehs	78	82	67	81		81
Travel Distance (mi)			1406	1336	1379	1373
Travel Time (hr)	81.4	77.9	78.7	78.0	77.7	78.7
otal Delay (hr)	7.0	25.5	24.2	26.0	24.1	25.3
Total Stops	3367	3188	9	3179	3200	3226
Fuel Used (gal)	4.8	52.4	54.1	52.1	53.1	53.3

Interval #0 Information Seeding

Start Time	3:30
End Time	4:00
Total Time (min)	30

V lumes adjusted by Growth Factors.

No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No data recorded this interval.No

Interval #1 Information Pre

Start Time	4:00
End Time	4:15
Total Time (min)	15

V lumes adjusted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	741	735	751	718	708	731
Vehs Exited	760	795	755	7	720	750
arting Vehs	81		83	79	83	87
nding Vehs	62	65	79	78	71	70
Travel Distance (mi)	343	354	347	333	329	341
Travel Time (hr)	9.7	21.6	20.3	19.2	17.3	19.6
otal Delay (hr)	6.3	7.8	6.9	6.2	4.5	6.3
Total Stops	796	826	839	7	709	791
Fuel Used (gal)	3.4	14.0	13.6	13.1	12.3	13.3

Interval #2 Information Peak

Start Time	4:15
End Time	4:30
Total Time (min)	15

V lumes adjusted by PHF, Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs E	863	827	873	8	841	844
Vehs Exited	836	797	866	7	853	828
arting Vehs	62	65	79	78	71	70
nding Vehs	89		86	98		86
Travel Distance (mi)	374	356	379	3	370	367
Travel Time (hr)	2.6	19.9	21.3	20.0	20.2	20.8
otal Delay (hr)	8.1	6.0	6.5	6.1	5.7	6.5
Total Stops		855	882	883	871	882
Fuel Used (gal)	4.7	13.7	14.5	13.6	14.2	14.1

Interval #3 Information Post

Start Time	4:30
End Time	5:00
Total Time (min)	30

lumes adjusted by Growth Factors, A V sted by Growth Factors, Anti PHF.

Run Number	1	2	3	4	5	Avg
Vehs E	1496	1383	1469			1460
Vehs Exited	1507	1396	1488	1438	1464	
arting Vehs	89		86	98		86
nding Vehs	78	82	67	81		81
Travel Distance (mi)	683	635	680	6 9	681	666
Travel Time (hr)	9.1	36.5	37.2	38.8	40.2	38.4
otal Delay (hr)	2.6	11.7	10.8	13.6	13.9	12.5
Total Stops	1640	1507	1478		1620	
Fuel Used (gal)	6.6	24.8	26.0	25.5	26.6	25.9

1: Grand River Ave & Divis by

Movement	EBL	B	WBT	WB	SBL	B	B	
Denied Del Denied Del y (h	0.0	.1	0.0	.0	0.0	.0	0.0	.1
otal Delay (hr)	0.5	6.5	0.1	0.7	1.8	0.0	0.4	20.0
Total Stops	49	806		69	138			
Travel Time (hr)	0.9	14.2	4.8	1.0	2.2	0.0	0.5	33.7
Avg Speed (mph)	peed (mph)	peed (mph)	8	peed	8(mph)		6	

: Division St & by m

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del Denied Del y (h	0.0	.0	0.1	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)	0.1	.3	0.2	.1	0.4	.0	0.1	.1	0.0	.0	0.1	.0
Total Stops	28	161		39	180					7		16
Travel Time (hr)	0.3	.5	1.2	0.1	0.6	0.1	0.1	.2	0.1	0.0	0.4	0.1
Avg Speed (mph)	peed (mph)	19	peed	8 (mph)	18	peed (mph)				19	18	

: Division St & by m

Movement	All
Denied Del Denied Del y (h	0.1
tal D lay (h	1.4
Total Stops	744
Travel Time (hr)	4.7
Avg Speed (mph)	peed (mph) 16 peed (mph) peed (mph)

4: Bailey St & y

Movement	EBL	B	B	WBL	WBT	WB	BL	B	B	SBL	B	B
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0	0.0	.0
tal D lay (hr)	0.0	.0	0.0	.0	0.0	.0	0.1	.1	0.0	.0	0.0	.0
Total Stops	1	1	0	3	1	0	51	42	36	13	10	14
Travel Time (hr)	0.0	.4	0.1	0.2	1.7	0.1	0.2	.2	0.1	0.1	0.1	0.1
Avg Speed (mph)	peed (mph)	18	peed	23 (mph)	19	peed	22(mph)	24	23	10	11	12	19	19	20

4: Bailey St & y

Movement	All
Denied Del Denied Del y (h	0.0
tal D lay (h	0.3
Total Stops	172
Travel Time (hr)	3.3
Avg Speed (mph)	peed (mph) 21 peed (mph) peed (mph)

7: Grand River Ave & Bailey S by move

Movement	EBL	B	WBT	WB	BT	SB	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.1	.7	0.2	0.0	0.0	0.1	1.1
Total Stops	35	2	1	1	0	59	98
Travel Time (hr)	0.4	6.2	6.9	0.5	0.0	0.2	14.1
Avg Speed (mph)	peed (mph)	14	peed (mph)	24	peed (mph)	23	11	23

12: Site Driveway & by

Movement	EB	BR	WBL	WB	NBL	BR	
Denied Del y (h	0.0	.0	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.1	.0	0.0	0.1	0.0	0.0	0.2
Total Stops	0	0	6	1	24	19	50
Travel Time (hr)	0.3	.1	0.1	0.5	0.1	0.0	1.2
Avg Speed (mph)	peed (mph)	18	peed (mph)	18	peed (mph)	6	8	

13: Divisi y

Movement	EBL	EB	BT	B	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.0	.3	0.0	0.3	0.6
Total Stops		65			89
Travel Time (hr)	0.0	.4	0.3	0.7	1.3
Avg Speed (mph)	peed (mph)	13	peed (mph)	15	peed (mph)	9

15: Bailey by

Movement	WBL	WB	NB	B	
Denied Del Denied Del y (h	0.0	.0	0.0	.0	0.0
otal Delay (hr)	0.0	.0	0.0	0.0	0.0
Total Stops	4	19	0	0	23
Travel Time (hr)	0.0	.1	0.3	0.1	0.4
Avg Speed (mph)	peed (mph)		peed (mph)	16	peed (mph)	17	16

Total Network Performance

Denied Del y (h	0.3
tal D lay (h	25.1
Total Stops	3226
Travel Time (hr)	78.7
Avg Speed (mph) peed (mph)	peed (mph) 18 peed (mph)

rse : 1: Grand River Ave & Division St

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	TR	L	R
	249	427	405	382	396	339	124	104
Average Queue (ft)	50	212	187	194	189	163	93	45
95th Queue (ft)	143	333	311	301	298	270	139	
Link Distance (ft)		972	972	533	533	533	116	116
Upstream Blk Time (%)							14	0
Queuing Penalty (veh)							19	1
torage Bay	225							
orage Blk Time (%)	0	7						
Queuing Penalty (veh)	0							

rse : 2: Division St &

Movement					N	N	
Directions Served	LT	R	LT	R	L	TR	LTR
Maximum Queue (ft)	95	93	89		47	56	55
Average Queue (ft)	48	39	44	12	18	25	25
95th Queue (ft)	77	73	73	35	38	46	46
Link Distance (ft)	916		115			92	745
Upstream Blk Time (%)			0				
Queuing Penalty (veh)			0				
Storage Bay Dist (ft)		200		60	70		
Storage Blk Time (%)			3	0		0	
Queuing Penalty (veh)			1	0		0	

rse : 4: Bailey St &

Movement			NB	NB	
Directions Served	LTR	LTR	L	TR	LTR
Maximum Queue (ft)	26	39	58	60	46
Average Queue (ft)			25	32	21
95th Queue (ft)	14		48	52	46
Link Distance (ft)	246	1146		147	908
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			50		
Storage Blk Time (%)			0	1	
Queuing Penalty (veh)			0	0	

rse : 7: Grand River Ave & Bailey St

Movement	EB	WB	WB	WB	SB
Directions Served	L	T	T	TR	LR
Maximum Queue (ft)	61				43
Average Queue (ft)	25	0	0	1	
95th Queue (ft)	54	5		10	45
Link Distance (ft)		848	848	848	116
Upstream Blk Time (%)					
Queuing Penalty (veh)					
torage Bay	200				
Storage Blk Time (%)					
Queuing Penalty (veh)					

rse : 12: Site Driveway &

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	45	58
Average Queue (ft)	6	25
95th Queue (ft)	29	52
Link Distance (ft)	246	82
Upstream Blk Time (%)		0
Queuing Penalty (veh)		0
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

rse : 13: Divisi

Movement	EB	EB	NB	SB
Directions Served	L	R	LT	T
Maximum Queue (ft)	12	85	10	91
Average Queue (ft)	0	36	0	23
95th Queue (ft)	6	76	7	81
Link Distance (ft)	162	162	116	
Upstream Blk Time (%)				3
Queuing Penalty (veh)				3
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

rse : 15: Bailey St

Movement	WB
Directions Served	LR
Maximum Queue (ft)	42
Average Queue (ft)	13
95th Queue (ft)	34
Link Distance (ft)	181
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Network Summary

Network wide Queuing Penalty: 29

Appendix D Crash Data

Crash Instance	Crash Year	Highway Number	Area of Road at Crash	Road Conditions	Lighting Conditions	Weather Conditions (2016+)	Crash Type	Crash: Pedestrian	Crash: Property Damage	Crash: Injury Crash	Crash: Fatal Crash	Injury Type
20205156	2020	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
20206403	2020	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
20216458	2021	M-43	Intersection Crash - Within Intersection	Ice	Dark - Lighted	Snow	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
20217813	2021	Local Road or Unknown	Straight Roadway (not related to other selections)	Snow	Dark - Unlighted	Snow	Backing	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
20226561	2022	M-43	Straight Roadway (not related to other selections)	Dry	Dark - Lighted	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
20232288	2023	M-43	Straight Roadway (not related to other selections)	Wet	Dark - Lighted	Rain	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
20233415	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
20244966	2024	Local Road or Unknown	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202012185	2020	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202017404	2020	M-43	Straight Roadway (not related to other selections)	Wet	Dark - Lighted	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202021841	2020	Local Road or Unknown	Intersection Crash - Within Intersection	Wet	Dark - Lighted	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202038148	2020	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202041471	2020	M-43	Intersection Crash - Intersection Related Other	Snow	Daylight	Snow	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202050700	2020	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202059168	2020	Local Road or Unknown	Intersection Crash - Within Intersection	Wet	Dusk	Rain	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202075300	2020	Local Road or Unknown	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202135825	2021	M-43	Intersection Crash - Intersection Related Other	Dry	Dark - Lighted	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202140029	2021	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202168937	2021	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202171465	2021	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Rain	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202183894	2021	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202188733	2021	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Backing	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202212151	2022	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Dark - Lighted	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202221003	2022	Local Road or Unknown	Intersection Crash - Within Intersection	Dry	Dark - Lighted	Clear	Head-On - Left Turn	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202222950	2022	M-43	Straight Roadway (not related to other selections)	Ice	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202222952	2022	M-43	Straight Roadway (not related to other selections)	Ice	Daylight	Clear	Single Motor Vehicle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202222953	2022	M-43	Straight Roadway (not related to other selections)	Ice	Dark - Lighted	Clear	Single Motor Vehicle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202223622	2022	M-43	Other	Snow	Dark - Lighted	Snow	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202228174	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
202231395	2022	Local Road or Unknown	Intersection Crash - Within Intersection	Snow	Daylight	Snow	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202231399	2022	M-43	Intersection Crash - Intersection Related Other	Wet	Dark - Lighted	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202232441	2022	M-43	Straight Roadway (not related to other selections)	Snow	Daylight	Snow	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202235294	2022	M-43	Intersection Crash - Intersection Related Other	Wet	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202235295	2022	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202238519	2022	M-43	Straight Roadway (not related to other selections)	Wet	Dark - Unlighted	Rain	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202243830	2022	M-43	Other	Wet	Daylight	Clear	Sideswipe - Opposite Directions	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202248025	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Dark - Lighted	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202249706	2022	Local Road or Unknown	Other Non-Freeway Areas - Parking Related (legal roadside)	Wet	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202249707	2022	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Snow	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202257943	2022	Local Road or Unknown	Intersection Crash - Intersection Related Other	Wet	Dark - Lighted	Rain	Single Motor Vehicle	Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	B
202259237	2022	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-

202265118	2022	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202265119	2022	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Backing	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202289672	2022	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202290324	2022	Unknown	Local Road or Intersection Crash - Within Intersection	Wet	Dark - Lighted	Rain	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202322470	2023	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
202322478	2023	M-43	Freeway Crash - Curved Roadway	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202333775	2023	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Dark - Lighted	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202333776	2023	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202335479	2023	Unknown	Local Road or Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Unknown	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202364857	2023	M-43	Other Non-Freeway Areas - Median Crossing Related	Dry	Daylight	Cloudy	Single Motor Vehicle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202371942	2023	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202384203	2023	Unknown	Local Road or Intersection Crash - Within Intersection	Wet	Daylight	Cloudy	Sideswipe - Opposite Directions	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202385848	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202385849	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202393530	2023	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Cloudy	Rear-End - Right Turn	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202396016	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202410262	2024	Unknown	Local Road or Intersection Crash - Within Intersection	Snow	Dusk	Blowing Snow	Head-On	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202418486	2024	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202425134	2024	M-43	Straight Roadway (not related to other selections)	Dry	Dusk	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202426108	2024	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202430834	2024	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202435701	2024	Unknown	Local Road or Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Unknown	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202435706	2024	M-43	Straight Roadway (not related to other selections)	Dry	Dark - Lighted	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202435718	2024	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202446662	2024	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Single Motor Vehicle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
202448861	2024	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202451379	2024	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202458206	2024	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202471861	2024	Unknown	Local Road or Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202474778	2024	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202475346	2024	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
202477606	2024	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2020129982	2020	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2020154168	2020	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2020157614	2020	M-43	Straight Roadway (not related to other selections)	Dry	Dusk	Cloudy	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2020200118	2020	Unknown	Local Road or Straight Roadway (not related to other selections)	Dry	Dark - Lighted	Clear	Angle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2021117678	2021	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Rain	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021160078	2021	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2021171317	2021	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021179006	2021	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2021186343	2021	M-43	Intersection Crash - Within Intersection	Wet	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021191399	2021	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-

2021213161	2021	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2021213162	2021	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021223612	2021	M-43	Straight Roadway (not related to other selections)	Wet	Dusk	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021225265	2021	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2021227504	2021	Local Road or Unknown	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021227505	2021	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021232477	2021	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021235728	2021	Local Road or Unknown	Straight Roadway (not related to other selections)	Wet	Daylight	Cloudy	Backing	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021246789	2021	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021257075	2021	M-43	Other Non-Freeway Areas - Transition Area (increase or decrease in travel lanes)	Dry	Dark - Lighted	Clear	Rear-End - Right Turn	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021257831	2021	Local Road or Unknown	Straight Roadway (not related to other selections)	Dry	Dark - Lighted	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021261594	2021	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Wet	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2021277288	2021	M-43	Intersection Crash - Intersection Related Other	Dry	Dark - Lighted	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022101225	2022	Local Road or Unknown	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Backing	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022103527	2022	M-43	Straight Roadway (not related to other selections)	Wet	Dark - Lighted	Rain	Single Motor Vehicle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022106172	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2022112208	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022157833	2022	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Rain	Single Motor Vehicle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022175926	2022	M-43	Intersection Crash - Intersection Related Other	Wet	Daylight	Rain	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022179120	2022	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022184004	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022198206	2022	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Single Motor Vehicle	Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2022199796	2022	Local Road or Unknown	Driveway Related (within 150 feet of nearest edge of intersection)	Wet	Daylight	Cloudy	Single Motor Vehicle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2022201849	2022	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Rear-End - Left Turn	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022201851	2022	Local Road or Unknown	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Dark - Lighted	Clear	Single Motor Vehicle	Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	B
2022208617	2022	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022211737	2022	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2022217507	2022	M-43	Freeway Crash - All Other Freeway Areas	Dry	Daylight	Clear	Single Motor Vehicle	Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	B
2022219586	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Dark - Lighted	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022224306	2022	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Unknown	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022235405	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022246537	2022	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Cloudy	Other	Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	A
2022246552	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022250436	2022	Local Road or Unknown	Intersection Crash - Intersection Related Other	Ice	Dark - Lighted	Snow	Single Motor Vehicle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022269000	2022	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022269007	2022	Local Road or Unknown	Intersection Crash - Within Intersection	Dry	Dark - Lighted	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022272334	2022	M-43	Straight Roadway (not related to other selections)	Dry	Dark - Lighted	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022284334	2022	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2022294863	2022	Local Road or Unknown	Other Non-Freeway Areas - Parking Related (legal roadside)	Wet	Dark - Lighted	Cloudy	Backing	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023136106	2023	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2023139807	2023	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-

2023141578	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023145863	2023	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Head-On - Left Turn	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	B
2023146581	2023	Local Road or Unknown	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023151599	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023173277	2023	Local Road or Unknown	Straight Roadway (not related to other selections)	Dry	Dark - Lighted	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023176074	2023	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023176957	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2023191894	2023	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Dusk	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023197933	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Other	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023197934	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023197942	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023201692	2023	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023202759	2023	M-43	Intersection Crash - Intersection Related Other	Dry	Dark - Lighted	Clear	Single Motor Vehicle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2023208259	2023	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Wet	Dark - Lighted	Cloudy	Single Motor Vehicle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023215850	2023	M-43	Intersection Crash - Within Intersection	Dry	Dark - Lighted	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023217889	2023	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023220281	2023	M-43	Straight Roadway (not related to other selections)	Dry	Dark - Lighted	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023231191	2023	M-43	Straight Roadway (not related to other selections)	Wet	Dark - Lighted	Unknown	Unknown	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023241773	2023	M-43	Transition Area (increase or decrease in travel lanes)	Wet	Daylight	Rain	Rear-End	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2023244551	2023	Local Road or Unknown	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023264518	2023	Local Road or Unknown	Intersection Crash - Within Intersection	Dry	Daylight	Cloudy	Angle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2023273341	2023	M-43	Intersection Crash - Intersection Related Other	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023275289	2023	M-43	Intersection Crash - Intersection Related Other	Dry	Dark - Lighted	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2023283598	2023	Local Road or Unknown	Intersection Crash - Within Intersection	Dry	Daylight	Cloudy	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024127419	2024	M-43	Driveway Related (within 150 feet of nearest edge of intersection)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024145819	2024	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2024150374	2024	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	B
2024173798	2024	Local Road or Unknown	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024175430	2024	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024177943	2024	M-43	Intersection Crash - Within Intersection	Dry	Dark - Lighted	Clear	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024185849	2024	M-43	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024199433	2024	M-43	Straight Roadway (not related to other selections)	Wet	Daylight	Cloudy	Sideswipe - Same Direction	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024211201	2024	Local Road or Unknown	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024231274	2024	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Cloudy	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024234656	2024	Local Road or Unknown	Intersection Crash - Within Intersection	Dry	Daylight	Clear	Angle	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-
2024246937	2024	Local Road or Unknown	Intersection Crash - Within Intersection	Dry	Dark - Lighted	Cloudy	Angle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	C
2024252569	2024	M-43	Median Crossing Related	Dry	Daylight	Cloudy	Single Motor Vehicle	No Pedestrian Involved	Not Property Damage Only	Injury Crash (no fatalities)	No Fatalities (may be injuries)	A
2024253492	2024	M-43	Straight Roadway (not related to other selections)	Dry	Daylight	Clear	Rear-End	No Pedestrian Involved	Property Damage Only	No Injuries (may be fatalities)	No Fatalities (may be injuries)	-

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Stantec is a global leader in sustainable
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530 Albert Avenue, East Lansing, MI
Traffic Impact Study Review
Stantec Comment Responses
June 3, 2026

At the request of the City of East Lansing (City), Fishbeck has reviewed the Traffic Impact Study (TIS), completed by Stantec, and dated April 7, 2026, for the proposed residential development located at 530 Albert Avenue. Based on our review, Fishbeck offers the following comments and findings:

1. Items 1–3 and Item 8 from our review letter dated March 11, 2026, have been addressed satisfactorily. Per the email from the City dated March 12, 2026, the City will not require the development team to submit a multimodal analysis. The development team did not provide a comment response letter, as requested in the City's email on March 12, 2026.

   Acknowledged.

2. Item 4 from our review letter dated March 11, 2026, was partially addressed. While it is anticipated these will result in minimal differences in the analysis, the Michigan Electronic Traffic Control Device Guidelines (ETCDG) should be followed. If any revisions to the study are completed, the following items should be revised:

   a. Peak Hour Factors

      Peak Hour Factors should be between 0.60 and 0.95.

   Peak hour factors have been reviewed and updated, where appropriate, to follow ETCDG guidelines.

   b. Conflicting Pedestrians and Bicyclists

      Conflicting pedestrians were coded at the signalized intersection of Grand River Avenue and Division Street. No conflicting pedestrians were coded at the unsignalized intersections. No conflicting bicyclists were coded at any of the intersections. Conflicting pedestrians and bicyclists should be coded at each counted intersection.

   Conflicting pedestrians and bicyclists have been input into the analysis at each intersection under all scenarios.

   c. Volume Imbalances

      Volume imbalances are present between the counted intersections. Volumes should be balanced in accordance with the ETCDG.

      Dummy nodes were added in the p.m. peak hour models along Division Street and Bailey Street but are not present in the a.m. peak hour models.

   Volumes have been generally balanced in accordance with the ETCDG. The primary "dummy" nodes included for larger balances are to represent the Division Street Parking Garage and Bailey Street Parking Garage driveways during the PM Peak Hour; reflecting a reasonable "break" in volume balances at those locations. Volume imbalances under the AM peak hour models were within the threshold identified by the ETCDG (fewer than 20 vehicles or ten percent (10%) imbalances).

   d. Signalized intersection of Grand River Avenue and Division Street

      The passage and all-red times do not match the timing permit in any of the models.

   The all-red clearance intervals have been updated to 3.1 seconds to match the timing plans provided by the City.

   Passage times have been changed to 0.2 seconds as Synchro does not allow for this entry to be 0.0 seconds. Due to the max recalls at the intersection, this difference in passage times are not expected to impact analysis

results.

The offset value does not match the timing permit in some of the models.

The offset values under each scenario have been reviewed and updated to match the timing plan as appropriate.

The pedestrian walk and flash don't walk times were not input in most models. The only model with these values was the existing a.m. peak hour model.

The pedestrian walk and don't walk intervals under each scenario have been reviewed and updated to match the timing plan, as appropriate.

The offset is referenced to the beginning of green in the existing a.m. peak hour model and the beginning of yellow in all other models. Offsets are typically referenced to beginning of green, unless otherwise stated in the timing permit.

Offsets have been reviewed and revised to reference the beginning of green in all scenarios as appropriate.

While it is acknowledged the phasing used in the Synchro models was updated to match the timing permit, it would be considered acceptable to use traditional NEMA phasing in the Synchro models to yield results from the Highway Capacity Manual (HCM) 7th Edition.

Noted and appreciate the consideration. The phasing as presented in the timing plans were retained in the analysis for consistency with field conditions.

e. SimTraffic Calibration

SimTraffic should be calibrated in accordance with the ETCDG. The 95th percentile queue lengths should be reported from SimTraffic simulations.

SimTraffic simulations have been re-run due to updates to the Synchro modeling and calibrations to SimTraffic simulations and reporting have been reviewed and revised as appropriate to the ETCDG.

3. Item 5 from our review letter dated March 11, 2026, was partially addressed. If any revisions to the study are completed, the following items should be revised:

   a. The report for the intersection of Division Street and Albert Avenue for the 2026 existing a.m. peak hour was not provided.

   All analysis reports will be included in this submission.

   b. Please provide the approach delays/LOS for each approach in the report tables.

   The report tables have been updated to include delays/LOS for each approach as necessary in addition to the performance of each movement.

4. Item 6 from our review letter dated March 11, 2026, was partially addressed.

   a. No information was provided on crashes that involved a cyclist. Please provide a narrative and location for each cyclist-involved crash, and identify improvements, if any, that could be implemented to improve non-motorized safety.

   Additional crash narratives have been incorporated.

5. Item 7 from our review letter dated March 11, 2026, was addressed satisfactorily. The site will have a parking demand of 302 parking spaces. Review of existing parking demand at the Division Street Garage revealed excess capacity. With the addition of the proposed development and the associated reduction in parking at the Bailey Street parking lot, peak parking occupancy at the Division Street Garage, Bailey Parking Lot, nearby Bailey Parking Garage, and the development parking spaces would be 74%.

   Acknowledged.

GENERAL NOTES - PLANS

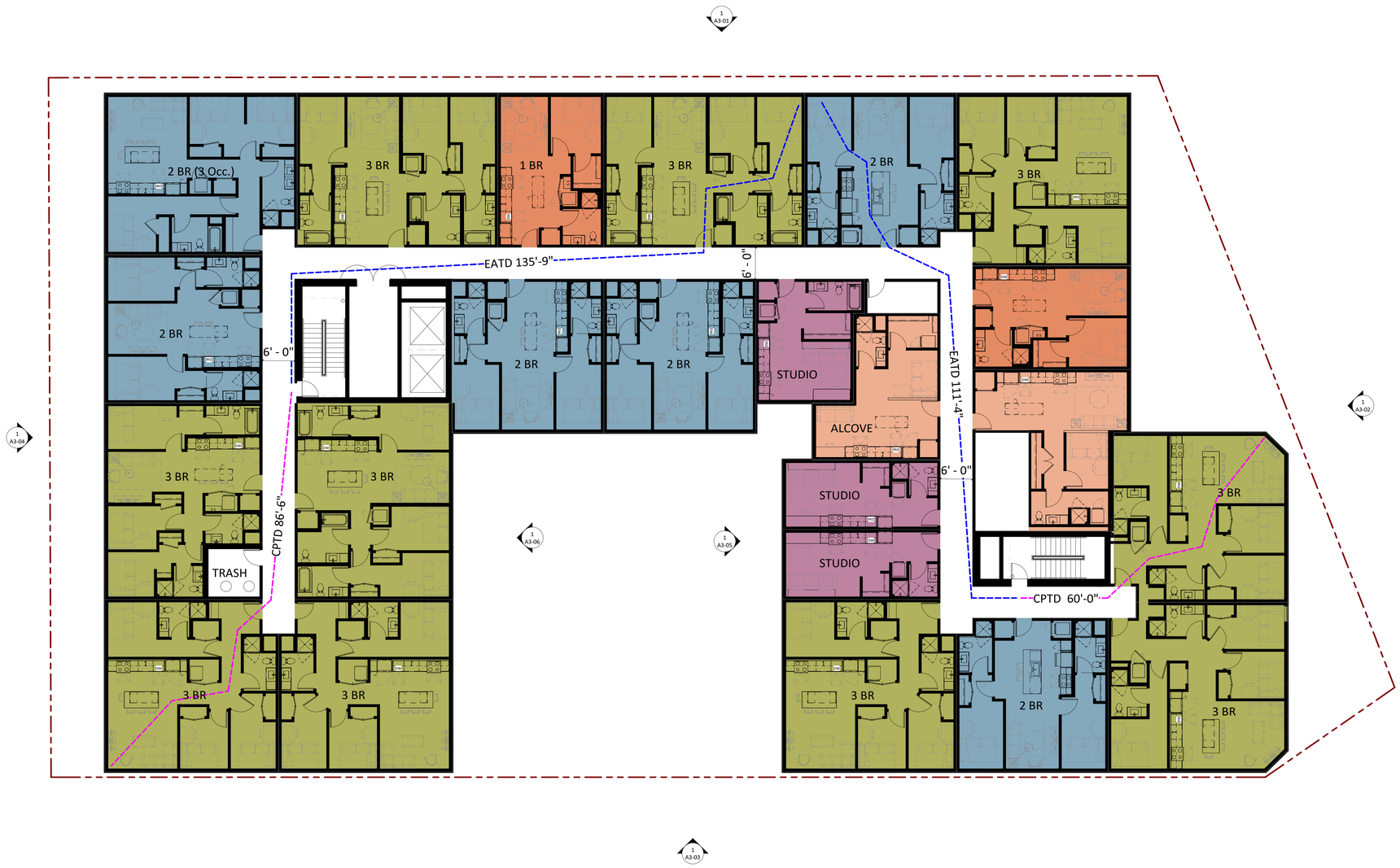
1. FINAL UNIT LAYOUTS TBD. ALL UNIT PLANS WILL MEET MINIMUM BUILDING CODE REQUIREMENTS
2. ALL BEDROOMS HAVE MIN DIMENSION OF 7' AND 70SF AREA.

GENERAL - EGRESS PATH TYPICAL FLOOR

EATD - EXIT ACCESS TRAVEL DISTANCE
R-2 OCC. W/ SPRINKLER **250'-0" MAX**

CPTD - COMMON PATH TRAVEL DISTANCE
R-2 OCC. W/ SPRINKLER **125'-0" MAX**

IBC TABLE 1006.2.1 & 1017.2



1 A1-02 **LEVEL 2-9**
1/8" = 1'-0"

6/4/2026 11:54:26 AM

530 ALBERT AVE. DEVELOPMENT

530 Albert Ave, East Lansing, MI 48823

TAREEN DEVELOPMENT PARTNERS

esg
ARCHITECTURE & DESIGN
350 North 5th Street, Suite 400
Minneapolis, MN 55401
p 612.339.5508 | esgarch.com

NOT FOR CONSTRUCTION

LAND USE DEVELOPMENT SUBMITTAL
5-5-2026

ORIGINAL ISSUE:
11-05-2025 LAND USE SUBMITTAL
REVISIONS:

No.	Description	Date

2025-1701
PROJECT NUMBER

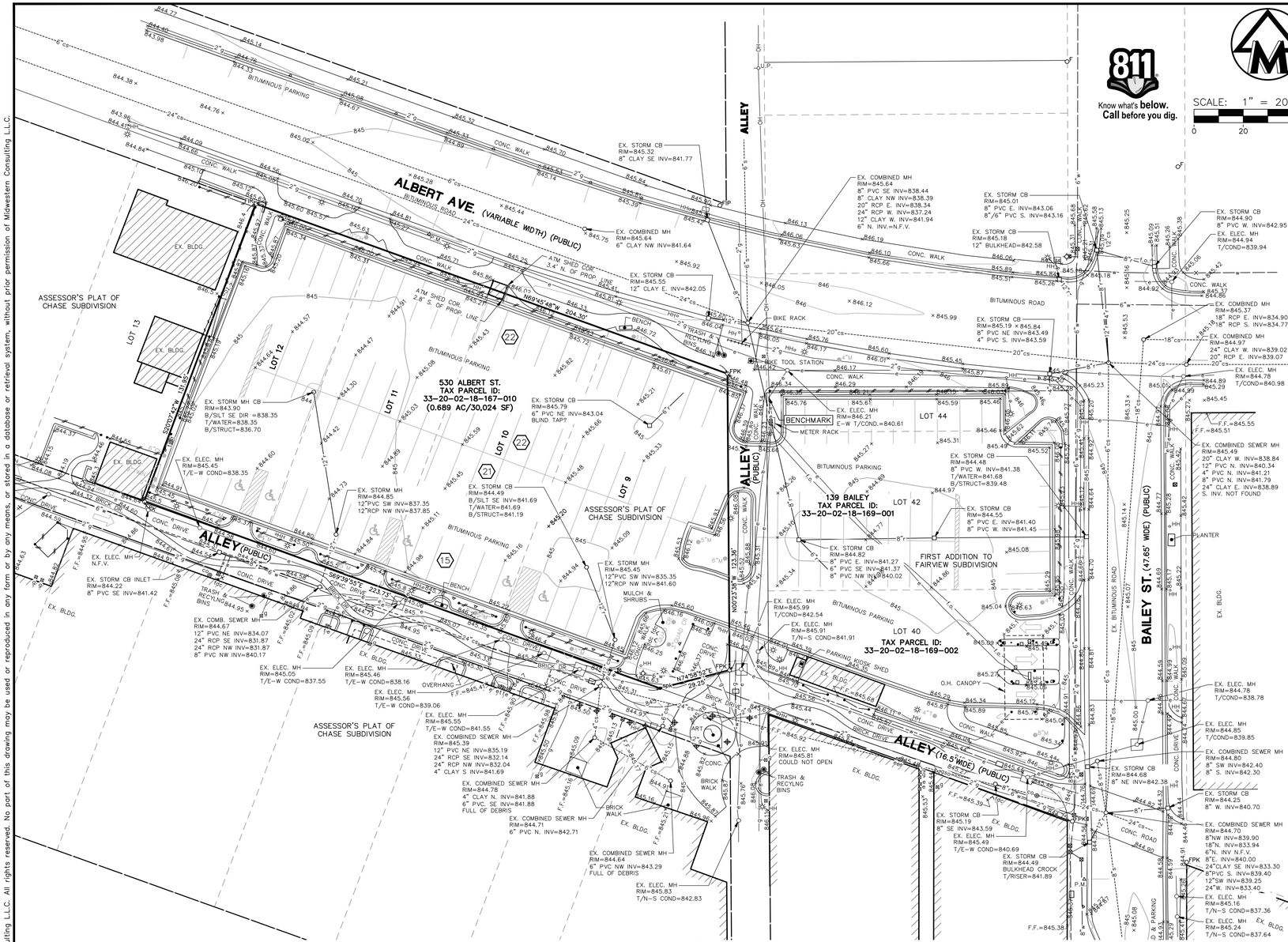
ESG DRAWN BY | ESG CHECKED BY

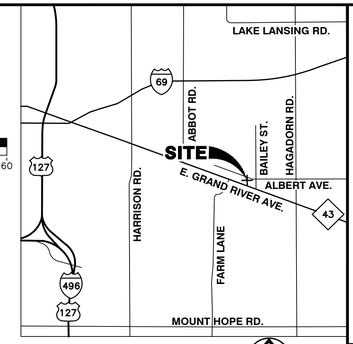
KEY PLAN

530 ALBERT AVE. DEVELOPMENT

LEVEL 2-9

A1-02





VICINITY SKETCH
NOT TO SCALE

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

SCALE: 1" = 20'
0 20 40 60

LEGAL DESCRIPTION

(TAKEN FROM FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT NO. NCS-1266133-BOS1, DATED JUNE 23, 2025)

LAND IN THE CITY OF EAST LANSING, INGHAM COUNTY, MICHIGAN, DESCRIBED AS FOLLOWS:

LOT 9, OF ASSESSOR'S PLAT OF CHASE SUBDIVISION OF PART OF LOT 78 COLLEGE GROVE., ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 12 OF PLATS, PAGE 2, INGHAM COUNTY RECORDS. EXCEPT A PARCEL OF LAND DESCRIBED AS BEGINNING AT A POINT SOUTH 00 DEGREES 39 MINUTES EAST 123 FEET FROM THE INTER-SECTION OF THE SOUTH LINE OF ALBERT AVENUE EXTENDED AND EAST LINE OF COLLEGE GROVE PLAT, THENCE SOUTH 09 DEGREES 39 MINUTES EAST 18 FEET, THENCE NORTH 70 DEGREES 05 MINUTES WEST 30 FEET, THENCE NORTH 74 DEGREES 25 MINUTES EAST 29.07 FEET TO THE BEGINNING.

ALSO

LOT NO. 10 OF ASSESSOR'S PLAT OF CHASE SUBDIVISION OF PART OF LOT 78 COLLEGE GROVE, CITY OF EAST LANSING, INGHAM COUNTY, MICHIGAN, ACCORDING TO THE RECORDED PLAT THEREOF AS RECORDED IN LIBER 12 OF PLATS, PAGE 2, SAID INGHAM COUNTY RECORDS.

ALSO

ALL THAT PART OF LOT NO. 78, PLAT OF COLLEGE GROVE, DESCRIBED AS BEGINNING AT A POINT IN THE SOUTH LINE OF ALBERT AVENUE AS EXTENDED 170 FEET EASTERLY FROM ITS INTER-SECTION WITH THE EAST LINE OF DIVISION STREET, THENCE SOUTH 19 DEGREES AND 55 MINUTES WEST 132 FEET, THENCE SOUTH 70 DEGREES AND 5 MINUTES EAST 51 FEET, THENCE NORTH 19 DEGREES AND 55 MINUTES EAST 132 FEET, THENCE NORTH 70 DEGREES AND 5 MINUTES WEST 51 FEET TO THE PLACE OF BEGINNING, NOW APPARENTLY KNOWN AS LOT NO. 11 OF ASSESSOR'S PLAT OF CHASE SUBDIVISION OF PART OF LOT 78 OF COLLEGE GROVE, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 12 OF PLATS AT PAGE 2, INGHAM COUNTY RECORDS.

ALSO

LOT NO. 12, OF ASSESSOR'S PLAT OF CHASE SUBDIVISION OF PART OF LOT 78 COLLEGE GROVE, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 12 OF PLATS ON PAGE 2, INGHAM COUNTY RECORDS.

EXCEPTIONS

NO PLOTTABLE EXCEPTIONS

BENCHMARK

FOUND RAILROAD SPIKE IN N. SIDE OF U.P. ON THE S. SIDE OF ALBERT ST., STANDING EAST OF THE NE PROPERTY CORNER. ELEVATION=846.93 (NAVD88)

NOTES

1. THIS SURVEY WAS PREPARED USING FIRST AMERICAN TITLE INSURANCE COMPANY TITLE COMMITMENT NO. NCS-1266133-BOS1, COMMITMENT DATE OF JUNE 23, 2025.
2. THE PARCEL DOES NOT LIE WITHIN A FEDERAL FLOOD HAZARD AREA PER FEMA MAP PANEL 26065C0151D, EFFECTIVE DATE 8\16\11.
3. TOTAL LAND AREA: 30,024 S.F. OR 0.689 ACRES.
4. PARCELS ARE CONTIGUOUS.
5. THERE IS NO EVIDENCE OF CURRENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS.
6. THERE IS NO EVIDENCE OF SITE USE AS A SOLID WASTE DUMP, SUMP OR SANITARY LANDFILL.
7. THERE IS NO EVIDENCE OF PROPOSED CHANGES IN STREET RIGHT OF WAY LINES AND NO EVIDENCE OF RECENT STREET OR SIDEWALK CONSTRUCTION OR REPAIRS.
8. THERE IS NO OBSERVED EVIDENCE OF PLOTTABLE OFFSITE EASEMENT OR SERVITUDES, AS SHOWN ON THIS SURVEY.
9. THERE ARE 80 REGULAR EXISTING PARKING SPACES AND 6 HANDICAPPED (BARRIER FREE) PARKING SPACES.
10. SITE ADDRESS: 530 ALBERT AVENUE, EAST LANSING, MI 48823.
11. THERE ARE VISIBLE ENCROACHMENTS ON THE SUBJECT PROPERTY.
    1) ATM SHED ALONG NORTH PROPERTY LINE.
12. BEARINGS ARE BASED ON MICHIGAN STATE PLANE COORDINATE SYSTEM, SOUTH ZONE.

SURVEYOR'S CERTIFICATE

To: TDP MKT, LLC, an Minnesota limited liability company; and First American Title Insurance Company:

This is to certify that this map or plat and the survey on which it is based were made in accordance with the 2021 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, jointly established and adopted by ALTA and NSPS, and includes Items 1, 2, 3, 4, 5, 7(a), 7(b)(1), 7(b)(2), 8, 9, 11, 13, 16, 17, 18, and 19 of Table A thereof. The field work was completed on August 8, 2025.

MIDWESTERN CONSULTING, LLC.

By: Mark Vander Veen
Mark Vander Veen, P.S. No. 4001056788

Date: August 14, 2025

STATE OF MICHIGAN
MARK VANDER VEEN
PROFESSIONAL SURVEYOR
No. 4001056788
LICENSED PROFESSIONAL SURVEYOR

LEGEND

838	EXIST. CONTOUR
×836.2	EXIST. SPOT ELEVATION
U.P.	EXIST. UTILITY POLE
	GUY WIRE
	ELEC. TRANSFORMER
OH	EXIST. OVERHEAD UTILITY LINE
	EXIST. LIGHT POLE
t	EXIST. TELEPHONE LINE
e	EXIST. ELECTRIC LINE
g	EXIST. GAS LINE
g	EXIST. GAS VALVE
f.o.	EXIST. FIBER OPTIC LINE
w	EXIST. WATER MAIN
	EXIST. HYDRANT
	EXIST. GATE VALVE IN BOX
	EXIST. GATE VALVE IN WELL
	EXIST. CURB STOP & BOX
fdc	EXIST. FIRE DEPARTMENT CONNECTION
r	EXIST. STORM SEWER
	EXIST. CATCH BASIN OR INLET
s	EXIST. SANITARY SEWER
CO	EXIST. CLEANOUT
	SIGN
	PARKING METER
	TELEPHONE RISER
	CABLE TELEVISION RISER
	ELECTRIC METER
	GAS METER
	UTILITY HANDHOLE
	POST
	EXIST. BOLLARD
	FENCE
	SINGLE TREE
	TREE OR BRUSH LIMIT
O F	FOUND IRON PIPE
IR	FOUND IRON ROD
FPK	FOUND P.K.
SPK	SET P.K.

TREE LEGEND

CE	CEDAR
CH	CHERRY
CR	CRABAPPLE
LO	LOCUST
M	MAPLE
T	TULIP

The underground utilities shown have been located from field survey information and existing records. The surveyor makes no guarantees that the underground utilities shown comprise all such utilities in the area, either in-service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated. Although the surveyor does certify that they are located as accurately as possible from the information available.

M:\Civil\25xx\25144.SVY\2025\25144 Survey\25144_SY01.dwg, 11/8/2025 8:31 AM, Mark Vander Veen, 24-36-ARCH, None
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MIDWESTERN CONSULTING
3815 Plaza Drive, Ann Arbor, Michigan 48108
(734) 995-0200 • www.midwesternconsulting.com

CLIENT
STANTEC
2321 CLUB MERIDIAN DRIVE SUITE E
OKEMOS, MICHIGAN 48864
JOHN PENSHORN
517-249-4998

530 ALBERT AVE.
ALTA/NSPS LAND TITLE SURVEY OF A PARCEL OF LAND LOCATED IN SECTION 18, T4N, R1W, CITY OF EAST LANSING, INGHAM COUNTY, MICHIGAN

1

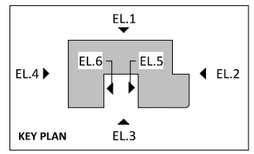
JOB No. 25144

REVISIONS:	REV. DATE
ADDITIONAL SURVEY NOTE	10/09/25
FENCE LINE EDIT	11/8/25

DATE: 8/14/25
SHEET 1 OF 1
CADD:
ENG:
PM: MVV
QA/QC: MVV
25144_SY01
FB 1126



TRANSFORMER/LOADING FOLDABLE PANEL SCREENING EXAMPLE



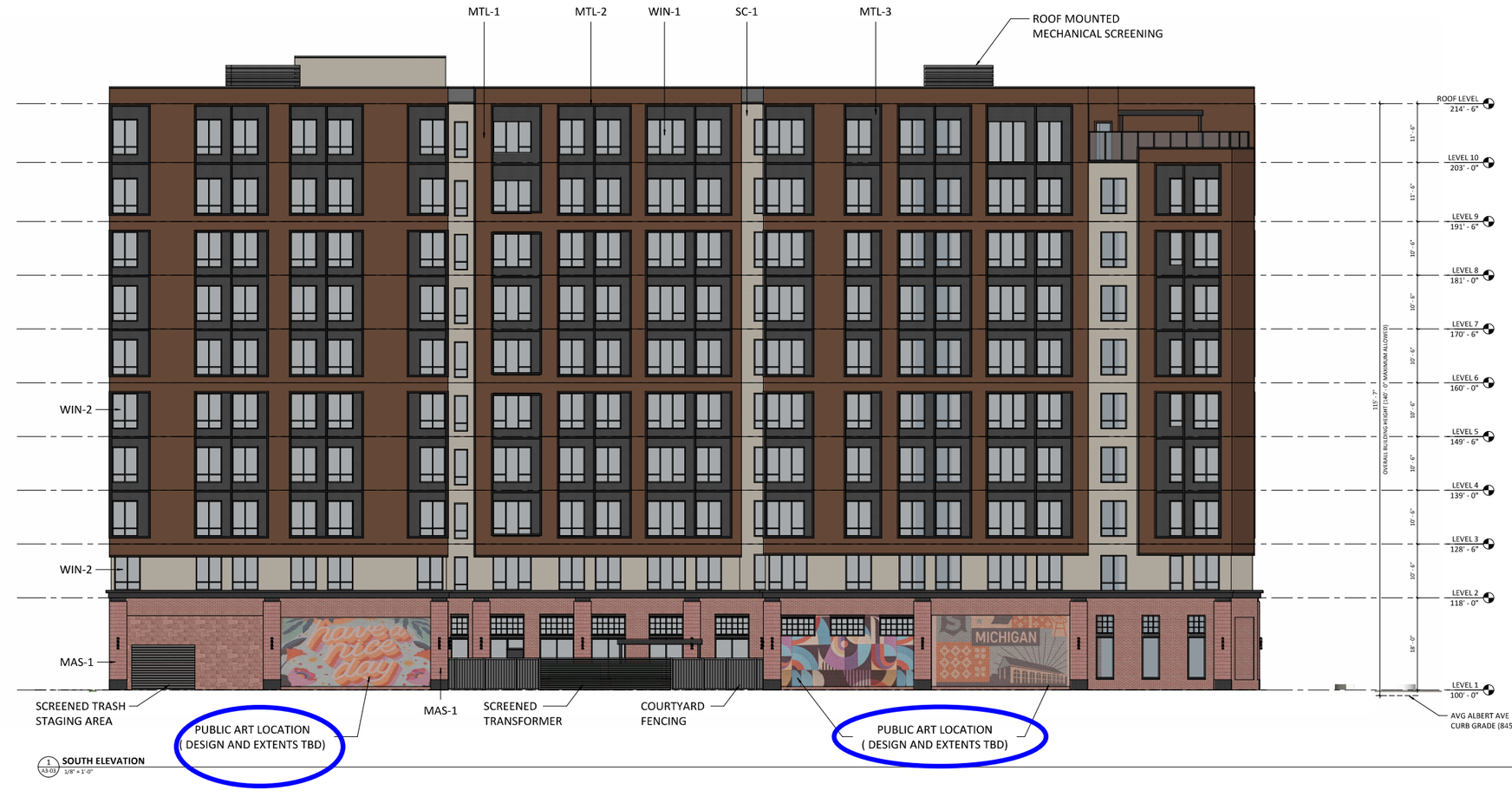
EXTERIOR FINISHES		
TAG	DESCRIPTION	COLOR FINISH
MAS-1	BRICK MASONRY	LIGHT RED
MAS-2	BLOCK MASONRY	LIGHT RED
MTL-1	METAL PANEL	TERRACOTTA COLOR
MTL-2	METAL PANEL	BLACK
MTL-3	METAL PANEL	CHARCOAL
SC-1	STUCCO	TAN
WDW-1	STOREFRONT/WINDOW WALL	MATTE BLACK
WDW-2	WINDOW	MATTE BLACK

530 ALBERT AVE. DEVELOPMENT

530 Albert Ave, East Lansing, MI 48823

TAYLOR DEVELOPMENT PARTNERS

esg
ARCHITECTURE & DESIGN
350 North 5th Street, Suite 400
Minneapolis, MN 55401
p 612.339.5508 | esgarch.com



1 A3-03 **SOUTH ELEVATION** 1/8" = 1'-0"

5/5/2026 9:47:47 AM

NOT FOR CONSTRUCTION

LAND USE DEVELOPMENT SUBMITTAL 5-5-2026

ORIGINAL ISSUE:
11-05-2025 LAND USE SUBMITTAL
REVISIONS:

No.	Description	Date

2025-1701
PROJECT NUMBER

ESG DRAWN BY | ESG CHECKED BY

KEY PLAN

530 ALBERT AVE. DEVELOPMENT

ELEVATIONS

A3-03

GRAPHIC SCALE
10 0 10 20
(IN FEET)
1 inch = 10 ft.

LEGEND

- PROPERTY BOUNDARY
- LOT LINE
- CURB AND GUTTER
- BITUMINOUS PAVEMENT
- CONCRETE SIDEWALK
- NO-MOW TURF
- STAMPED OR COLORED CONCRETE
- TURF SOD
- WOOD MULCH
- FENCE

NOTES

1. SEE SHEET G-002 FOR ADDITIONAL PROJECT NOTES.

PLANT PALETTE

SYMBOL	CODE	QTY	BOTANICAL NAME	COMMON NAME	CONT	CAL
OVERSTORY TREES						
	CAH	10	CARPINUS CAROLINIANA 'JN SELECT A STRAIGHT TALK'	COLUMNAR AMERICAN HORNBEAM	B&B	2.5"
STREET TREE						
	OV	6	OSTRYA VIRGINIANA	AMERICAN HOPHORNBEAM	B&B	3.5"
UNDERSTORY TREES						
	MP	4	MALUS X 'PRAIRIE ROSE'	PRAIRIE ROSE CRABAPPLE	B&B	1.5"
SYMBOL	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**CONT**	
SHRUBS						
	HL	41	HYDRANGEA PANICULATA 'SMHPLQF'	LITTLE QUICK FIRE® PANICLE HYDRANGEA	3 GAL	
	TT	30	TAXUS X MEDIA 'TAUNTONII'	TAUNTON'S YEW	3 GAL	
ORNAMENTAL GRASSES						
	SH	85	SPOROBOLUS HETEROLEPIS	PRAIRIE DROPSEED	1 GAL	
PERENNIALS						
	AA2	39	ASTILBE X ARENDSII 'AMETHYST'	AMETHYST ASTILBE	1 GAL	
	HB	9	HOSTA X 'BLUE MOUSE EARS'	BLUE MOUSE EARS HOSTA	1 GAL	
	HG	2	HOSTA X 'GUACAMOLE'	GUACAMOLE HOSTA	1 GAL	
	MS2	12	MATTEUCCIA STRUTHIOPTERIS	OSTRICH FERN	1 GAL	

Stantec
2321 CLUB MERIDIAN DRIVE
SUITE E
OKEMOS, MI 48864
WWW.STANTEC.COM

CLIENT: TAREEN DEVELOPMENT PARTNERS

530 ALBERT

530 ALBERT AVENUE, EAST LANSING, MICHIGAN, 48823

ISSUE NO.	DESCRIPTION	DATE
1	LAND USE SUBMITTAL	5/05/2026

CERTIFICATION:

MARK FLICKER LANDSCAPE ARCHITECT No. 3901041066 REGISTERED LANDSCAPE ARCHITECT STATE OF MICHIGAN

PROJECT NO.:	255500018
DWN BY: RAO	CHKD BY: MJS / APPD BY: JTP
ISSUE DATE:	05/05/2026
ISSUE NO.:	1
SHEET TITLE:	LANDSCAPE PLAN
SHEET NO.:	L-201

Luminaire Schedule								
Symbol	Qty	Label	Arrangement	LLF	Description	Arr. Watts	Lum. Lumens	Tag
B	3	BB	Single	0.900	ELITE CWP-FC-11E-LED-3ML-DIM10-120V-347V-3CCT-BZ(1500L)	10.287	1526	
◎	3	DD	Single	0.900	ELITE RL643-700L-1000L-1500L-DIM10-MVOLT-27K-30K-35K-40K-50K-90 X-XX(1000L) - TRM FINISH TO MATCH CANOPY	10.1	970	
□	23	CC	Single	0.900	MODERN FORMS WS-W13718	10.789	276	

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	
CalcPts_1	Illuminance	Fc	0.06	8.8	0.0	N.A.	N.A.	

TYPE CC

TYPE BB

MH = Mounting Height
CC - Typical 8 feet
BB - 9 or 10.5 feet

GENERAL NOTES:

A. PULSE PRODUCTS DOES NOT ASSUME RESPONSIBILITY FOR THE INTERPRETATION OF THIS CALCULATION OR COMPLAINCE TO THE LOCAL, STATE, OR FEDERAL LIGHTNG CODES OR ORDINANCES.

B. LIGHTING LAYOUT IS NOT INTENDED FOR CONSTRUCTION DOCUMENTS BUT ONLY TO ILLUSTRATE THE PERFORMANCE OF THE PRODUCT.

C. ALL READINGS/CALCULATIONS SHOWN ARE SHOWN ON WORKPLANE OR FLOOR DEPENDING ON SPACE ACTIVITY.

RV2 W DOOR COVERAGE ADDED

Plan View
Scale: 1 inch= 20 Ft.

PULSE never ordinary.

#	Date	Comments

Revisions

Drawn By: JILL BJORNBERG LC
Checked By: JILL
Date:1/7/2026
Scale: AS NOTED

EAST LANSING MI MULTIFAMILY DD SET CALC

PAGE 1 OF 1

RV3 PER MARK UP ON SOFFIT DL / EX SCONCES PER NEW PLANS

Luminaire Schedule

Symbol	Qty	Label	Arrangement	LLF	Description	Arr. Watts	Lum. Lumens	Tag
	4	DD1	Single	0.900	RLB4S-3ML-DM10-MVOLT-SCCT-90-W-WH(2000L)	17.1	1974	
	11	DD	Single	0.900	ELITE RLB4S-700L-1000L-1500L-DM10-MVOLT-27K-30K-35K-40K-50K-90-X-XX(1000L) - TRIM FINISH TO MATCH CANOPY	10.1	970	
	28	CC	Single	0.900	MODERN FORMS WS-W13718	10.789	276	

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	Illuminance	Fc	0.11	9.2	0.0	N.A.	N.A.



TYPE CC



Plan View
Scale: 1 inch= 20 Ft.

Notes:
- Type CC mounted heights at 8 feet.
-Type DD are undermount lights on Albert mounted at 10 or 10.5 feet under the awnings and pergola
-Type DD1 are undermount lights that are mounted at 14 feet in the loading area

GENERAL NOTES:

A. PULSE PRODUCTS DOES NOT ASSUME RESPONSIBILITY FOR THE INTERPRETATION OF THIS CALCULATION OR COMPLAINCE TO THE LOCAL, STATE, OR FEDERAL LIGHTNG CODES OR ORDINANCES.

B. LIGHTING LAYOUT IS NOT INTENDED FOR CONSTRUCTION DOCUMENTS BUT ONLY TO ILLUSTRATE THE PERFORMANCE OF THE PRODUCT.

C. ALL READINGS/CALCULATIONS SHOWN ARE SHOWN ON WORKPLANE OR FLOOR DEPENDING ON SPACE ACTIVITY.

PULSE never ordinary.

#	Date	Comments

Revisions

Drawn By: JILL BJORNBERG LC
Checked By: JILL

Scale: AS NOTED

EAST LANSING MI MULTIFAMILY DD SET CALC

PAGE 1 OF 1

From: Danita Brandt
To: Planning Commission
Subject: Comments
Date: Wednesday, June 10, 2026 10:46:19 PM

You don't often get email from danita.brandt@gmail.com. Learn why this is important

CAUTION: This message originated from an email address outside of the organization. Please use caution before clicking any links or responding. Verify that you know and trust this sender prior to proceeding.

To the Commission:
I attach my comments from tonight's Public Hearing on the TDP site development plan.

East Lansing has an identity crisis.

As a Bailey resident, my bone of contention is not primarily with the developer, who seems to be striving mightily to stay in bounds of the rules, but with the rules and the application of those rules, in this case, the exception to the 8-story height maximum for using the LEED Gold certification exemption which allows for two additional stories.

We have a **Comprehensive Plan** to help us answer questions like, *who are we, today and years from now?*

The City printed glossy color post-cards of "Major Takeaways" to help communicate the Plan to the public. Of 10 "take-away" points listed here, half are relevant to housing:

- Development should be equitable and seek to address historical injustice.
- Students & senior citizens alike are an integral part of the City's population.
- People tend to like the neighborhoods they are in and want to maintain the existing neighborhood character.
- Diverse housing options are desirable...
- More housing is needed, particularly at an attainable price

Does the current proposal get us closer to realizing the Comprehensive Plan? The folks I talk to say no.

I was not able to print out the 420 pages of attachments for this agenda item but I am working from the 15-page Staff report:

From p. 7, item 50-38, Standards of review for site plan approval shall be consistent with the objectives of the Comprehensive plan.

1. General site conditions, "the site shall be designed and developed...to be reasonably compatible with surrounding properties."

On page 2 of the Staff Summary the Surrounding land uses that are listed are Townhomes to the North, the Peanut Barrel and Kimchi Box to the South, City Parking lot and Albert Place Condos to the East, and Wild Goose Inn to the West. Surely a 10-story building is not "reasonably compatible with these surrounding properties."

TDP Response From the Developer's narrative addressing item 50-38 (no page

numbers to refer to in the pdf): The developer points out that the comprehensive plan does not call for a transition down, and other developments that have been completed like the Landmark are adjacent to 2-story buildings. The Hub is next to 2-story or less commercial.

TDP did not address the properties listed by Staff on p. 2.

From a neighborhood perspective: the Hub is a poor choice to make in support of the argument to build big on Bailey as in fact the HUB has created a living nightmare for area residents, with spill-over parkers blocking driveways and a PACE and Police Force unable to keep up with enforcement. [We heard from several speakers tonight about issues with the HUB and a response from the Commissioners to the effect that parking enforcement is not part of the Developer's responsibility. Indeed, it is the responsibility of the Planning Commission to ensure that situations like the HUB fiasco do not happen.]

The Landmark backs up to parking and commercial properties; the proposed development faces two-story townhouses and residences; these are very different settings requiring some finesse on the part of the City in doling out exceptions to stay true to the principles and values outlined in the City's Comprehensive Plan.

The Standards of Review for site plan approval include 6 items--General site conditions, natural features, traffic access, utilities and public services, environmental protection, and public art) but omits what I submit is an absolutely critical **Item 7—Community Input**. I can partially remedy this omission this evening by referring Planning Commission members to emails from Bailey Neighborhood residents that are included in the Written Communications of the March 17 City Council meeting. Our concerns are largely the same as they were then. [I'd like to point out that the Developer's characterization of community input and reception to this development, as described in his narrative, is out-of-date, refers to a *single* meeting with the BCA back in November, 2025, and does not reflect majority sentiment of Bailey Neighborhood residents expressed over the last four months. Please note that the BCA did not have an opportunity to meet in advance of tonight's meeting of the Planning Commission;] their regular monthly meeting is tomorrow (6-11-26).

TDP makes the case that this project will supply "more housing in a desperately undersupplied market". By that they refer to student housing, not affordable housing for seniors or other underserved populations. Incredibly, Michigan State University and the City of East Lansing have seemingly reversed roles; the City taking on the responsibility of housing MSU's students, and the University proposing to fill in functions of a dynamic downtown with newly proposed non-student housing and entertainment venues. *

*Spartan Gateway District. https://msutoday.msu.edu/news/2025/04/msu-announces-progress-spartan-gateway-district

Let's take another look at what is being communicated on the front of the Comprehensive Plan postcard—the photo shows a Cityscape with the newest high-density hotel/apartment boxes and a line of traffic stopped at a light. The scariest aspect of this photo is that there are no people, not a single pedestrian, no bicycles, no public transit.

This photo was a deliberate choice and could just as easily have been a picture of kids playing in one of our many parks.

We've spent a lot of time and effort to craft a vision for our City. Let's stop eviscerating it piece by piece.

Thank you for the opportunity to bring these concerns to your attention,

Danita Brandt

174 Linden

June 5, 2026

East Lansing Planning Commission
410 Abbot Rd.
East Lansing, Mi 48823

RE: Proposal for 530 Albert Ave.

Dear Commissioners,

I am writing today to state my opposition to the proposed development at 530 Albert Avenue. Ultimately, I believe this particular version of the development is shortsighted, and very harmful. Removing 90 spots of parking for all the businesses in the 500 block makes it the only block of business in the downtown without adequate parking for its customers directly behind, or adjacent to the properties.

The Howard has already been approved by The Commission in which they will seek to lease over 100 spots in the Division Street garage for their tenants. The developers for 530 will also be forced to lease up to approx. 120 spots which would put the Division Street garage very near capacity on a "normal day". This will cause all kinds of issues for customers of the 500 block businesses, especially those who will need to use elevators on the East end of the garage, causing them to have to travel 2 blocks to get to their destination. This may seem trivial to some of you, but a large majority of my regular customers are over the age of 60, some of them with canes and/or wheelchairs. This will cause a huge burden for them.

The parking studies released by the city, although accurate for a particular "normal" Thursday, is nowhere indicative of the reality of what parking looks like on weekends, game days, and/or special events. These are the specific days that most businesses in East

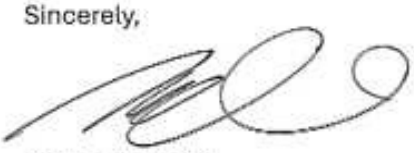
Lansing rely on to actually make their money. To take the parking away and develop it without putting back in public parking and/or enough parking for the development is not only shortsighted, but reckless to just assume that customers will "figure it out" and put the onus on the backs of the businesses who are already struggling with increasing labor costs, health care, food prices, gas prices, etc. Nobody wants to have to beg customers to come and patronize their business and change their habits that they've formed over the last 25 years of having a place to park near the business they wish to visit, just so that an out-of-town developer can line their pockets. This project will be detrimental to many of these businesses.

Of course, I understand the potential tax revenue for the City and how important that is. I understand that this property is private, and that the Metzinger's/Fabian's do not want to go "backwards" - ever since the city forced them to develop the lot because they refused to extend the lease agreement that they had for the previous 23 years. I also understand that the developer can supposedly develop up to a certain height "by right". However, I ask you to consider whether the businesses should have any rights? Should we not have the right to adequate parking for our businesses? The developer's previous proposal had parking in the plans, but they had to scrap it because council failed to act on it in a timely manner, and now their investors are upset and need to get the project moving forward as quickly as possible. So, we (the businesses) are going to have to pay the price?

This is not the right deal for the businesses in the 500 block and the surrounding blocks. We are going to end up with even more parking issues, like we currently have on the Eastside of the Downtown by the MSUFCU building.

At the Peanut Barrel, we have a saying - "support local." We stive to use as many local distributors as possible for our products, do cross-promotions with other local businesses, and support countless local charities and organizations with both financial and gift certificate donations for various local events. I humbly urge you all to do the same. SUPPORT LOCAL and vote no on this version of this project.

Sincerely,



Michael Krueger
Owner
the Peanut Barrel

From: Landon Bartley
To: Alycia Reiten
Subject: Fw: Proposed construction at the corner of Albert and Bailey
Date: Wednesday, June 10, 2026 8:29:56 AM
Attachments: Letter- email to East Lansing Planning Commission-6-9-2026.docx

---

FYI

From: Cheryl Martin <cheryl.martin0112@gmail.com>
Sent: Tuesday, June 9, 2026 8:15 PM
To: Landon Bartley <lbartley@cityofeastlansing.com>
Subject: Proposed construction at the corner of Albert and Bailey

You don't often get email from cheryl.martin0112@gmail.com. Learn why this is important

CAUTION: This message originated from an email address outside of the organization. Please use caution before clicking any links or responding. Verify that you know and trust this sender prior to proceeding.

Please include our letter in the packet of information to be read aloud at the East Lansing Planning Commission's Public Hearing meeting on 6/10/2026. It is also provided here as an attachment.
Thank you, Bob and Sherry Martin

June 9, 2026

To the East Lansing Planning Commission,

We are writing to ask that you NOT grant a height exemption for the proposed 10-story rental housing apartment building to be constructed on the corner of Albert and Bailey Street, now a parking lot. We understand that it is the right of the property owner to construct an 8-story building, now the official limit on building heights in the downtown area.

After reviewing the developer's plan on the East Lansing website and the presentation before the planning commission on Wednesday, June 10, 2026, the following 'plan' statements are sited:

1. "The proposed building height exceeds maximum allowable height of 112 feet; however, the LEED Gold incentive allows for the **excess height**."

The proposed height is excessive. Although height exemptions were granted for buildings at the corner of Grand River and Abbot, and the 100 block of Albert, their primary surroundings are student rentals, and sororities and fraternities, not single-family homes.

2. The site shall be "reasonably compatible with surrounding properties. a. ..height reasonably compatible with surrounding properties".

The current proposed 10 story height exemption, if approved, will have a lasting and extremely negative impact on the quality of life and make-up of the Bailey neighborhood. It will be the first mammoth structure bordering an already fragile neighborhood.

3. "The site shall not overburden adjacent public streets nor cause significant hazards to public safety due to excessive traffic generation or inadequate traffic control…. The proposed project does not provide any on-site parking."

4. “Where practicable, principal access to and from the site shall be provided from major streets; access to local streets shall be designed to avoid excessive traffic volumes and speed through adjacent neighborhoods”

Access to the structure by Grand River, Albert, and Abbot are already heavily congested when students are in town. Short cuts, and the avoidance of these major streets will take place, at a minimum, on Burcham, Division, Bailey, and Collingwood. The use of these streets for access and parking **will** greatly increase. As a resident and Bailey neighborhood walker, it is often frightening to see cars speeding down Bailey Street and Collingwood, even though the posted speed is 25 miles per hour. In addition, drivers often go through the posted stop signs on these streets, endangering other drivers, pedestrians, bikers, and children playing. The added structure **will** increase parking in the Bailey neighborhood, because no parking is provided in the proposed structure for the residents or their guests.

Bailey is one of the original neighborhoods in East Lansing and has a long history of single-family owned homes. The quality and ambiance of the homes in this neighborhood continue to be threatened. The planning commission and city council are supposed to preserve and protect the vulnerable and historical districts. To those of us who are fortunate enough to own one of these homes in Bailey, we are continually on the defense to preserve what we love about living in the Bailey neighborhood and the city of East Lansing.

The Bailey neighborhood is vulnerable.

The addition of 400+ student rental beds seriously impacts the fragile environment of the Bailey neighborhood, greatly increasing the student population and overcrowding in the downtown area, and traffic and parked cars in the Bailey neighborhood.

Please vote NO to the 10-story height exemption. If granted, it sets a very negative precedent for future development along the border of the Bailey neighborhood, and it will ultimately erode and destroy what we value as Bailey neighborhood homeowners and residents of East Lansing.

Please, do what is right and just for this treasured neighborhood.

Sincerely,

Bob and Sherry Martin
Graduates of MSU and owners of a very special home in the Bailey Neighborhood

351 Orchard Street, East Lansing

Email- Cheryl.martin0112@gmail.com
Cell- 517-388-8792

From: Ross Winter
To: Planning Commission
Subject: Concerns Regarding the Bailey Street Development
Date: Tuesday, June 9, 2026 9:05:41 AM

You don't often get email from ross.j.winter@gmail.com. Learn why this is important

CAUTION: This message originated from an email address outside of the organization. Please use caution before clicking any links or responding. Verify that you know and trust this sender prior to proceeding.

Good Morning,

I am writing today to express my concerns with the proposed Albert / Bailey Street development.

First and foremost, the newest proposal will still dangerously impact the people in the surrounding neighborhood. Flooding the already overcrowded area with 500+ additional renters (and more than the estimated 20% of their cars) will drastically increase traffic, add to the intrusive parked vehicles, and prevent emergency vehicles from navigating the neighborhood safely. The excessive speed that cars travel down Bailey, Collingwood, Butterfield, and other through streets is sooner or later going to kill one of the children who call the Bailey Neighborhood home.

Second, the shear size of the 10 story building is not the best option here. Downtown East Lansing has undergone significant changes in recent years. The Hub, The Graduate, The Abbot, etc. have already accomplished a modernization and brought a new vibrant aesthetic to the area. Another monstrosity will be too much. East Lansing is not downtown Ann Arbor. We're better than that.

Third, given the nature of the newest proposal, with vauge details regarding occupancy rates, rental rates, and diversity implications - it's a STUDENT HOUSING proposal. We do not need more student-only housing downtown. This proposal saw the mixed use road-block ahead of them and now they're just trying to get something to pass.

Finally, this proposal will add to the already illegal renters market. For good reason, MSU has a two year Live On requirement. Students (moreso student parents) are currently buying every available piece of property in the city and illegally renting those houses to students who then claim to be commuting to MSU. They're lying. They're circumventing the rules at MSU and violating East Lansing laws. They're forcing everyday families to leave the area. Adding another fancy apartment complex will exacerbate these problems.

I urge you to vote against the Albert / Bailey St development proposal. It is too dangerous to continue. Our safety depends on it.

Your concerned neighbor,

--
Ross Winter
ross.j.winter@gmail.com
(269) 569-1986

From: Cheryl Martin
To: Planning Commission
Subject: Proposed apartment building construction at the corner of Albert and Bailey Streets
Date: Tuesday, June 23, 2026 2:01:19 AM

You don't often get email from cheryl.martin0112@gmail.com. Learn why this is important

CAUTION: This message originated from an email address outside of the organization. Please use caution before clicking any links or responding. Verify that you know and trust this sender prior to proceeding.

Please include our letter in the packet of information for the Planning Commission meeting on June 24, 2026. Thank you, Bob and Sherry Martin

June 22, 2026

To the East Lansing Planning Commission,

We are writing again to ask that you NOT grant a height exemption for the proposed 10-story rental housing apartment building at the corner of Albert and Bailey Streets. This proposed construction will negatively alter the skyline of East Lansing bordering the Bailey neighborhood. It will have serious, detrimental impacts on the fragile downtown small businesses. The proposed number of student rental apartments will erode the already fragile Bailey neighborhood.

The proposed structure is sterile and the height is excessive. The plan does not honor the architecture of MSU or the historical significance of homes in the Bailey neighborhood.

In the developer's plan it states:

"The site shall not overburden adjacent public streets nor cause significant hazards to public safety due to excessive traffic generation or inadequate traffic control….

"Where practicable, principal access to and from the site shall be provided from major streets; access to local streets shall be designed to avoid excessive traffic volumes and speed through adjacent neighborhoods"

"The proposed project does not provide any on-site parking."

Access routes using Grand River, Albert, and Abbot **are already** heavily congested when students are in town. Students currently cut through the Bailey neighborhood to avoid the heavy congestion on these major streets. They access and exit the downtown area using Burcham, Division, Bailey, Collingwood, and Butterfield. The traffic on these neighborhood streets will greatly increase if the proposed apartment building construction at Albert and Bailey is approved.

As residents and pedestrians of Bailey, we continually witness cars speeding down Bailey, Collingwood, and Butterfield, even though the posted speed is 25 miles per hour. Drivers often go through the posted stop signs on these streets, endangering other drivers, pedestrians, bikers, and children playing. The proposed apartment building construction will increase the number of student renters and their vehicles, adding to the dangerous conditions on these streets.

As noted in the developer's plan, no parking is provided in the proposed apartment building for the student residents or their guests. Parking in the city's current parking structures is and

will continue to be limited. Construction of this proposed apartment building at Albert and Bailey **will** increase parking in the Bailey neighborhood.

Bailey is one of the original neighborhoods in East Lansing and has a long history of single-family owned homes. The quality and ambiance of the homes in this neighborhood continue to be threatened. The Planning Commission and City Council are responsible for preserving and protecting the vulnerable and historical districts. As residents, fortunate enough to own homes in Bailey, we are asking that you preserve the qualities that make this neighborhood special.

The Bailey neighborhood is fragile and vulnerable.

The addition of 400+ student rental beds seriously impacts the fragile environment of the Bailey neighborhood, and significantly increases the student population, overcrowding in the downtown area, and traffic and parked cars in the Bailey neighborhood.

We ask you to vote NO to the 10-story height exemption. If approved, it sets a very negative precedent for future development along the border of the Bailey neighborhood. It will have a lasting and negative impact on the quality of life and value of the Bailey neighborhood. It will ultimately erode what we value most as Bailey neighborhood homeowners and residents of East Lansing.

Respectfully, we ask you to do what is right and just for this treasured neighborhood.

Sincerely,

Bob and Sherry Martin
351 Orchard Street, East Lansing

Email- Cheryl.martin0112@gmail.com
Cell- 517-388-8792

Planning Commission

AGENDA ITEM REPORT

To:	Planning Commission
Subject:	Consideration of a request from Kesava Kunapareddy on behalf of Brightwell Group LLC for approval of a Site Plan for a 37,748 square foot addition to the existing Brightwell Behavioral Facility at 3512 Coolidge Rd. The property is zoned B-1 General Office Business District.
Meeting:	Planning Commission - 24 Jun 2026
Department:	Planning, Building, and Housing
Staff Contact:	Grace Whitney, Associate Planner

ATTACHMENTS:

3512 Coolidge staff report PC 6.24.26
3512 Coolidge Sample Motion PC 6.24.26
3512 Coolidge Template Findings and Conclusions
Sec 50-38 Standards of review for site plan approval
3512 Coolidge Engineering Review 5-12-2026
3512 Coolidge Combined Application
3512 Coolidge Site Plan Revisions 6.10.26
3512 Coolidge Photometric Revisions 6.12.26
Approved Site Plan 2018

Department of Planning,
Building & Housing

STAFF REPORT

Address	3512 Coolidge Rd.
Applicant	Brightwell Group LLC
Zoning	B-1 General Office Business District
Type of Case	Site Plan
Staff person	Grace McCarthy, AICP
CASE Number	PSPR26-0002
PC hearing date	May 27, 2026
CC review date	

Overview

- The applicant proposes a 37,748 sf addition to the existing Brightwell Behavioral Facility.
- The proposed addition includes 28 additional patient units.
- The site work associated with the addition also includes additional parking, new access drives and work to the existing detention pond.

Background

- The Planning Commission held a public hearing for this request on May 27, 2026, at which time no comments were received.
- Since the hearing, the applicant has updated their plans in response to comments from staff & the Planning Commission.
- The total site area is 5.194 acres.
- The existing 15,275 sf. facility was approved by City Council in 2018.
- The site plan was originally approved in 2018.
- The current parcel was split from the larger parcel to the north in 2019, and rezoned in 2023 from DeWitt Township A* (Agricultural) to B1 (East Lansing General Office Business) to match that of the existing building.

Existing Conditions

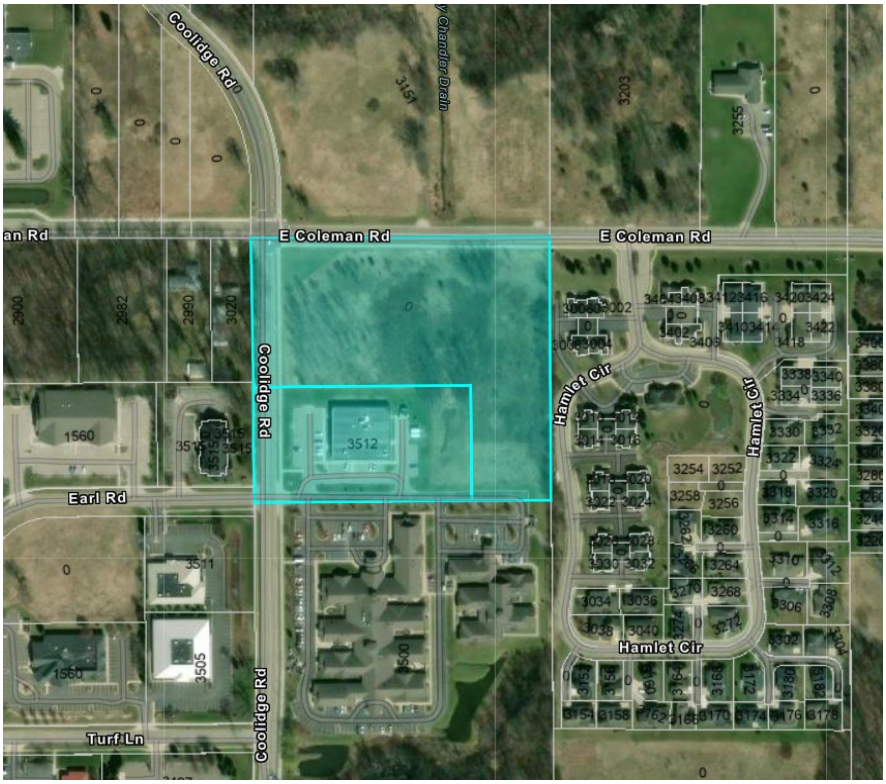
- The current psychiatric facility is 15,275 sf. was approved for 23 inpatient beds. A copy of the approved site plan is attached to this report.



Google street view from south of the site dated September 2022



Google street view from west of the site dated October 2022



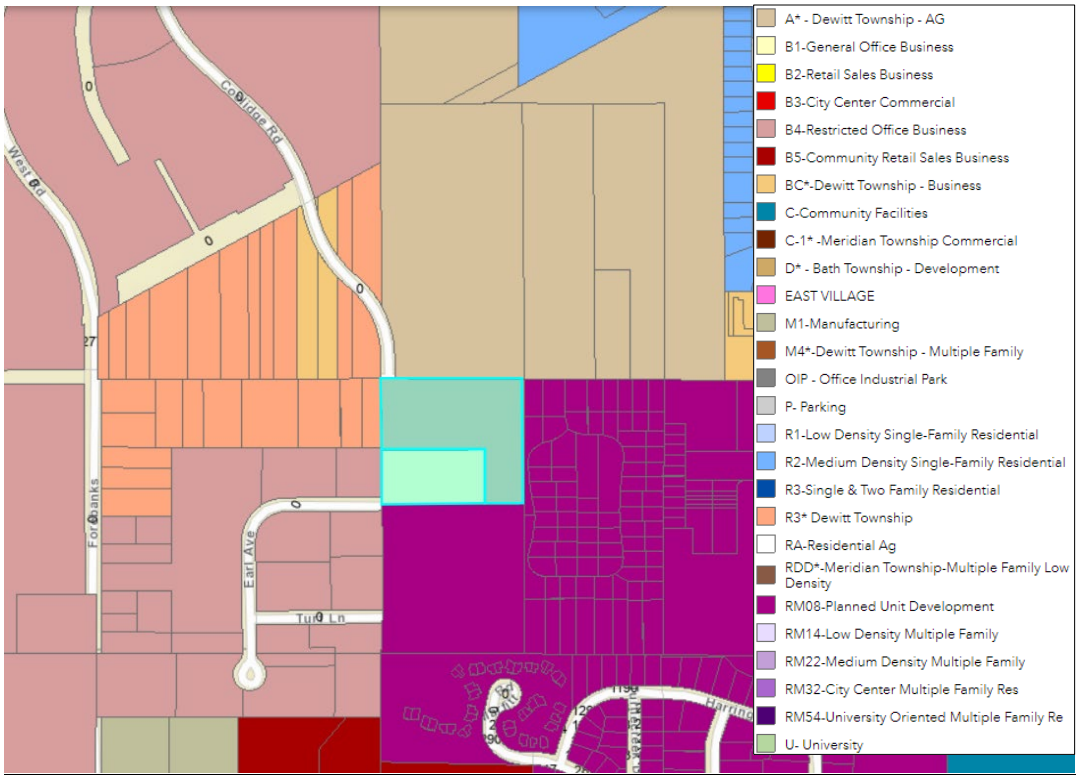
Aerial photo of site

Future Land Use

- The 2018 Comprehensive Plan designates this site as R4-Residential up to 16 Units/Acre. primarily where there is multiple-family housing or where there is any type of housing on the edge of a major street or the core downtown area. The category allows for row house, and small to medium size multi-plex building types. It is limited to these building types at a density of sixteen (16) units per acre with heights no higher than two and one half (2.5) stories or thirty-five (35) feet by right or four (4) stories or fifty (50) feet with a bonus*. This land use category introduces low intensity neighborhood service type commercial uses such as a bed and breakfast, small office, personal service business, restaurant and extended care facilities. The intent of this land use category is to increase the variety of housing choices with a small-to-medium building footprint
- Extended Care / Nursing Facilities on all floors of a building are included in the R4 Category of the 2018 Comprehensive Plan.
- The 2025 Comprehensive Plan Update did not alter the future land use map or categories.

Zoning

- The site is zoned B-1 General Office Business District.
- In the B-1 district, extended care/nursing facilities are permitted subject to site plan approval by the City Council with a recommendation by Planning Commission.
- The proposed project meets the dimensional and use requirements set out for the B-1 Zoning District.



Surrounding Land Uses

- North: Vacant – B-1 General Office Business
- East: Condos – RM-08 Planned Unit Development
- South: Senior Living Facility – RM-08 Planned Unit Development
- West: Office – B-4 Restricted Office Business and Single-Family Residential -R3* (DeWitt Township Single-Family Residential (20,000 sq. ft./unit))

Building

- The proposal expands the existing building to add additional floor area dedicated to additional facility amenities and additional patient units.
- The existing single-story building is proposed to remain and be added to.

Site Entry

- The applicant has proposed adding a curb cut on Coolidge Rd. to the north of the existing parking lot area.
- The applicant has also proposed adding an additional point of vehicle entry on the southeast end of the site by extending the existing paved access drive along the south of the site.

Parking

- The applicant has proposed to add 58 parking spaces to the existing 34 spaces. The proposed total number of spaces is 92. This is a reduction from the previous plan version which included 131 spaces.
- Section 50-820(1) requires one bike storage space for each ten required parking spaces through the first 100 required parking spaces and one storage space for each 15 required parking spaces in excess of 100.
- The total required number of bike parking spaces is 4. As part of the 2018 City Council approval, the property was required to provide 5 bike parking spaces. Staff recommends maintaining this condition for 5 spaces. The applicant has not indicated bike parking on their plans but there are 5 existing bike spaces at the west site of the building..
- The applicant has revised plans to provide a loading space on the north side of the building.

Lighting

- The applicant has revised lighting plans to meet the maximum fixture height of 15 ft and the maximum permitted lighting levels

Landscaping

- The applicant has indicated that of 38 existing trees on site, 22 will be removed and 16 will remain. Most of the trees to remain are a part of the required landscaping from the site plan approved in 2018.
- The applicant has revised plans to meet the requirements of the landscape ordinance for landscape screening and parking lot landscaping.

Stormwater

- As noted by the engineering department, the stormwater discharge from the proposed site will discharge to the Moore Branch of the Remy Chandler Drain. The permitting for the stormwater discharge and on-site post construction requirements will be administered through the Clinton County Drain Commissioner's office. However, please note that the city requires a 2 year-24 hour storm event of 2.42 inches and a 100 year-24 hour storm event of 5.20 inches.

Signs

- No signs for the project have been proposed at this time.
- The construction of any signs will require a building permit and will be subject to the requirements of Chapter 32: Signs.

Other Applicable Local Ordinances and State and Federal Regulations

- Prior to the approval of final plans and the issuance of any construction permits, the final plans will have to comply with all applicable local construction standards and specifications.

Review by Other Departments or Agencies

The application was reviewed by other Departments, and the following feedback was received:

- Public Works has indicated that City maps indicate a wetland is present at the east side of the property. The applicant has initiated the process of wetland delineation and the result of that process will determine the approval mechanism for any work impacting the wetland. The Environmental and Sustainability Manager has indicated that this process can run parallel to the site plan process and has advised that any land use approvals should be contingent on receiving the appropriate wetland permitting.
- The Building Department had no comments other than a reminder that all work is subject to building permit approval.
- The Fire Department did not have any concerns related to the plan.
- The Engineering Department has submitted review comments to the applicant. These comments can be found in the attached review memo. The engineering department has indicated that outstanding items can be approved during the permit review process for the project.
- ELPD has not yet provided review comments.

Staff Review- Site Plan Approval

A site plan application is required to substantially comply with the standards of review in Section 50-38. This ordinance section is attached to the agenda item report for reference.

(1) *General site conditions* *The applicant is proposing an addition to an existing facility. There is not a proposed change to the land use, but there is a proposed increase in intensity of use due to the expansion. The site plan meets the majority of the requirements of the zoning ordinance. The are some minor discrepancies that can be addressed as conditions of approval that must be revised prior to the issuance of any building permits.*

(2) *Natural features* *The applicant is proposing site changes that include decreasing the amount of green space on the existing site and has proposed adjusting stormwater infrastructure accordingly. Stormwater permits from the Clinton County Drain Commissioners office will be required prior to building permit issuance. The applicant has provided adequate landscaping to meet the requirements of the zoning ordinance.*

(3) *Traffic access* *The applicant has proposed an additional entry drive off Coolidge Rd. and an additional entry drive on the south side of the site. The applicant is required to provide a loading space. The zoning ordinance requires a minimum of 4 bike parking spaces, however, the previous site plan approval required 5 spaces. No bike parking is shown on the current plans and can be required as a condition of approval.*

(4) *Utilities and public services* *The engineering department has provided comments to the applicant regarding the onsite utilities that can be completed at the time of permitting and the applicant has acknowledged these comments.*

(5) *Environmental protection* *The applicant has proposed a reduction in the green space on site. The stormwater permit required for the site will be obtained through the Clinton County Drain Commissioner. The Engineering Department has noted the more stringent standards for storm events required by the City and this requirement has been acknowledged by the applicant. There is no proposed storage of any hazardous chemicals.*

(6) *Public art requirement* *The applicant has not yet completed paperwork for the public art requirement. An art contribution will likely be required based on the project cost and building permits cannot be issued until the contribution is approved by the Arts Commission. The submission of the art contribution to the Arts Commission can be listed as a condition of approval.*

Project Summary and Next Steps

- The Planning Commission held a public hearing at its May 27 2026, meeting. No public comment was received regarding the application. The applicant has since revised plans based on the Planning Commission's feedback and staff review comments.
- City Council does not hold a public hearing for Site Plan Review but will consider the application following Planning Commission's recommendation.

Motion to **recommend approval of** the Site Plan request from Kesava Kunapareddy on behalf of Brightwell Group LLC, for a 37,748 square foot addition to the existing Brightwell Behavioral Facility located at 3512 Coolidge Rd. This decision is based on the "Findings and Determinations to Approve Site Plan for Brightwell Behavioral Facility and the Conditions of Approval," dated 6/24/26, which are attached to the AIR for this agenda item and incorporated into this motion by this reference. [*Planning Commission may include as part of this motion amendments to modify, delete, or add to the findings, determinations, and conditions, as it deems necessary and appropriate*]

Motion to **recommend denial of** the Site Plan request from Kesava Kunapareddy on behalf of Brightwell Group LLC, for a 37,748 square foot addition to the existing Brightwell Behavioral Facility located at 3512 Coolidge Rd. This decision is based on the following findings and determinations: [*State the Section(s) of the Zoning Ordinance standard(s)/requirement(s) applicable to the proposal that have not been satisfied and state the reason(s) why the applicant and its submissions have failed to meet each such standard. The motion does not have to address each and every standard in the ordinance, i.e., it can be limited to just the standards that have not been met.*]

Findings and Determinations to Approve Site Plan for Brightwell Behavioral Facility and the Conditions of Approval
Dated: June 24, 2026

Kesava Kunapareddy on behalf of Brightwell Group LLC has applied for and requested City Council approval of a Site Plan, for a 37,748 square foot addition to the existing Brightwell Behavioral Facility located at 3512 Coolidge Rd. Planning Commission's decision to recommend approval of this application and request to the City Council is based on the following findings and determinations as to each standard of review applicable to this site plan request under Section 50-38 of the City of East Lansing Zoning Ordinance, with reference to and reliance on the applicant's application, plan submissions, analyses by City staff, the City's comprehensive plan, and other materials and submissions provided to the City relative to the proposed development:

1. The requirements of 50-38(1)a-d are met for the following reason(s): *The applicant is proposing an addition to an existing facility. There is not a proposed change to the land use, but there is a proposed increase in intensity of use due to the expansion. The site plan meets the majority of the requirements of the zoning ordinance. The remaining minor discrepancies can be addressed as conditions of approval that must be revised prior to the issuance of any building permits.*
2. The requirements of 50-38(2)a-d are met for the following reason(s): *The applicant is proposing site changes that include decreasing the amount of green space on the existing site and has proposed adjusting stormwater infrastructure accordingly. Stormwater permits from the Clinton County Drain Commissioners office will be required prior to building permit issuance. The applicant has provided adequate landscaping to meet the requirements of the zoning ordinance. The applicant has initiated the process for permitting related to wetlands.*
3. The requirements of 50-38(3)a-q are met for the following reason(s): *The applicant has proposed an additional entry drive off Coolidge Rd. and an additional entry drive on the south side of the site. The applicant has indicated plans to provide the required loading space and meets the minimum parking requirement. The zoning ordinance requires a minimum of 4 bike parking spaces, however, the previous site plan approval required 5 spaces. No bike parking is shown on the current plans, although they were constructed with the original building and can be required as a condition of approval.*
4. The requirements of 50-38(4)a-j are met for the following reason(s): *The engineering department has provided comments to the applicant regarding the onsite utilities that*

can be completed at the time of permitting and the applicant has acknowledged these comments.

5. The requirements of 50-38(5)a-j are met for the following reason(s): *The applicant has proposed a reduction in the green space on site. The stormwater permit required for the site will be obtained through the Clinton County Drain Commissioner. The Engineering Department has noted the more stringent standards for storm events required by the City and this requirement has been acknowledged by the applicant. There is no proposed storage of any hazardous chemicals*

6. The requirements of 50-38(6)a-e are met for the following reason(s) *The applicant has not yet completed paperwork for the public art requirement. An art contribution will likely be required based on the project cost and building permits cannot be issued until the contribution is approved by the Arts Commission. The submission of the art contribution to the Arts Commission can be listed as a condition of approval.*

Additionally, pursuant to Zoning Ordinance Sections 50-36(d), Planning Commission's recommended approval of this zoning application and request are subject to compliance with the following conditions of approval, which Council finds to be reasonable and necessary to ensure that the use and development conform to all applicable requirements and to otherwise comply with the requirements applicable to approval conditions under 50-36(d) and MCL 125.3504(4):

1. All development and construction are undertaken and completed in accordance with the plans provided by the applicant and per testimony, subject to revisions as required.

2. All required permits shall be obtained from the Department of Planning, Building, and Development for all construction and interior renovations, as well as for exterior signs.

3. The project shall be designed and developed in accordance with all applicable state and local statutes, codes, ordinances, and regulations.

4. The applicant shall provide 5 bike parking spaces on site.

5. The applicant shall obtain all permitting required related to wetlands located on site prior to issuance of any building permits.

6. The applicant shall comply with the requirements of Section 50-38(6) and shall have the Public Art Requirement approved by the Arts Commission prior to issuance of any building permits.

7. The applicant shall provide final engineering drawings that are approved by the City Engineer prior to the issuance of any building permits.

Sec. 50-388. - Standards of review for site plan approval.

A site plan application shall meet the development standards of the use district in which it is to be located and all other required conditions for development in this chapter, comply with other applicable local ordinances and state and federal statutes, and be consistent with the objectives of the comprehensive plan as approved and amended by the city. A site plan application shall also substantially comply with the standards of review specified below. A site plan may be approved subject to certain conditions or modifications necessary to bring the plan into conformance with these requirements, including the approval of any variance that may be granted by the zoning board of appeals.

(1) *General site conditions.* The site shall be designed and developed to provide a logical relationship between functional elements, to effectively serve the purposes for which it is to be developed, and to be reasonably compatible with surrounding properties.

a. The size, height, design and architectural treatment of buildings shall be reasonably compatible with surrounding properties, except, if the site is in an area which is expected to redevelop in accordance with the provisions of the comprehensive plan, the size, height, design and architectural treatment of buildings shall be consistent with the objectives in the comprehensive plan.

b. Buildings, including windows, balconies and other openings, shall be located and designed to provide reasonable privacy for residents and employees on the site and those adjacent to the site, but fences such as walls, fencing, landscaping, plantings or additional setbacks may be required to protect residents and employees from adverse impacts from adjacent uses or streets.

c. Yard areas on the site shall be arranged and improved to provide adequate light and ventilation, separation between buildings, roads and other activity areas, trees and other vegetation, passive and active recreational areas, and to improve the appearance of the property, ensure reasonable privacy and enjoyment for residents and employees and promote the public health, safety and welfare.

d. Outdoor activity areas, such as pools, playgrounds, courts, cooking or dining facilities, shall be located and screened sufficiently to minimize impacts on adjacent properties or dwelling units on the site and to provide appropriate security.

(2) *Natural features.* The site shall be designed and developed to minimize the disruption or loss of its desirable natural elements and to enhance its overall appearance by incorporating those elements into required open spaces and setbacks.

a. The design and placement of buildings, other site improvements and open spaces shall respect the natural topography of the site to minimize the extent of site grading, excavation and filling.

bb. Mature trees and significant clusters of trees and shrubs shall be retained where possible to provide shade for buildings and over parking areas and driveways, to maintain privacy between adjacent properties and to enhance the appearance of the site.

cc. Within a regulated wetland, no filling, grading, dredging, excavating, draining or construction shall be permitted unless the required permit is first obtained from the Michigan Department of Environmental Quality and/or the city in accordance with chapter 49 of the City Code. Existing wetland areas not regulated by the state or the city and surface drainageways shall be preserved to the maximum practicable extent to maintain storm water control, water quality, natural habitat and open space.

dd. Buildings and other site improvements shall be set back an appropriate distance from the perimeter of preserved natural features to protect them from encroachment, damage, degradation or pollution, both during and after construction, to preserve the aesthetic and functional values of the resources and to provide access to use and maintain the site improvements. All construction activities within the dripline of existing trees shall be minimized to avoid damage to their root systems. Buildings and other site improvements shall be set back from the edge of a wetland or other surface water feature the following minimum distances:

Setbacks from preserved wetlands and other surface water features:	Minimum distance
Principal buildings	25 feet
Accessory buildings and site features supported by frost footings	15 feet
Decks, stairways and other features supported by post footings	10 feet
Parking areas, driveways and curbing	15 feet
Sidewalks, patios and other flatwork	10 feet
Storm water collection, detention or retention facilities	10 feet

A vegetation strip at least ten feet wide consisting of plant species that are consistent with a wetland habitat shall be provided and maintained around the perimeter of a preserved wetland or surface water feature. Existing trees, shrubs and ground cover may be preserved within this strip or appropriate trees, shrubs and other perennial species native to a Michigan wetland habitat shall be installed to enhance the strip. Once established, this strip shall not be mowed or cleared, except for vegetation that requires cutting to remain healthy, such as new growth, and trees and shrubs may be selectively pruned to maintain views of the wetland or water feature and to protect and maintain access to buildings and other site improvements. Pathways no more than ten feet in width may be cleared and maintained to provide access to the wetland or surface water feature. Observation decks or docks may also be permitted to allow viewing of the water feature or wetland.

These setback and vegetation strip requirements in this subsection may be increased or decreased if it is determined that a proposed activity is in the public interest. In determining whether the proposed activity is 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 activity, taking into consideration the local, state and national concern for the protection and preservation of the environmental feature in question. The following general criteria shall be applied in undertaking this balancing test:

1. The relative extent of the public and private need for the proposed activity.
2. The availability of feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity.
3. The extent and permanence of the beneficial or detrimental effects which the proposed activity may have on the public and private uses to which the area is suited, including the benefits the natural feature and/or natural feature open space provides.
4. The probable impact of the activity in relation to the cumulative effect created by other existing and anticipated activities in or near the natural feature to be protected.
5. The probable impact on recognized historic, cultural, scenic, ecological, or recreational values, and on fish, wildlife and public health.
6. The size and quantity of the natural feature open space being considered.
7. The amount and quantity of the remaining natural feature open space.
8. Proximity of the proposed activity in relation to the natural feature, taking into consideration the degree of slope and the soil type within and adjacent to the natural feature and the setback area, the quantity and speed of surface runoff expected and

the nature of the natural feature to be protected.

99. Economic value, both public and private, of the proposed activity and economic value, both public and private, if the proposed activity were not permitted.

ee. Development within designated floodplain areas shall be accomplished in a way that does not alter or obstruct storm water flow within a designated floodway, maintains the overall storm water storage capacity of the site and does not increase risks to persons and property.

ff. Appropriate ground cover, trees and other vegetation shall be planted and maintained on the site to control storm water run-off and prevent erosion, sitation and dust, to provide privacy between adjacent uses and mitigate impacts from noise and lights, and to enhance the appearance of the site.

gg. Parking and access facilities shall be landscaped in accordance with the requirements of section 50-816(8) of this chapter.

(3) *Traffic access.* The site shall be designed and developed to provide safe and efficient access for all forms of travel and to minimize impacts on adjacent public facilities.

aa. The site shall not overburden adjacent public streets nor cause sight difficulties or hazards to public safety due to excessive traffic generation or inadequate traffic control.

bb. Existing and proposed public streets shall be designed and constructed in accordance with the requirements of chapter 40 of the City Code and applicable local standards and specifications.

cc. Roadway or driveway connections between the site and adjacent public streets shall be spaced sufficiently apart and may be limited in number to minimize congestion and delays in traffic flow along the adjacent public streets and to minimize conflicts with other turning movements on adjacent public streets or private driveways.

dd. Where practicable, principal access to and from the site shall be provided from major streets; access to local streets shall be designed to avoid excessive traffic volumes and speeds through adjacent neighborhoods.

ee. Appropriate curb radii and lane widths shall be provided and acceleration and deceleration lanes may be required at roadway or driveway openings to protect public safety and minimize congestion and delays along adjacent public streets.

ff. Separate turn lanes may be required at roadway or driveway openings to reduce on-site stacking and congestion and such lanes shall be clearly marked.

gg. Secondary access may be required to adjacent public streets or alleys or through adjacent private parking areas to provide sufficient access for emergency vehicles.

hh.

Where two or more adjacent sites may be developed for similar or complementary uses, the city may require the creation of shared or linked access facilities, which may be constructed in phases, to minimize turning movements on public streets and provide access between the adjacent uses.

ii. Roadways and driveways within the site shall be designed to provide safe and efficient access while minimizing speeds and safety risks; the placement of traffic control devices within the site may be required to regulate speeds and minimize safety risks.

jj. Sidewalks shall be installed to provide safe and convenient pedestrian and bicycle access to and within the site, including sidewalks along public street frontages and links between such sidewalks and all principal buildings, between the principal buildings and parking facilities on the site, and between adjacent sites, where practicable.

kk. Sidewalks and other pedestrian access pathways within the site shall be located to minimize conflicts with vehicular traffic and enhance safety; pavement markings and signs may be required at principal points where pedestrians would cross driveways within the site.

ll. Sidewalks and ramps within the site shall be designed to provide safe and convenient barrier-free access.

mm. Parking facilities shall be located and designed to provide safe and convenient access to the building(s) they are intended to serve and, where practicable, to separate maneuvering areas from principal routes of traffic flow through the site.

nn. Parking areas shall be located or sufficiently screened to avoid headlights projecting into windows of residential dwellings.

oo. Parking and access facilities shall be designed and constructed in accordance with the requirements of section 50-816 of this chapter.

pp. Bicycle parking and storage facilities shall be provided in accordance with the requirements of section 50-820 of this chapter.

qq. Parking facilities shall be designed to provide the required electric vehicle charging stations required by section 50-821.

(4) *Utilities and public services.* The site shall be designed and developed to facilitate the efficient provision and maintenance of adequate public services.

aa. Existing and proposed utility services to and within the site shall be of adequate size and design to serve the expected needs of the development.

bb. Appropriate easements shall be provided to the city to afford access to all existing, proposed and known future extensions of public utilities on or adjacent to the site.

cc.

The site shall be designed and developed to afford adequate access for fire suppression and other emergency services, fire hydrants, standpipes and similar water service connections may be required, designated fire lanes may also be required.

dd. Storm water collection and discharge facilities shall be provided and designed to minimize the risk of flooding or soil erosion, on or off the site, storm water detention or retention facilities may be required to regulate the rate of flow of storm water off the site to avoid flooding and to comply with the requirements of article IV, chapter 34, of the City Code.

ee. Storm water collection and discharge facilities and site grading shall be designed to avoid run-off onto adjacent properties and public streets and sidewalks.

ff. Storm water treatment facilities shall be provided as required by the city engineer to comply with the city's MDEQ Program Department of Environmental Quality NPDES Phase II Storm water Permit.

gg. Loading docks, loading spaces and other service areas and exterior mechanical equipment shall be located and screened to minimize noise, vibration, or visual impacts which may affect adjacent properties or residents within the development; walls or other solid screens may be required to attenuate noise impacts.

hh. Adequate containers or compactors shall be provided on the site to collect and store trash or other waste materials and recyclable materials; such containers or compactors shall be effectively screened to obscure them from view, prohibit materials from blowing away and to control access; such containers shall also be located as inconspicuously as possible on the site.

ii. In order to further the goal of the city to minimize the disposal of solid waste and to maximize waste diversion through recycling, every owner of a multiple dwelling approved for construction after January 1, 2007, shall construct, provide, and maintain adequate and safe facilities or containers for the collection, storage, and disposal of recyclable materials placed for collection by the inhabitants, unless such premises is approved by the director of public works for city curbside recycling services as provided in article III of chapter 36 of this Code.

jj. Exterior lighting shall be installed as necessary to provide adequate safety and security, all exterior lighting shall be designed and shielded to direct the light downward and to avoid projecting light onto adjacent properties or creating glare along public streets; pole-mounted lights shall be restricted in height to be in scale with the site and its environment and to avoid projecting light onto adjacent properties.

(5) *Environmental protection.* The site shall be designed and developed to minimize any risk of pollution of natural resources and to protect the public health, safety and welfare.

aa

The project and related improvements shall be designed to protect and enhance water resources from pollution, including pollution of soils, groundwater, rivers, streams, lakes, ponds, open drains and wetlands.

bb. Stormwater retention, detention, transport, and drainage facilities shall be designed to use or enhance the natural stormwater system on-site, including the storage and filtering capacity of wetlands, watercourses, and waterbodies, and/or the infiltration capability of the natural landscape. Stormwater facilities shall not cause flooding or the potential for pollution of surface or groundwater, on-site or off-site. Stormwater facilities shall not damage natural features by depositing pollutants in them, by draining them or by depriving them of sufficient stormwater runoff to maintain their natural condition.

cc. Generally, open drains shall be connected to a public sanitary or combined sewer system or an on-site holding tank (not a septic system) in accordance with state, county and municipal requirements, unless a groundwater discharge permit has been obtained from the Michigan Department of Environmental Quality. Generally, open drains which discharge to the public stormwater system or into the groundwater are generally prohibited.

dd. Sites at which hazardous substances, hazardous wastes, or potentially polluting materials are stored, used, or generated shall be designed to prevent spills and discharges of such materials to the air, surface of the ground, groundwater, lakes, streams, rivers or wetlands.

ee. Secondary containment facilities shall be provided for aboveground storage of hazardous substances, hazardous wastes, or potentially polluting materials in accordance with state and federal requirements. Aboveground secondary containment facilities shall be designed and constructed so that the potentially polluting material cannot escape from the unit by gravity through sewers, drains, or other means, directly or indirectly into a sewer system, or to the waters of the state (including groundwater).

ff. Underground storage tanks shall be registered, installed, operated, maintained, closed or removed in accordance with regulations of the Michigan Department of Environmental Quality.

gg. Aboveground storage tanks shall be certified, installed, operated, maintained, closed or removed in accordance with regulations of the Michigan Department of Environmental Quality.

hh. Bulk storage facilities for pesticides and fertilizer shall be in compliance with the requirements of the Michigan Department of Agriculture.

ii. Abandoned water wells (wells that are no longer in use or are in disrepair), abandoned monitoring wells, and cisterns shall be plugged in accordance with regulations and procedures of the Michigan Department of Environmental Quality.

jj. State and federal requirements for storage, spill prevention, recordkeeping, emergency response, transportation and disposal of hazardous substances, hazardous wastes, liquid industrial wastes or potentially polluting materials shall be met. No discharges to surface water or groundwater, including direct and indirect discharges of wastes, wastewater effluent, wastewater, pollutants, or cooling water, shall be allowed without approval from appropriate state, county and local agencies.

(6) *Public art requirement.* Unless the project is exempt from this requirement pursuant to subparagraph (6)dd of this paragraph, the site shall be designed and developed to contain public art as defined by section 22-331 of the City Code and in accordance with the following:

aa. A budget for the public art required by this section shall be established based on the allocation of one percent of the total project cost up to $25,000,000 to be committed to the procurement and display of public art on the site.

bb. The public art shall be a work of art as defined by section 22-331 of the City Code and shall be approved by the city's arts commission in accordance with the definition of public art and the standards set forth in section 22-315(a)(1) and (7) of the City Code and the city council prior to site plan approval. The approval by the arts commission and city council shall not be unreasonably withheld.

cc. The total allocation as established pursuant to subparagraph (6)a shall be expended on those items listed in section 22-314(a)(1) through (4) of the City Code and shall not include any other expenditures. Maintenance shall be the responsibility of the owner of the property in addition to the allocation established by subparagraph (6)a. Failure to install the public art as required by this subparagraph and in accordance with the approved site plan shall result in denial of a certificate of occupancy. Failure to properly maintain the public art in accordance with the approved site plan is a violation of the zoning code and subject to enforcement pursuant to the provisions of section 50-33. Prior to any enforcement action, a violation notice shall be sent to the responsible party. A failure to cure the violation within 30 days shall constitute a violation and each day thereafter that the violation remains uncured shall constitute a separate offense.

dd. The following projects are exempt from the public art requirements of this section:

1. Projects where the application of this requirement would constitute a governmental taking or otherwise be contrary to law, as determined by the zoning administrator, under the particular facts and circumstances of that case as explained in detail by the applicant. The zoning administrator may request additional information from the applicant if sufficient information is provided with the site plan to make a determination. The applicant has all appeal rights as would otherwise be applicable to any determination by the zoning administrator.

2. Projects where the total project cost is less than $500,000.00.

3. Residential projects containing less than four residential units.

4. Projects where, upon issuance of the building permit, the applicant donates an amount equivalent to the amount established pursuant to subparagraph (6)a of this paragraph to the public art fund established pursuant to section 2-332 of the City Code or donates a "work of art" approved by the art commission of equal value to the fund established pursuant to subparagraph (6)a of this paragraph.

e. A developer may choose to partially exempt a project from the public art requirement of this section to the extent the developer chooses to donate funds or works of art less than the amount established pursuant to subparagraph (6)a of this paragraph in which case the budget required for public art shall be reduced by a corresponding amount.

(Ord. No. 1066, 12-7-2006; Ord. No. 1163, 2-20-2007; Ord. No. 1333, 3-4-2014; Ord. No. 1339, 10-7-2014; Ord. No. 1445, 3-26-2019)

PUBLIC WORKS AND ENVIRONMENTAL SERVICES

Quality Services for a Quality Community

MEMORANDUM

TO: **Landon Bartley, AICP Principal Planner**
Grace Whitney, AICP Associate Planner
Alycia Reiten, Senior Planner

FROM: **Stephen Clayton, Engineering Administrator**

DATE: **May 12, 2026**

SUBJECT: **Brightwell Behavioral Health**

City of East Lansing
PUBLIC WORKS AND ENVIRONMENTAL SERVICES
1800 E. State Road
East Lansing, MI 48823

Mailing Address:
410 Abbot Road
East Lansing, MI 48823

(517) 337-9459
www.cityofeastlansing.com

We have reviewed the civil site drawings (Sheets C-2.1 through C-5.2) for the Brightwell Behavioral Health facility at 3512 Coolidge Road. The drawings were prepared by Gateway Engineering & Surveying, Inc. and dated 3-18-2026. We did not review the landscaping and architectural drawings.

Sheet C-2.1:

Provide the width of the two new driveways on the south side of the property. Site access and turning movements must be reviewed and approved by the East Lansing Fire Department.

Sheet C-4.1:

A new 8" watermain is shown along the north side of the existing building and then serves the new 2" domestic water line and a 4" fire service. The new 8" water main must be in a public easement or else the 2" domestic water service and 4" fire service must be extended back to the existing 8" water main on the west side of the existing building.

The new 8" sanitary sewer on the north side of the existing building will be a private sewer lead and will not need to be in a public easement.

The new 8" water main being extended to the east side of the building shall be looped to the east to the existing 8" water main in Hamilton Court.

A sanitary basis of design must be provided.

Sheet C-5.1:

The SESC plans will be reviewed separately and provided to you.

Stormwater Management:

The stormwater discharge from the proposed site will discharge to the Moore Branch of the Remy Chandler Drain. The permitting for the stormwater discharge

and on-site post construction requirements will be administered through the Clinton County Drain Commissioner's office. However, please note that the city requires a 2 year-24hour storm event of 2.42 inches and a 100 yeaar-24 hour storm event of 5.20 inches.

Other Comments:

Provide a copy of the Clinton County Drain Commissioner's stormwater permit when issued.

All ROW; Water & Sewer; and SESC Permits must be obtained from the City of East Lansing.

Provide information per Division 4 of City Code, Section 50-104 regarding whether a traffic impact study, assessment or statement is necessary based on peak hour and daily trip data.

East Lansing Engineering Department shall receive a revised site plan to further review based on comments provided in this document prior to project approval.

Upon project final approval, the East Lansing Engineering Department shall receive a project bid set that includes all related specifications, plans and addendums.

CITY OF EAST LANSING
LAND USE DEVELOPMENT APPLICATION

PROPERTY ADDRESS: 3512 Coolidge Rd. **PARCEL ID(S):** 19-20-50-36-300-047

PROPERTY OWNER: Brightwell Group LLC
(Or legal representative)
Mailing Address: 2200 N Cantoncenter Rd. Ste#110 Canton MI 48187

Contact Person: Kesava Kunapareddy **E-mail Address:** _____

Office/Cell/Fax: _____ _____ _____

APPLICANT: _____
(If not property owner)
Mailing Address: _____

Contact Person: _____ **E-mail Address:** _____

Office/Cell/Fax: _____ _____ _____

LEGAL STANDING: _____
(If non-owner applicant)

DESIGN CONSULTANT: GATEWAY ENGINEERING

Mailing Address: 8155 Annsbury Drive, Suite #109 Shelby Township, MI 48316

Contact Person: Odette Giorgees **E-mail Address:** _____

Office/Cell/Fax: _____ _____ _____

Note: **The property owner, applicant and design consultant; as identified above will be mailed copies of meeting agendas, staff reports and other official communications related to this application. If co-applicants or additional consultants are involved and should also receive these materials, please list their name and mailing address on the back of this form.**

PROPOSED ACTION(S): Building a 37,748 sf addition to existing brightwell behavioral facility which
(Describe proposed development) includes 28 patient units, supporting staff spaces/offices, and patient activity areas

I (we) hereby grant permission for members of the East Lansing City Council, its Planning Commission, its staff and its consultants the right to enter onto the property described in this application in my (our) absence for the purpose of gathering information, including but not limited to the taking and use of photographs.

Please check one: ☒ **Yes** ☐ **No**

By the signature(s) below, I (we) certify that the information provided in this application, including the accompanying plans and other documentation is, to the best or my (our) knowledge, true and accurate.

_____ 4/22/2026 _____ _____
Owner (mandatory) **Date** **Applicant** **Date**

SUBMIT TO:
Department of Planning, Building & Development
City of East Lansing, Room 217, 410 Abbot Road, East Lansing, MI 48823
Phone: (517) 319-6930 Fax: (517) 337-1607 E-mail: dschmitt@cityofeastlansing.com

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CO-APPLICANTS OR ADDITIONAL CONSULTANTS:

Name: _____ **Role:** _____

Mailing Address: _____

Contact Person: _____ **E-mail Address:** _____

Office/Cell/Fax: _____ _____ _____

Name: _____ **Role:** _____

Mailing Address: _____

Contact Person: _____ **E-mail Address:** _____

Office/Cell/Fax: _____ _____ _____

For Office Use:

APPROVAL NEEDED: ☐ **Site Plan** ☐ **Special Use Permit** ☐ **Other:** _____

Wetlands*: Y N **Flood Plain: Y N** **Historic District: Y N** **DDA: Y N**

Note: If the application involves property which falls within any of the above designated special areas, review by one or more other City boards or commissions will likely be required and may affect the overall review schedule.

MATERIALS SUBMITTED:

_____ 5 Full-Sized Sets Drawings (24" x 36")	_____ 1 Reduced Set Drawings (11" x 17" or smaller)	_____ Descriptive Text (8 ½" x 14" or smaller)
_____ Topographic Survey	_____ Parking Plan	_____ Wetland Verification*
_____ Proposed Site Plan	_____ Building Floor Plan(s)	_____ Draft Mitigation Plan
_____ Landscape Plan	_____ Building Elevations	_____ Environmental Checklist
_____ Preliminary Utility Plan	_____ Land Use Summary	
_____ Public Art Req. Supplement		

Other: _____

*Wetland Assessments and Boundaries must be verified by the City Engineer

Fee Total: $_____ **Check No:** _____ **Date:** _____ **Received By:** _____

PRELIMINARY REVIEW SCHEDULE

The schedule below reflects the standard review process outlined in the Zoning Code and in the Planning Commission's By-laws. It may be necessary for the Planning Commission and/or the City Council to defer action on the application to one or more subsequent meetings to gather further information or to accommodate additional review and debate. Where wetlands are present, the Planning Commission cannot take final action until the Commission on the Environment has first reviewed it. The owner, applicant and their design assistants will be advised in advance of any change(s) in the meeting schedule on the application.

Wednesday:	**Tuesday:**
Planning Commission Hearing: _____	**City Council Receipt:** _____
Planning Commission Action: _____	**City Council Action:** _____

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Land Use Summary Information

(Required to be submitted as part of application)

Application: _____

Existing Site Conditions	**Acreage**	**Square Footage**
Total Site Area	5.194	226,253
Net Site Area	4.68	203,860.8
Wetland Area	0.0	0.0

Proposed Site Conditions	**Square Footage**	**Percent of Site**
Building Coverage (all structures)	52,967.50	23.41%
Roads, driveways and parking spaces	96,290	42.55%
Sidewalks, patios, other impervious surfaces		
Total Ground Coverage	149,257.50	65.97%
Wetland area to be preserved	---	
Wetland area to be filled or drained	---	
Proposed wetland mitigation area	---	

Proposed Development Parameters

Nonresidential Uses	**Gross Floor Area**	**Net Floor Area**
Total Floor Area	37,748 sf	~30,000 sf
Basement		
First Floor	37,748 sf	~30,000 sf
Second Floor		
Other Floors		
Other Elements		

Residential Uses	**Total Number**	**Average Floor Area**
Efficiency Units		
One-Bedroom Units		
Two-Bedroom Units		
Three-Bedroom Units		
Other Units		

Total Number Parking Spaces Provided

Total Spaces 131 Small Car Spaces _____ Barrier-Free Spaces 10

Prepared by: GATEWAY ENGINEERING **Date:** 04/22/2026

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CITY OF EAST LANSING
ENVIRONMENTAL PERMITS CHECKLIST
(To be submitted as part of application as applicable)

PROPERTY ADDRESS: 3512 Coolidge Rd. **PARCEL ID(S):** 19-20-50-36-300-047

PROPERTY OWNER: Brightwell Group LLC
(Or its legal representative)
Mailing Address: 2200 N Canton center rd suite#110 Canton MI 48187

Contact Person: Kesava Kunapareddy **E-mail Address:** _____

Office/Cell/Fax Nos.: _____ _____ _____

APPLICANT: _____
(If not property owner)
Mailing Address: _____

Contact Person: _____ **E-mail Address:** _____

Office/Cell/Fax Nos.: _____ _____ _____

Signature: _____ **Date:** _____

***Instructions**: Circle (Y/N) the items that may pertain to your project or facility; then contact the office(s) listed to determine specific requirements. Return a copy of this checklist to the Department of Planning & Community Development as part of your project or development submittal – even if the approvals have not yet been obtained. This list includes the most common permits and approvals related to waster, water quality, and air quality. Other permits and approvals, including City approvals may also be necessary.*

---

1. **Y** (N) Will the project involve the discharge of any type of wastewater to a storm sewer, drain, lake, wetland, or other surface water? **Contact**: MDEQ/Water Bureau @ (517) 335-4176.
2. **Y** (N) Will the project involve the direct or indirect discharge of waste, waste effluent, wastewater, pollutants, and/or cooling water into the groundwater or on the ground? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
3. **Y** (N) Will the project involve construction or alteration of any sewage collection or treatment facility? **Contact**: MDEQ/Water Bureau @ (517) 335-4176. For *facilities discharging to surface waters*, **Contact**: MDEQ/Water Division @ (517) 335-4176. For *facilities discharging to groundwater*, Contact: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
4. **Y** (N) Will the project or facility store or use chemicals, petroleum products, or salt? Depending on the type of substance, secondary containment and a Pollution Incident Prevention Plan (PIPP) may be required. **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690 and Ingham County Health Department/ Environmental Health Division @ (517) 887-4312.
5. **Y** (N) Will the project involve the installation, operation, or removal of an underground or above ground storage tank containing a petroleum product or hazardous substance? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
6. **Y** (N) Will the project involve liquefied petroleum gas storage tanks or container filling stations? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
7. **Y** (N) Does the project involve the installation of a compressed natural gas dispensing station with storage? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
8. **Y** (N) Will the project involve the generation of hazardous waste? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.
9. **Y** (N) Will the project involve the on-site treatment, storage, or disposal of hazardous waste? **Contact**: MDEQ/Waster & Hazardous Materials Division @ (517) 335-2690.

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10. Y (N) Will the project involve the transport of hazardous waste or non-hazardous liquid industrial waste? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

11. Y (N) Will the project involve landfilling, transferring or processing solid non-hazardous wastes on site? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

12. Y (N) Will the project involve the installation, construction, reconstruction, relocation, or alteration of any process or process equipment (including air pollution control equipment) which has the potential to emit air contaminants? **Contact**: MDEQ/Air Quality Division @ (517) 373-7023.

13. Y (N) Will the project or facility involve the storage, mixing, or distribution of pesticides or fertilizers in bulk quantities? **Contact**: Michigan Department of Agriculture/Region 6 Pesticide & Plant Pest Management Division @ (517) 335-1830.

14. (Y) N Will the project involve a manmade change in the natural cover (land clearing) and/or topography of land, such as cut/fill activities that may contribute to soil erosion/sedimentation? **Contact**: Ingham County Drain Commissioner @ (517) 676-8395; City of East Lansing Engineering Department @ (517) 337-9459; and MDEQ/Land & Water Management Division @ (517) 373-1170.

15. Y (N) Will the project involve dredging, filling, or construction in, across, or under a river, stream, creek, ditch, drain, lake, pond, swamp, wetland(s), or floodplain? **Contact**: MDEQ/Land & Water Management Division @ (517) 373-1170; City of East Lansing Engineering Department @ (517) 337-9459; and Federal Emergency Management Agency @ (800) FEMA-MAP.

16. Y (N) Will the project involve any dredging proposed within 500 feet of a lake, river, stream, creek, or ditch? **Contact**: MDEQ/Land & Water Management Division @ (517) 373-1170.

17. Y (N) Will an on-site wastewater treatment system or septic system be installed?

For *subsurface sanitary sewage disposal in quantities equal to or greater than 10,000 gallons per day*. **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

For *subsurface disposal of sanitary sewage in quantities of 6,000 to 10,000 gallons per day*: In addition to obtaining a construction permit from the Ingham County Health Department, submit a state wastewater discharge notification form. Flow monitoring and reporting are required. **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

For *industrial or commercial wastewater (other than sanitary sewage) in any quantity*. **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

18. (Y) N Will the project involve construction of a water supply well or extension of a water supply service from an existing water system? **Contact**: MDEQ/Water Bureau @ (517) 335-4176.

19. Y (N) Are there out-of-service wells, abandoned wells, or cisterns on the site? (drinking water, irrigation & monitoring wells). **Contact**: MDEQ/Water Bureau @ (517) 335-4176; Ingham County Health Department/Environmental Health Division @ (517) 887-4312; and City of East Lansing Engineering Department @ (517) 337-9459.

20. Y (N) Will the project involve a subdivision or site condominium project utilizing individual on-site subsurface disposal systems or individual wells? **Contact**: Ingham County Health Department/Environmental Health Division @ (517) 887-4312.

21. Y (N) Will the project involve the on-site storage of sanitary sewage prior to transport and disposal off-site (pump and haul)? **Contact**: MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

22. Y (N) Has the site/facility ever been subject to a remedial action, limited closure, or other environmental cleanup response under Part 201, Natural Resources and Environmental Protection Act (NREPA)? Is the property currently subject to a response action? Has a Baseline Environmental Assessment (BEA) been completed for the property? **Contact**: MDEQ/Remediation & Redevelopment Division @ (517) 373-9837 and/or MDEQ/Waste & Hazardous Materials Division @ (517) 335-2690.

23. Y (N) Will the project involve the installation of a seawall or bulkhead? **Contact**: MDEQ/Land & Water Management Division @ (517) 373-1170 and City of East Lansing Engineering Department @ (517) 337-9459.

Notes:

a. For assistance with permits and approvals from the Michigan Department of Environmental Quality (MDEQ), including coordination among MDEQ divisions, contact the Permit Coordination Unit at (517) 373-1323.
b. For assistance on environmental issues at the MDEQ, contact the Environmental Assistance Center at (800) 662-9278
c. For Spill/Release Reporting to the MDEQ, call (517) 373-8481.
d. For pollution emergencies, call the MDEQ at (800) 292-4706 in Michigan and (517) 373-7660 outside of Michigan.

East Lansing Zoning Code, Section 50-37
Application Materials for Site Plan Approval

(To be submitted as part of application as applicable)

Each application shall include sufficient information and detail to determine if the proposed development meets applicable standards of review under the Zoning Code and other applicable standards. The information shall be prepared by persons with applicable competencies so that the city may rely on its accuracy and feasibility. Applications shall be submitted to the Department of Planning and Community Development.

Plan submission requires **five (5) full sets** of plans, no larger than 24" x 36" in size, and **one (1) full set** of plans reduced to 11" x 17" or smaller. Plan documents must be accurate and legible, drawn to a designated scale and dimensioned as appropriate to enable staff to determine compliance with relevant Code standards. Plans depicting the overall site should be prepared at the largest scale possible, a scale of one inch equal to no more than 100 feet. Floor plans and building elevations shall be drawn at no less than one-eighth inch equal to one foot.

Each submission also must include a completed application form, the required written information, a signed copy of this checklist, a signed copy of the environmental permits checklist, and the required application fee, made payable to the City of East Lansing. Any variations from these submission requirements must be approved by the Zoning Administrator. The application shall typically include the following drawings and information, as may be relevant to the nature of the application and the city's review requirements:

☑ (1) **A site plan**, as defined in section 50-9 of the Zoning Code, showing:

the proposed size and location of buildings, parking and access facilities, free-standing signs and other improvements to be constructed or installed on the site, and the proposed use and treatment of other areas on the site. The site plan shall be clearly dimensioned to show the setbacks of buildings and parking areas, the separation between buildings and parking areas, the height of buildings, the width of roadways and driveways, the size of parking spaces, and other elements of the site plan as necessary to ensure the site plan complies with the applicable dimensional standards of the Code.

☑ (2) **An existing topographic survey and boundary description** of the site, drawn at the same scale as the site plan, showing the following existing conditions:

☑ a. Exact dimensions and size of the site and any easements, rights-of-way or other physical encumbrances on the site;

☑ b. Location, size, and composition of all existing buildings, paved areas and other improvements;

☑ c. Existing ground contours at two-foot intervals or less, indicating the direction of surface drainage flow, and the type of surface soils present;

☑ d. Location and species of all existing individual trees which have a diameter (d.b.h.) of four inches or more, or where significant clusters of trees and shrubs are present, the location and general composition of such clusters, and an indication of which individual trees or tree clusters will be removed or retained;

☑ e. Location and boundaries of water bodies, including, but not limited to rivers, streams, lakes, ponds, marshes, city or county drains and manmade surface drainage ways;

☐ f. Where wetland of any size may be present, as indicated on the city's wetland inventory map, a report prepared by a qualified wetland consultant which verifies the presence of any wetland, establishes the boundary of any wetland, describes the character and quality of any wetland, and indicates if any wetland may be regulated by the state or protected by Chapter 49 of the City Code (this requirement may be waived by the city engineer where it is clearly evident that the proposed site changes would not disturb any wetland on the property);

☐ g. The boundary and elevation of areas of special flood hazard and floodways, as defined in chapter 18 of the City Code;

☑ h. Location and size of all existing utility lines, manholes, catch basins, and fire hydrants on or near the site which may be used to serve the site;

☐ i. Delineation of areas on the site which are known or suspected to be environmentally contaminated, together with a report on the status of cleanup or closure.

☑ (3) **A proposed landscape plan** which, at a minimum, conforms to the requirements of section 50-840 of the Zoning Code, drawn at the same scale as the site plan or larger, showing: the location and size of areas to be landscaped; the type, size and placement of plant materials to be installed; the type, size and location of existing trees and significant clusters of trees or shrubs to be preserved; the location and height of proposed earth berms; and the size and design of fences or other screens to be erected. For clarity, detailed plans drawn at a larger scale than the site plan may be submitted to show the typical design and treatment of similar landscaped areas and fencing. Must be sealed by a Landscape Architect.

☑ (4) **Proposed preliminary engineering plans**, drawn at the same scale as the site plan or larger, showing the following proposed conditions:

☑ a. Ground contours at two-foot intervals or less, indicating the direction of surface drainage flow;

☑ b. Ground and floor elevations of buildings and other site improvements drawn to two decimal places;

☑ c. Location, dimensions and composition of roadways, driveways, curb cuts, parking and access facilities, curbing and sidewalks;

☑ d. Location and size of public utility connections, fixtures and easements;

☐ e. Stormwater management plan including the design of sewers, outlets, and retention or detention ponds, with sufficient data regarding site runoff estimates and off-site drainage patterns to permit review of the feasibility and permanence of drainage detention and/or retention as well as the impact on local surface and groundwater;

☐ f. Location and delineation of any wetland that would be disturbed and the location, existing character and proposed treatment of any proposed mitigation sites;

☑ g. Location and screening of exterior trash storage facilities;

☑ h. Type, height and placement of exterior light fixtures, including fixtures mounted on poles and on buildings;

☑ i. Location and status of any floor drains in existing or proposed structures on the site, indicating the point of discharge for all drains and pipes;

☐ j. Location of any on-site wastewater collection, treatment and disposal system;

☐ k. Location of existing and proposed public and private drinking water wells, monitoring wells, irrigation wells, test wells or wells used for industrial processes;

☐ l. Inventory of hazardous substances to be stored, used or generated on-site, in a format acceptable to the local fire marshal (including CAS numbers);

☑ m. Descriptions of type of operations proposed for the property with drawings showing size, location, and description of any proposed interior or exterior areas for storing, using, loading or unloading hazardous substances, hazardous wastes, and/or polluting materials;

☑ n. Description and location for any existing or proposed above ground and below ground storage facilities;

☑ o. **Completed environmental permits checklist** on the form provided by the planning and zoning official.

☒ (5) **A traffic impact study** if so required under the provisions of division 4 of article II.

☑ (6) **Proposed preliminary building plans**, drawn at an accurate scale, including:

☑ a. Interior floor plans showing the arrangement and use of rooms for each floor, maximum occupancy and seating plans where applicable;

☑ b. Building elevations showing the size, height, architectural style, and exterior materials to be used, and areas intended to be used for wall mounted signage.

☑ (7) **A descriptive text** which addresses the following items:

☐ a. The design principles followed in preparing the plans and how the plans address the objectives and criteria specified in section 50-38;

☐ b. The type of occupants anticipated and the market the project is intended to serve; for nonresidential uses, the intended hours of operation and the expected number of employees; for residential uses, the expected occupancy, the period of leases, and the approximate range of sale prices or rental rates of the proposed dwelling units;

☐ c. The land use statistics reflected in the proposed plans as measured against the required conditions in the applicable zoning district;

☐ d. A rationale for any variances from the requirements of this chapter which may be requested as part of the application;

☐ e. The proposed construction schedule and staging of the development.

☐ (8) **Public art requirement**, which addresses the following items:

☐ a. This application is to be completed by the Land Use Development Applicant for the above mentioned project. Please complete this application as thoroughly as possible. The information requested is necessary to properly perform a public art review and ensure compliance with section 50-36-8(6) of the City Code. Questions regarding the supplement can be directed to the Planning and Zoning Department, 517-319-6941.

☐ (9) **Downtown Development Design Guidelines**, if the proposed project is located within the Downtown Development Authority it must meet the requirements of the "East Lansing Development Guidelines".

☑ (10) **Lighting,** at a minimum, a photometric plan, including light fixture details and pole height, shall be provided to demonstrate that section 50-155 is met.

K. Kane Kunkel

Applicant's Signature

4/22/2026

Date

Rev. 10/19

City of East Lansing
Public Art Requirement Supplement

Date: _____ Project Name: _____

Property Address: _____

Total Project Cost: _____ x 1% = Value of Art _____
(Max $25,000)

Applicant Name: _____ Signature: _____

This application is to be completed by the Land Use Development Applicant for the above mentioned project. Please complete this application as thoroughly as possible. The information requested is necessary to properly perform a public art review and ensure compliance with section 50-38(6) of the City Code. Questions regarding this supplement can be directed to the department of Parks, Recreation and Arts, 517- 319-6940.

Project is exempt from Public Art Requirement (check appropriate box if applicable):

- ☐ The application of this requirement would constitute a governmental taking or otherwise be contrary to law. Please contact the Zoning Administrator for further instructions.
- ☐ A detailed narrative of the basis for an exemption from requirement pursuant to section 50-38(6)d.
- ☐ The project cost is less than $500,000.
- ☐ The project is a residential project containing fewer than four (4) residential units.
- ☐ The applicant intends to donate an amount equivalent to the value of art shown above to the public art fund. **(Donation is due upon submission of the building permit)**
- ☐ The project is a renovation of an existing building and has a total project cost less than $2.5 million.

For office use only:

☐ Approved by Zoning Administrator: _____ Date: _____

☐ Donation received. Date: _____ Check#: _____ Accepted by: _____

Public Art information (select one option below):

☐ Applicant intends to donate a piece of public art to the City of East Lansing, OR

☐ Applicant intends to install a piece of public art on its property

Location: ☐ Interior - Attach floor plan showing location of art
☐ Exterior - Attach site plan showing location of art

Art Format:

☐ Sculpture ☐ Painting ☐ Mosaic ☐ Mixed Media ☐ Performing Art ☐ Digital ☐ Architecture

☐ Other: _____

Artist information:

Name: _____ Phone: _____

Address: _____

Email: _____ Website: _____

Required attachments:

☐ Floor or Site Plan ☐ Full color rendering of art piece, to scale ☐ Documentation to demonstrate the value of the art piece

For office use only:

Received by: _____ Date: _____

Art Commission Action: ☐ Approved ☐ Denied

Rev. 10/19

Land Development Application Fees

Adopted by City Council Resolution May 22, 2018

Fees shall be assessed and paid upon the filing of appropriate land development applications according to the following fee schedule:

Application	Fee
Rezoning	$1,100 + $100/acre
Site Plan or Special Use Permit	
Residential	$1,100 + $25/dwelling unit
Nonresidential	$1,100 + $25/1,000 sq. ft. GFA, + $250/drive thru service lane and/or gasoline pump island
Modification	$1,100 + increment per new construction
Administrative Only	$250
Parking Plan (B-3)	$1,100 + $25/1,000 sq. ft. GFA
Administrative Only	$250
Combined Applications (i.e., Rezoning + SUP/Site Plan)	Larger fee + ½ second fee
Zoning Variance	$300
Subdivision	
Tentative Preliminary	$1,100 + $25/lot
Final Preliminary	$250
Final Plat	$25/lot
Lot Split	$500
Administrative Only	$200
Certificate of Appropriateness (requiring public hearing by Historic District Commission)	Fee rescinded December 6, 2006*
Zoning Compliance Letters	$200 per letter

GFA = Gross Floor Area of Building

*Per City of East Lansing Resolution 2006-1 adopted February 7, 2006.

CITY OF EAST LANSING

PERMIT APPLICATION
for Part 91
GRADING & SOIL EROSION & SEDIMENTATION CONTROL
Rev. 10/25

1. APPLICANT (Please check if applicant is the landowner or designated agent*)

Name ☒ Landowner ☐ Designated Agent (See bottom of page for agent requirements)			Brightwell Group LLC
Address 2200 N. Cantoncenter Rd STE#110		City CANTON	
State MI	Zip Code 48187	Phone Number & Fax Number	Email - Required

2. LOCATION

City East Lansing		County Clinton	
Subdivision	Lot No.	Street Address 3512 Coolidge Rd.	

3. PROPOSED EARTH CHANGE

Project Type: ☐ Residential ☐ Multi-family ☒ Commercial ☐ Other ☐ Industrial ☐ Site Grading ☐ Office

Describe Project: (i.e., clear, excavate, grade existing site to construct parking lot, office building, etc.) Proposed new building addition to existing building & parking lot.		Size of Earth Change (acres or square feet) 3.396 acres
Name of **and** Distance to Nearest Lake, Stream, or Drain Remy Chandler Intercounty, Moor Branch= 318 feet	Date Project to Start June 2026	Date Project to be Completed June 2027

4. SOIL EROSION AND SEDIMENTATION CONTROL PLAN (Refer to Part 91, Rule 323.1703)

Two sets of SESC plans must be attached for initial review. 2 Full & 2 Half sets must be attached for final review & approval.	Plan Preparer's Company Name GES Gateway Engineering & Surveying		Contact Person Name Mitesh Gandhi	
	Address 8155 Annsbury Dr., Suite 109		City Shelby Twp.	
	State Michigan	Zip Code 48316	Phone Number	Email - Required

5. PARTIES RESPONSIBLE FOR EARTH CHANGE

Name of Landowner (if not provided in Box No. 1 above)		Address	
City	State	Zip	Phone Number & Fax Number
Name of Individual "On Site" Responsible for Earth Change		Company Name & Email Required	

Address	City	State	Zip Code	Phone Number & Fax Number

6. PERFORMANCE DEPOSIT AND PERMIT FEE (To be determined by the City at the time of project approval)

Performance Deposit shall be based on the type of project and area of earth disturbance. See the most recent adopted fee schedule.
Permit Fee shall be based on the type of project and area of earth disturbance. See the most recent adopted fee schedule.

I (we) affirm that the above information is accurate and that I (we) will conduct the above described earth change in accordance with Part 91, Soil Erosion and Sedimentation Control, of the Natural Resource and Environmental Protection Act, 1994 PA 451, as amended, Chapter 34 of the East Lansing City Code, as amended, and the documents accompanying this application.

Landowner's Signature K. Kesava Kunapareddy	Print Name *Kesava Kunapareddy*	Date 4/22/2026
Designated Agent's Signature*	Print Name	Date

* Designated agent must submit a written statement from landowner authorizing him/her to secure a permit in the landowner's name prior to permit approval.

CITY OF EAST LANSING

GRADING, AND SOIL EROSION AND SEDIMENTATION CONTROL PLAN REQUIREMENTS

The Grading, and Soil Erosion and Sedimentation Control Permit Application must be accompanied by a plan, sealed by an Engineer, Landscape Architect or Land Surveyor registered in the State of Michigan, drawn at a scale of least 1" to 100' with the following requirements:

1. A site location map indicating the site location with respect to major roads and lakes/streams.
2. A legal description of the site.
3. Elevations, dimensions and location of predominant land features, structures, buildings, paved areas and trees greater than 6" diameter on the site and on adjacent properties within 50' of the site.
4. Existing and proposed contour intervals not greater than 2 feet.
5. A soils survey or a written description of the soil types of the exposed land area and an estimation of the quantities of excavation and fill.
6. The physical limits of all earth change limits outlined and labeled.
7. The location and/or description of all existing and proposed on-site drainage and dewatering facilities shall be clearly shown.
8. Statement indicating name, distance and direction to stream, lake, or drainage channel or statement that site is not within 500 feet of such features. Show feature on the site location map.
9. Indicate whether any wetlands are in the area. If so, all work must have City and MDEQ approvals.
10. The location of and statement that any construction access road shall be a minimum of 50' in length and shall be protected with crushed stone or concrete, aggregate size 1" to 2". Reference City detail.
11. A description of how any temporary stockpiles of earthen material will be protected from soil erosion and their location.
12. A detailed project timing schedule indicating construction sequencing along with the installation of all SESC measures, including the approximate time permanent measures are to be in place. Include a permanent SESC maintenance schedule indicating who is responsible for the maintenance of SESC measures. (i.e. Contractor is responsible for temporary SESC measures and the property owner is responsible for permanent SESC measures.)
13. A note indicating that all disturbed areas shall receive permanent SESC measures within 5 days of final grading.
14. All temporary and permanent SESC measures shall be shown using the Michigan Department of Management and Budget (DMB).
15. Certification by the design professional who stamps the plans that storm water from the subject site will not adversely impact properties during construction and that the finished topography of the site will not have any adverse effect on adjoining lands.
16. If the site work involves grading the more than 5 acres a Notice of Compliance (NOC) form must be submitted to MDEQ by the Property Owner after receiving the City Grading and Soil Erosion & Sedimentation Control Permit. If the site work involves grading equal to or greater than 1 acre but less than 5 acres a NOC form does not need to be submitted; however the EGLE permit by rule requirements must be followed.

Note: The City of East Lansing maintains stricter requirements than the State. A permit is required for any earth change exceeding 6,000 sq. ft. (or structures over 1,000 sq. ft.). Within 500 ft. of a lake, stream, or drainage course, a permit is required for any change exceeding 225 sq. ft.. Minor exceptions (e.g., specific driveway maintenance or agricultural use) may apply; see City Code Chapter 34 for full details.

Soil Erosion and Sedimentation control permits are issued under authority of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended and Chapter 34, Grading and Soil Erosion Control, of the East Lansing City Code, as amended.



BRIGHTWELL BEHAVIORAL HEALTH : 3512 COOLIDGE RD., EAST LANSING , MI 48823

PROJECT DATA:

LEGAL DESCRIPTION:
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.

PART OF THE SW 1/4 OF SECTION 36, TOWN 5 NORTH, RANGE 2 WEST, CITY OF EAST LANSING, INGHAM COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SW CORNER OF SECTION 36; THENCE N00°21'50"W 712.59 FEET, ALONG THE WEST LINE OF SAID SECTION 36, TO THE POINT OF BEGINNING; THENCE CONTINUING N00°21'50"W 341.00 FEET; THENCE N89°38'10"E 663.70 FEET; THENCE S00°17'50"W 341.00 FEET; THENCE S89°38'10"W 663.30 FEET, TO THE POINT OF BEGINNING.
CONTAINING: 226,253 SQUARE FEET—5.194 ACRES, MORE OR LESS.
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.
SUBJECT TO THE RIGHTS OF A PUBLIC AND ANY EASEMENTS AND/OR RESTRICTIONS OF RECORD OR OTHERWISE.

NOTE: SINCE SURVEY DOES NOT INCLUDE A TITLE SEARCH THERE COULD BE EASEMENTS AND/OR ENCUMBRANCES UPON THE SUBJECT PROPERTY THAT ARE NOT SHOWN AT THIS TIME.

PROJECT DATA:

LOCAL AGENCY: CITY OF EAST LANSING
PLANING & ZONING
410 ABBOT RD.
EAST LANSING, MI 48823

EXISTING ZONING: B-1 - BUSINESS
EXISTING LAND USE: PATIENT CARE FACILITY
PROPOSED LAND USE: PR. NEW BUILDING FOR PATIENT CARE FACILITY

GROSS AREA OF SITE : 226,253 S.F. (5.194 ACRES)

EX. GROSS BUILDING FOOT AREA : 15,275 S.F.
EX. SITE COVERAGE (BUILDING): ± 6.75%
PR. GROSS BUILDING FOOT AREA: 37,692.50 S.F.
PR. SITE COVERAGE (EX.BUILDING + PR. BUILDING): ± 23.41% (52,967.50 S.F.)

EX. GROSS AREA OF PAVEMENT (ROAD & SIDEWALK) = ± 47,530 S.F.
PR. REMOVED PAVEMENT: ± 9,747 S.F.
PR. ADDED PAVEMENT: ± 58,507 S.F.
PR. SITE COVERAGE (ROAD & SIDEWALK) = ± 96,290 S.F.

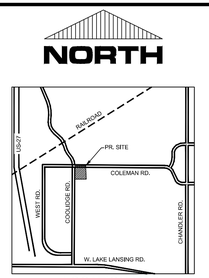
PR. SITE COVERAGE BY IMPERVIOUS SURFACE (BUILD., PAVT., ETC.): ± 65.97% (149,257.50 S.F.)

GENERAL NOTES

1. ALL WORK TO COMPLY W/ ALL NATIONAL, STATE & LOCAL CODES, ORDINANCES, LAWS & REGULATIONS THAT ARE APPLICABLE.
2. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS & CALL FOR REQUIRED INSPECTIONS.
3. THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATIONS, ELEVATIONS, & DETAILS OF EXISTING CONDITIONS THAT EFFECT THE WORK AND SHALL INFORM THE ARCHITECT / ENGINEER OF ANY DISCREPANCIES IN DIMENSIONS, SIZES, LOCATIONS & CONDITIONS BEFORE PROCEEDING WITH THE WORK.
4. THE CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, UNDERPINNING AND ALL OTHER MEANS REQUIRED TO PROTECT AND MAINTAIN THE SAFETY, INTEGRITY AND STABILITY OF ALL NEW CONSTRUCTION.
5. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS OF THE BUILDING INCLUDING UTILITIES, SERVICES, ETC., AND SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGES HE CAUSES TO BOTH EXISTING AND NEW CONSTRUCTION AND PROPERTY AND FOR ANY UNAUTHORIZED DISRUPTION TO THE OWNER'S NORMAL USE OF UTILITIES, SERVICES AND THE SURROUNDING FACILITIES.
6. FIELD VERIFY ALL EXISTING DIMENSIONS, HEIGHTS, AND CONDITIONS PRIOR TO DESIGN, INSTALLATION, OR MANUFACTURING OF ANY SYSTEM.
7. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
8. ALL WORK SHALL BE SUBJECT TO FIELD INSPECTIONS.
9. IMPROVEMENTS ARE LIMITED TO THOSE INDICATED ON THE APPROVED PLANS.
10. ALL INTERIOR FINISHES SHALL COMPLY WITH CHAPTER 8.
11. FLOOR SURFACES IN THE MEANS OF EGRESS ARE REQUIRED TO BE SLIP RESISTANT IN ACCORDANCE WITH SECTION 1003.4.
12. THE IMPROVEMENTS ARE LIMITED TO THOSE INDICATED ON THE APPROVED PLANS. ANY REVISIONS WILL REQUIRE REVIEW AND APPROVAL.
13. NO REVIEW OF EXTERIOR SIGNAGE WAS CONDUCTED AS PART OF THIS REVIEW. A SEPARATE BUILDING PERMIT SUBMITTAL AND REVIEW IS REQUIRED FOR EXTERIOR SIGNAGE.
14. PRIOR TO PERMIT ISSUANCE, A FINAL COPY OF THE FINAL PLANS (ELECTRONIC VERSION)(PDF), SHALL BE E-MAILED TO BLDG DEPT.
15. A COPY OF THE APPROVED PLANS AND PLAN REVIEW RECORD ONSITE FOR INSPECTIONS SHALL BE PROVIDED. THE PLANS AND REVIEW RECORD SHALL BE PLACED AT THE ACTUAL CONSTRUCTION AND SHALL BE READILY ACCESSIBLE TO THE INSPECTOR.

PATIENT CARE FACILITY- GES PROJ. # 25-1206 - PSP - 04-21-2026

LOCATION MAP:



LOCATION MAP
NOT TO SCALE

PROJECT TEAM:

GES - GATEWAY ENGINEERING AND SURVEYING, INC.
8155 ANNSBURY DR. SUITE 109
SHELBY TWP., MI 48316
OFFICE: (586) 786-5533

ENGINEER: JOSEPH VAGLICA, PhD, PE
EMAIL: joe@gatewayengineer.com
CC: mitesh@gatewayenginner.com

NOTE: THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE WILL BE PLAN PREPARER: JOSEPH VAGLICA, PhD, PE / LICENSE NO. 6201050340

CLIENT:

LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

GES PROJ # 25-1206

CITY OF EAST LANSING PLANNING DEPT. - PERMIT #

GES
GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

INDEX OF DRAWINGS:

SHEET	NAME
	COVER SHEET
	TOPOGRAPHIC SURVEY PLAN (BY OTHERS)
C2.1	PROPOSED SITE PLAN
C3.1	PROPOSED GRADING PLAN
C4.1	PROPOSED UTILITY PLAN
C4.2	PROPOSED DRAINAGE AREA PLAN
C4.3	PROPOSED UTILITY- DETAILS
C5.1	SOIL EROSION AND SEDIMENT CONTROL PLAN
C5.2	SESC- STANDARD DETAILS
LA1.1	LANDSCAPE PLAN
	PHOTOMETRIC PLAN
A1.1	FLOOR PLAN
A2.1	EXTERIOR ELEVATIONS

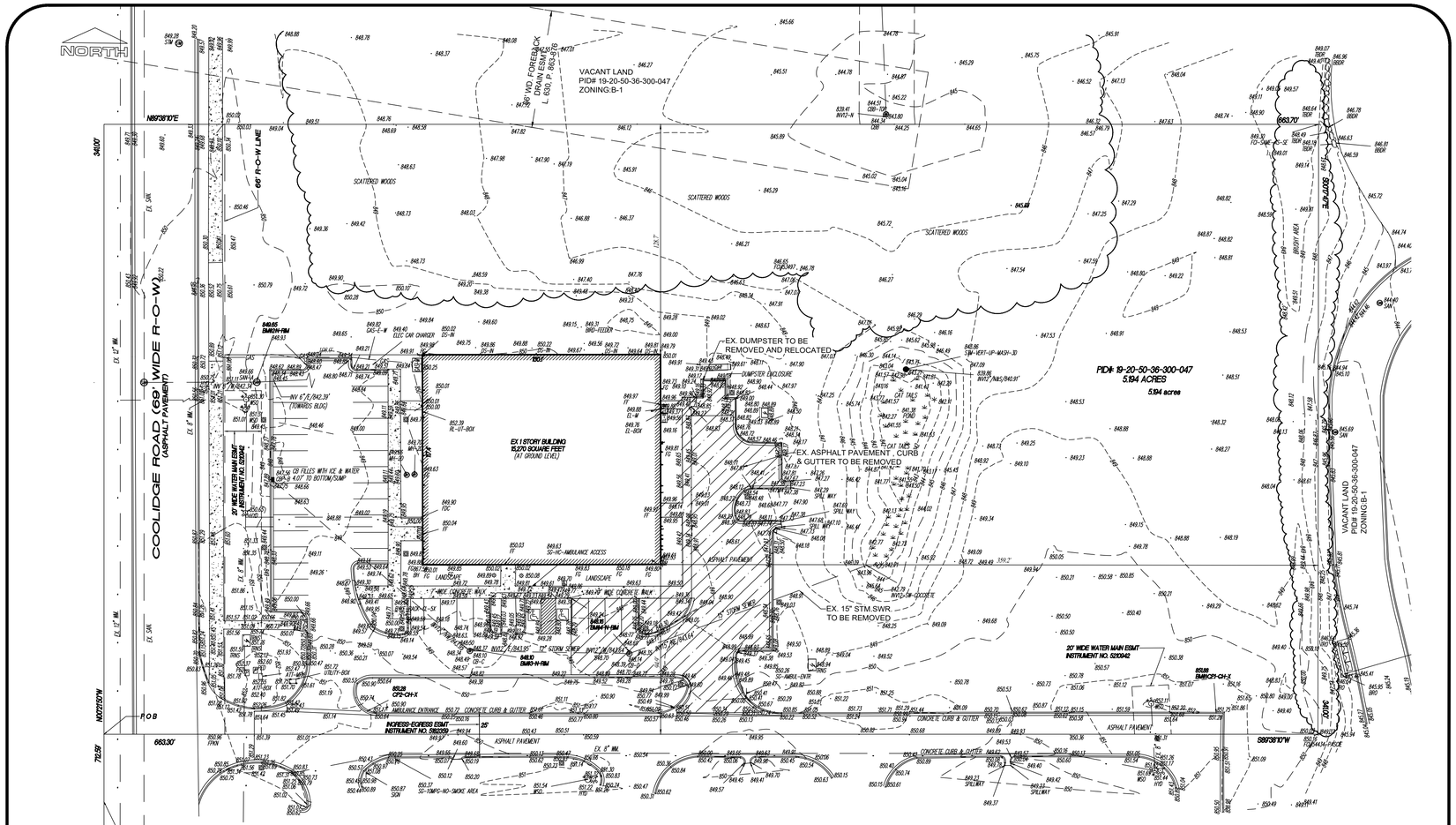
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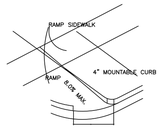
ENGINEER'S CERTIFICATION:
"I HEREBY CERTIFY THAT I HAVE READ THE TOWNSHIP'S LAND DEVELOPMENT ORDINANCE (AND IT'S RELATED ENGINEERING AND CONSTRUCTION STANDARDS) AND I HAVE PREPARED THESE PLANS IN COMPLETE CONFORMITY WITH THE REQUIREMENTS OF SAID ORDINANCE."

JOSEPH VAGLICA
PROFESSIONAL CIVIL ENGINEER NO. 50340

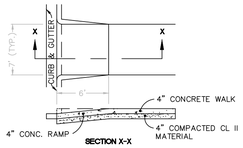
STATE OF MICHIGAN
JOSEPH VAGLICA
License No. 6201050340
PROFESSIONAL ENGINEER

TOPOGRAPHIC SURVEY

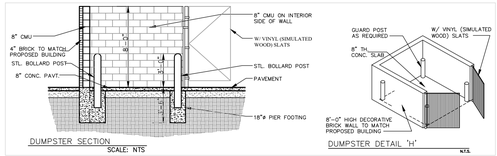

NORTH
N89°38'10"E
663.70'
S89°38'10"W
663.30'
N00°21'50"W
712.59'
LINE OF SECTION 36
34.00'
COOLIDGE ROAD (66' WIDE R-O-W)
(ASPHALT PAVEMENT)
66' R-O-W LINE
POB
EX. 12" WM
EX. SAN.
EX. 8" WM
30' WD. FOREBACK DRAIN ESMT. L. 600, P. 863-70
VACANT LAND
PID# 19-20-50-36-300-047
ZONING:B-1
SCATTERED WOODS
EX. DUMPSTER TO BE REMOVED AND RELOCATED
DUMPSTER ENCLOSURE
EX 1 STORY BUILDING
15,270 SQUARE FEET
(AT GROUND LEVEL)
EX. ASPHALT PAVEMENT, CURB & GUTTER TO BE REMOVED
ASPHALT PAVEMENT
CONCRETE CURB & GUTTER
EX. 15" STM.SWR. TO BE REMOVED
PID# 19-20-50-36-300-047
5.194 ACRES
5.194 acres
20' WIDE WATER MAIN ESMT INSTRUMENT NO. 5210342
INGRESS-EGRESS ESMT INSTRUMENT NO. 5182358
25'
EX. 8" WL
EX. 12" WL
EX. 6" WL
EX. 1" GAS
EX. 4" GAS
EX. 2" GAS
EX. 6" GAS
EX. 8" GAS
EX. 12" GAS
EX. 4



HDC RAMP DETAIL 'H'
NOT TO SCALE



WHEEL CHAIR RAMP AND TYPICAL SIDEWALK DETAIL
NO SCALE



SITE BENCHMARK: (NAVD 88 - BY GPS)

B.M. # 1
CHISLED "X" IN CONCRETE CURB AT THE VERY END OF THE STREET OF THE SUBJECT PROPERTY.
ELEV.=851.88'

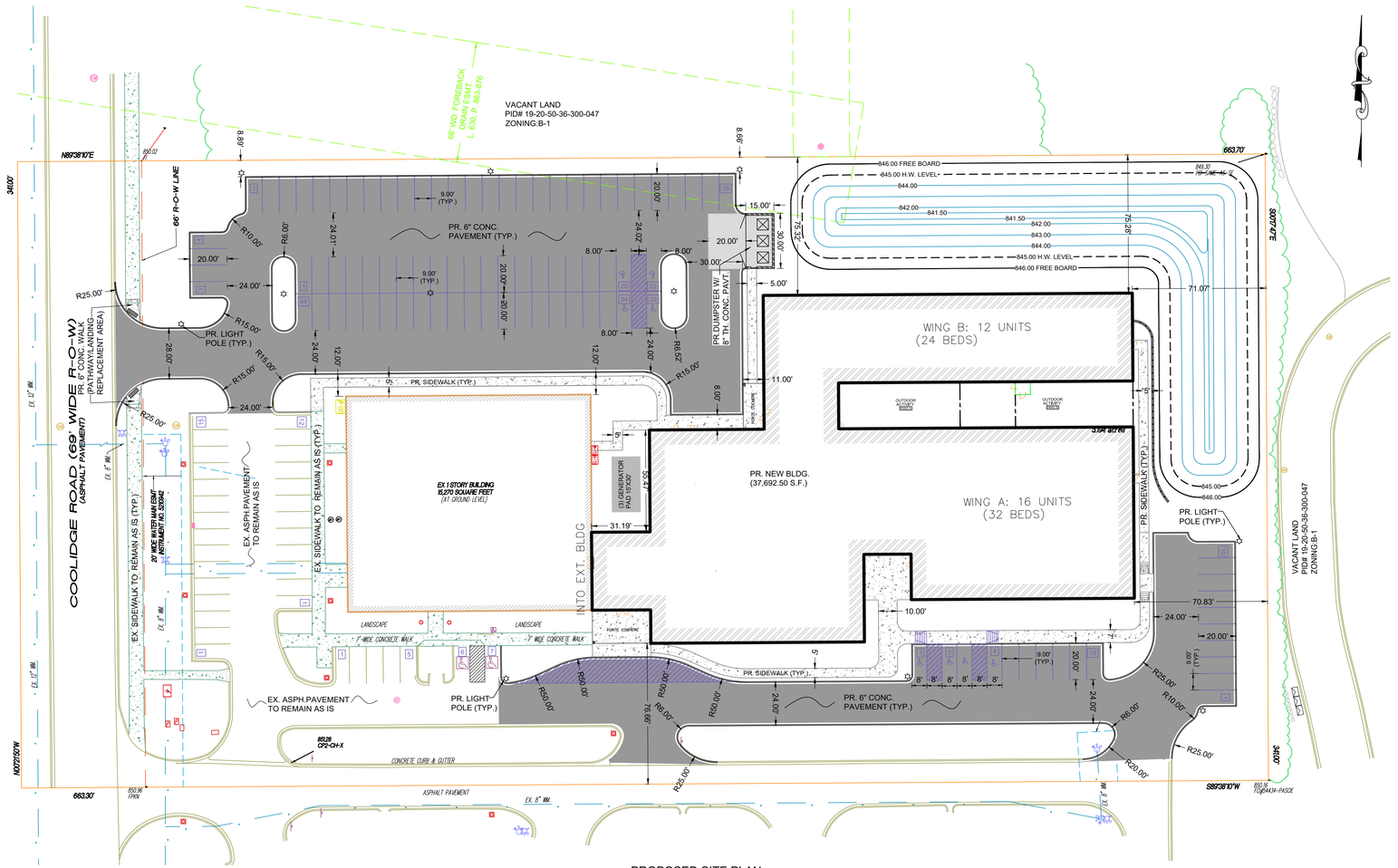
B.M. # 2
NORTH RIM OF A SANITARY MANHOLE AT THE NW PROPERTY CORNER OF THE SUBJECT PROPERTY.
ELEV.=849.65'

B.M.# 3
NORTH RIM OF A WEST CATCH BASIN IN THE PARKING LOT AND IN FFRONT OF THE BUILDING OF THE SUBJECT PROPERTY.
ELEV.=848.10'

B.M. # 4
NORTH RIM OF A EAST CATCH BASIN IN THE PARKING LOT AND IN FFRONT OF THE BUILDING OF THE SUBJECT PROPERTY.
ELEV.=848.16'



LOCATION MAP
NOT TO SCALE



PROPOSED SITE PLAN
SCALE: 1" = 30.00'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PROJECT : PR. NEW BUILDING FOR PATIENT CARE FACILITY

LEGAL DESCRIPTION:
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.

PART OF THE SW 1/4 OF SECTION 36, TOWN 5 NORTH, RANGE 2 WEST, CITY OF EAST LANSING, INGHAM COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SW CORNER OF SECTION 36; THENCE N00°21'50"W 712.59 FEET, ALONG THE WEST LINE OF SAID SECTION 36, TO THE POINT OF BEGINNING; THENCE CONTINUING N00°21'50"W 341.00 FEET; THENCE N89°38'10"E 663.70 FEET; THENCE S00°17'50"W 341.00 FEET; THENCE S89°38'10"W 663.30 FEET, TO THE POINT OF BEGINNING.
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PLANING & ZONING
410 ABBOT RD.
EAST LANSING, MI 48823

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PR. REMOVED PAVEMENT: ± 9,747 S.F.
PR. ADDED PAVEMENT: ± 58,507 S.F.
PR. SITE COVERAGE (ROAD & SIDEWALK) = ± 96,290 S.F.

PR. SITE COVERAGE BY IMPERVIOUS SURFACE (BUILD., PAVT., ETC.): ± 65.97% (149,257.50 S.F.)

PARKING CALCULATIONS:

REQUIRED PARKING:
PATIENT CARE: 1 SPACE PER 2 BEDS

TOTAL EX. BEDS = 23/(2 SPACES /BED) = 11.5 = 12
TOTAL PR. BEDS = 56/(2 SPACES/BED) = 28

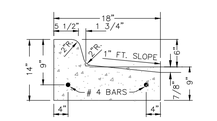
TOTAL EMPLOYEES @ SITE: 000
LARGEST SHIFT = 00 EMPLOYEES (1 PER EMPLOYEE)
SPACES REQ. FOR EMPLOYEES = 00

TOTAL REQUIRED = 12+28+00 = 000 PARKING SPACES REQUIRED

PARKING PROVIDED:

EX. 34 PARKING SPACES INCLUDING 2 H.C.
PR. 97 PARKING SPACES INCLUDING 8 H.C.

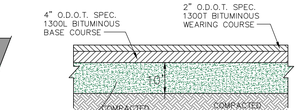
TOTAL 131 PARKING SPACE INCLUDING 10 H.C. SPACE PROPOSED ON SITE



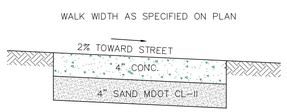
CONC. CURB & GUTTER DETAIL
WITH REVERSE SLOPE (F2 MOD.)
NOT TO SCALE



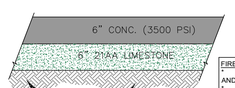
TYPICAL 8" CONCRETE PAVT. SECTION
NOT TO SCALE



6" ASPHALT PAVT. DETAIL (OPTIONAL)
NOT TO SCALE



4" CONCRETE SIDEWALK
N.T.S.



TYPICAL 6" CONCRETE PAVT. SECTION
NOT TO SCALE

FIRE DEPT. NOTE:
* ALL REQUIRED FIRE HYDRANTS SHALL BE INSTALLED, FLUSHED AND IN SERVICE PRIOR TO THE START OF CONSTRUCTION.
* THE BASE OF THE ACCESS DRIVE SHALL BE INSTALLED AND IN SERVICE PRIOR TO THE START OF CONSTRUCTION.
* FIRE ACCESS ROADS MUST BE ABLE TO SUPPORT DEPTMENT'S LARGEST VEHICAL WEIGHT OF 76,800 PLUS AN ADDITIONAL 10% FOR A TOTAL OF 84,480.

NOTE:
1. IF ANY DISCREPANCY BETWEEN THESE PLANS AND CITY / TWP. STANDARDS OCCURS THE CITY / TWP. STANDARDS SHALL GOVERN.
2. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
3. "NO PARKING-FIRE LANE" SIGNS SHALL BE INSTALLED AND MAINTAINED AS DESIGNATED BY THE FIRE MARSHAL.
4. AN EMERGENCY ACCESS LANE, AS REQUIRED IN ORDINANCE 145, SHALL BE PROVIDED PRIOR TO THE START OF CONSTRUCTION UNLESS THE PERMANENT HARD SURFACE IS INSTALLED PRIOR TO CONSTRUCTION.
5. PRIOR TO CONSTRUCTION, ALL LOCATION AND DEPTHS OF EXISTING OVERHEAD AND UNDER-GROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD.
6. DURING CONSTRUCTION, CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR OVERHEAD AND/OR BURIED UTILITIES. CALL MISS DIG.
7. MUNICIPAL UTILITES (WATER, SANITARY AND STORM SEWER) ARE TO BE BROUGHT ON SITE BY THE DEVELOPER FROM EXISITING SOURCES.

UTILITY WARNING
UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THESE PLANS ARE OBTAINED FROM UTILITY OWNER AND NOT FIELD LOCATED.
A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY MISS DIG AND HAVE ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK CAN BEGIN.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SPICER TWP., MI. 48163
OFFICE #: (586) 786-5553 FAX: (586) 786-5575
www.gatewayengineer.com

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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD.,
EAST LANSING, MI 48823

PARCEL ID#
19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH
LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

ISSUANCE:
☐ SCHEMATIC
☐ BIDDING
■ MUNI SUBMITTAL
☐ CONSTRUCTION
☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

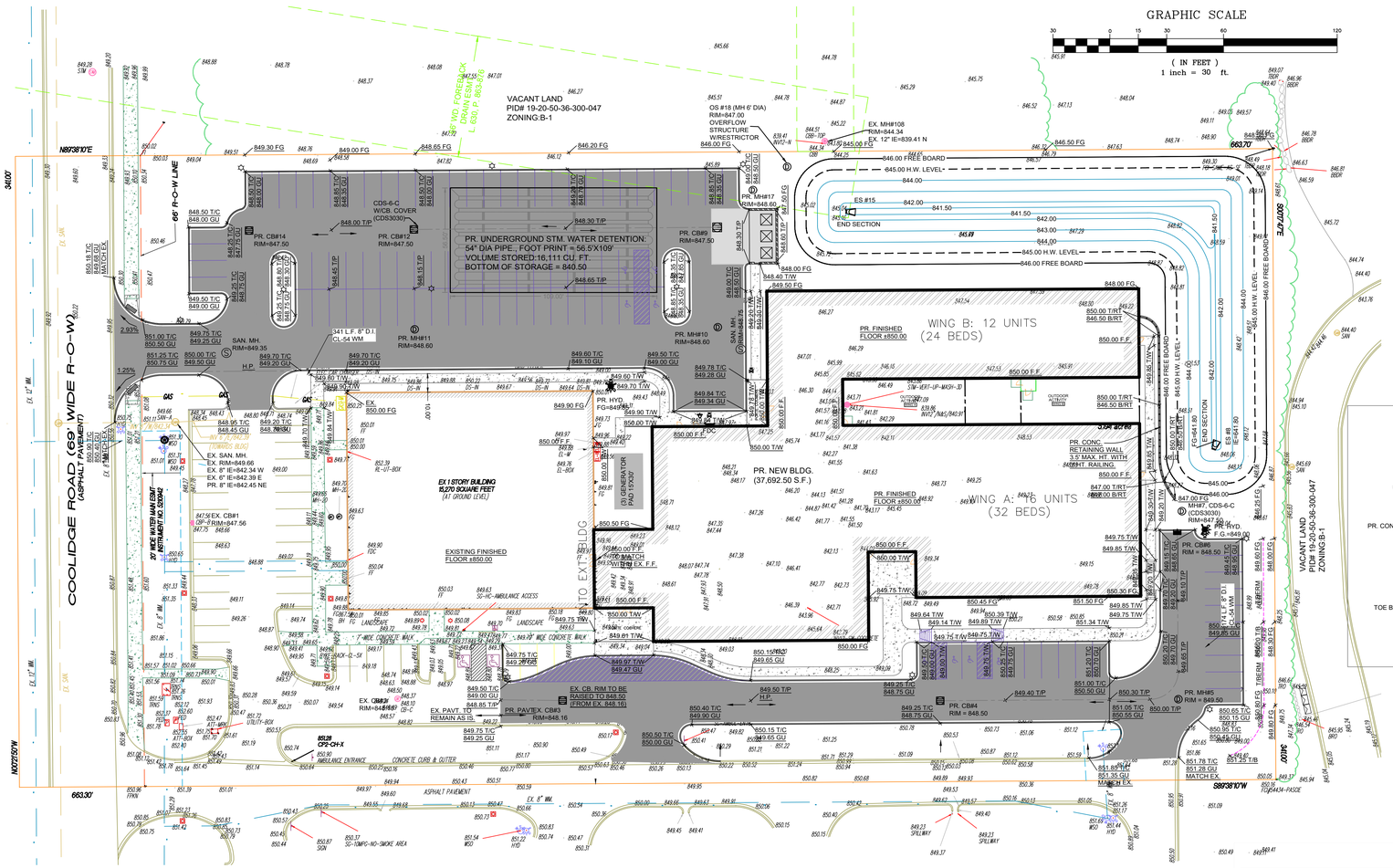
NO.	DESC.	DATE
1.	PSP	03/18/2026

REVIEWED BY:	J.V.
DESIGNED BY:	M.G.
DRAWN BY:	M.G.

DRAWING:
PROPOSED SITE PLAN

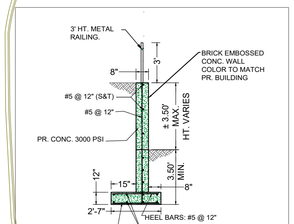
NO. C2.1

PROJECT NO. 25-1206





3' HT. METAL RAILING (TYP.)
N.T.S.



PR. CONC. RETAINING WALL DETAIL:
SCALE: 1" = 5'

PIPE INCREMENTAL STORAGE

PIPE DIA	54	INCH	
PIPE RAD.	27	INCH	
TOTAL LENGTH OF PIPE	1013	FT.	

ELEVATION	HEIGHT OF SYSTM IN INCH	AREA IN SF.	TOTAL VOLUME IN SYSTEM
840.50	0	0.00	0.00
840.58	1	0.07	68.54
840.67	2	0.19	192.77
840.75	3	0.35	352.12
840.83	4	0.53	538.99
840.92	5	0.74	748.84
841.00	6	0.97	978.53
841.08	7	1.21	1225.67
841.17	8	1.47	1488.35
841.25	9	1.74	1764.98
841.33	10	2.03	2054.22
841.42	11	2.32	2354.86
841.50	12	2.63	2665.86
841.58	13	2.95	2986.27
841.67	14	3.27	3315.22
841.75	15	3.61	3651.90
841.83	16	3.94	3995.57
841.92	17	4.29	4345.51
842.00	18	4.64	4701.07
842.08	19	5.00	5061.61
842.17	20	5.36	5426.51
842.25	21	5.72	5795.19
842.33	22	6.09	6167.07
842.42	23	6.46	6541.61
842.50	24	6.83	6918.26
842.58	25	7.20	7296.48
842.67	26	7.58	7675.75
842.75	27	7.95	8055.53
842.83	28	8.33	8435.32
842.92	29	8.70	8814.59
843.00	30	9.07	9192.81
843.08	31	9.45	9569.46
843.17	32	9.82	9944.00
843.25	33	10.18	10315.88
843.33	34	10.55	10684.56
843.42	35	10.91	11049.46
843.50	36	11.26	11410.00
843.58	37	11.61	11765.56
843.67	38	11.96	12115.50
843.75	39	12.30	12459.17
843.83	40	12.63	12795.85
843.92	41	12.96	13124.80
844.00	42	13.27	13445.21
844.08	43	13.58	13756.21
844.17	44	13.88	14056.85
844.25	45	14.16	14346.08
844.33	46	14.44	14622.72
844.42	47	14.69	14885.40
844.50	48	14.94	15132.54
844.58	49	15.17	15362.23
844.67	50	15.37	15572.08
844.75	51	15.56	15758.95
844.83	52	15.71	15918.30
844.92	53	15.84	16042.53
845.00	54	15.90	16111.07

LAND USE SUMMARY

CHARACTERISTIC	EXISTING CONDITION	PROPOSED CONDITION
TOTAL DEVELOPMENT AREA (ac)	4.68	4.68
IMPERVIOUS AREA (ac)	0.20	2.96
TOTAL PERVIOUS AREA (ac)	4.48	1.36
PERVIOUS AREA BREAKDOWN BY COVER TYPE:		
MEADOW/FOLLOW/NATURAL AREAS (NON-CULTIVATED)	4.48	1.36
PREDOMINANT NRCS SOIL TYPE (A, B, C, OR D)	TYPE B	TYPE B
IMPROVED AREAS (TURF GRASS, LANDSCAPE, ROW CROPS)		
PREDOMINANT NRCS SOIL TYPE (A, B, C, OR D)	TYPE B	TYPE B
WOODED AREAS		
PREDOMINANT NRCS SOIL TYPE (A, B, C, OR D)	TYPE B	TYPE B
PROPOSED POND AREA (ac)		0.36
REQUIRED CPVC VOLUME (CU. FT.)		16244.77
PROVIDED CPVC VOLUME (CU. FT.)		0.00
REQUIRED ED VOLUME (CU. FT.)		42804.53
PROVIDED ED VOLUME (CU. FT.)		43907.28

C-Factor Calculation for Storm Sewer Design

Project Name: BRIGHTWELL BEHAVIORAL HEALTH - EAST LANSING
Project No.: 25-1206
Name: GES - M.G.
Date: 4/20/2026

Total Site Acreage (Net area)	4.68 acres
Impervious Area (PAVT.) C-Factor	0.95
Impervious Area (BLDG.) C-Factor	0.95
Pervious Area C-Factor	0.20
POND	1.00

IMPERVIOUS AREA

Pavement and sidewalk area	75,937.24 sq.ft.
Gross Building foot Area	52,961.74 sq.ft.
POND	15,660.00 sq.ft.
Total Pervious Area:	**59,188.38 sq.ft.**

(IMPERVIOUS AREA x c) + (PERVIOUS AREA x c)	=	149,951.71
TOTAL AREA		203,747.36

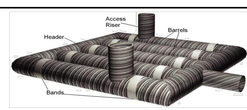
Calculated C-Factor = 0.736

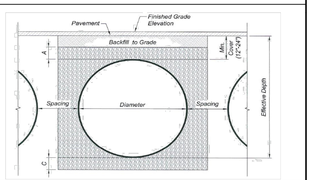
PAVEMENT LISTING

± 1,050 S.F.	8" TH. CONC.PAVEMENT
± 6,505 S.F.	4" TH. CONC. WALK
± 2,062 LF.	6" CONC. CURB & GUTTER
± 47,551 S.F.	6" TH. CONC.PAVEMENT

DETENTION BASIN VOLUME: PR. POND — V= [A1 + A2 + SQRT(A1XA2)] X H/3

VOLUME STORED AT	CONTOUR ELV.	AREA A1 SQ FT	AREA A2 SQFT	HEIGHT FT.	VOLUME CU. FT.	TOTAL VOLUME CU.FT.
	841.50	890.42	2720.31			
				0.50	861.18	861.18
	842.00	2720.31	6788.75			
				1.00	4602.15	5463.33
	843.00	6788.75	11119.86			
				1.00	8865.70	14329.03
	844.00	11119.86	15960.00			
				1.00	13467.25	27796.28
	845.00	15960.00	20426.33			
FREE BOARD				1.00	18147.31	45943.59
	846.00	20426.33				
TOTAL VOLUME PROVIDED :						27796.28



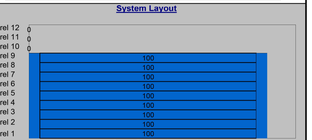


DYODS™ Design Your Own Detention System
CONTECH CMP DETENTION SYSTEMS
CONTECH CONSTRUCTION PRODUCTS INC.
For design assistance, drawings, and pricing send completed worksheet to: dyods@contech-cpi.com

Project Summary		
Date:	03/162026	
Project Name:	3512 COOLIDGE RD.	
City / County:	EAST LANSING	
State:	MI	
Designed By:		
Company:	ASN	Enter Information in Blue Cells
Telephone:	810-217-9156	
Corrugated Metal Pipe Calculator		
Storage Volume Required (cf):	16,000	
Limiting Width (ft):	60.00	
Invert Depth Below Asphalt (ft):	6.00	
Solid or Perforated Pipe:	Solid	
Shape Or Diameter (in):	54	15.90 ft² Pipe Area
Number Of Headers:	2	
Spacing between Barrels (ft):	2.00	
Stone Width Around Perimeter of System (ft):	0	
Depth A: Porous Stone Above Pipe (in):	0	
Depth C: Porous Stone Below Pipe (in):	0	
Stone Porosity (0 to 40%):	40	
System Sizing		
Pipe Storage:	16,111 cf	
Porous Stone Storage:	0 cf	
Total Storage Provided:	16,111 cf	100.7% Of Required Storage
Number of Barrels:	9 barrels	
Length per Barrel:	100.0 ft	
Length Per Header:	56.5 ft	
Rectangular Footprint (W x L):	56.5 ft x 109. ft	
CONTECH Materials		
Total CMP Footage:	1,013 ft	
Approximate Total Pieces:	51 pcs	
Approximate Coupling Bands:	58 bands	
Approximate Truckloads:	13 trucks	
Construction Quantities**		
Total Excavation:	1369 cy	
Porous Stone Backfill For Storage:	0 cy stone	
Backfill to Grade Excluding Stone:	772 cy fill	

***Construction quantities are approximate and should be verified upon final design*

System Layout



GATEWAY ENGINEERING SERVICES
8155 ANNSBURY DRIVE, SUITE # 109
SPICER TWP., MI 48316
OFFICE #: 586-786-5375
www.gatewayengineer.com

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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD., EAST LANSING, MI 48823

PARCEL ID# 19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD. EAST LANSING, MI 48823 PHONE#: 734-673-5452

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

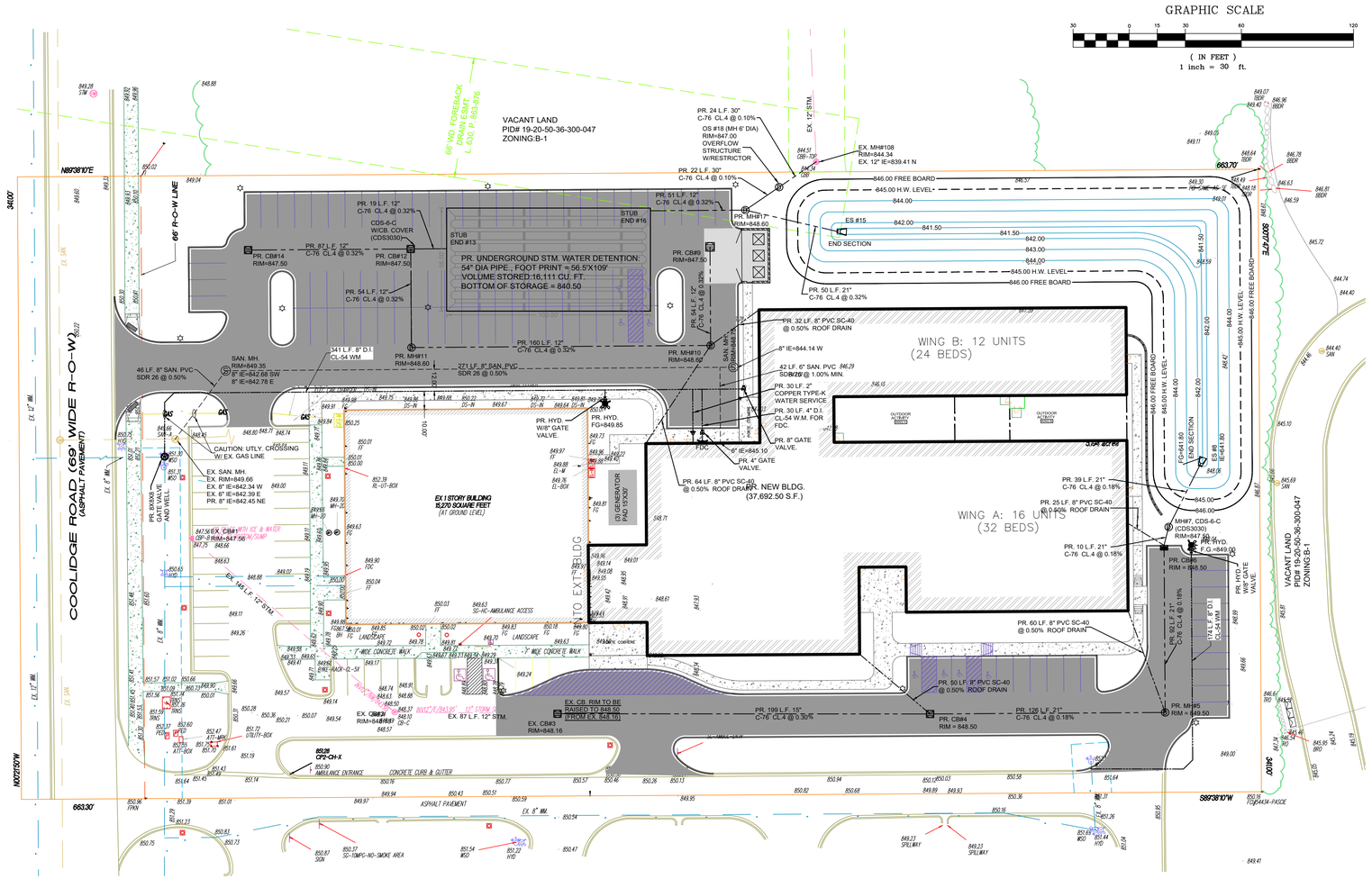
NO.	DESC.	DATE
1.	PSP	03/18/2026

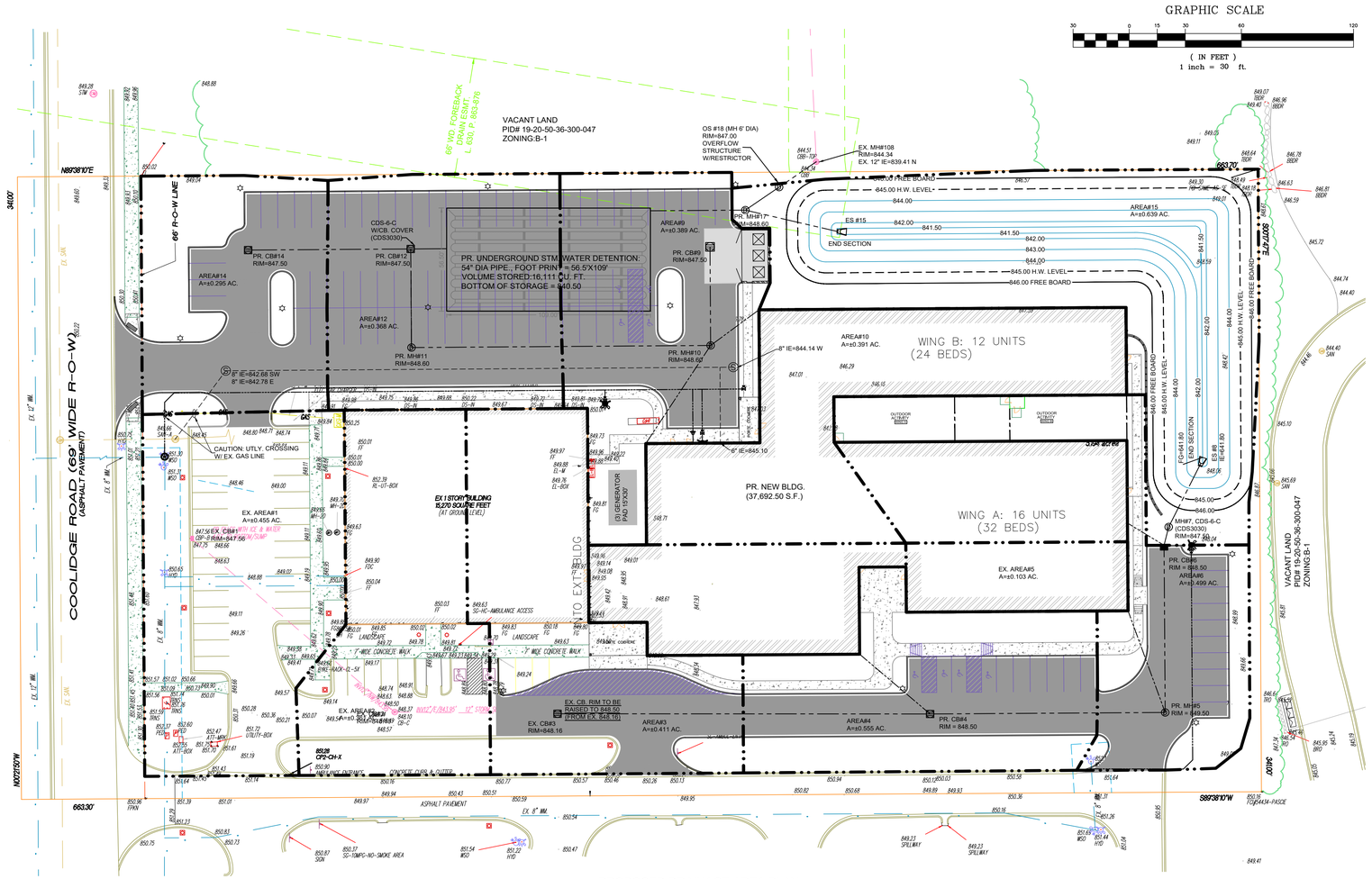
REVIEWED BY:	J.V.
DESIGNED BY:	M.G.
DRAWN BY:	M.G.

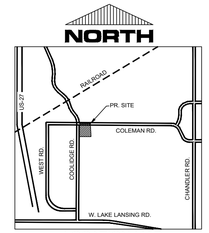
DRAWING:
PROPOSED GRADING PLAN

NO. C3.1

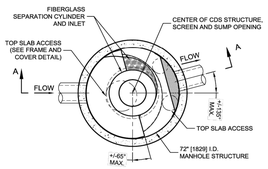
PROJECT NO. 25-1206


GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.
COOLIDGE ROAD (69' WIDE R-O-W)
(ASPHALT PAVEMENT)
66' R-O-W LINE
VACANT LAND
PID# 19-20-50-36-300-047
ZONING:B-1
66' WID. FOREBACK DRAIN ESMT L 650, P. 865-876
PR. UNDERGROUND STM. WATER DETENTION:
54" DIA PIPE., FOOT PRINT = 56.5'X109'
VOLUME STORED:16,111 CU. FT.
BOTTOM OF STORAGE = 840.50
WING B: 12 UNITS
(24 BEDS)
WING A: 16 UNITS
(32 BEDS)
EX 1 STORY BUILDING
15,270 SQUARE FEET
(AT GROUND LEVEL)
PR. NEW BLDG.
(37,692.50 S.F.)
EX. 12" STM.
EX. MH#108
EX. 12" IE=839.41 N
PR. MH#7
PR. MH#10
PR. MH#11
PR. MH#12
PR. MH#9
PR. MH#5
PR. CB#14
PR. CB#12
PR. CB#9
PR. CB#5
PR. CB#6
EX. CB#3
EX. CB#4
EX. CB#5
EX. CB#1
EX. CB#2
EX. MH#1
EX. MH#2
EX. MH#3
EX. MH#4
EX. MH#5
EX. MH#6
EX. MH#7
EX. MH#8
EX. MH#9
EX. MH#10
EX. MH#11
EX. MH#12
EX. MH#13
EX. MH#14
EX. MH#15
EX. MH#16
EX. MH#17
EX. MH#18
EX. MH#19
EX. MH#20
EX.

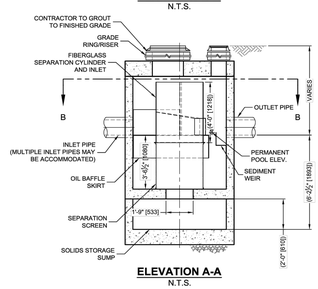

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.
66' R-O-W LINE
COOLIDGE ROAD (66' WIDE R-O-W)
(ASPHALT PAVEMENT)
VACANT LAND
PID# 19-20-50-36-300-047
ZONING:B-1
66' WD. FOREBACK DRAIN ESMT L 650, P. 865-876
OS #18 (MH 6' DIA)
RIM=847.00
OVERFLOW
STRUCTURE
W/RESTRICTOR
EX. MH#108
RIM=844.34
EX. 12" IE=839.41 N
PR. MH#7
RIM=848.60
CDS-6-C
W/CB. COVER
(CDS3030)
PR. CB#14
RIM=847.50
PR. CB#12
RIM=847.50
PR. CB#9
RIM=847.50
PR. UNDERGROUND STM WATER DETENTION:
54" DIA PIPE., FOOT PRINT = 56.5'X109'
VOLUME STORED:16,111 CU. FT.
BOTTOM OF STORAGE = 840.50
AREA#14
A=±0.295 AC.
AREA#12
A=±0.368 AC.
AREA#9
A=±0.389 AC.
AREA#15
A=±0.639 AC.
AREA#10
A=±0.391 AC.
PR. MH#11
RIM=848.60
PR. MH#10
RIM=848.60
8" IE=842.68 SW
8" IE=842.78 E
8" IE=844.14 W
6" IE=845.10
WING B: 12 UNITS
(24 BEDS)
WING A: 16 UNITS
(32 BEDS)
PR. NEW BLDG.
(37,692.50 S.F.)
EX 1 STORY BUILDING
15,270 SQUARE FEET
(AT GROUND LEVEL)
TO EXT BLDG
01 GENERATOR
PAD 15'X30'
EX. AREA#1
A=±0.455 AC.
EX. AREA#5
A=±0.103 AC.
EX. AREA#2
A=±0.411 AC.
EX. AREA#3
A=±0.411 AC.
AREA#4
A=±0.555 AC.
EX. CB3
RIM=848.16
EX. CB. RIM TO BE
RAISED TO 848.50
(FROM EX. 848.16)
PR. CB#5
RIM = 848.50
AREA#6
A=±0.499 AC.
PR. CB#4
RIM = 848.50
PR. MH#5
RIM = 849.50
MH#7, CDS-6-C
(CDS3030)
RIM=847.50
ES #15
END SECTION
FG=841.80
ES #16
END SECTION
FG=841.80
CAUTION, UTLY. CROSS
W/ EX. GAS LINE
EX. CB#1
RIM=847.56
EX. CB#2
RIM=847.56
EX. AREA#2
A=±0.411 AC.
EX. CB#3
RIM=848.16
EX. MH#108
RIM=844.34
EX. 12" IE=839.41 N
EX. MH#107
RIM=844.50
EX. 12" IE=839.50 S
EX. 8" IE=839.60 NW
EX. 8" IE=839.70 SE
EX. 8" IE=839.80 NE
EX. 8" IE=839.90 SW
EX. 8" IE=840.00 NW
EX. 8" IE=840.10 SE
EX. 8" IE=840.20 NE
EX. 8" IE=840.30 SW
EX. 8" IE=840.40 NW
EX. 8" IE=840.50 SE
EX. 8" IE=840.60 NE
EX. 8" IE=840.70 SW
EX. 8"



LOCATION MAP
NOT TO SCALE



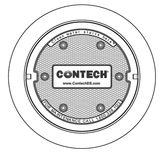
PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.

CDS-6-C (CDS3030) DESIGN NOTES

CDS-6-C (CDS3030) RATED TREATMENT CAPACITY IS 2.1 CFS (44.7 L/s). IF THE SITE CONDITIONS EXCEED MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST	WIDTH	HEIGHT	
	*	*	
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET HS20 (AASHTO M 306) AND BE CAST WITH THE CONTECH LOGO.
6. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS-6-C (CDS3030)
INLINE CDS
STANDARD DETAIL

CDS PRODUCTS ARE COVERED BY ONE OR MORE OF THE FOLLOWING PATENTS: 5,759,415; 5,849,181; 6,027,639; 6,641,720; 6,511,597; 6,649,048; 6,991,724; 7,186,333; 7,296,692; 7,297,266; 7,513,998; 7,566,402; 7,686,173; 7,905,365; 8,287,728; 8,470,173; 8,673,157; 8,771,511; 9,095,787; 9,120,024; 9,272,230; 9,475,006; 9,604,153; 9,861,921; 9,861,922; 9,861,923; 9,895,628; 9,895,629; 9,895,630; 9,908,066; 9,908,067; 9,914,080; 9,914,081; 9,914,082; 9,914,083; 9,914,084; 9,914,085; 9,914,086; 9,914,087; 9,914,088; 9,914,089; 9,914,090; 9,914,091; 9,914,092; 9,914,093; 9,914,094; 9,914,095; 9,914,096; 9,914,097; 9,914,098; 9,914,099; 9,914,100; 9,914,101; 9,914,102; 9,914,103; 9,914,104; 9,914,105; 9,914,106; 9,914,107; 9,914,108; 9,914,109; 9,914,110; 9,914,111; 9,914,112; 9,914,113; 9,914,114; 9,914,115; 9,914,116; 9,914,117; 9,914,118; 9,914,119;

SOIL LEGEND:

CvraaB - CONOVER LOAM, O - 4 % SLOPES
PH - PARKHILL LOAM, NON DENSE TILL SUBSOIL, O - 2 % SLOPES
CbB - CAPAC-MARLETTE LOAMS, 1 - 6 % SLOPES

± 318 FEET SOUTH OF REMY CHANDLER INTERCOUNTY, MOORE BRANCH

FLOODPLAIN NOTE:

SUBJECT PROPERTY DO NOT LIE WITHIN THE 100 YR. FLOOD ZONE.
FIRM MAP NUMBER: 26037C0319D
EFFECTIVE DATE: MAY 3, 2011

STREET SWEEPING NOTE:

COOLIDGE RD. SHALL BE KEPT CLEAN AND FREE OF TRACKED SEDIMENT. A STREET SWEEPER OR A BOBCAT WITH A BROOM ATTACHMENT SHOULD BE KEPT ON SITE TO DEAL WITH ANY OFF-SITE TRACKING AS IT OCCURS.

*TO BE FILLED OUT BY BUILDER

CONSTRUCTION SEQUENCE		OPERATION TIME SCHEDULE											
		JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
A	SOIL EROSION CONTROL MEASURE	X	X										
B	MASS GRADING & UTILITIES CONSTRUCTION	X	X	X									
C	PERMANENT SEEDING & SODDING										X	X	X
D	ROADWAY PAVING			X	X	X	X						
E	BUILDING CONSTRUCTION	X	X	X	X	X	X	X	X	X			

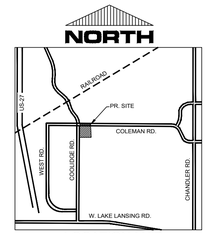
SITE BENCHMARK: (NAVD 88 - BY GPS)

B.M. # 1
CHISLED "X" IN CONCRETE CURB AT THE VERY END OF THE STREET OF THE SUBJECT PROPERTY.
ELEV.=851.88'

B.M. # 2
NORTH RIM OF A SANITARY MANHOLE AT THE NW PROPERTY CORNER OF THE SUBJECT PROPERTY.
ELEV.=849.65'

B.M. # 3
NORTH RIM OF A WEST CATCH BASIN IN THE PARKING LOT AND IN FFRONT OF THE BUILDING OF THE SUBJECT PROPERTY.
ELEV.=848.10'

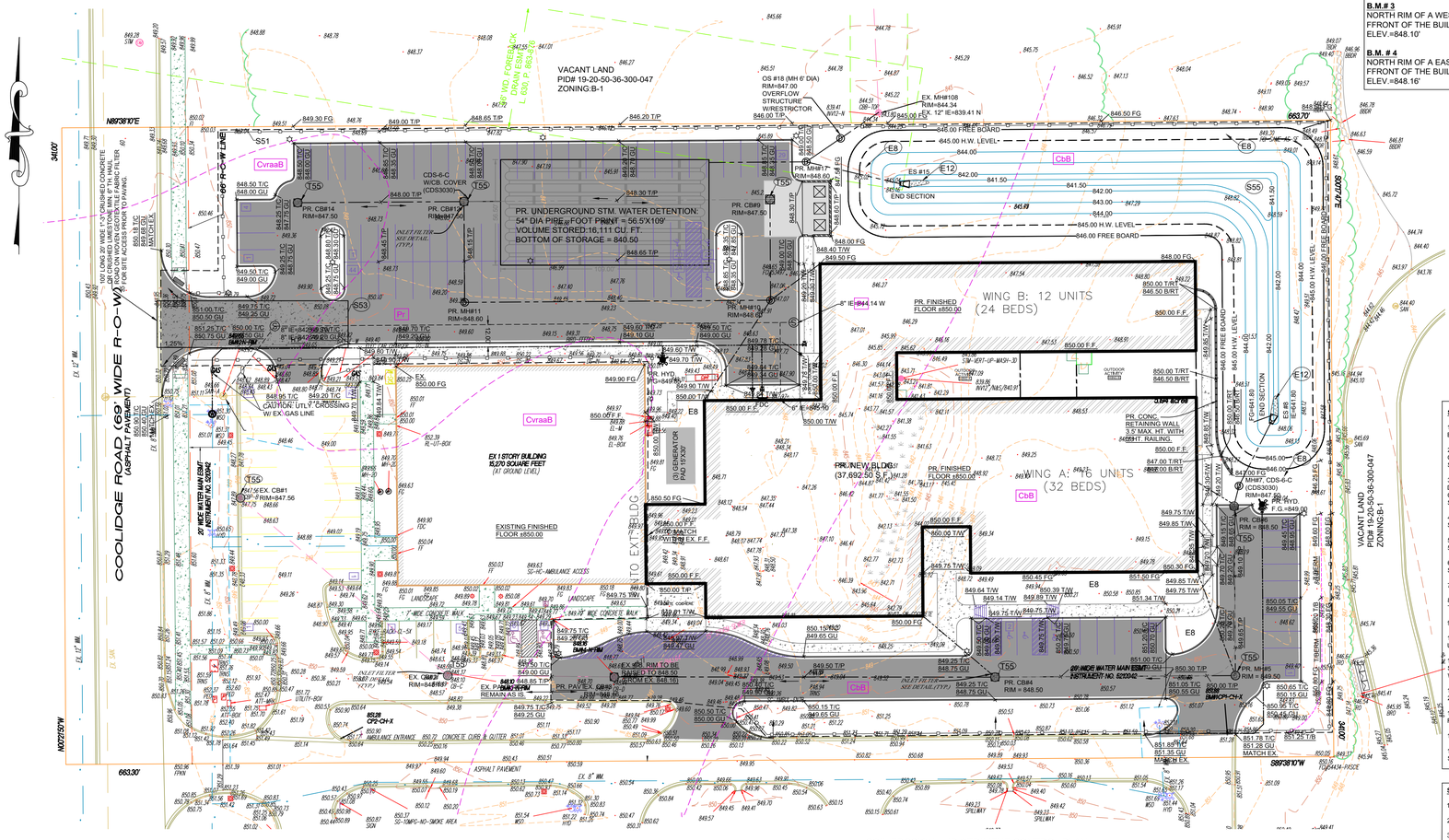
B.M. # 4
NORTH RIM OF A EAST CATCH BASIN IN THE PARKING LOT AND IN FFRONT OF THE BUILDING OF THE SUBJECT PROPERTY.
ELEV.=848.16'



LOCATION MAP
NOT TO SCALE

GRAPHIC SCALE

30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.


VACANT LAND
PID# 19-20-50-36-300-047
ZONING:B-1
COOLIDGE ROAD (66' WIDE R-O-W)
(ASPHALT PAVEMENT)
100' LONG 20' WIDE 1"-3"CRUSHED CONCRETE CONSTRUCTION ENTRANCE/EXIT AS SHOWN ON PLAN. ROAD ON WOVEN GEOTEXTILE FABRIC FILTER OR FOR SITE ACCESS PRIOR TO PAVING.
PR. UNDERGROUND STM. WATER DETENTION: 54" DIA PIPE @ FOOT PRINT = 56.5'X109' VOLUME STORED:16,111 CU. FT. BOTTOM OF STORAGE = 840.50
WING B: 12 UNITS (24 BEDS)
WING A: 16 UNITS (32 BEDS)
EX 1 STORY BUILDING 15,270 SQUARE FEET (AT GROUND LEVEL)
PR. NEW BLDG# (37,692.50 S.F.)
(1) GENERATOR PAD 15'X30'
EXISTING FINISHED FLOOR ±850.00
PR. FINISHED FLOOR ±850.00
PR. CONC. RETAINING WALL 3.5' MAX. HT. WITH 41" RAILING.
PR. 20' WIDE WATER MAIN EASEMENT INSTRUMENT NO. 520042
PR. 30' WIDE WATER MAIN EASEMENT INSTRUMENT NO. 520042
EX. 20' WIDE WATER MAIN EASEMENT INSTRUMENT NO. 520042
EX. 30' WIDE WATER MAIN EASEMENT INSTRUMENT NO. 520042
CONNECT TO EX. FIELD
OS #18 (MH 6' DIA) RIM=847.00 OVERFLOW STRUCTURE W/RESTRICTOR
EX. MH#108 RIM=844.34
EX. 12" IE=839.41 N
EX. 12" IE=839.41 S
PR. MH#11 RIM=848.60
PR. MH#10 RIM=848.60
PR. MH#9 RIM=847.50
PR. CB#14 RIM=847.50
PR. CB#13 RIM=847.50
PR. CB#9 RIM=847.50
PR. CB#8 RIM=847.50
PR. CB#7 RIM=847.50
PR. CB#6 RIM = 848.50
PR. CB#4 RIM = 848.50
PR. CB#3 RIM = 848.50
PR. MH#5 RIM = 849.50
PR. MH#7 RIM=849.50
PR. MH#6 RIM=849.50
EX. CB#1 RIM=847.56
EX. CB#2 RIM=848.07
EX. CB#3 RIM=848.07
EX. CB#4 RIM=848.07
MH#7, CDS-6-C (CDS3030) RIM=847.50
PR. RYD. F.G.=849.00
CDS-6-C W/CB. COVER (CDS3030)
CDS-CH-X
CDS-CH-X
CDS-CH-X
CDS-CH-X
END SECTION
ES #15
ES #8
ES #8
ES #8

E8 PERMANENT SEEDING SPECIFICATIONS

When
- To finalize stabilization of temporary seeding areas or when an area needs permanent stabilization following completion of construction. Also used when vegetative establishment can correct existing soil erosion or sedimentation problem.
- Within 5 days of final grade.

Why
- To stabilize soil and prevent or reduce soil erosion/sedimentation problems from developing.

Where
- Used on construction and earth change sites which require permanent vegetative stabilization.

How
1. Review SESC plan and construction phasing to identify areas in need of permanent vegetative stabilization.
2. Select perennial grass and ground cover for permanent cover.
3. Seed mixes vary. However, they should contain native species.
4. Seed mixes should be selected through consultation with a certified seed provider and with consideration of soil type, light, moisture, use applications, and native species content.
5. Soil tests should be performed to determine the nutrient and pH levels in the soil. The pH may need to be adjusted to between 6.5 and 7.0.
6. Prepare a 3–5" deep seedbed, with the top 3–4" consisting of topsoil.
7. Slopes steeper than 1:3 should be roughened.
8. Apply seed as soon as possible after seedbed preparation. Seed may be broadcast by hand, hydroseeding, or by using mechanical drills.
9. Mulch immediately after seeding.
10. Dormant seed mixes are for use after the growing season, using seed which lies dormant in the winter and begins growing as soon as site conditions become favorable.

STANDARD SYMBOL

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E8 PERMANENT SEEDING

Planting Zones:	Lower Peninsula (South of T20N) Zone 1	Lower Peninsula (North of T20N) Zone 2	Upper Peninsula Zone 3
Seeding Window Permanent Seeding	4/15 – 10/10	5/1 – 10/1	5/1 – 9/20
Seeding Window Dormant Seeding*	11/15 – Freeze	11/01 – Freeze	11/01 – Freeze

Source: Adapted from MDOT Interim 2003 Standard Specifications for Construction

	Zone 1 Lower Peninsula (South of U.S. 10)	Zone 2 Lower Peninsula (North of U.S. 10)	Zone 3 Upper Peninsula
Seeding Dates (with irrigation or Mulch)	4/1 – 8/1	5/1 – 9/20	5/1 – 9/10
Seeding Dates (w/o irrigation or Mulch)	4/1 – 5/20 or 8/10 – 10/1	5/1 – 6/10 or 8/1 – 9/20	5/1 – 6/15 or 8/1 – 9/20
Dormant Seeding Dates*	11/1 – Freeze	10/25 – Freeze	10/25 – Freeze

Source: Adapted from USDA NRCS Technical Guide #342 (1999)

* Dormant seeding is for use in the late fall after the soil temperature remains consistently below 50°F, prior to the ground freezing. This practice is appropriate if construction on a site is completed in the fall but the seed was not planted prior to recommended seeding dates. No seed germination will take place until spring. A cool season annual grass may be added in an attempt to have some fall growth.

- Mulch must be used with dormant seed.
- Do not seed when the ground is frozen or snow covered.
- Do not use a dormant seed mix on grassed waterways.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E8 PERMANENT SEEDING SPECIFICATIONS

How (cont.)
11. Protect seeded areas from pedestrian or vehicular traffic.
12. Divert concentrated flows away from the seeded area until vegetation is established.

Maintenance
- Inspect weekly and within 24 hours following each rain event in the first few months following installation to be sure seed has germinated and permanent vegetative cover is being established.
- Add supplemental seed as necessary.

Limitations
- Seeds need adequate time to establish.
- May not be appropriate in areas with frequent traffic.
- Seeded areas may require irrigation during dry periods.
- Seeding success is site specific, consider mulching or sodding when necessary.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E9 MULCH BLANKETS SPECIFICATIONS

When
- When seeded areas are subject to erosive surface flows, severe wind, or to protect non-vegetated slopes or areas during the winter.

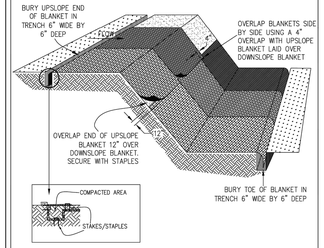
Why
- Protects seeded areas and slopes against erosion from rain or wind. Holds soil moisture to allow for seed germination and reduces wind dessication of germinated seeds.

Where
- Use on exposed slopes, newly seeded areas, new ditch bottoms, and other areas subject to erosion.

How
1. Prepare subgrade to proper grade and compaction requirements.
2. Remove ruts, roots, soil clods, or other debris from surface subject to mulch blanket installation.
3. Spread or drill seed.
4. Consult with erosion control material supplier to select mulch blanket based on slope gradient, expected surface run-off, and protection term necessary (long or short term).
5. Position selected mulch blanket as close as possible to intended use location.
6. Install blanket at top of slope, first anchoring toe in trench 6" wide X 6" deep, progressing down-slope or down-gradient with approximately 12" of blanket extended beyond the up-slope portion of the trench.
7. Anchor the blanket with staples/stakes placed approximately 12" apart in the bottom of the trench. Backfill and compact the trench after securing.
8. Apply seed to compacted soil and fold the 12" portion of the blanket over compacted area and secure with a row of staples/stakes placed 12" apart across the width of the blanket.
9. Unroll the blankets down or horizontally across the slope.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E9 MULCH BLANKETS



NOTES:
1. PLACE MULCH BLANKET PARALLEL TO FLOW AND ANCHOR SECURELY.
2. WHEN BLANKETS ARE USED IN FLOWING DITCH, BLANKETS SHOULD NOT OVERLAP IN DITCH CENTER PARALLEL TO FLOW.
3. STAPLES INSTALLED/SECURED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
4. WHERE POSSIBLE, CONSTRUCT WITH BIODEGRADABLE MATERIAL.

STANDARD SYMBOL

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E9 MULCH BLANKETS SPECIFICATIONS

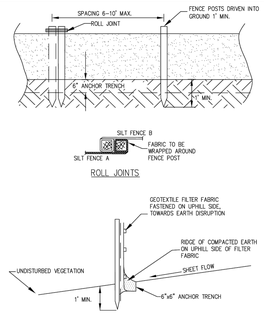
How (cont.)
10. Overlap blanket edges by a minimum of 4" and blanket ends by a minimum of 12". Overlaps should be in the direction of expected flow with the up-slope blanket placed over the down-slope blanket edge.
11. Secure down-slope end of blanket with staples/stakes and trench in.

Maintenance
- Check after a rain event to ensure the blanket is still in place.
- Keep eroded soil, vehicular and pedestrian traffic, and concentrated runoff away from the blanketed area.

Limitations
- Mulch blankets and anchors may inhibit mowing.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S51 SILT FENCE



STANDARD SYMBOL

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S51 SILT FENCE SPECIFICATIONS

When
- A temporary measure for preventing sediment movement.

Why
- Used to prevent sediment suspended in runoff from leaving an earth change area.

Where
- Use adjacent to critical areas, wetlands, base of slopes, and watercourses.

How
1. Install parallel to a contour.
2. The silt fence should be made of woven geotextile fabric.
3. Silt fence should accomodate no more than 1/2 to 1 acre of drainage per 100' of fence.
4. Dig a 6" trench along the area where the fence is to be installed.
5. Place 6" of the silt fence bottom flap into the trench.
6. Backfill the trench with soil and compact the soil on both sides. Create a small ridge on the up-slope side of the fence.
7. Install wooden stakes 6 – 10' apart and drive into the ground a minimum of 12".
8. Staple the geotextile fabric to the wooden stakes.
9. Join sections of silt fence by wrapping ends together (See drawing).

Maintenance
- Inspect frequently and immediately after each storm event. Check several times during prolonged storm events. If necessary, repair immediately.
- If the sediment has reached 1/3 the height of the fence, the soil should be removed and disposed of in a stable upland site.
- The fence should be re-installed if water is seeping underneath it or if the fence has become ineffective.
- Silt fence should be removed once vegetation is established and up-slope area has stabilized.

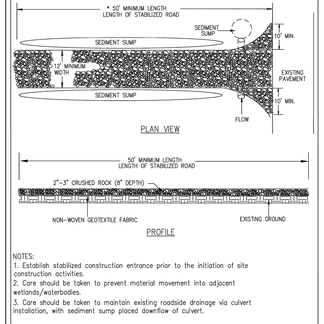
STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S51 SILT FENCE SPECIFICATIONS

Limitations
- Silt fence may cause temporary ponding and could fail if too much water flows through the area.
- Do not use in areas with concentrated flows.
- Chance of failure increases if fence is installed incorrectly or if sediment accumulation is not removed.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S53 STABILIZED CONSTRUCTION ACCESS



NOTES:
1. Establish stabilized construction entrance prior to the initiation of site construction activities.
2. Care should be taken to prevent material movement into adjacent wetlands/waterbodies.
3. Care should be taken to maintain existing roadside drainage via culvert installation, with sediment sump placed downflow of culvert.

STANDARD SYMBOL

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S53 STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS

When
- Construction traffic is expected to leave a construction site.
- Stabilization of interior construction roads is desired.

Why
- To minimize tracking of sediment onto public roadways and to minimize disturbance of vegetation.

Where
- Stabilized construction entrances shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must be routed over the rock ingress/egress corridor.

How
1. Stabilized construction access road should be established at the onset of the construction activities and maintained in place for the duration of the construction project.
2. Installation of this practice should be the responsibility of the site clearing or excavating contractor.
3. Access location should be cleared of woody vegetation.
4. Non-woven geotextile fabric shall be placed over the existing ground prior to placing stone.
5. Access size should be a minimum of 50', (30' for single residence lot).
6. Access width should be 12' minimum, flared at the existing road to provide a turning radius.
7. Crushed aggregate (2" to 3"), or reclaimed or recycled concrete equivalent, shall be placed at least 8" deep over the length and width of the ingress/egress corridor.

Maintenance
- Periodic inspection and needed maintainence shall be provided after each rain event.
- Stabilized entrances shall be repaired and rock added as necessary.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S53 STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS

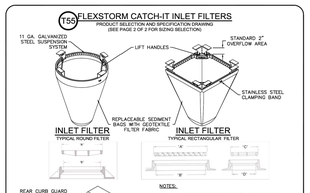
Maintenance (cont.)
- Sediment deposited on public rights-of-way shall be removed immediately and returned to the construction site.
- If soils are such that washing of tires is required, it shall be done in a wash rack area, stabilized with stone, immediately prior to the construction access stabilized corridor.
- At the project completion, rock access road should be removed and disposed of unless utilized as subgrade for final road.

Limitations
- Effectiveness limited, sediment may be tracked onto roads requiring additional action.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

T56 FLEXSTORM CATCH-IT INLET FILTERS

PRODUCT SELECTION AND SPECIFICATION DRAWING (SEE PAGE 2 OF 2 FOR SIZING SELECTION)



NOTES:
1. ALL FRAMING IS CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED) FOR 7 YEAR MINIMUM SERVICE LIFE.
2. UPON ORDERING CONFIRMATION OF THE DOT CALLOUT, PRECAST OR CASTING MAKE AND MODEL OR DETAILED DIMENSIONAL FORMS MUST BE SUBMITTED TO INLET FILTERS FOR DESIGN OF YOUR CUSTOMIZED FLEXSTORM INLET FILTER. PART NUMBER ALONE IS NOT SUFFICIENT.
3. FOR WRITTEN SPECIFICATIONS AND MAINTENANCE GUIDELINES VISIT: WWW.INLETFILTERS.COM

ALL PRODUCTS MANUFACTURED BY INLET & PIPE PROTECTION, INC A DIVISION OF ADS, INC. WWW.INLETFILTERS.COM (866) 287–8655 PH (630) 355–3477 FX INFO@INLETFILTERS.COM

SIZE	REFX/WORKING DWG. NO.	REV
C	FLEXSTORM_CATCH_IT	A

CITY OF EAST LANSING
DEPARTMENT OF ENGINEERING
410 ABBOT ROAD
EAST LANSING, MI 48823
(517) 337–9458 FAX: (517) 337–3943

PROJECT: STANDARD DETAILS — ENG. REVIEW
SHEET TITLE: FLEXSTORM CATCH–IT INLET FILTERS — 03/01/16
DRAWN: CJM — CHKD: RFS — APPROVED: — DATE: 03/14/14 — SHEET NO: 1 OF 2

S:\Engineering\Templates\Drawings\Standard Details\Details\Sewer Standard Details\Dwg\Current 03\T-FLEXSTORM CATCH-IT INLET FILTERS.dwg, Tuesday, March 01, 2016 1:24:21 PM, Clinton Merkley

T56 FLEXSTORM CATCH-IT INLET FILTERS

PRODUCT SELECTION AND SPECIFICATION DRAWING (SEE PAGE 1 OF 2 FOR DETAIL DRAWINGS)

1. INDENTIFY YOUR FRAME STYLE AND SIZE

STYLE	FRAME STYLE AND SIZE	Frame P/N
ROUND	Small Round Cast Iron (9.25" dia grate) (24 slots)	52SRC
	Medium Round Cast Iron (11.5" dia grate) (32 slots)	52MRC
	Large Round (19.1" – 19.5" dia grate) (42 slots)	52LRD
	Ductile Iron Round (19.1" dia – 19.5" dia grate) (42 slots)	52LRD
	Ductile Iron Round (19.1" dia – 19.5" dia grate) (42 slots) (6" dia openings) (EJ)	52LRDJ
	Small Round / Square (up to 36" (36 x 36" (22) openings) or 64" perimeter)	52SSQ
	Medium Round / Square (up to 36" (36 x 36" (22) openings) or 64" perimeter)	52MSQ
	Large Round / Square (up to 36" (36 x 36" (22) openings) or 64" perimeter)	52LSQ
CURB INLET	Small / Square (Flexible Grate) (up to 36" (36 x 36" (22) openings) or 64" perimeter)	52FLEX
	Small Round / Square (w/ Recessed Lip) (Flexible Grate) (up to 36" (36 x 36" (22) openings)	52FLEX
	Small Round / Square (w/ Recessed Lip) (Flexible Grate) (up to 36" (36 x 36" (22) openings)	52SLR
	Small Round / Square (w/ Recessed Lip) (Flexible Grate) (up to 36" (36 x 36" (22) openings)	52SLR
	Small Round / Square (w/ Recess Lip) (Stepped with Magnetic Curb Flaps)	52SLR
	Small Round / Square (w/ Recess Lip) (Stepped with Magnetic Curb Flaps)	52SLR
	Medium Round / Square (w/ Recess Lip) (Stepped with Magnetic Curb Flaps)	52MLR
	Large Round / Square (w/ Recess Lip) (Stepped with Magnetic Curb Flaps)	52LLR
MANHOLE	12" diameter Polyplated castings (Stainless Steel Framing standard)	52CMH
	22" diameter Polyplated castings (Stainless Steel Framing standard)	52CMH
	24" diameter Polyplated castings (Stainless Steel Framing standard)	52CMH
	28" diameter Polyplated castings (Stainless Steel Framing standard)	52CMH
	30" diameter Polyplated castings (Stainless Steel Framing standard)	52CMH

2. SELECT YOUR BAG PART NUMBER

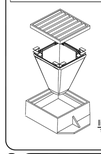
FLEXSTORM FILTER BAGS	22" (depth) 17" Bag P/N	17" (depth) Short Bag P/N	Clean Water Flow Rate (GPM/SqFt)	Min A.O.S. (US Sieve)
9% Standard Woven Bag	FB	FB-S	200	10
9% UDOT Non-Woven Bag	FBU	FBU-S	145	40

3. CREATE YOUR FLEXSTORM INLET FILTER PART NUMBER

Frame P/N from Step 1. | Filter Bag P/N from Step 2.

SPECIFICATIONS FOR STANDARD BAGS BY NOMINAL SIZE

Nominal Bag Size	Solids Storage (CF)	Filtered Flow Rate at 50% Max (CFS)	
		22" Bag	17" Bag
Small	1.6	1.1	0.9
Medium	2.1	1.7	1.3
Large	3.6	2.7	1.9
XL	4.2	3.6	2.6



INSTALLATION NOTES:
1. REMOVE GRATE
2. DROP FLEXSTORM INLET FILTER ON TO CENTER OF INLET OR CASTING OR CONCRETE STRUCTURE
3. REPLACE GRATE

INLET FILTER
TYPICAL INSTALLATION

ALL PRODUCTS MANUFACTURED BY INLET & PIPE PROTECTION, INC A DIVISION OF ADS, INC. WWW.INLETFILTERS.COM (866) 287–8655 PH (630) 355–3477 FX INFO@INLETFILTERS.COM

SIZE	REFX/WORKING DWG. NO.	REV
C	FLEXSTORM_CATCH_IT	A

CITY OF EAST LANSING
DEPARTMENT OF ENGINEERING
410 ABBOT ROAD
EAST LANSING, MI 48823
(517) 337–9458 FAX: (517) 337–3943

PROJECT: STANDARD DETAILS — ENG. REVIEW
SHEET TITLE: FLEXSTORM CATCH–IT INLET FILTERS — 03/01/16
DRAWN: CJM — CHKD: RFS — APPROVED: — DATE: 03/14/14 — SHEET NO: 2 OF 2

S:\Engineering\Templates\Drawings\Standard Details\Details\Sewer Standard Details\Dwg\Current 03\T-FLEXSTORM CATCH-IT INLET FILTERS.dwg, Tuesday, March 01, 2016 1:24:21 PM, Clinton Merkley



LOCATION MAP
NOT TO SCALE

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD., EAST LANSING, MI 48823

PARCEL ID# 19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH
LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PSP	03/18/2026

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:

SESC STANDARD DETAILS

NO. C5.2

PROJECT NO. 25-1206

LANDSCAPE NOTES:
1. ALL PLANT BEDS AND MAINTENANCE EDGES AROUND STRUCTURES WILL BE MULCHED W/ MICHIGAN STONE (1-2" DIA.) OVER COMMERCIAL WEED BARRIER. ALL PLANTS WILL HAVE SMALL RING OF SHREDDED HARDWOOD MULCH, 3-4" DEEP OVER THE ROOT BALL

2. IF LAWN IS TO BE SODDED, USE A LOCALLY GROWN KENTUCKY BLUEGRASS VARIETY, FREE OF WEEDS.

3. SEED AREAS WITH THE FOLLOWING:
25% SYBSPORT KENTUCKY BLUEGRASS
25% NASSAM KENTUCKY BLUEGRASS
20% BRYISTOL KENTUCKY BLUEGRASS
10% PERINNIAL RYE GRASS
APPLY AT THE RATE OF 2 TO 3 LBS. PER 1,000 S.F.

4. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES, AS WELL AS THE LOCATION OF EXISTING TREES AND VEGETATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COST INCURRED DUE TO DAMAGE/REMOVAL OF SAID ELEMENTS.

5. ANY DISCREPANCIES BETWEEN PLANS, NOTES, DETAILS AND EXISTING CONDITIONS SHALL BE IMMEDIATELY REPORTED TO THE OWNER'S AUTHORIZED REPRESENTATIVE FOR REVIEW AND DECISION. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.

6. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING MATERIALS/IMPROVEMENTS, DAMAGED DURING CONSTRUCTION.

7. SITE BOUNDARY, TOPOGRAPHY, UTILITIES AND OTHER BASE INFORMATION PROVIDED BY OTHERS.

8. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT SCHEDULES AND THOSE INDICATED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR INSTALLATIONS OF QUANTITIES DRAWN.

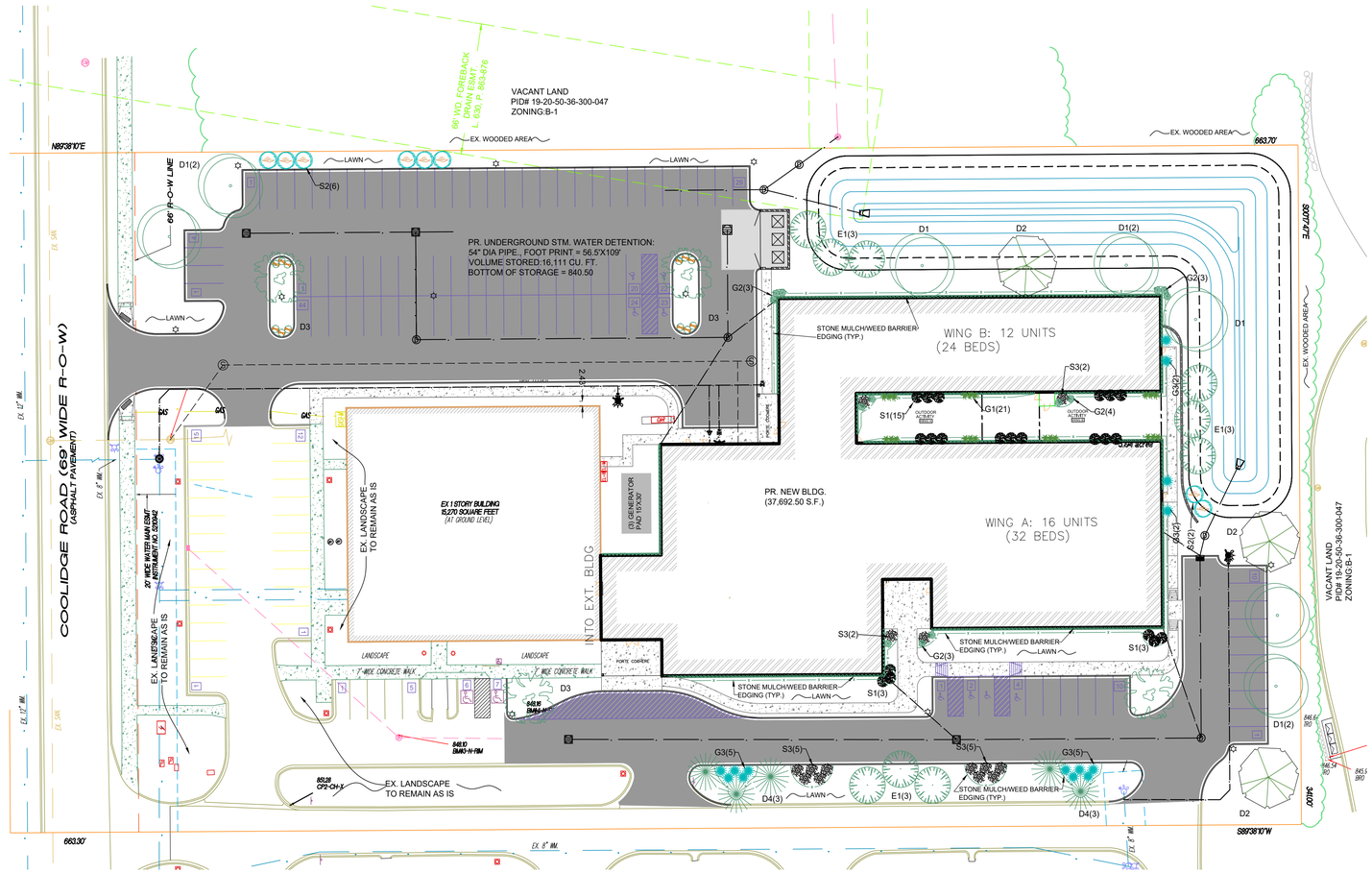
9. CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO PLANT MATERIAL LOCATIONS IN FIELD, AS NECESSARY. THE LOCATION OF ALL PLANT MATERIAL SHALL BE SUBJECT TO APPROVAL BY THE OWNER'S AUTHORIZED REPRESENTATIVE.

10. ALL PLANT MATERIAL SHALL BE OF THE SIZES CALLED FOR IN THE PLANT SCHEDULES. ANY PLANT MATERIAL NOT MEETING THE SIZED AND/OR QUALITY AS CALLED FOR SHALL BE REMOVED FROM SITE. ALL TREES SHALL BE INSPECTED AND APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. NO SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITHOUT THE APPROVAL FROM THE OWNER'S AUTHORIZED REPRESENTATIVE.

11. ALL PROPOSED TREES OVER 2" CAL. SHALL BE GUYED/STAKED SECURE, SEE EVERGREEN TREE PLANTING/GUYING DETAIL, OR DECIDUOUS TREES PLANTING/STAKING DETAIL WHERE APPLICABLE.

12. ALL PLANTING BEDS TO BE TREATED WITH PRE-EMERGENT HERBICIDE. CONTRACTOR SHALL INSURE THAT PROPOSED PLANT MATERIAL IS RESISTANT TO THE HERBICIDE PROPERTIES AND THAT THE HERBICIDE APPLICATION FOLLOWS THE MANUFACTURER'S SPECIFICATIONS AND IS APPLIED IN ACCORDANCE WITH SOUND HORTICULTURAL PRACTICES.

13. CONTRACTOR SHALL DETERMINE APPROPRIATE PLANTING BACKFILL MIXES(BASED ON SOILS/SUBSURFACE CONDITIONS) AND REVIEW ALTERNATIVES WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION.



LANDSCAPE PLAN
SCALE: 1" = 30.00'



LOCATION MAP
NOT TO SCALE

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

TREE AND SHRUB PLANTING SCHEDULE

KEY	SYMBOL	QUANT.	TYPE	MIN. CAL./ SIZE
			DECIDUOUS TREES	
D1		7	*ACER P. "CRIMSON KING" CRIMSON KING MAPLE*	*3.5" CALIPER*
D2		3	*ACER RUBRUM "OCTOBER GLORY" OCTOBER GLORY RED MAPLE*	*3.5" CALIPER*
D3		4	*GLEDITSIA T. "SUNBURST" SUNBURST LOCUST*	*3.5" CALIPER*
D4		11	*TILIA CORDATA "GREENSPIRE" GREENSPIRE LINDEN*	*3.5" CALIPER*
TOTAL DECIDUOUS TREES PROVIDED: 25				
			EVERGREEN TREES	
E1		9	*PICEA MOMORIKA SERBIAN SPRUCE*	*6'-7' MIN. HT.*
TOTAL EVERGREEN TREES PROVIDED: 9				
			SHRUBS AND FLOWERS	
S1		21	*HYDRANGEA MACROPHYLA "ENDLESS SUMMER" ENDLESS SUMMER HYDRANGEA*	*24"*
S2		8	*EUONYMU ALATUS "COMPACTA" COMPACT BURNING BUSH*	*36"*
S3		14	*PHYSOCARPUS O. "DIABLO" DIABLO NINEBARK*	*24"*
			GRASSES	
G1		21	*CALAMAGROSTIS "KARL FOERSTER" KARL FOERSTER REED GRASS*	*2 GALLON*
G2		13	*MISCANTHUS "PURPURASCENS" FLAME GRASS*	*2 GALLON*
G3		14	*PENNISETUM ALOPECUROIDES "HAMEIN" DWARF FOUNTAIN GRASS*	*2 GALLON*
			FLOWERS	
P1		12	*RUDBECKIA " GOLSTRUM" BLACK EYED SUSAN*	*1 GALLON*
TOTAL SHRUBS PROVIDED: 43				
TOTAL GRASS PLANTS PROVIDED: 48				
TOTAL FLOWERING PLANTS PROVIDED: 12				

NOTE:
ALL OPEN AREAS SHALL BE SODDED AND IRRIGATED.

NOTE:
1. IF ANY DISCREPANCY BETWEEN THESE PLANS AND CITY / TWP. STANDARDS OCCURS THE CITY / TWP. STANDARDS SHALL GOVERN..
2. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
3. "NO PARKING-FIRE LANE" SIGNS SHALL BE INSTALLED AND MAINTAINED AS DESIGNATED BY THE FIRE MARSHAL.
4. AN EMERGENCY ACCESS LANE, AS REQUIRED IN ORDINANCE 145, SHALL BE PROVIDED PRIOR TO THE START OF CONSTRUCTION UNLESS THE PERMANENT HARD SURFACE IS INSTALLED PRIOR TO CONSTRUCTION.
5. PRIOR TO CONSTRUCTION, ALL LOCATION AND DEPTHS OF EXISTING OVERHEAD AND UNDER-GROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD.
6. DURING CONSTRUCTION, CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR OVERHEAD AND/OR BURIED UTILITIES. CALL MISS DIG.
7. MUNICIPAL UTILITIES (WATER, SANITARY AND STORM SEWER) ARE TO BE BROUGHT ON SITE BY THE DEVELOPER FROM EXISTING SOURCES.

72 HOURS
BEFORE YOU DIG
CALL MISS DIG
800-482-7171
(TOLL FREE)

UTILITY WARNING
UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THESE PLANS ARE APPROXIMATED FROM UTILITY OWNER AND MAY NOT BE LOCATED.
A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY MISS DIG AND HAVE ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK CAN BEGIN.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #:(586) 786-5533 FAX #:(586) 786-5575
www.gatewaygroup.com

ALL DIMENSIONS, shall verify and understand all dimensions on the job before proceeding with the work. Any discrepancies must be reported to the Architect before proceeding. Do not scale drawings. Drawings are not to be used for construction purposes unless issued for construction. Drawings, Specifications and Details are instruments of service and are the property of the Architect whether the project for which they are made is executed or not. They are not to be loaned, copied or disclosed without written consent of the Architect.

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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD.,
EAST LANSING, MI 48823

PARCEL ID#
19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH
LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
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PHONE#: 734-673-5452

ISSUANCE:
- ☐ SCHEMATIC
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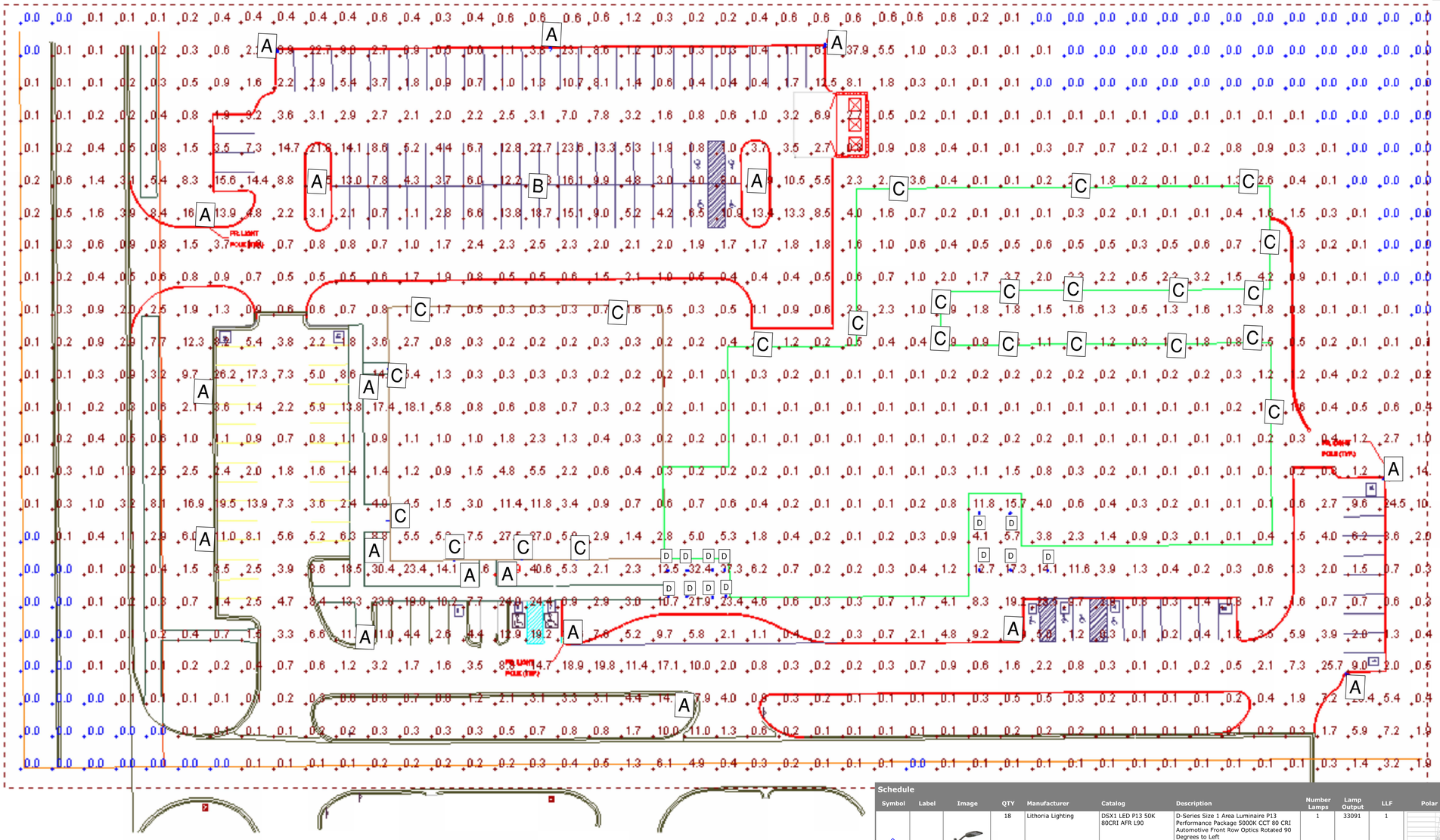
NO.	DESC.	DATE
1.	PSP	03/18/2026

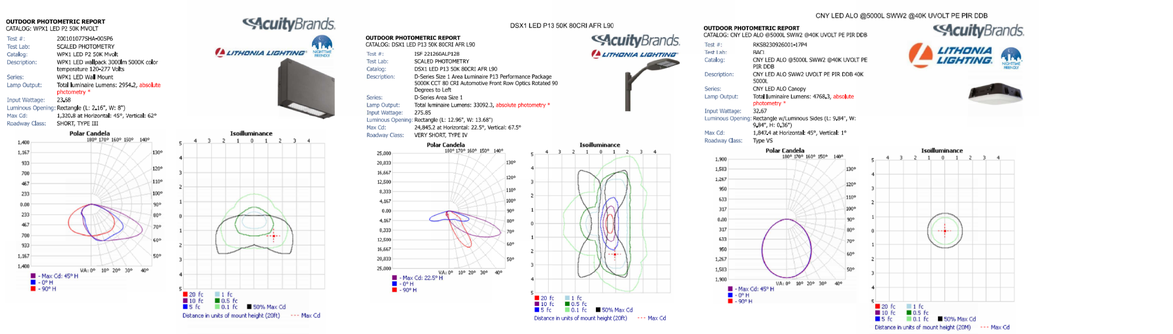
REVIEWED BY:	J.V.
DESIGNED BY:	M.G.
DRAWN BY:	M.G.

DRAWING:
LANDSCAPE PLAN

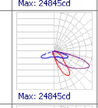
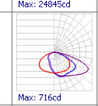
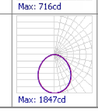
NO. LA1.1

PROJECT NO. 25-1206





Schedule

Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Polar Plot	Input Power
	A		18	Lithonia Lighting	DSX1 LED P13 50K 80CRI AFR L90	D-Series Size 1 Area Luminaire P13 Performance Package 5000K CCT 80 CRI Automotive Front Row Optics Rotated 90 Degrees to Left	1	33091	1	 Max: 24845cd	275.85
<5ft <5ft	B		1	Lithonia Lighting	DSX1 LED P13 50K 80CRI AFR L90	D-Series Size 1 Area Luminaire P13 Performance Package 5000K CCT 80 CRI Automotive Front Row Optics Rotated 90 Degrees to Left	1	33091	1	 Max: 24845cd	551.7
	C		24	Lithonia Lighting	WPX1 LED P1 50K Mvolt	WPX1 LED wallpack 1500lm 5000K color temperature 120-277 Volts	1	1602	1	 Max: 716cd	11.39
	D		13	Lithonia Lighting	CNY LED ALO SWW2 UVOLT PE PIR DDB 40K 5000L	CNY LED ALO SWW2 UVOLT PE PIR DDB 40K 5000L	1	4802	1	 Max: 1847cd	32.67

Designer OG
Date 04/21/2026
Scale Not to Scale
Drawing No.
Summary

1 of 1



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PROJECT:

LANSING PSYCH
LANSING, MICHIGAN

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH / LEO BROWN GROUP LLC

CONTACT:
KESHAV
P: 7346735452
E: keswvik@gmail.com

ISSUANCE:
- ☐ SCHEMATIC
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NO.	DESC.	DATE
1.		

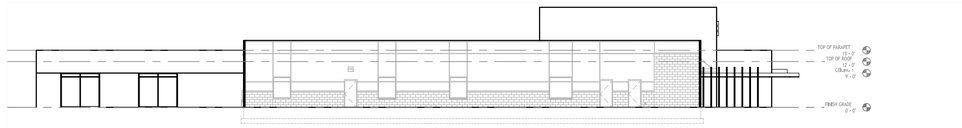
SCALE:

REVIEWED BY:	J.V.
DESIGNED BY:	O.G.
DRAWN BY:	O.G.

DRAWING:
1ST FLOOR PLAN

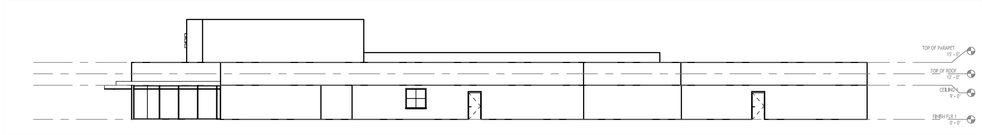
NO. A1.1

PROJECT NO. # 25-1206



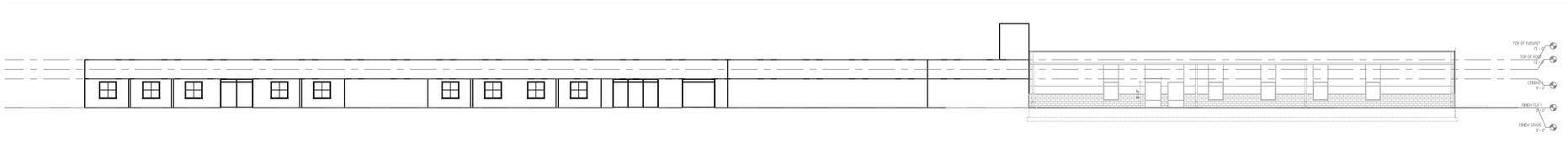
EXTERIOR ELEVATION, SIDE/WEST 03

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



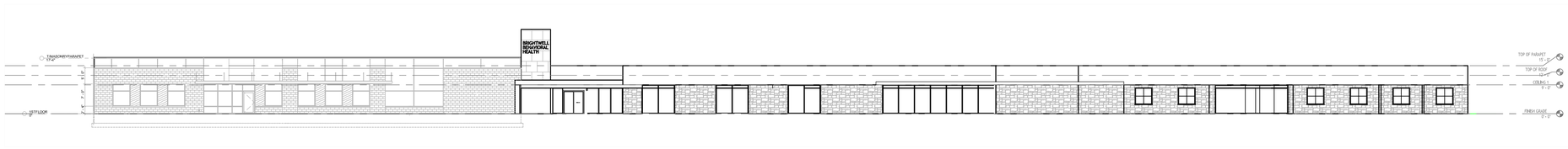
EXTERIOR ELEVATION, SIDE/EAST 04

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



EXTERIOR ELEVATION, BACK/NORTH 02

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



EXTERIOR ELEVATION, FRONT/SOUTH 01

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









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PROJECT:

LANSING PSYCH
LANSING, MICHIGAN

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH / LEO BROWN GROUP LLC

CONTACT:
KESHAV
P: 7346735452
E: keswvik@gmail.com

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

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NO.	DESC.	DATE
1.		

SCALE:

REVIEWED BY: J.V.
DESIGNED BY: O.G.
DRAWN BY: O.G.

DRAWING:
EXTERIOR ELEVATIONS

NO. A2.1

PROJECT NO. # 25-1206



BRIGHTWELL BEHAVIORAL HEALTH : 3512 COOLIDGE RD., EAST LANSING , MI 48823

PROJECT DATA:

LEGAL DESCRIPTION:
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.

PART OF THE SW 1/4 OF SECTION 36, TOWN 5 NORTH, RANGE 2 WEST, CITY OF EAST LANSING, INGHAM COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SW CORNER OF SECTION 36; THENCE N00°21'50"W 712.59 FEET, ALONG THE WEST LINE OF SAID SECTION 36, TO THE POINT OF BEGINNING; THENCE CONTINUING N00°21'50"W 341.00 FEET; THENCE N89°38'10"E 663.70 FEET; THENCE S00°17'50"W 341.00 FEET; THENCE S89°38'10"W 663.30 FEET, TO THE POINT OF BEGINNING.
CONTAINING: 226,253 SQUARE FEET—5.194 ACRES, MORE OR LESS.
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.
SUBJECT TO THE RIGHTS OF A PUBLIC AND ANY EASEMENTS AND/OR RESTRICTIONS OF RECORD OR OTHERWISE.

NOTE: SINCE SURVEY DOES NOT INCLUDE A TITLE SEARCH THERE COULD BE EASEMENTS AND/OR ENCUMBRANCES UPON THE SUBJECT PROPERTY THAT ARE NOT SHOWN AT THIS TIME.

PROJECT DATA:

LOCAL AGENCY: CITY OF EAST LANSING
PLANING & ZONING
410 ABBOT RD.
EAST LANSING, MI 48823

EXISTING ZONING: B-1 - BUSINESS
EXISTING LAND USE: PATIENT CARE FACILITY
PROPOSED LAND USE: PR. NEW BUILDING FOR PATIENT CARE FACILITY

GROSS AREA OF SITE : 226,253 S.F. (5.194 ACRES)

EX. GROSS BUILDING FOOT AREA : 15,275 S.F.
EX. SITE COVERAGE (BUILDING): ± 6.75%
PR. GROSS BUILDING FOOT AREA: 37,692.50 S.F.
PR. SITE COVERAGE (EX.BUILDING + PR. BUILDING): ± 23.41% (52,967.50 S.F.)

EX. GROSS AREA OF PAVEMENT (ROAD & SIDEWALK) = ± 47,530 S.F.
PR. REMOVED PAVEMENT: ± 9,747 S.F.
PR. ADDED PAVEMENT: ± 49,747 S.F.
TOTAL SITE COVERAGE (ROAD & SIDEWALK) = ± 87,530 S.F.

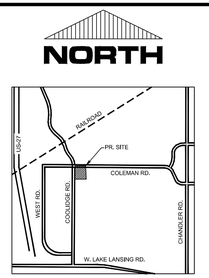
PR. SITE COVERAGE BY IMPERVIOUS SURFACE (BUILD., PAVT., ETC.): ± 62.09% (140,497.50 S.F.)

GENERAL NOTES

1. ALL WORK TO COMPLY W/ ALL NATIONAL, STATE & LOCAL CODES, ORDINANCES, LAWS & REGULATIONS THAT ARE APPLICABLE.
2. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS & CALL FOR REQUIRED INSPECTIONS.
3. THE CONTRACTOR SHALL FIELD VERIFY THE SIZES, LOCATIONS, ELEVATIONS, & DETAILS OF EXISTING CONDITIONS THAT EFFECT THE WORK AND SHALL INFORM THE ARCHITECT / ENGINEER OF ANY DISCREPANCIES IN DIMENSIONS, SIZES, LOCATIONS & CONDITIONS BEFORE PROCEEDING WITH THE WORK.
4. THE CONTRACTOR SHALL PROVIDE ALL SHORING, BRACING, UNDERPINNING AND ALL OTHER MEANS REQUIRED TO PROTECT AND MAINTAIN THE SAFETY, INTEGRITY AND STABILITY OF ALL NEW CONSTRUCTION.
5. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS OF THE BUILDING INCLUDING UTILITIES, SERVICES, ETC., AND SHALL BE FULLY RESPONSIBLE FOR ANY DAMAGES HE CAUSES TO BOTH EXISTING AND NEW CONSTRUCTION AND PROPERTY AND FOR ANY UNAUTHORIZED DISRUPTION TO THE OWNER'S NORMAL USE OF UTILITIES, SERVICES AND THE SURROUNDING FACILITIES.
6. FIELD VERIFY ALL EXISTING DIMENSIONS, HEIGHTS, AND CONDITIONS PRIOR TO DESIGN, INSTALLATION, OR MANUFACTURING OF ANY SYSTEM.
7. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
8. ALL WORK SHALL BE SUBJECT TO FIELD INSPECTIONS.
9. IMPROVEMENTS ARE LIMITED TO THOSE INDICATED ON THE APPROVED PLANS.
10. ALL INTERIOR FINISHES SHALL COMPLY WITH CHAPTER 8.
11. FLOOR SURFACES IN THE MEANS OF EGRESS ARE REQUIRED TO BE SLIP RESISTANT IN ACCORDANCE WITH SECTION 1003.4.
12. THE IMPROVEMENTS ARE LIMITED TO THOSE INDICATED ON THE APPROVED PLANS. ANY REVISIONS WILL REQUIRE REVIEW AND APPROVAL.
13. NO REVIEW OF EXTERIOR SIGNAGE WAS CONDUCTED AS PART OF THIS REVIEW. A SEPARATE BUILDING PERMIT SUBMITTAL AND REVIEW IS REQUIRED FOR EXTERIOR SIGNAGE.
14. PRIOR TO PERMIT ISSUANCE, A FINAL COPY OF THE FINAL PLANS (ELECTRONIC VERSION)(PDF), SHALL BE E-MAILED TO BLDG DEPT.
15. A COPY OF THE APPROVED PLANS AND PLAN REVIEW RECORD ONSITE FOR INSPECTIONS SHALL BE PROVIDED. THE PLANS AND REVIEW RECORD SHALL BE PLACED AT THE ACTUAL CONSTRUCTION AND SHALL BE READILY ACCESSIBLE TO THE INSPECTOR.

PATIENT CARE FACILITY- GES PROJ. # 25-1206 - REV. PSP - 06-03-2026

LOCATION MAP:



LOCATION MAP
NOT TO SCALE

PROJECT TEAM:

GES - GATEWAY ENGINEERING AND SURVEYING, INC.
8155 ANNSBURY DR. SUITE 109
SHELBY TWP., MI 48316
OFFICE: (586) 786-5533

ENGINEER: JOSEPH VAGLICA, PhD, PE
EMAIL: joe@gatewayengineer.com
CC: mitesh@gatewayenginner.com

NOTE: THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE WILL BE PLAN PREPARER: JOSEPH VAGLICA, PhD, PE / LICENSE NO. 6201050340

CLIENT:

LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

GES PROJ # 25-1206

CITY OF EAST LANSING PLANNING DEPT. - PERMIT #

GES
GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #(586) 786-5533 FAX #(586) 786-5575
www.gatewayengineer.com

INDEX OF DRAWINGS:

SHEET	NAME
	COVER SHEET
	TOPOGRAPHIC SURVEY PLAN (BY OTHERS)
C2.1	PROPOSED SITE PLAN
C3.1	PROPOSED GRADING PLAN
C4.1	PROPOSED UTILITY PLAN
C4.2	PROPOSED DRAINAGE AREA PLAN
C4.3	PROPOSED UTILITY- DETAILS
C5.1	SOIL EROSION AND SEDIMENT CONTROL PLAN
C5.2	SESC- STANDARD DETAILS
LA1.1	LANDSCAPE PLAN
	PHOTOMETRIC PLAN
A1.1	FLOOR PLAN
A2.1	EXTERIOR ELEVATIONS

SEAL:

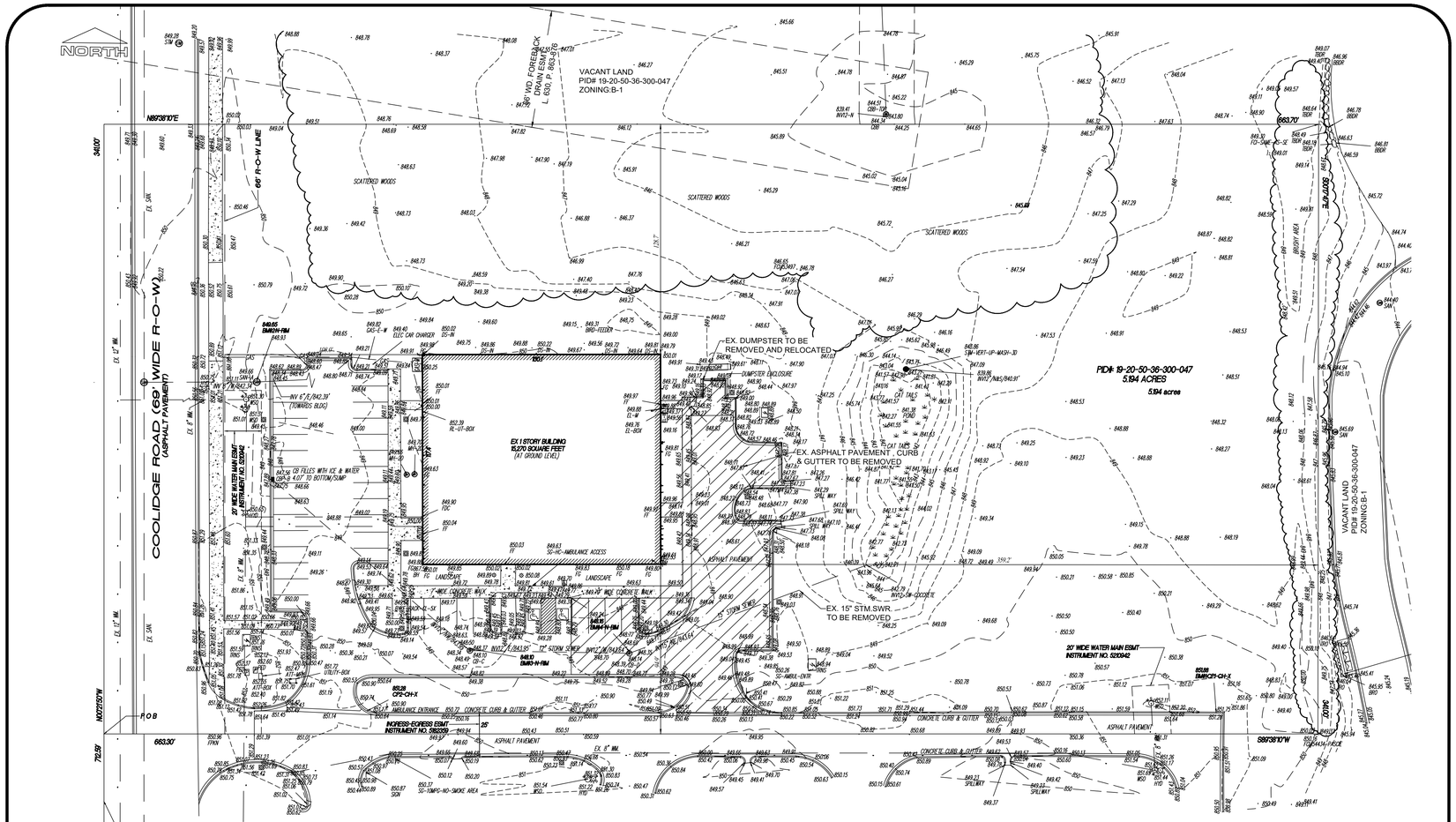
ENGINEER'S CERTIFICATION:
"I HEREBY CERTIFY THAT I HAVE READ THE TOWNSHIP'S LAND DEVELOPMENT ORDINANCE (AND IT'S RELATED ENGINEERING AND CONSTRUCTION STANDARDS) AND I HAVE PREPARED THESE PLANS IN COMPLETE CONFORMITY WITH THE REQUIREMENTS OF SAID ORDINANCE."

Joseph Vaglica
Digitally signed by Joseph Vaglica
Date: 2026.06.04 09:27:38-04'00'

JOSEPH VAGLICA
PROFESSIONAL CIVIL ENGINEER NO. 50340

STATE OF MICHIGAN
JOSEPH VAGLICA
License No. 6201050340
PROFESSIONAL ENGINEER

TOPOGRAPHIC SURVEY



BENCH MARK INFORMATION

Site Bench Mark No. 1:
Chisled "X" in concrete curb at the very end of the street of the subject property.
EL=851.88' (NAVD88)

Site Bench Mark No. 2:
North rim of a sanitary manhole at the NW property corner of the subject property.
EL=849.65' (NAVD88)

Site Bench Mark No. 3:
North rim of a west catch basin in the parking lot and in ffront of the building of the subject property.
EL=848.10' (NAVD88)

Site Bench Mark No. 4:
North rim of a east catch basin in the parking lot and in ffront of the building of the subject property.
EL=848.16' (NAVD88)

LEGEND

= PRIVACY FENCE	BM = BENCH MARK
WSO = WATER SHUT OFF	NAVD88 = NORTH AMERICAN VERTICAL DATUM AS OF 1988
= EX. HYDRANT	CP = CONTROL POINT
SA = EX. SANITARY M.H.	POB = POINT OF BEGINNING
CB = EX. CATCH BASIN	DS = DOWNSPOUT
= STORM INLET	DS-IN = DS DIRECTED IN GROUND
= BEEHIVE CATCH BASIN	INV = INVERT
UM = EX. UNKNOWN MANHOLE	CH "X" = CHISELED "X" IN CONCRETE
GAS-M = GAS METER	EX = EXISTING
EL-M = ELECTRIC METER	R-O-W = RIGHT-OF-WAY
EL-B = ELECTRIC BOX	SW = SOUTH-WEST
GEN = POWER GENERATOR	NO = NUMBER
P = UTILITY PEDESTAL	EL = ELEVATION
= TRANSFORMER	FF = FINISH FLOOR
= MAIL BOX	FG = FINISH GRADE
850.00 = EX SPOT ELEV.	= CAT TAILS
= EX CONTOUR	BLDG = BUILDING
= LIGHT POLE	RD = ROAD
= HANDICAP STALL/SIGN	ESMT = EASEMENT
P.I.D. = PARCEL IDENTIFICATION NUMBER	
T./R. = TOWN/RANGE	
L./P. = LIBER/PAGE	
FI/FCI = FOUND IRON/CAPPED IRON	

FLOOD NOTE

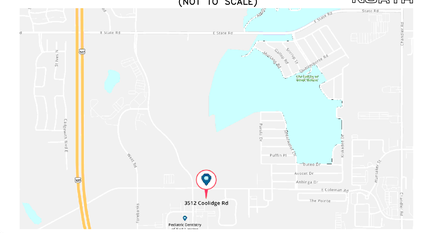
Subject property as depicted herein, DOES NOT LIE in a Special Flood Hazard Area (SFHA), according to Flood Insurance Rate Map (FIRM) No. 260089, Panel No. 0319, Suffix "D", being effective as of May 3, 2011.

LAND AREA

226,253 ± SQUARE FEET
5.194 ± ACRES

VICINITY MAP

(NOT TO SCALE)



GENERAL NOTES

–Utility information as shown herein are compilation of field observation and City's records, therefore no guarantee could be given as to their exact location and depth. An excavation might be needed in order to determine utility position.

–All measurements as shown herein are existing.

–All symbols as shown herein are not to scale.

–While surveying the property as shown herein, entire site was covered with snow and ice. AB–SB Land Survey, P.C. shell not be held liable if some of the site features were omitted.

–All measured elevations are expressed in North American Vertical Datum as of 1988. (NAVD88)

–AB–SB Land Survey, P.C retains the sole ownership of this document as an instrument of service and it can not be reused nor reproduced without written permission and additional compensation.
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LEGAL DESCRIPTION

#3512 Coolidge Road, East Lansing, MI, 48823

Part of the SW 1/4 of Section 36, Town 5 North, Range 2 West, City of East Lansing, Ingham County, Michigan, being more particularly described as follows:
Commencing at the SW Corner of Section 36; thence N00°21'50"W 712.59 feet, along the West line of said Section 36, to the Point of Beginning; thence continuing N00°21'50"W 341.00 feet; thence N89°38'10"E 663.70 feet; thence S00°17'50"W 341.00 feet; thence S89°38'10"W 663.30 feet, to the Point of Beginning.
Containing: 226,253 Square Feet---5.194 Acres, more or less.
Parcel Identification Number:# 19–20–50–36–300–047.
Subject to the rights of a public and any easements and/or restrictions of record or otherwise.

Note: Since our survey DOES NOT include a Title Search there could be easements and/or encumbrances upon the subject property that are not shown at this time.

STATE OF MICHIGAN
MENDE BEZANOVSKI
PROFESSIONAL SURVEYOR
NO. 49430
LICENSED PROFESSIONAL SURVEYOR

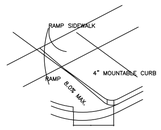
Mende Bezanovski, P.S.#4001049430
State of Michigan

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

0' 15' 30' 60'

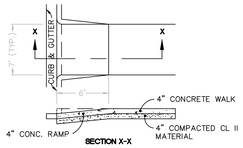
AB–SB LAND SURVEY, P.C.
36636 North Pointe Dr. New Baltimore, MI,48047
TEL: (586) 822–4964, FAX: (586) 591–5930
info@ab–sb–landsurvey.com;
www.ab–sb–landsurvey.com

SCALE: 1" = 30'	PAGE: 1 OF 1
JOB NUMBER: 2025-12-02-258-KK	DRAWN: MB
FIELD: MB	CHECKED: MB
REVISIONS:	DATE: 12-14-2025
CLIENT: LANSING PSYCH SENIOR HOSPITAL	
ADDRESS: 3512 Coolidge Road East Lansing, MI, 48823	TEL: (734)-673-5452 FAX:



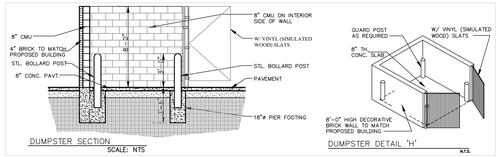
HDC RAMP DETAIL 'H'

NOT TO SCALE



WHEEL CHAIR RAMP AND TYPICAL SIDEWALK DETAIL

NO SCALE



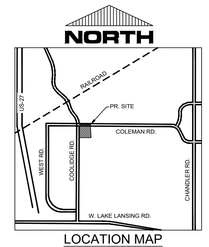
SITE BENCHMARK: (NAVD 88 - BY GPS)

B.M. # 1
CHISLED "X" IN CONCRETE CURB AT THE VERY END OF THE STREET OF THE SUBJECT PROPERTY.
ELEV.=851.88'

B.M. # 2
NORTH RIM OF A SANITARY MANHOLE AT THE NW PROPERTY CORNER OF THE SUBJECT PROPERTY.
ELEV.=849.65'

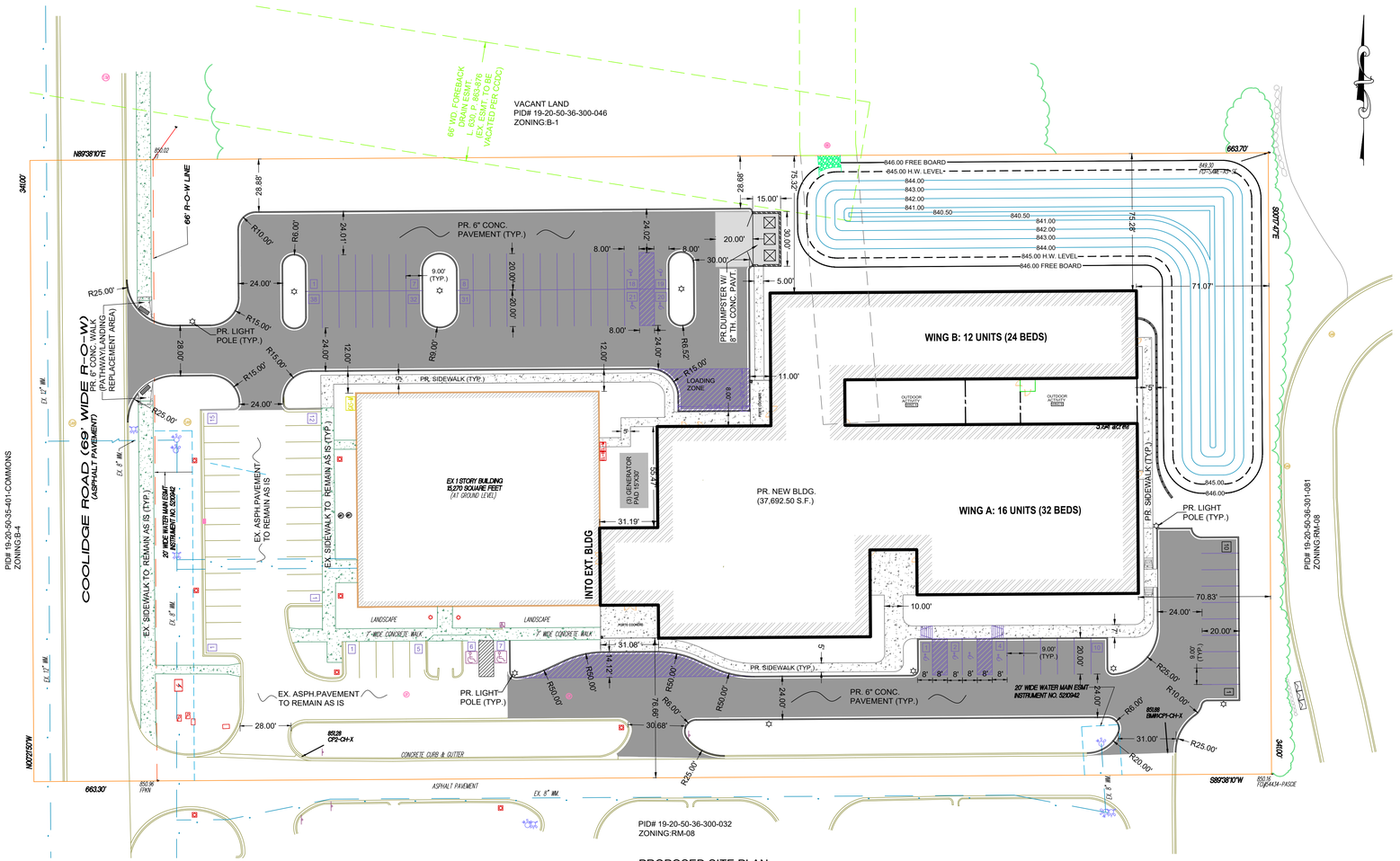
B.M.# 3
NORTH RIM OF A WEST CATCH BASIN IN THE PARKING LOT AND IN FFRONT OF THE BUILDING OF THE SUBJECT PROPERTY.
ELEV.=848.10'

B.M. # 4
NORTH RIM OF A EAST CATCH BASIN IN THE PARKING LOT AND IN FFRONT OF THE BUILDING OF THE SUBJECT PROPERTY.
ELEV.=848.16'



LOCATION MAP

NOT TO SCALE



PROPOSED SITE PLAN

SCALE: 1" = 30.00'

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.

PROJECT : PR. NEW BUILDING FOR PATIENT CARE FACILITY

LEGAL DESCRIPTION:
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.

PART OF THE SW 1/4 OF SECTION 36, TOWN 5 NORTH, RANGE 2 WEST, CITY OF EAST LANSING, INGHAM COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SW CORNER OF SECTION 36; THENCE N00°21'50"W 712.59 FEET, ALONG THE WEST LINE OF SAID SECTION 36, TO THE POINT OF BEGINNING; THENCE CONTINUING N00°21'50"W 341.00 FEET; THENCE N89°38'10"E 663.70 FEET; THENCE S00°17'50"W 341.00 FEET; THENCE S89°38'10"W 663.30 FEET, TO THE POINT OF BEGINNING.
CONTAINING: 226,253 SQUARE FEET---5.194 ACRES, MORE OR LESS.
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.
SUBJECT TO THE RIGHTS OF A PUBLIC AND ANY EASEMENTS AND/OR RESTRICTIONS OF RECORD OR OTHERWISE.

NOTE: SINCE SURVEY DOES NOT INCLUDE A TITLE SEARCH THERE COULD BE EASEMENTS AND/OR ENCUMBRANCES UPON THE SUBJECT PROPERTY THAT ARE NOT SHOWN AT THIS TIME.

PROJECT DATA:

LOCAL AGENCY: CITY OF EAST LANSING
PLANING & ZONING
410 ABBOT RD.
EAST LANSING, MI 48823

EXISTING ZONING: B-1 - BUSINESS
EXISTING LAND USE: PATIENT CARE FACILITY
PROPOSED LAND USE: PR. NEW BUILDING FOR PATIENT CARE FACILITY

GROSS AREA OF SITE : 226,253 S.F. (5.194 ACRES)

EX. GROSS BUILDING FOOT AREA : 15,275 S.F.
EX. SITE COVERAGE (BUILDING): ± 6.75%
PR. GROSS BUILDING FOOT AREA: 37,692.50 S.F.
PR. SITE COVERAGE (EX.BUILDING + PR. BUILDING): ± 23.41% (52,967.50 S.F.)

EX. GROSS AREA OF PAVEMENT (ROAD & SIDEWALK) = ± 47,530 S.F.
PR. REMOVED PAVEMENT: ± 9,747 S.F.
PR. ADDED PAVEMENT: ± 49,747 S.F.
TOTAL SITE COVERAGE (ROAD & SIDEWALK) = ± 87,530 S.F.

PR. SITE COVERAGE BY IMPERVIOUS SURFACE (BUILD., PAVT., ETC.): ± 62.09% (140,497.50 S.F.)

PARKING CALCULATIONS:

REQUIRED PARKING:
PATIENT CARE: 1 SPACE PER 2 BEDS

TOTAL EX. BEDS = 23/(2 SPACES /BED) = 11.5 = 12
TOTAL PR. BEDS = 56/(2 SPACES/BED) = 28

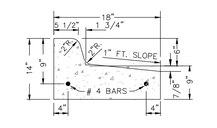
TOTAL EMPLOYEES @ SITE: 80 EMPLOYEES TOTAL WITHIN 2 SHIFTS
LARGEST SHIFT = ± 45 EMPLOYEES (1 PER EMPLOYEE)
PARKING SPACES REQ. FOR EMPLOYEES = 45 SPACES

TOTAL REQUIRED = 12+28+40 = 85 PARKING SPACES REQUIRED

PARKING PROVIDED:

EX. 34 PARKING SPACES INCLUDING 2 H.C.
PR. 58 PARKING SPACES INCLUDING 8 H.C.

TOTAL 92 PARKING SPACE INCLUDING 10 H.C. SPACE PROPOSED ON SITE



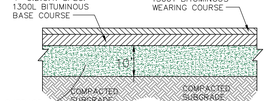
CONC. CURB & GUTTER DETAIL WITH REVERSE SLOPE (F2 MOD.)

NOT TO SCALE



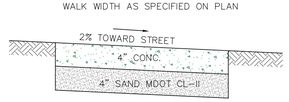
TYPICAL 8" CONCRETE PAVT. SECTION

NOT TO SCALE



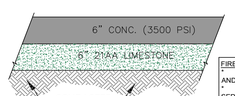
6" ASPHALT PAVT. DETAIL (OPTIONAL)

NOT TO SCALE



4" CONCRETE SIDEWALK

N.T.S.



TYPICAL 6" CONCRETE PAVT. SECTION

NOT TO SCALE

EXTERIOR LIGHT FIXTURES NOTE:
* ALL EXTERIOR LIGHT FIXTURES SHALL NOT BE MOUNTED HIGHER THAN 15 FEET ABOVE GRADE AS PER SEC. 50-155 (B)(1)b.

FIRE DEPT. NOTE:
* ALL REQUIRED FIRE HYDRANTS SHALL BE INSTALLED, FLUSHED AND IN SERVICE PRIOR TO THE START OF CONSTRUCTION.
* THE BASE OF THE ACCESS DRIVE SHALL BE INSTALLED AND IN SERVICE PRIOR TO THE START OF CONSTRUCTION.
* FIRE ACCESS ROADS MUST BE ABLE TO SUPPORT DEPTMENT'S LARGEST VEHICAL WEIGHT OF 76,800 PLUS AN ADDITIONAL 10% FOR A TOTAL OF 84,480.

NOTE:
1. IF ANY DISCREPANCY BETWEEN THESE PLANS AND CITY / TWP. STANDARDS OCCURS THE CITY / TWP. STANDARDS SHALL GOVERN.
2. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
3. "NO PARKING-FIRE LANE" SIGNS SHALL BE INSTALLED AND MAINTAINED AS DESIGNATED BY THE FIRE MARSHAL.
4. AN EMERGENCY ACCESS LANE, AS REQUIRED IN ORDINANCE 145, SHALL BE PROVIDED PRIOR TO THE START OF CONSTRUCTION UNLESS THE PERMANENT HARD SURFACE IS INSTALLED PRIOR TO CONSTRUCTION.
5. PRIOR TO CONSTRUCTION, ALL LOCATION AND DEPTHS OF EXISTING OVERHEAD AND UNDER-GROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD.
6. DURING CONSTRUCTION, CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR OVERHEAD AND/OR BURIED UTILITIES. CALL MISS DIG.
7. MUNICIPAL UTILITIES (WATER, SANITARY AND STORM SEWER) ARE TO BE BROUGHT ON SITE BY THE DEVELOPER FROM EXISITING SOURCES.

UTILITY WARNING

UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THESE PLANS ARE OBTAINED FROM UTILITY OWNER AND NOT FIELD LOCATED.

A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY MISS DIG AND HAVE ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK CAN BEGIN.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

GATEWAY ENGINEERING SERVICES
8155 ANNSBURY DRIVE, SUITE # 109
SPICER TWP., MI. 48164
OFFICE #: (586) 553-5553 FAX: (586) 786-5375
www.gatewayengineer.com

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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD.,
EAST LANSING, MI 48823

PARCEL ID#
19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH
LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PSP	03/18/2026
2.	REV. PSP	06/03/2026

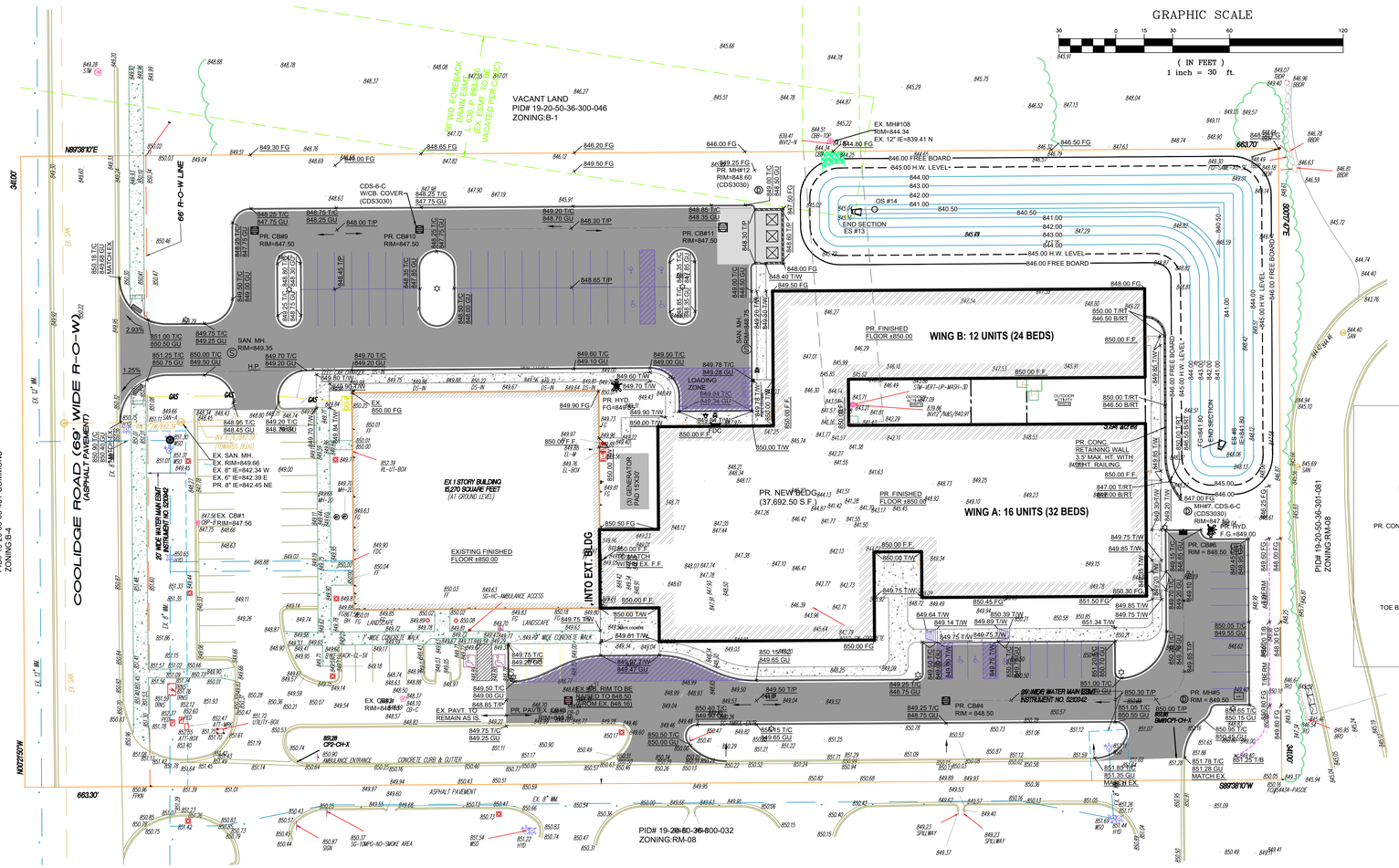
REVIEWED BY:	J.V.
DESIGNED BY:	M.G.
DRAWN BY:	M.G.

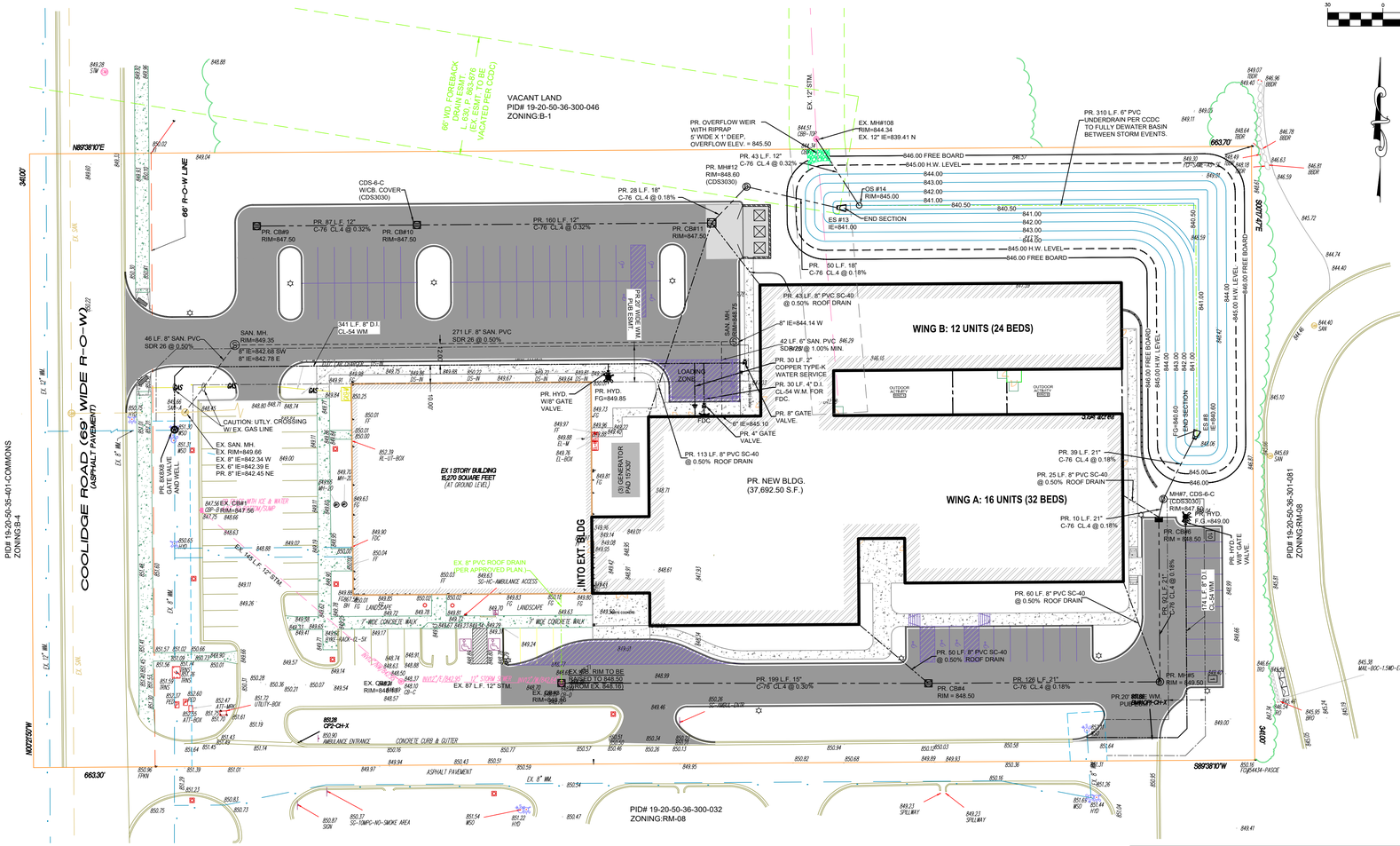
DRAWING:

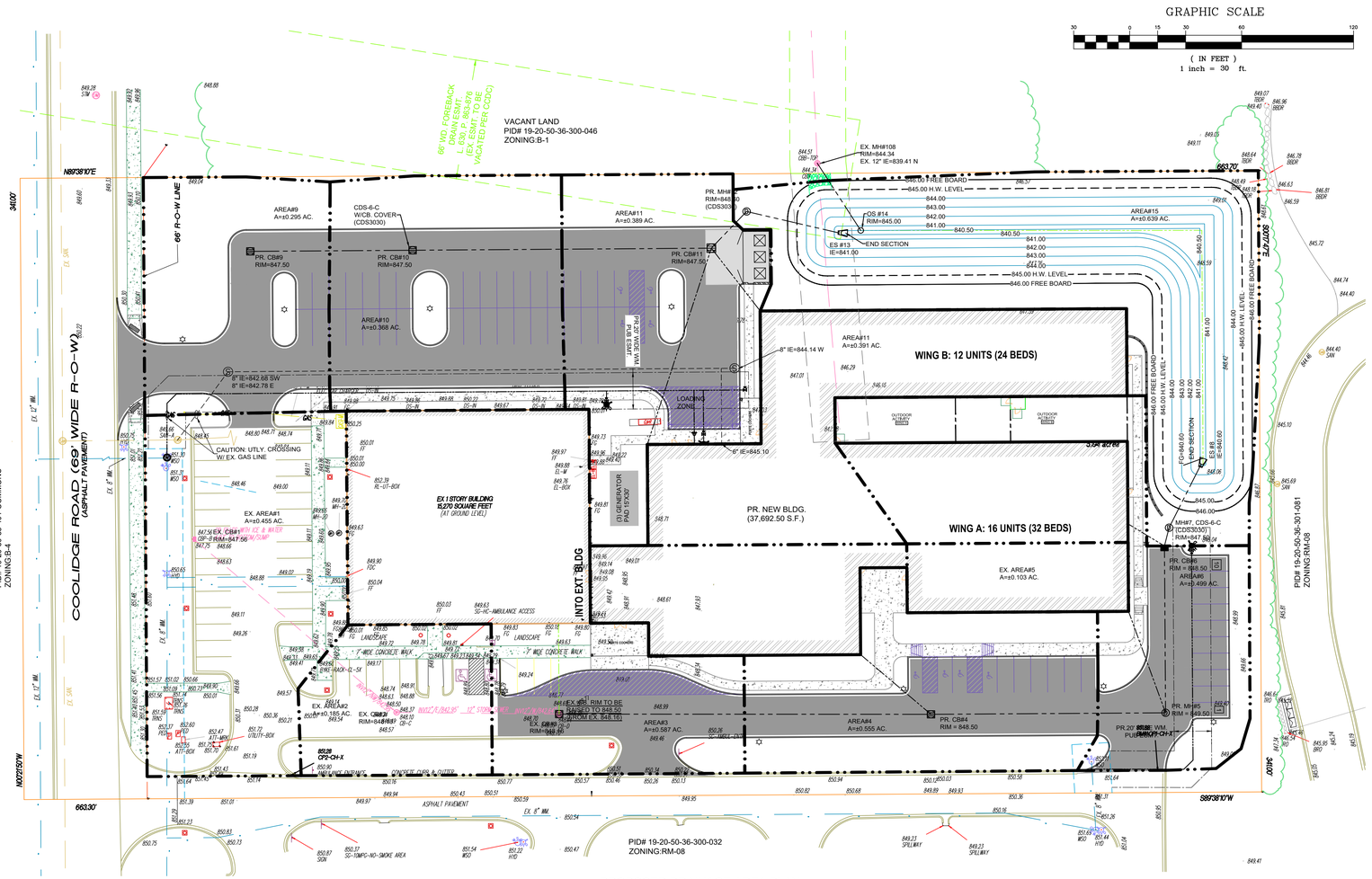
PROPOSED SITE PLAN

NO. C2.1

PROJECT NO. 25-1206

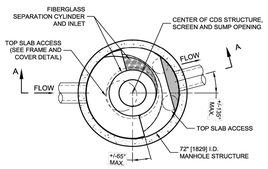

GRAPHIC SCALE
(IN FEET)
1 inch = 30 ft.
30 0 15 30 60 120
COOLIDGE ROAD (66' WIDE R-O-W)
(ASPHALT PAVEMENT)
66' R-O-W LINE
N89°38'10"E
S89°38'10"W
663.70'
663.30'
VACANT LAND
PID# 19-20-50-36-300-046
ZONING:B-1
20' WD. FOREBACK DRAIN ESMT. (PER LIBER 1882, PAGE 135, (EX. ESMT. VACATED PER DOC#)
EX. MH#108
RIM=844.34
EX. 12" IE=839.41 N
PR. MH#12
RIM=848.60
(CDS3030)
PR. MH#11
RIM=847.50
(CDS3030)
CDS-6-C
WCB. COVER
(CDS3030)
PR. CB#9
RIM=847.50
PR. CB#10
RIM=847.50
PR. CB#11
RIM=847.50
OS #14
END SECTION
ES #13
PR. CB#12
RIM=848.50
PR. MH#8
RIM=848.50
(CDS3030)
PR. CB#6
RIM = 848.50
PR. MH#5
RIM = 849.50
(CDS3030)
PR. CB#4
RIM = 848.50
PR. MH#7
RIM=847.50
(CDS3030)
PR. CB#5
RIM = 848.50
SAN. MH.
RIM=849.35
SAN. MH.
RIM=848.75
EX. SAN. MH.
EX. RIM=849.66
EX. 8" I.E.=842.34 W
EX. 6" I.E.=842.39 E
PR. 8" IE=842.45 NE
EX. CB#1
OP-RIM=847.56
EX. 8" WATER MAIN (DWG. #1)
20' WDE WATER MAIN ESMT
INSTRUMENT NO. 523042
PR. WATER MAIN ESMT
INSTRUMENT NO. 523042
EX. 12" WM
EX. 8" WM
EX. 6" WM
EX. SAN.
EX. STM.
EX. GAS
EX. UTILITY POLE
EX. GUY WIRE
EX. FIRE HYD.
EX. CATV BOX
EX. TELE. MH
EX. TELE. PED.
EX. ELEC. MH
EX. ELEC. PED.
EX. ELEC. TRANS.
EX. GAS VALVE
EX. GAS METER
EX. GAS MH
EX. GAS PED.
EX. GAS TANK
EX. GAS LINE MARKER
EX. TREE
EX. CONIFER
EX. SHRUB
EX. BUSH
EX. LANDSCAPE
EX. CONCRETE WALK
EX. CONCRETE CURB & GUTTER
EX. ASPHALT PAVEMENT
EX. CONCRETE PAVEMENT
EX. BUILDING
EX. 1' CONTOUR
EX. 5' CONTOUR
EX. SPOT ELEVATION
EX. DRAINAGE FLOW
EX. SILT FENCE
EX. CATCH BASIN
EX. INLET
EX. MANHOLE
EX. FLARE END SECTION
EX. CURB INLET
EX. CLEANOUT
EX. GUARD POST
EX. SIGN
EX. LIGHT POLE
EX. TRAFFIC SIGNAL
EX. TRAFFIC SIGNAL MAST ARM
EX. TRAFFIC SIGNAL CONTROLLER
EX. TRAFFIC SIGNAL PEDESTAL
EX. TRAFFIC SIGNAL PUSH BUTTON
EX. TRAFFIC SIGNAL VEHICLE DETECTOR
EX. TRAFFIC SIGNAL PEDESTRIAN DETECTOR
EX. TRAFFIC SIGNAL INTERCONNECT
EX. TRAFFIC SIGNAL CONDUIT
EX. TRAFFIC SIGNAL HANDHOLE
EX. TRAFFIC SIGNAL CABINET
EX. TRAFFIC SIGNAL SERVICE
EX. TRAFFIC SIGNAL LOOP DETECTOR
EX. TRAFFIC SIGNAL CAMERA
EX. TRAFFIC SIGNAL SIGN
EX. TRAFFIC SIGNAL LIGHT
EX. TRAFFIC SIGNAL LIGHT POLE
EX. TRAFFIC SIGNAL LIGHT POLE BASE
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VACANT LAND
PID# 19-20-50-36-300-046
ZONING:B-1
66' R-O-W LANE
COOLIDGE ROAD (69' WIDE R-O-W)
(ASPHALT PAVEMENT)
PID# 19-20-50-35-401-COMMONS
ZONING:B-4
PID# 19-20-50-35-301-051
ZONING:RM-08
PID# 19-20-50-36-300-032
ZONING:RM-08
WING A: 16 UNITS (32 BEDS)
WING B: 12 UNITS (24 BEDS)
PR. NEW BLDG.
(37,692.50 S.F.)
EX.1 STORY BUILDING
15,270 SQUARE FEET
(AT GROUND LEVEL)
(E) GENERATOR PAD 15'X30'
LOADING ZONE
OUTDOOR PATIENT ACTIVITY AREA
PR. OVERFLOW WEIR WITH RIPRAP 5' WIDE X 1' DEEP. OVERFLOW ELEV. = 845.50
EX. MH#108 RIM=844.34 EX. 12" IE=839.41 N
PR. MH#12 RIM=846.60 (CDS3030)
CDS-6-C W/CB. COVER (CDS3030)
OS #14 RIM=845.00
ES #13 IE=841.00
END SECTION
PR. 310 L.F. 6" PVC UNDERDRAIN PER CCDC TO FULLY DEWATER BASIN BETWEEN STORM EVENTS.
PR. 43 L.F. 12" C-76 CL.4 @ 0.32%
PR. 28 L.F. 18" C-76 CL.4 @ 0.18%
PR. 87 L.F. 12" C-76 CL.4 @ 0.32%
PR. 160 L.F. 12" C-76 CL.4 @ 0.32%
PR. CB#9 RIM=847.50
PR. CB#10 RIM=847.50
PR. CB#11 RIM=847.50
PR. 50 L.F. 18" C-76 CL.4 @ 0.18%
PR. 43 L.F. 8" PVC SC-40 @ 0.50% ROOF DRAIN
8" IE=844.14 W
42 LF. 6" SAN. PVC SDR26 @ 1.00% MIN.
PR. 30 LF. 3" COPPER TYPE-K WATER SERVICE
PR. 30 LF. 4" D.I. CL-54 W.M. FOR FDC.
PR. 8" GATE VALVE.
6" IE=845.10
PR. 4" GATE VALVE.
PR. 113 LF. 8" PVC SC-40 @ 0.50% ROOF DRAIN
PR. HYD. FG=849.85
PR. HYD. W/8" GATE VALVE.
PR. 39 L.F. 21" C-76 CL.4 @ 0.18%
PR. 25 LF. 8" PVC SC-40 @ 0.50% ROOF DRAIN
PR. 10 L.F. 21" C-76 CL.4 @ 0.18%
MH#7, CDS-6-C (CDS3030) RIM=847.50
PR. CB#6 RIM = 848.50
PR. 60 LF. 8" PVC SC-40 @ 0.50% ROOF DRAIN
PR. 50 LF. 8" PVC SC-40 @ 0.50% ROOF DRAIN
PR. 174 L.F. 8" D.I. CL-54 W.M.
PR. 126 L.F. 21" C-76 CL.4 @ 0.18%
PR. CB#4 RIM = 848.50
PR. MH#5 RIM = 849.50
PR. 20' WIDE W.M. PUBLIC EASEMENT
PR. 199 L.F. 15" C-76 CL.4 @ 0.30%
EX. 87 L.F. 12" STM.
EX. 12" STM.
EX. 8" W.M.
EX. 6" W.M.
EX. 8" PVC ROOF DRAIN PER APPROVED PLAN
EX. CB#3 RIM=848.66
EX. CB#2 RIM=848.66
EX. CB#1 RIM=847.56
EX. SAN. MH. RIM=849.66
EX. 8" IE=842.34 W
EX. 6" IE=842.39 E
PR. 8" IE=842.45 NE
EX. 8" W.M.
EX. 6" W.M.
EX. 6" SAN.
EX. 8" SAN.
EX. 8" W.M.
EX. 6" W.M.
EX. 8" W.M.
EX. 8" W.M.
EX. 8

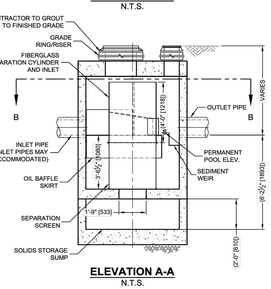

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.
VACANT LAND
PID# 19-20-50-36-300-046
ZONING:B-1
8' WD. FIREBACK DRAINAGE EASEMENT (L. 630, P. 865-878 EASMT. TO BE VACATED PER CCDC)
66' R-O-W LINE
COOLIDGE ROAD (69' WIDE R-O-W)
(ASPHALT PAVEMENT)
PID# 19-20-50-35-401-COMMONS
ZONING:B-4
PID# 19-20-50-35-301-051
ZONING:RM-08
PID# 19-20-50-36-300-032
ZONING:RM-08
AREA#9 A=±0.295 AC.
AREA#10 A=±0.368 AC.
AREA#11 A=±0.389 AC.
AREA#11 A=±0.391 AC.
AREA#15 A=±0.639 AC.
AREA#1 A=±0.455 AC.
AREA#2 A=±0.185 AC.
AREA#3 A=±0.587 AC.
AREA#4 A=±0.555 AC.
AREA#5 A=±0.103 AC.
AREA#6 A=±0.499 AC.
CDS-6-C W/CB. COVER (CDS3030)
PR. CB#9 RIM=847.50
PR. CB#10 RIM=847.50
PR. CB#11 RIM=847.50
PR. MH#8 RIM=848.50 (CDS3030)
OS #14 RIM=845.00
ES #13 IE=841.00
END SECTION
EX. MH#108 RIM=844.34
EX. 12" IE=839.41 N
EX. CB#1 RIM=847.56
EX. CB#2 RIM=847.50
EX. CB#3 RIM=847.50
PR. CB#5 RIM = 848.50
PR. CB#4 RIM = 848.50
PR. MH#6 RIM = 849.50
MH#7; CDS-6-C (CDS3030) RIM=847.50
EX. 8" IE=840.60
FG=840.60
46.00 FREE BOARD
45.00 H.W. LEVEL
WING B: 12 UNITS (24 BEDS)
WING A: 16 UNITS (32 BEDS)
PR. NEW BLDG. (37,692.50 S.F.)
EX 1 STORY BUILDING 15,270 SQUARE FEET (AT GROUND LEVEL)
EX. 1 STORY BLDG. TO BE DEMOLISHED AND INTO EXT. BLDG
(E) GENERATOR PAD 15'X30'
LOADING ZONE
OUTDOOR ACTIVITY AREA
PR. 20' WIDE WM. PUBLIC EASMT. W/ CH-X
EX. 20' WIDE WM. PUBLIC EASMT. W/ CH-X
EX. 8" WM
PR. 8" WM
8" IE=842.68 SW
8" IE=842.79 E
8" IE=844.14 W
6" IE=845.10
CAUTION: UTLY. CROSSING W/ EX. GAS LINE
EX. 12" WM
EX. 8" WM
EX. SAN
PR. 8" SAN
EX. 12" SAN
EX. 8" SAN
EX. 12" STM
EX. 8" STM
EX. 6" WM
EX. 6" SAN
EX. 4" SAN
EX. 4" FM
EX. 6" FM
EX. 6" STM
EX. 8" STM
EX. 12" STM
EX. 15" STM
EX. 18" STM
EX. 24" STM
EX. 30" STM
EX. 36" STM
EX. 42" STM
EX. 48" STM
EX. 54" STM
EX. 60" STM
EX. 66" STM
EX. 72" STM
EX. 78" STM
EX. 84" STM
EX. 90" STM
EX.



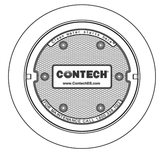
LOCATION MAP
NOT TO SCALE



PLAN VIEW B-B
N.T.S.



ELEVATION A-A
N.T.S.



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.

CDS-6-C (CDS3030) DESIGN NOTES

CDS-6-C (CDS3030) RATED TREATMENT CAPACITY IS 2.1 CFS [44.7 L/s]. IF THE SITE CONDITIONS EXCEED MAXIMUM HYDRAULIC INTERNAL BYPASS CAPACITY, AN UPSTREAM BYPASS STRUCTURE IS REQUIRED.

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST	WIDTH		HEIGHT
	*		*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.ContechES.com
4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET HS20 (AASHTO M 306) AND BE CAST WITH THE CONTECH LOGO.
6. IF REQUIRED, PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH ENGINEERED SOLUTIONS LLC
www.ContechES.com
9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

CDS-6-C (CDS3030)
INLINE CDS
STANDARD DETAIL

CUSERSPHILIN/TRECENTERDESIGN/CDS/S4-CDS.DWG 2/13/2015 3:44 PM

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811 KNOW WHAT'S BELOW. CALL BEFORE YOU DIG
72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL FREE)

UTILITY WARNING

UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THE PLAN, WERE OBTAINED FROM UTILITY OWNER AND NOT FIELD LOCATED.

A MINIMUM OF 72 HOURS PRIOR TO BEGINNING EXCAVATION, THE CONTRACTOR SHALL NOTIFY MISS DIG AND HAVE ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK CAN BEGIN.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND/OR RELOCATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

GATEWAY ENGINEERING SERVICES
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www.gatewayengineer.com

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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD.,
EAST LANSING, MI 48823

PARCEL ID#
19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH
LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PSP	03/18/2026
2.	REV. PSP	06/03/2026

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:
PROPOSED UTILITY-DETAILS

NO. C4.3

PROJECT NO. 25-1206

SOIL LEGEND:

CvraaB - CONOVER LOAM, O - 4 % SLOPES
Py - PARKHILL LOAM, NON DENSE TILL SUBSOIL, O - 2 % SLOPES
CbB - CAPAC-MARLETTE LOAMS, 1 - 6 % SLOPES

± 318 FEET SOUTH OF REMY CHANDLER INTERCOUNTY, MOORE BRANCH

FLOODPLAIN NOTE:

SUBJECT PROPERTY DO NOT LIE WITHIN THE 100 YR. FLOOD ZONE.
FIRM MAP NUMBER: 26037C0319D
EFFECTIVE DATE: MAY 3, 2011

STREET SWEEPING NOTE:

COOLIDGE RD. SHALL BE KEPT CLEAN AND FREE OF TRACKED SEDIMENT. A STREET SWEEPER OR A BOBCAT WITH A BROOM ATTACHMENT SHOULD BE KEPT ON SITE TO DEAL WITH ANY OFF-SITE TRACKING AS IT OCCURS.

*TO BE FILLED OUT BY BUILDER

CONSTRUCTION SEQUENCE		OPERATION TIME SCHEDULE											
		JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
A	SOIL EROSION CONTROL MEASURE	X	X										
B	MASS GRADING & UTILITIES CONSTRUCTION	X	X	X									
C	PERMANENT SEEDING & SODDING										X	X	X
D	ROADWAY PAVING				X	X	X	X					
E	BUILDING CONSTRUCTION	X	X	X	X	X	X	X	X	X			

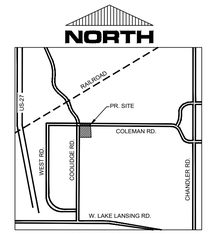
SITE BENCHMARK: (NAVD 88 - BY GPS)

B.M. # 1
CHISLED "X" IN CONCRETE CURB AT THE VERY END OF THE STREET OF THE SUBJECT PROPERTY.
ELEV.=851.88'

B.M. # 2
NORTH RIM OF A SANITARY MANHOLE AT THE NW PROPERTY CORNER OF THE SUBJECT PROPERTY.
ELEV.=849.65'

B.M. # 3
NORTH RIM OF A WEST CATCH BASIN IN THE PARKING LOT AND IN FRONT OF THE BUILDING OF THE SUBJECT PROPERTY.
ELEV.=848.10'

B.M. # 4
NORTH RIM OF A EAST CATCH BASIN IN THE PARKING LOT AND IN FFRONT OF THE BUILDING OF THE SUBJECT PROPERTY.
ELEV.=848.16'

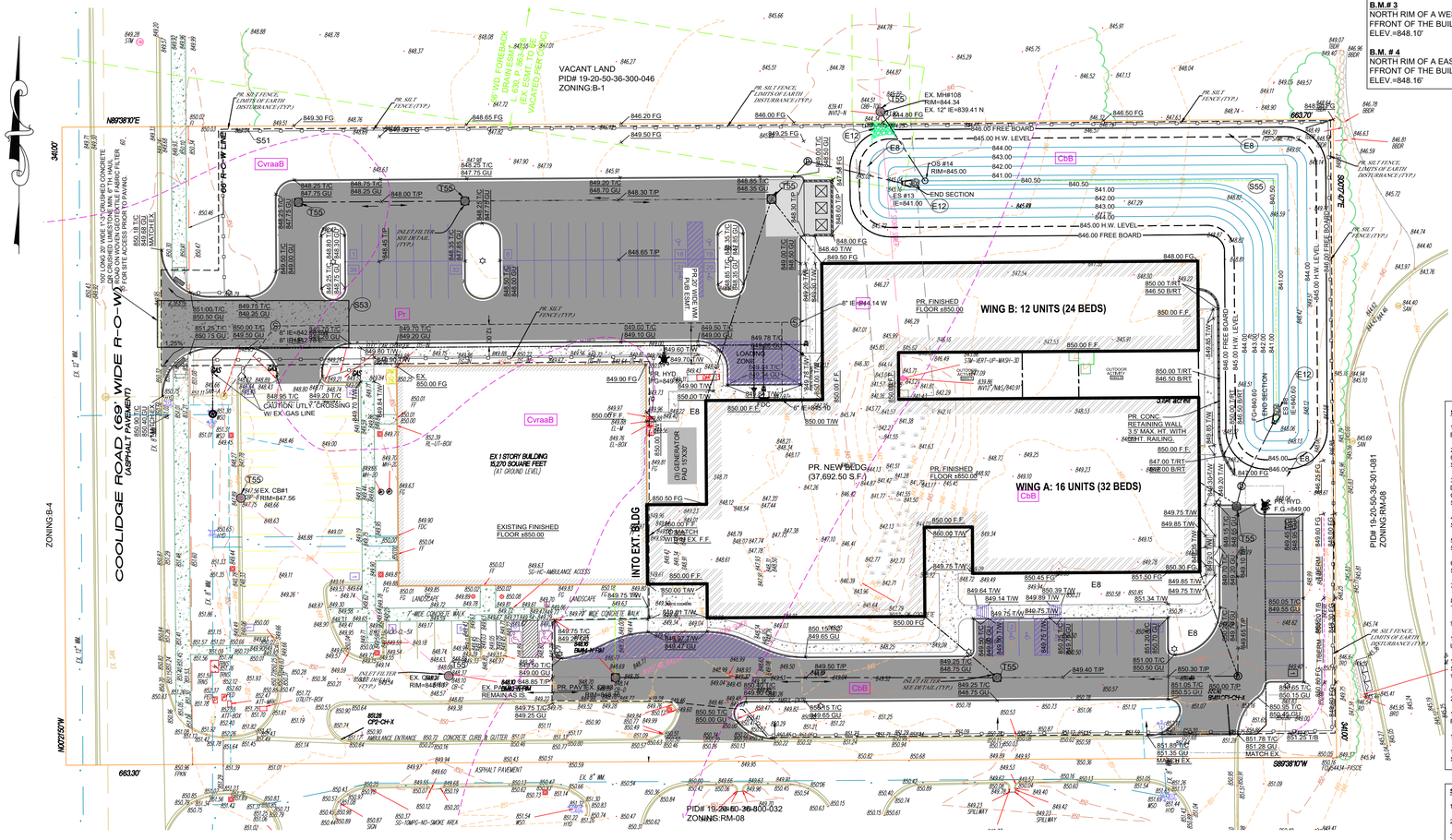


LOCATION MAP
NOT TO SCALE

GRAPHIC SCALE

30 0 15 30 60 120

(IN FEET)
1 inch = 30 ft.



SOIL EROSION AND SEDIMENT CONTROL PLAN
SCALE: 1"=30.00'

LEGAL DESCRIPTION:
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.

PART OF THE SW 1/4 OF SECTION 36, TOWN 5 NORTH, RANGE 2 WEST, CITY OF EAST LANSING, INGHAM COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE SW CORNER OF SECTION 36; THENCE N00°21'50"W 712.59 FEET, ALONG THE WEST LINE OF SAID SECTION 36, TO THE POINT OF BEGINNING; THENCE CONTINUING N00°21'50"W 341.00 FEET; THENCE N89°38'10"E 663.70 FEET; THENCE S00°17'50"W 341.00 FEET; THENCE S89°38'10"W 663.30 FEET, TO THE POINT OF BEGINNING.
CONTAINING: 226,253 SQUARE FEET---5.194 ACRES, MORE OR LESS.
PARCEL IDENTIFICATION NUMBER:# 19-20-50-36-300-047.
SUBJECT TO THE RIGHTS OF A PUBLIC AND ANY EASEMENTS AND/OR RESTRICTIONS OF RECORD OR OTHERWISE.

NOTE: SINCE SURVEY DOES NOT INCLUDE A TITLE SEARCH THERE COULD BE EASEMENTS AND/OR ENCUMBRANCES UPON THE SUBJECT PROPERTY THAT ARE NOT SHOWN AT THIS TIME.

SOIL EROSION CONTROL NOTES

1. ALL SOIL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE CITY OF EAST LANSING REQUIREMENTS AND PROJECT SPECIFICATIONS..

2. ANY EROSION OR SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT BE ALLOWED TO COLLECT ON ANY OFF-SITE AREAS, OR IN WATERWAYS; WATERWAYS INCLUDE BOTH NATURAL AND MANMADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKES AND PONDS..

3. CONTRACTOR SHALL APPLY TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED AND AS DIRECTED ON THESE PLANS. ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO OR AT COMMENCEMENT OF CONSTRUCTION ACTIVITY. HE SHALL REMOVE TEMPORARY MEASURES AS SOON AS PERMANENT STABILIZATION OF SLOPES, DITCHES AND OTHER EARTH CHANGES HAVE BEEN ESTABLISHED.

4. DUST CONTROL WILL BE EXERCISED AT ALL TIMES WITHIN THE PROJECT BY THE CONTRACTORS. SPRINKLING TANK TRUCKS SHALL BE AVAILABLE AT ALL TIMES TO BE USED ON HAUL ROUTES OR OTHER PLACES WHERE DUST BECOMES A PROBLEM.

5. SEDIMENT @ C.B.'S SHALL BE REMOVED AFTER EVERY STORM. SEEDING OF EXPOSED AREAS SHALL BE COMPLETED WITHIN 5 DAYS OF FINAL GRADING.

6. ALL DISTURBED AREAS WILL RECEIVE PERMANENT EROSION CONTROL WITHIN 5 DAYS OF FINAL GRADING. AREAS NOT STABILIZED SHALL BE DIVERTED TOWARD RETENTION/SEDIMENT BASINS.

7. WEATHER AND UNFORESEEN DELAYS MAY RESULT IN EXTENSION OF CONSTRUCTION SCHEDULE.

8. SITE DEVELOPMENT CONTRACTOR SHALL INSPECT SOIL EROSION CONTROL MEASURES ON A DAILY BASIS, MORE OFTEN THEN NECESSARY. ANY NEEDED REPAIRS SHALL BE PROMPTLY MADE

9. SITE DEVELOPMENT CONTRACTOR SHALL MEET WITH SOIL EROSION ENFORCEMENT OFFICER PRIOR TO START OF WORK.

10. ALL DISTURBANCE SHALL BE KEPT AT LEAST 25' FROM WATER FEATURES LEAVING AN UNDISTURBED VEGETATION BUFFER, UNLESS ADDITIONAL SESC MEASURES ARE PROPOSED AND APPROVED BY THE CITY OF EAST LANSING.

11. EACH DISTURBANCE ADJACENT TO WETLANDS, INLAND STREAMS & LAKES, OR ADJACENT TO SLOPES GRATER THAT 8% SHALL BE TOPSOILED, SEEDED, AND EROSION CONTROL MATTING APPROPRIATE FOR THE SLOPE CONDITIONS INSTALLED, WITHIN 3 DAYS OF FINAL GRADING OR FINAL ACTIVITY OF THOSE AREAS.

12. STOCK PILES AREAS SHALL BE LOCATED GRATER THAN 25' FROM WETLANDS & INLAND STREAMS AND LAKES, AND AT LEAST 25' FROM PROPERTY LINES.

13. WATER FROM TRENCHES AND OTHER EXCAVATIONS SHALL BE PUMPED INTO A FILTRATION BAG TO REMOVE SEDIMENT FROM THE WATER.

14. THE PROJECT SITE IS NOT WITHIN 500 FT. OF A STREAM, LAKE OR DRAINAGE CHANNEL.

15. ANY DEBRIS, MUD/DIRT ON ANY PAVED AREAS RESULTING FROM CONSTRUCTION TRAFFIC SHALL BE CLEANED AND/OR SWEPT IN A PROMPT MANNER.

SEQUENCE OF OPERATION:

1. INSTALL ALL TEMPORARY SILT FENCE PER PLAN AND AS SHOWN ON DETAIL.

2. USE EXISTING ENTRANCE OFF COLEMAN RD. FOR CONSTRUCTION ENTRANCE/EXIT AS SHOWN ON PLAN.

3. INSTALL INLET PROTECTION FABRIC DROPS BETWEEN THE FRAME AND COVER OF ALL EXISTING YARD BASINS OR INLETS WHICH MAY BE SUSCEPTIBLE TO SEDIMENT EROSION FROM THE PROPOSED CONSTRUCTION AS SHOWN ON THESE PLANS.

4. WHILE MAINTAINING A VEGETATIVE BUFFER WHENEVER POSSIBLE STRIP AND STOCKPILE TOPSOIL ABOVE AREAS OF PROPOSED EXCAVATION OR GRADING FOR LATER USE ON SITE PLACE STOCKPILE TOPSOIL IN AREAS WHICH ARE NEITHER SUBJECT TO HIGH RUNOFF NOR ALONG STEEP SLOPES SEED AND MULCH STOCKPILES IMMEDIATELY TO PREVENT WIND BLOWN SEDIMENT POLLUTION AND EXCESSIVE DUST.

5. EXCAVATE FOR PROPOSED BUILDING, SIDEWALKS & UTILITIES CONSTRUCTION AS NECESSARY. DO NOT EXPOSE AREAS FAR IN ADVANCE OF THE PROPOSED CONSTRUCTION FOR THE AREA. ROUGHEN AND SCARIFY EXPOSED SURFACES TO REDUCE RUNOFF VELOCITY AND SEDIMENTATION. MAINTAIN VEGETATION WHENEVER POSSIBLE TO PROVIDE A NATURAL BUFFER.

6. TOP SOIL, SEED, FERTILIZE AND MULCH ALL EXPOSED AREAS AS SOON AS FEASIBLE TO PROTECT AND RESTORE PERMANENT VEGETATION.

7. WATER EXPOSED GROUND REGULARLY TO CONTROL AIRBORNE PARTICULATE MATTER..

8. THE SOIL EROSION PERMITTEE IS RESPONSIBLE FOR ENSURING THAT ALL PERMANENT AND TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES THROUGHOUT THE ENTIRE CONSTRUCTION PROCESS ARE INSTALLED CORRECTLY AND MAINTAINED UNTIL PERMANENT VEGETATION IS REESTABLISHED IN ALL EXPOSED AREAS.

9. THE SITE WILL BE PERIODICALLY INSPECTED BY THE CITY OF EAST LANSING. Y=THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE RULES AND REGULATIONS OF THAT OFFICE.

10. UPON FINAL APPROVED INSPECTION OF THE COMPLETED CONSTRUCTION BY ALL REVIEWING AGENCIES, THE CONTRACTOR SHALL REMOVE ALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES.

11. ANY CONSTRUCTION ACCESS ROAD WILL BE PROTECTED WITH CRUSHED STONE OR CHRUSED CONCRETE AGGREGATE SIZE 1"-2".

MICHIGAN DEPARTMENT OF MANAGEMENT AND BUDGET

S-E-S-C KEYING SYSTEM

KEY	BEST MANAGEMENT PRACTICES	SYMBOL	WHERE USED
E8	PERMANENT SEEDING		Stabilization method utilized on sites where earth change has been completed (final grading attained).
S51	SILT FENCE		Use adjacent to critical areas, to prevent sediment laden sheet flow from entering these areas.
S53	STABILIZED CONSTRUCTION ACCESS		Used at every point where construction traffic enters or leaves a construction site.
T55	INLET PROTECTION FABRIC DROP		Use at stormwater inlets, especially at construction sites.
S55	SEDIMENT BASIN		At the outlet of disturbed areas and at the location of a permanent detention basin.
E12	RIPRAP		Use along shorelines, waterways, or where concentrated flows occur. Slows velocity, reduces sediment load, and reduces erosion.

TOTAL ACRES : 5.194 ACRES
AREA DISTURBED: 3.396 ACRES

SOIL EROSION LISTING:

(9)	INLET FILTER (CATCH ALL / SILT SACK)	
±1,590 LF	SILT FENCE	
37.00 CU.FT	1"-3" CRUSHED CONC. ACCESS ROAD	

NOTE:
STORM WATER RUNOFF FROM THIS SITE WILL NOT ADVERSELY AFFECT ADJACENT PROPERTIES.

NOTE:
ANY STOCKPILING OF SOIL SHALL BE SURROUNDED BY SILT FENCE. SEEDED IF LEFT OVER 30 DAYS.

LEGEND

- EXIST. STORM SEWER
- EXIST. OVERHEAD UTILITY
- EXIST.FENCE LINE
- EXIST. WATERMAIN
- EXIST. SANITARY LINE.
- EXIST. GAS LINE
- EXIST. HYDRANT
- EXIST. UTILITY POLE
- EXIST. GATE WELL
- EXIST. ROAD CATCH BASIN
- EXIST. STORM CATCH BASIN (BEEHIVE)
- EXIST. SANITARY MANHOLE
- EXIST. ROAD SIGN BOARD

LEGEND

- PROPOSED LIGHT POLE
- PROPOSED STORM MANHOLE
- PROPOSED CATCH BASIN
- PROPOSED HYDRANT.
- PROPOSED WATER MAIN.
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWR
- PROPOSED ASPH. PAVT.
- PROPOSED 8" CONCRETE PAVT.
- PROPOSED CONC. WALK & SIDEWALK
- PROPOSED SILT FENCE
- LIMITS OF EARTH DISTURBANCE
- INLET FILTER (CATCH ALL / SILT SAC>
- PR. CRUSHED CONC. ACCESS DRIVE

NOT FOR CONSTRUCTION UNLESS APPROVED BY MUNICIPALITY

72 HOURS (3 WORK DAYS) BEFORE YOU DIG CALL MISS DIG 800--482--7171 (TOLL FREE)

UTILITY WARNING

UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THE PLAN, WERE OBTAINED FROM UTILITY OWNER RECORDS AND FIELD SURVEY.

A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY MISS DIG AND ALL UNDERGROUND UTILITY OWNERS THAT EXCAVATION WILL BEGIN.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND/OR RELOCATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI. 48316
OFFICE # 586-726-5523 FAX # 586-786-5375
www.gatewayengineer.com

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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD., EAST LANSING, MI 48823

PARCEL ID#
19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

ISSUANCE:

- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PSP	03/18/2026
2.	REV. PSP	06/03/2026

REVIEWED BY:	J.V.
DESIGNED BY:	M.G.
DRAWN BY:	M.G.

DRAWING:

SOIL EROSION AND SEDIMENT CONTROL PLAN.

NO. C5.1

PROJECT NO. 25-1206

E8 PERMANENT SEEDING SPECIFICATIONS

When
- To finalize stabilization of temporary seeding areas or when an area needs permanent stabilization following completion of construction. Also used when vegetative establishment can correct existing soil erosion or sedimentation problem.
- Within 5 days of final grade.

Why
- To stabilize soil and prevent or reduce soil erosion/sedimentation problems from developing.

Where
- Used on construction and earth change sites which require permanent vegetative stabilization.

How
1. Review SESC plan and construction phasing to identify areas in need of permanent vegetative stabilization.
2. Select perennial grass and ground cover for permanent cover.
3. Seed mixes vary. However, they should contain native species.
4. Seed mixes should be selected through consultation with a certified seed provider and with consideration of soil type, light, moisture, use applications, and native species content.
5. Soil tests should be performed to determine the nutrient and pH levels in the soil. The pH may need to be adjusted to between 6.5 and 7.0.
6. Prepare a 3–5" deep seedbed, with the top 3–4" consisting of topsoil.
7. Slopes steeper than 1:3 should be roughened.
8. Apply seed as soon as possible after seedbed preparation. Seed may be broadcast by hand, hydroseeding, or by using mechanical drills.
9. Mulch immediately after seeding.
10. Dormant seed mixes are for use after the growing season, using seed which lies dormant in the winter and begins growing as soon as site conditions become favorable.

STANDARD SYMBOL

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E8 PERMANENT SEEDING

Planting Zones:	Lower Peninsula (South of T20N) Zone 1	Lower Peninsula (North of T20N) Zone 2	Upper Peninsula Zone 3
Seeding Window Permanent Seeding	4/15 – 10/10	5/1 – 10/1	5/1 – 9/20
Seeding Window Dormant Seeding*	11/15 – Freeze	11/01 – Freeze	11/01 – Freeze

Source: Adapted from MDOT Interim 2003 Standard Specifications for Construction

	Zone 1 Lower Peninsula (South of U.S. 10)	Zone 2 Lower Peninsula (North of U.S. 10)	Zone 3 Upper Peninsula
Seeding Dates (with irrigation or Mulch)	4/1 – 8/1	5/1 – 9/20	5/1 – 9/10
Seeding Dates (w/o irrigation or Mulch)	4/1 – 5/20 or 8/10 – 10/1	5/1 – 6/10 or 8/1 – 9/20	5/1 – 6/15 or 8/1 – 9/20
Dormant Seeding Dates*	11/1 – Freeze	10/25 – Freeze	10/25 – Freeze

Source: Adapted from USDA NRCS Technical Guide #342 (1999)

* Dormant seeding is for use in the late fall after the soil temperature remains consistently below 50°F, prior to the ground freezing. This practice is appropriate if construction on a site is completed in the fall but the seed was not planted prior to recommended seeding dates. No seed germination will take place until spring. A cool season annual grass may be added in an attempt to have some fall growth.

- Mulch must be used with dormant seed.
- Do not seed when the ground is frozen or snow covered.
- Do not use a dormant seed mix on grassed waterways.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E8 PERMANENT SEEDING SPECIFICATIONS

How (cont.)
11. Protect seeded areas from pedestrian or vehicular traffic.
12. Divert concentrated flows away from the seeded area until vegetation is established.

Maintenance
- Inspect weekly and within 24 hours following each rain event in the first few months following installation to be sure seed has germinated and permanent vegetative cover is being established.
- Add supplemental seed as necessary.

Limitations
- Seeds need adequate time to establish.
- May not be appropriate in areas with frequent traffic.
- Seeded areas may require irrigation during dry periods.
- Seeding success is site specific, consider mulching or sodding when necessary.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E9 MULCH BLANKETS SPECIFICATIONS

When
- When seeded areas are subject to erosive surface flows, severe wind, or to protect non-vegetated slopes or areas during the winter.

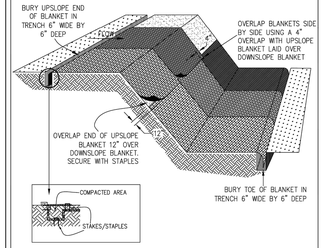
Why
- Protects seeded areas and slopes against erosion from rain or wind. Holds soil moisture to allow for seed germination and reduces wind dessication of germinated seeds.

Where
- Use on exposed slopes, newly seeded areas, new ditch bottoms, and other areas subject to erosion.

How
1. Prepare subgrade to proper grade and compaction requirements.
2. Remove ruts, roots, soil clods, or other debris from surface subject to mulch blanket installation.
3. Spread or drill seed.
4. Consult with erosion control material supplier to select mulch blanket based on slope gradient, expected surface run-off, and protection term necessary (long or short term).
5. Position selected mulch blanket as close as possible to intended use location.
6. Install blanket at top of slope, first anchoring toe in trench 6" wide X 6" deep, progressing down-slope or down-gradient with approximately 12" of blanket extended beyond the up-slope portion of the trench.
7. Anchor the blanket with staples/stakes placed approximately 12" apart in the bottom of the trench. Backfill and compact the trench after securing.
8. Apply seed to compacted soil and fold the 12" portion of the blanket over compacted area and secure with a row of staples/stakes placed 12" apart across the width of the blanket.
9. Unroll the blankets down or horizontally across the slope.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E9 MULCH BLANKETS



NOTES:
1. PLACE MULCH BLANKET PARALLEL TO FLOW AND ANCHOR SECURELY.
2. WHEN BLANKETS ARE USED IN FLOWING DITCH, BLANKETS SHOULD NOT OVERLAP IN DITCH CENTER PARALLEL TO FLOW.
3. STAPLES INSTALLED/SECURED ACCORDING TO MANUFACTURER'S SPECIFICATIONS.
4. WHERE POSSIBLE, CONSTRUCT WITH BIODEGRADABLE MATERIAL.

STANDARD SYMBOL

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

E9 MULCH BLANKETS SPECIFICATIONS

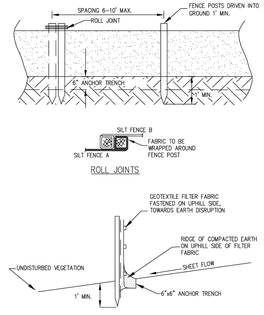
How (cont.)
10. Overlap blanket edges by a minimum of 4" and blanket ends by a minimum of 12". Overlaps should be in the direction of expected flow with the up-slope blanket placed over the down-slope blanket edge.
11. Secure down-slope end of blanket with staples/stakes and trench in.

Maintenance
- Check after a rain event to ensure the blanket is still in place.
- Keep eroded soil, vehicular and pedestrian traffic, and concentrated runoff away from the blanketed area.

Limitations
- Mulch blankets and anchors may inhibit mowing.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S51 SILT FENCE



STANDARD SYMBOL

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S51 SILT FENCE SPECIFICATIONS

When
- A temporary measure for preventing sediment movement.

Why
- Used to prevent sediment suspended in runoff from leaving an earth change area.

Where
- Use adjacent to critical areas, wetlands, base of slopes, and watercourses.

How
1. Install parallel to a contour.
2. The silt fence should be made of woven geotextile fabric.
3. Silt fence should accomodate no more than 1/2 to 1 acre of drainage per 100' of fence.
4. Dig a 6" trench along the area where the fence is to be installed.
5. Place 6" of the silt fence bottom flap into the trench.
6. Backfill the trench with soil and compact the soil on both sides. Create a small ridge on the up-slope side of the fence.
7. Install wooden stakes 6 – 10' apart and drive into the ground a minimum of 12".
8. Staple the geotextile fabric to the wooden stakes.
9. Join sections of silt fence by wrapping ends together (See drawing).

Maintenance
- Inspect frequently and immediately after each storm event. Check several times during prolonged storm events. If necessary, repair immediately.
- If the sediment has reached 1/3 the height of the fence, the soil should be removed and disposed of in a stable upland site.
- The fence should be re-installed if water is seeping underneath it or if the fence has become ineffective.
- Silt fence should be removed once vegetation is established and up-slope area has stabilized.

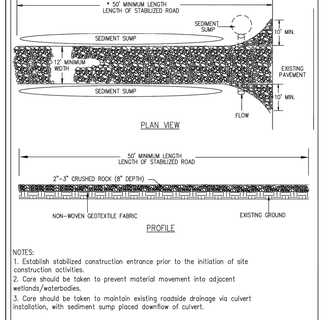
STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S51 SILT FENCE SPECIFICATIONS

Limitations
- Silt fence may cause temporary ponding and could fail if too much water flows through the area.
- Do not use in areas with concentrated flows.
- Chance of failure increases if fence is installed incorrectly or if sediment accumulation is not removed.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

S53 STABILIZED CONSTRUCTION ACCESS



NOTES:
1. Establish stabilized construction entrance prior to the initiation of site construction activities.
2. Care should be taken to prevent material movement into adjacent wetlands/waterbodies.
3. Care should be taken to maintain existing roadside drainage via culvert installation, with sediment sump placed downflow of culvert.

STANDARD SYMBOL

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS S53

When
- Construction traffic is expected to leave a construction site.
- Stabilization of interior construction roads is desired.

Why
- To minimize tracking of sediment onto public roadways and to minimize disturbance of vegetation.

Where
- Stabilized construction entrances shall be located at every point where construction traffic enters or leaves a construction site. Vehicles leaving the site must be routed over the rock ingress/egress corridor.

How
1. Stabilized construction access road should be established at the onset of the construction activities and maintained in place for the duration of the construction project.
2. Installation of this practice should be the responsibility of the site clearing or excavating contractor.
3. Access location should be cleared of woody vegetation.
4. Non–woven geotextile fabric shall be placed over the existing ground prior to placing stone.
5. Access size should be a minimum of 50', (30' for single residence lot).
6. Access width should be 12' minimum, flared at the existing road to provide a turning radius.
7. Crushed aggregate (2" to 3"), or reclaimed or recycled concrete equivalent, shall be placed at least 8" deep over the length and width of the ingress/egress corridor.

Maintenance
- Periodic inspection and needed maintainence shall be provided after each rain event.
- Stabilized entrances shall be repaired and rock added as necessary.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

STABILIZED CONSTRUCTION ACCESS SPECIFICATIONS S53

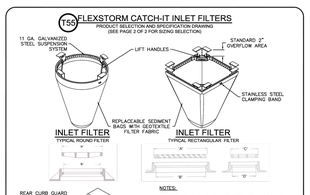
Maintenance (cont.)
- Sediment deposited on public rights–of–way shall be removed immediately and returned to the construction site.
- If soils are such that washing of tires is required, it shall be done in a wash rack area, stabilized with stone, immediately prior to the construction access stabilized corridor.
- At the project completion, rock access road should be removed and disposed of unless utilized as subgrade for final road.

Limitations
- Effectiveness limited, sediment may be tracked onto roads requiring additional action.

STATE OF MICHIGAN DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET STATE FACILITIES ADMINISTRATION

T56 FLEXSTORM CATCH-IT INLET FILTERS

PRODUCT SELECTION AND SPECIFICATION DRAWING (SEE PAGE 2 OF 2 FOR SIZING SELECTION)



NOTES:
1. ALL FRAMING IS CONSTRUCTED OF CORROSION RESISTANT STEEL (ZINC PLATED OR GALVANIZED) FOR 7 YEAR MINIMUM SERVICE LIFE.
2. UPON ORDERING CONFIRMATION OF THE DOT CALLOUT, PRECAST OR CASTING MAKE AND MODEL OR DETAILED DIMENSIONAL FORMS MUST BE SUBMITTED TO FLEXSTORM FOR DESIGN OF YOUR CUSTOMIZED FLEXSTORM INLET FILTER. PART NUMBER ALONE IS NOT SUFFICIENT.
3. FOR WRITTEN SPECIFICATIONS AND MAINTENANCE GUIDELINES VISIT: WWW.INLETFILTERS.COM

ALL PRODUCTS MANUFACTURED BY INLET & PIPE PROTECTION, INC A DIVISION OF ADS, INC. WWW.INLETFILTERS.COM (866) 287–8655 PH (630) 355–3477 FX INFO@INLETFILTERS.COM

SIZE	REFERENCE DWG. NO.	REV.
C	FLEXSTORM_CATCH_IT	A

CITY OF EAST LANSING
DEPARTMENT OF ENGINEERING
410 ABBOT ROAD
EAST LANSING, MI 48823
(517) 337–9458 FAX: (517) 337–3843

PROJECT: STANDARD DETAILS
SHEET TITLE: FLEXSTORM CATCH–IT INLET FILTERS
ENG. REVIEW: 03/01/16
DRAWN: CJM | CHECKED: RFS | APPROVED: | SCALE: NONE
DATE: 02/20/14 | 03/14/14 | 03/14/14 | SHEET NO.: 1 OF 2

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T56 FLEXSTORM CATCH-IT INLET FILTERS

PRODUCT SELECTION AND SPECIFICATION DRAWING (SEE PAGE 1 OF 2 FOR DETAIL DRAWINGS)

1. INDENTIFY YOUR FRAME STYLE AND SIZE

STYLE	FRAME STYLE AND SIZE	Frame P/N
ROUND	Small Round (up to 24" dia grate cut dia)	62SRD
	Medium Round (24.1" - 30" dia grate cut dia or 24" dia openings) (EL)	62MRD
	Large Round (26.1" - 36.5" dia grate cut dia or 30" openings (EL))	62LRD
RECT.	XL Round (35.1" dia - 48" dia grate cut dia or 37" dia openings (EL))	62XLRD
	Small Rect / Square (up to 36" (EL) x 36" (D) openings or 64" perimeter)	62SSQ
	Med Rect / Square (up to 36" (EL) x 36" (D) openings or 96" perimeter)	62MSQ
	Large Rect / Square (up to 36" (EL) x 36" (D) openings or 128" perimeter)	62LSQ
GRATE	Small / Square (inside dia with 24" cut out (EL) or 16" dia (EL) x 36" (D) openings)	62SCG
	Small Rect / Square (w/ Rect sizing, shipped with Magnetic Curb Flaps)	62SCB
	Med Rect / Square (w/ Rect sizing, shipped with Magnetic Curb Flaps)	62MCB
	Large Rect / Square (w/ Rect sizing, shipped with Magnetic Curb Flaps)	62LCB
MANHOLE	24" diameter Polyplank castings (Stainless Steel Framing standard)	62SMH
	30" diameter Polyplank castings (Stainless Steel Framing standard)	62MMH
	36" diameter Polyplank castings (Stainless Steel Framing standard)	62LMH
	48" diameter Polyplank castings (Stainless Steel Framing standard)	62XMH
	Custom Polyplank castings (Stainless Steel Framing standard)	62XMH

2. SELECT YOUR BAG PART NUMBER

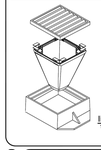
FLEXSTORM FILTER BAGS	12" (depth) STD Bag P/N	12" (depth) Short Bag P/N	Clean Water Flow Rate (GPM/SqFt)	Min A.O.S. (US Sieve)
XXL Standard Woven Bag	XXL	XX-S	200	10
XL (GO) Non-Woven Bag	XL	X-S	215	10

3. CREATE YOUR FLEXSTORM INLET FILTER PART NUMBER

Frame P/N from Step 1.	Filter Bag P/N from Step 2.

SPECIFICATIONS FOR STANDARD BAGS BY NOMINAL SIZE

Nominal Bag Size	Sorbtic Storage (Gallons)	Filtered Flow Rate at 50% Max (GPM)	
		Clean Water	Dirty Water
Small	1.6	1.1	0.9
Medium	2.1	1.7	1.3
Large	3.9	2.7	1.9
XL	4.2	3.6	2.6



INSTALLATION NOTES:
1. REMOVE GRATE
2. DROP FLEXSTORM INLET FILTER ON TO TOP OF EXISTING INLET CASTING OR CONCRETE STRUCTURE
3. REPLACE GRATE

ALL PRODUCTS MANUFACTURED BY INLET & PIPE PROTECTION, INC A DIVISION OF ADS, INC. WWW.INLETFILTERS.COM (866) 287–8655 PH (630) 355–3477 FX INFO@INLETFILTERS.COM

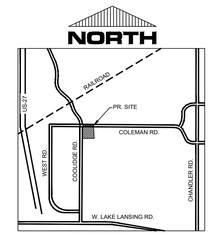
SIZE	REFERENCE DWG. NO.	REV.
C	FLEXSTORM_CATCH_IT	A

INLET FILTER
TYPICAL INSTALLATION

CITY OF EAST LANSING
DEPARTMENT OF ENGINEERING
410 ABBOT ROAD
EAST LANSING, MI 48823
(517) 337–9458 FAX: (517) 337–3843

PROJECT: STANDARD DETAILS
SHEET TITLE: FLEXSTORM CATCH–IT INLET FILTERS
ENG. REVIEW: 03/01/16
DRAWN: CJM | CHECKED: RFS | APPROVED: | SCALE: NONE
DATE: 02/20/14 | 03/14/14 | 03/14/14 | SHEET NO.: 2 OF 2

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LOCATION MAP
NOT TO SCALE

GATEWAY
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE # (586) 532-5555 FAX (586) 786-5375
www.gatewayengineer.com

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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD., EAST LANSING, MI 48823

PARCEL ID# 19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH
LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PSP	03/18/2026
2.	REV. PSP	06/03/2026

REVIEWED BY: J.V.
DESIGNED BY: M.G.
DRAWN BY: M.G.

DRAWING:

SESC STANDARD DETAILS

NO. C5.2

PROJECT NO. 25-1206

LANDSCAPE NOTES:
1. ALL PLANT BEDS AND MAINTENANCE EDGES AROUND STRUCTURES WILL BE MULCHED W/ MICHIGAN STONE (1-2" DIA.) OVER COMMERCIAL WEED BARRIER. ALL PLANTS WILL HAVE SMALL RING OF SHREDDED HARDWOOD MULCH, 3-4" DEEP OVER THE ROOT BALL

2. IF LAWN IS TO BE SODDED, USE A LOCALLY GROWN KENTUCKY BLUEGRASS VARIETY, FREE OF WEEDS.

3. SEED AREAS WITH THE FOLLOWING:
25% SYBSPORT KENTUCKY BLUEGRASS
25% NASSAM KENTUCKY BLUEGRASS
20% BRYISTOL KENTUCKY BLUEGRASS
10% PERINNIAL RYE GRASS
APPLY AT THE RATE OF 2 TO 3 LBS. PER 1,000 S.F.

4. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UNDERGROUND UTILITIES, PIPES AND STRUCTURES, AS WELL AS THE LOCATION OF EXISTING TREES AND VEGETATION. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COST INCURRED DUE TO DAMAGE/REMOVAL OF SAID ELEMENTS.

5. ANY DISCREPANCIES BETWEEN PLANS, NOTES, DETAILS AND EXISTING CONDITIONS SHALL BE IMMEDIATELY REPORTED TO THE OWNER'S AUTHORIZED REPRESENTATIVE FOR REVIEW AND DECISION. CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL REVISIONS DUE TO FAILURE TO GIVE SUCH NOTIFICATION.

6. CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE TO EXISTING MATERIALS/IMPROVEMENTS, DAMAGED DURING CONSTRUCTION.

7. SITE BOUNDARY, TOPOGRAPHY, UTILITIES AND OTHER BASE INFORMATION PROVIDED BY OTHERS.

8. CONTRACTOR SHALL VERIFY QUANTITIES SHOWN ON PLANT SCHEDULES AND THOSE INDICATED ON PLANS. CONTRACTOR IS RESPONSIBLE FOR INSTALLATIONS OF QUANTITIES DRAWN.

9. CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO PLANT MATERIAL LOCATIONS IN FIELD, AS NECESSARY. THE LOCATION OF ALL PLANT MATERIAL SHALL BE SUBJECT TO APPROVAL BY THE OWNER'S AUTHORIZED REPRESENTATIVE.

10. ALL PLANT MATERIAL SHALL BE OF THE SIZES CALLED FOR IN THE PLANT SCHEDULES. ANY PLANT MATERIAL NOT MEETING THE SIZED AND/OR QUALITY AS CALLED FOR SHALL BE REMOVED FROM SITE. ALL TREES SHALL BE INSPECTED AND APPROVED BY THE OWNER'S AUTHORIZED REPRESENTATIVE. NO SUBSTITUTIONS OF PLANT MATERIAL SHALL BE MADE WITHOUT THE APPROVAL FROM THE OWNER'S AUTHORIZED REPRESENTATIVE.

11. ALL PROPOSED TREES OVER 2" CAL. SHALL BE GUYED/STAKED SECURE, SEE EVERGREEN TREE PLANTING/GUYING DETAIL, OR DECIDUOUS TREES PLANTING/STAKING DETAIL WHERE APPLICABLE.

12. ALL PLANTING BEDS TO BE TREATED WITH PRE-EMERGENT HERBICIDE. CONTRACTOR SHALL INSURE THAT PROPOSED PLANT MATERIAL IS RESISTANT TO THE HERBICIDE PROPERTIES AND THAT THE HERBICIDE APPLICATION FOLLOWS THE MANUFACTURER'S SPECIFICATIONS AND IS APPLIED IN ACCORDANCE WITH SOUND HORTICULTURAL PRACTICES.

13. CONTRACTOR SHALL DETERMINE APPROPRIATE PLANTING BACKFILL MIXES(BASED ON SOILS/SUBSURFACE CONDITIONS) AND REVIEW ALTERNATIVES WITH OWNER'S AUTHORIZED REPRESENTATIVE PRIOR TO INSTALLATION.

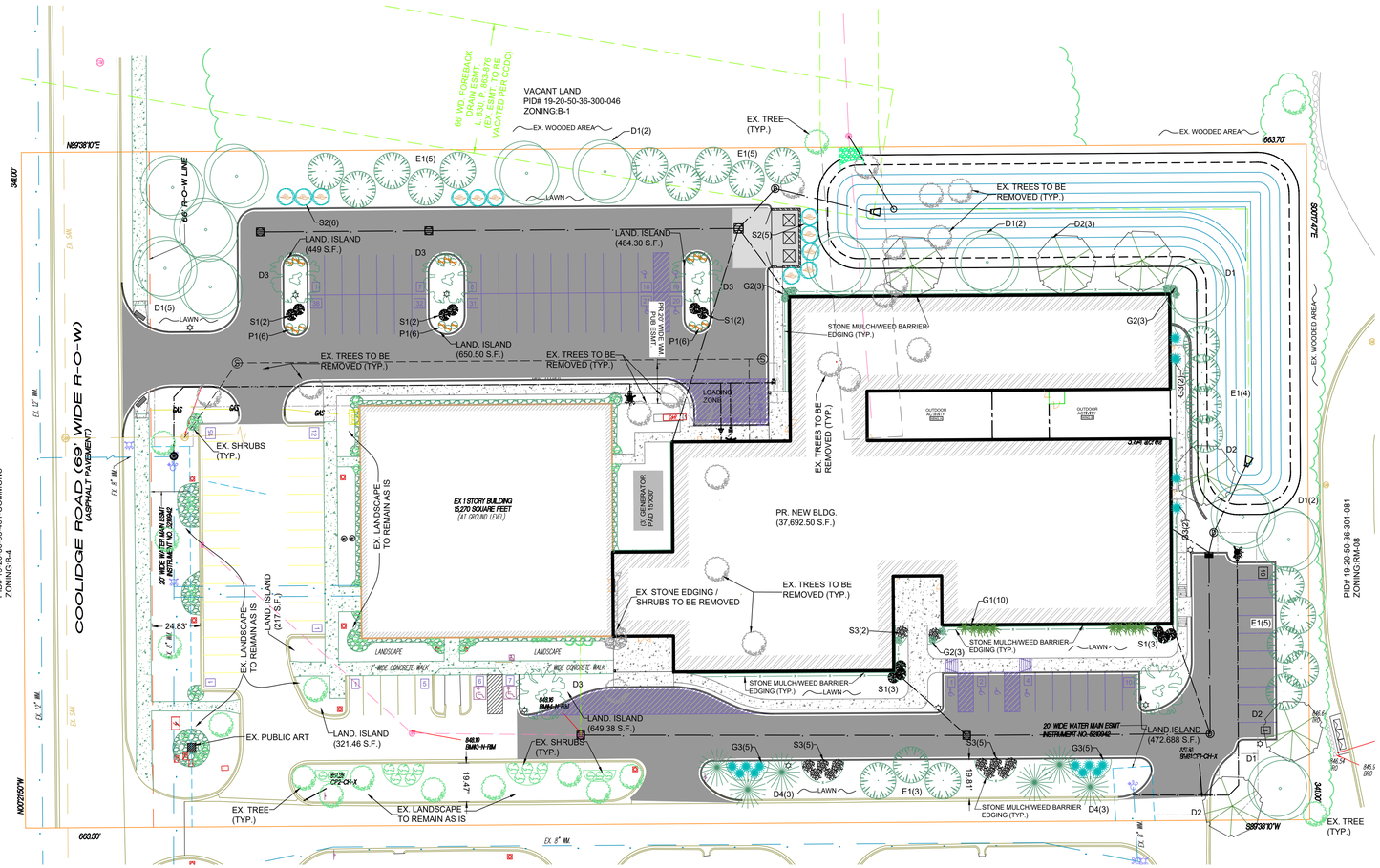
LANDSCAPE REQUIREMENTS:

* PER SEC 50-440(1)(B)6: ONE SHADE TREE OF A MINIMUM 3½-INCH CALIPER SHALL BE PLANTED FOR EACH 40 LINEAR FEET OF SIDE OR REAR YARD.

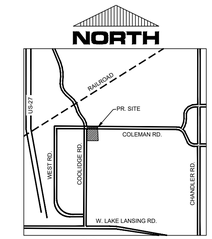
REQ.= 664/40= 16.6= 17 TREES REQUIRED FOR EACH OF SIDE/REAR PROPERTY LINES
PROVIDED: 17 X3 = 51 TREES PROVIDED

* PER SEC 50-440(1)(B)7: AT LEAST ONE SHADE TREE OF A MINIMUM 3½-INCH CALIPER SHALL BE PLANTED WITHIN OR ADJACENT TO THE PUBLIC RIGHT-OF-WAY FOR EACH 40 FEET OF LOT FRONTAGE.

REQ.= 334 /40 = 9 TREES REQUIRED FOR FRONTAGE PROPERTY LINE
PROVIDED: 9 FRONTAGE TREES PROVIDED



LANDSCAPE PLAN
SCALE: 1" = 30.00'



LOCATION MAP
NOT TO SCALE

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

TREE AND SHRUB PLANTING SCHEDULE

KEY	SYMBOL	QUANT.	TYPE	MIN. CAL./ SIZE
EX.T		22	*EXISTING TREE TO BE REMOVED*	
EX.T		16	*EXISTING TREE TO REMAIN*	
EX.S		±3	*EXISTING SHRUBS/GRASSES TO BE REMOVED*	
EX.S		±50	*EXISTING SHRUBS/GRASSES TO REMAIN*	
			PROPOSED DECIDUOUS TREES	
D1		13	*ACER P. "CRIMSON KING" CRIMSON KING MAPLE*	*3.5" CALIPER*
D2		6	*ACER RUBRUM "OCTOBER GLORY" OCTOBER GLORY RED MAPLE*	*3.5" CALIPER*
D3		5	*GLEDITSIA T. "SUNBURST" SUNBURST LOCUST*	*3.5" CALIPER*
D4		6	*TILIA CORDATA "GREENSPIRE" GREENSPIRE LINDEN*	*3.5" CALIPER*
TOTAL DECIDUOUS TREES PROVIDED: 30				
			PROPOSED EVERGREEN TREES	
E1		22	*PICEA MOMORIKA SERBIAN SPRUCE*	*6'–7" MIN. HT.*
TOTAL EVERGREEN TREES PROVIDED: 22				
			SHRUBS AND FLOWERS	
S1		12	*HYDRANGEA MACROPHYLLA"ENDLESS SUMMER" ENDLESS SUMMER HYDRANGEA*	*24"*
S2		11	*EUONYMU ALATUS "COMPACTA" COMPACT BURNING BUSH*	*36"*
S3		12	*PHYSOCARPUS O. "DIABLO" DIABLO NINEBARK*	*24"*
			GRASSES	
G1		10	*CALAMAGROSTIS "KARL FOERSTER" KARL FOERSTER REED GRASS*	*2 GALLON*
G2		9	*MISCANTHUS "PURPURASCENS" FLAME GRASS*	*2 GALLON*
G3		14	*PENNISETUM ALOPECUROIDES "HAMEIN" DWARF FOUNTAIN GRASS*	*2 GALLON*
			FLOWERS	
P1		18	*RUDBECKIA " GOLDSTRUM" BLACK EYED SUSAN*	*1 GALLON*
TOTAL SHRUBS PROVIDED: 41				
TOTAL GRASS PLANTS PROVIDED: 48				
TOTAL FLOWERING PLANTS PROVIDED: 12				

NOTE:
1. IF ANY DISCREPANCY BETWEEN THESE PLANS AND CITY / TWP. STANDARDS OCCURS THE CITY / TWP. STANDARDS SHALL GOVERN..
2. IF ANY DISCREPANCY BETWEEN DESIGNS OR CODES RELATED WITH THESE DESIGNED PLANS OCCURS THE STRICTEST SHALL APPLY.
3. "NO PARKING-FIRE LANE" SIGNS SHALL BE INSTALLED AND MAINTAINED AS DESIGNATED BY THE FIRE MARSHAL.
4. AN EMERGENCY ACCESS LANE, AS REQUIRED IN ORDINANCE 145, SHALL BE PROVIDED PRIOR TO THE START OF CONSTRUCTION UNLESS THE PERMANENT HARD SURFACE IS INSTALLED PRIOR TO CONSTRUCTION.
5. PRIOR TO CONSTRUCTION, ALL LOCATION AND DEPTHS OF EXISTING OVERHEAD AND UNDER-GROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD.
6. DURING CONSTRUCTION, CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR OVERHEAD AND/OR BURIED UTILITIES. CALL MISS DIG.
7. MUNICIPAL UTILITIES (WATER, SANITARY AND STORM SEWER) ARE TO BE BROUGHT ON SITE BY THE DEVELOPER FROM EXISTING SOURCES.

UTILITY WARNING
UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THESE PLANS ARE APPROXIMATED FROM UTILITY OWNER AND NOT FIELD LOCATED.
A MINIMUM OF 72 HOURS PRIOR TO BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY MISS DIG AND HAVE ALL UNDERGROUND UTILITIES STAKED BEFORE ANY WORK CAN BEGIN.
THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.

GATEWAY ENGINEERING SERVICES
8155 ANNSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE #:(586) 786-5533 FAX #:(586) 786-5575
www.gatewaysgroup.com

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PROJECT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH

PR. ADDITION TO EX. BUILD. & PARKING LOT

3512 COOLIDGE RD., EAST LANSING, MI 48823

PARCEL ID#
19-20-50-36-300-047

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH
LANSING PSYCH SENIOR HOSPITAL

3512 COOLIDGE RD.
EAST LANSING, MI 48823
PHONE#: 734-673-5452

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.	PSP	03/18/2026
2.	REV. PSP	06/03/2026

REVIEWED BY:	J.V.
DESIGNED BY:	M.G.
DRAWN BY:	M.G.

DRAWING:
LANDSCAPE PLAN

NO. LA1.1

PROJECT NO. 25-1206

ALL LIGHT POLE FIXTURES AT 15'-0" ABOVE FINISH GRADE

Schedule										
Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power	Polar Plot
	A		15	Lithonia Lighting	DSX2 LED P5 30K 70CRI T5TFN	D-Series Size 2 Area Luminaire P5 Performance Package 3000K CCT 70 CRI Forward Throw	1	39406	1	326.59	Max: 3950.0cd
	B		3	Lithonia Lighting	DSX2 LED P5 35K 80CRI T5TFN	D-Series Size 2 Area Luminaire P5 Performance Package 3500K CCT 80 CRI Forward Throw	1	36943	1	653.15	Max: 3329.6cd
	C		36	Lithonia Lighting	WPX1 LED P1 50K MVOLT	WPX1 LED wallpack 15508m 5000K color temperature 120-277 Volts	1	1602	1	11.39	Max: 716cd
	D		15	Lithonia Lighting	OLCFM 15 WH	GENERAL PURPOSE LED CAST FLUSH MOUNT WITH WHITE FINISH	1	1099	1	16.6	Max: 402cd

Designer OG
Date 06/01/2026
Scale Not to Scale
Drawing No.
Summary

1 of 1



GATEWAY
8155 AINSBURY DRIVE, SUITE # 109
SHELBY TWP., MI 48316
OFFICE # (586) 764-5333 FAX # (586) 786-5575
www.gatewayengineer.com

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PROJECT:

LANSING PSYCH
LANSING, MICHIGAN

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH / LEO BROWN GROUP LLC

CONTACT:
KESHAV
P: 7346735452
E: keswvik@gmail.com

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.		

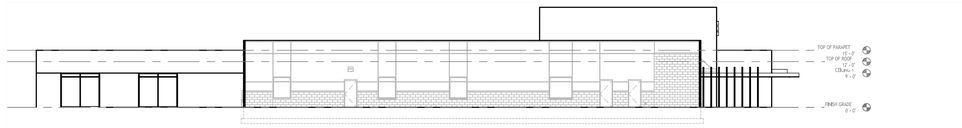
SCALE:

REVIEWED BY:	J.V.
DESIGNED BY:	O.G.
DRAWN BY:	O.G.

DRAWING:
1ST FLOOR PLAN

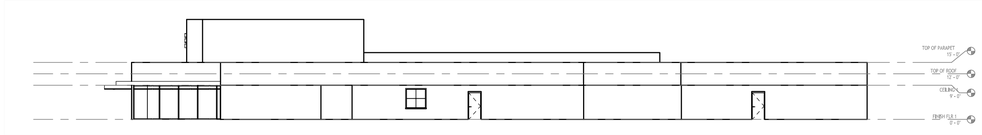
NO. A1.1

PROJECT NO. # 25-1206



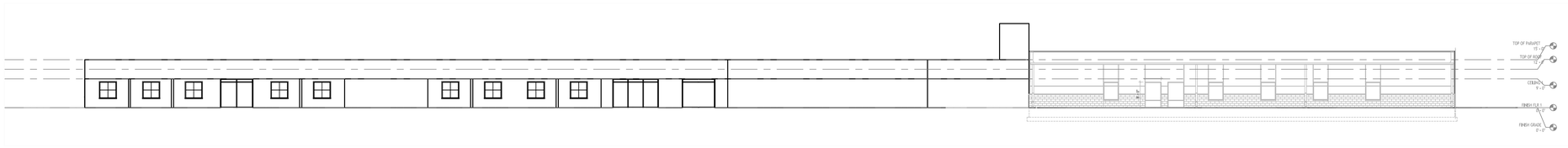
EXTERIOR ELEVATION, SIDE/WEST 03

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



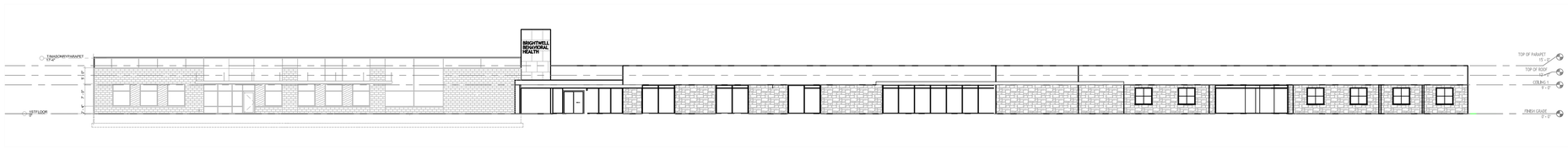
EXTERIOR ELEVATION, SIDE/EAST 04

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



EXTERIOR ELEVATION, BACK/NORTH 02

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



EXTERIOR ELEVATION, FRONT/SOUTH 01

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









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8155 KINSBURY DRIVE, SUITE # 109
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CAUTION BY ENGINEERING & SURVEYING (GLS) ACT 299 OF 1980, AS AMENDED, PROVIDES, EXCAVATORS MUST NOTIFY ALL UNDERGROUND UTILITIES OF INTENT TO EXCAVATE AT LEAST THREE WORKING DAYS BUT NOT MORE THAN TEN WORKING DAYS BEFORE BEGINNING EXCAVATION. CALL MISS DIG SYSTEM, INC. AT 1-800-482-7171 OR 811 BEFORE YOU DIG IN MICHIGAN. (EXCEPTIONS: MEMBERS OF MISS DIG SYSTEM, INC. NEED NOT BE CONTACTED, AS PER STATE LAW.)

PROJECT:

LANSING PSYCH

LANSING, MICHIGAN

CLIENT INFORMATION:

BRIGHTWELL BEHAVIORAL HEALTH / LEO BROWN GROUP LLC

CONTACT:
KESHAV
P: 7346735452
E: keswvik@gmail.com

ISSUANCE:
- ☐ SCHEMATIC
- ☐ BIDDING
- ■ MUNI SUBMITTAL
- ☐ CONSTRUCTION
- ☐ OTHER

DRAWINGS SHALL NOT BE USED FOR CONSTRUCTION UNLESS INDICATED

NO.	DESC.	DATE
1.		

SCALE:

REVIEWED BY: J.V.

DESIGNED BY: O.G.

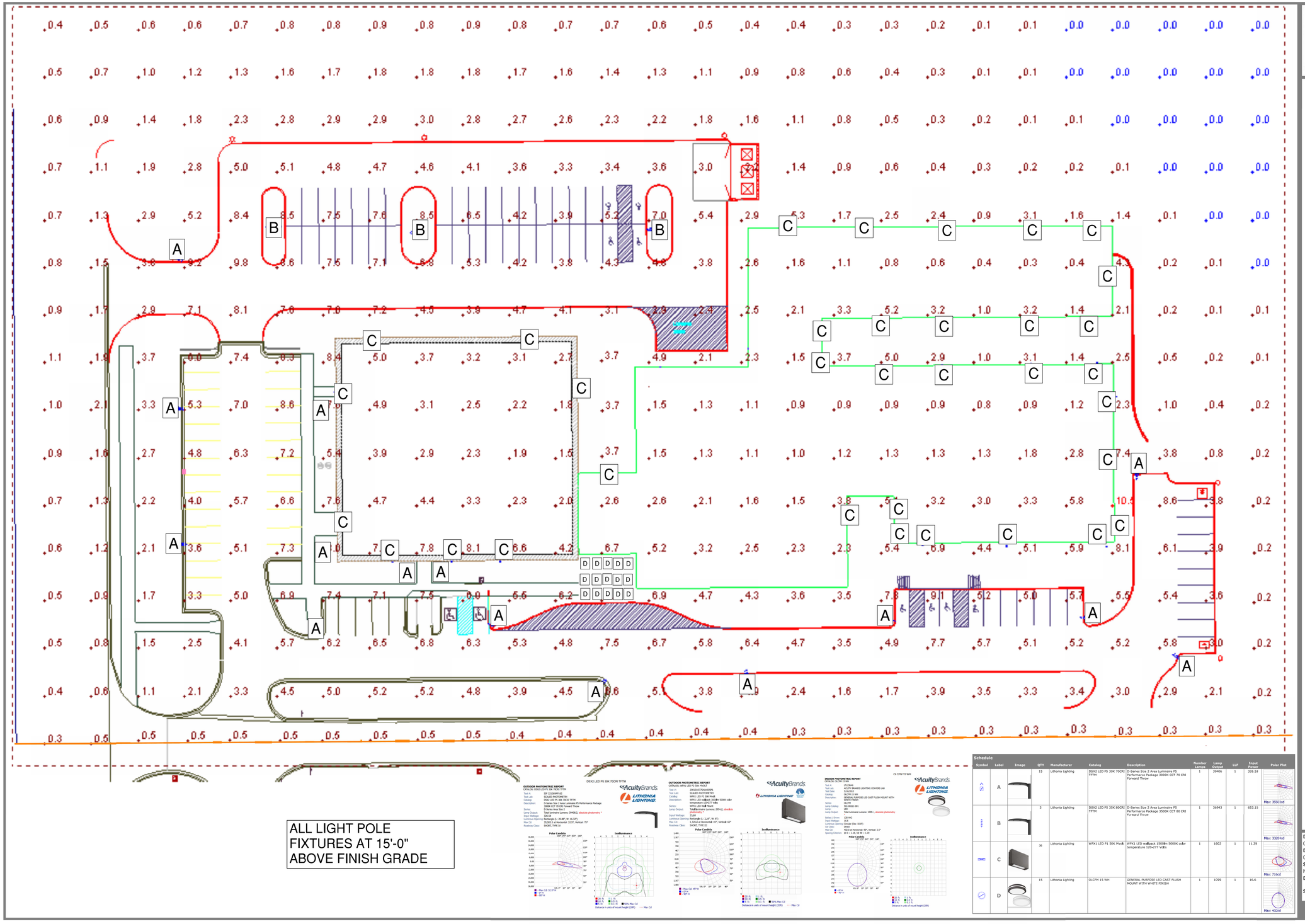
DRAWN BY: O.G.

DRAWING:

EXTERIOR ELEVATIONS

NO. A2.1

PROJECT NO. # 25-1206



Schedule										
Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power	Polar Plot
	A		15	Lithonia Lighting	DSX2 LED P5 30K 70CRI TFTM	D-Series Size 2 Area Luminaire P5 Performance Package 3000K CCT 70 CRI Forward Throw	1	39406	1	326.59	Max: 3950.0cd
	B		3	Lithonia Lighting	DSX2 LED P5 35K 80CRI TFTM	D-Series Size 2 Area Luminaire P5 Performance Package 3500K CCT 80 CRI Forward Throw	1	36943	1	653.15	Max: 3329.6cd
	C		36	Lithonia Lighting	WPX1 LED P1 50K MVOLT	WPX1 LED wallpack 15008m 5000K color temperature 120-277 Volts	1	1602	1	11.39	Max: 716cd
	D		15	Lithonia Lighting	OLCFM 15 WH	GENERAL PURPOSE LED CAST FLUSH MOUNT WITH WHITE FINISH	1	1099	1	16.6	Max: 402cd

Designer OG
Date 06/01/2026
Scale Not to Scale
Drawing No.

Summary

1 of 1

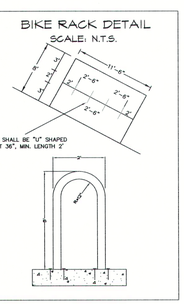
EAST LANSING HEALTHCARE PARTNERS

COLEMAN & COOLIDGE RD, CITY OF EAST LANSING, CLINTON COUNTY, MICHIGAN

APPLICANT:
LEO BROWN GROUP
802 E. 86th ST.
INDIANAPOLIS, IN., 46240
PH: (317) 727-8456
c/o TONY BERTSCH

ENGINEER/SURVEYOR:
KEBS, INC.
2116 HASLETT RD.
HASLETT, MI. 48840
PH: (517) 339-1014
FAX: (517) 339-8047

BIKE RACK DETAIL
SCALE: N.T.S.



EX. SEWER INVENTORIES

STORM MANHOLE #100
RIM ELEV. = 851.95
12" RCP N INV. = 843.63
12" RCP NE INV. = 847.71
12" RCP S INV. = 843.67
12" RCP W INV. = 846.79
12" RCP NW INV. = 847.39

STORM MANHOLE #101
RIM ELEV. = 851.60
60" RCP E INV. = 834.80
12" RCP W INV. = 845.40
54" RCP W INV. = 834.80

STORM MANHOLE #102
RIM ELEV. = 849.33
12" RCP N INV. = 844.69
12" RCP SE INV. = 844.75
12" RCP SW INV. = 844.74

CATCH BASIN #103
RIM ELEV. = 848.86
12" RCP NW INV. = 845.02

CATCH BASIN #104
RIM ELEV. = 847.25
12" VCP S INV. = 838.97
8" PVC SW INV. = 838.99
24" CMP W INV. = 838.69

CATCH BASIN #105
RIM ELEV. = 847.17
18" RCP N INV. = 837.95
18" RCP S INV. = 838.82

STORM MANHOLE #106
RIM ELEV. = 847.63
18" RCP N INV. = 838.95
8" PVC S INV. = 841.51

CATCH BASIN #107
RIM ELEV. = 845.21
8" PVC N INV. = 842.10

STORM MANHOLE #108
RIM ELEV. = 844.68
NO MANHOLE COVER ON STRUCTURE
12" VCP N INV. = 840.04
12" VCP S INV. = 840.18

CATCH BASIN #109
RIM ELEV. = 845.58
12" RCP E INV. = 840.80

CATCH BASIN #110
RIM ELEV. = 849.71
6" PVC E INV. = 847.31
8" PVC S INV. = 845.93
6" PVC W INV. = 847.24

CATCH BASIN #111
RIM ELEV. = 849.24
8" PVC SE INV. = 846.03
6" PVC W INV. = 846.76

CATCH BASIN #112
RIM ELEV. = 848.89
6" PVC NE INV. = 846.31
12" PVC SW INV. = 845.89

SANITARY MANHOLE #200
RIM ELEV. = 850.29
8" PVC N INV. = 840.79
18" RCP E INV. = 840.37
8" PVC S INV. = 840.81
15" RCP W INV. = 840.39

SANITARY MANHOLE #201
RIM ELEV. = 848.47
15" RCP E INV. = 834.75
8" PVC S INV. = 835.11
12" PVC W INV. = 839.83
10" PVC W INV. = 834.90

SANITARY MANHOLE #202
RIM ELEV. = 844.41
8" PVC NE INV. = 837.19
8" PVC SW INV. = 837.20

SANITARY MANHOLE #203
RIM ELEV. = 845.62
8" PVC N INV. = 837.47
8" PVC S INV. = 837.49

SANITARY MANHOLE #5
RIM ELEV. = 850.63
12" NORTH INV. = 841.89
8" EAST INV. = 841.94
12" SOUTH INV. = 841.99
8" WEST INV. = 841.98

SANITARY MANHOLE #10
RIM ELEV. = 851.79
15" NORTH INV. = 840.99
15" EAST INV. = 840.93
12" SOUTH INV. = 841.20
8" WEST INV. = 841.12

SANITARY MANHOLE #25
RIM ELEV. = 850.25
12" NORTH INV. = 842.63
8" EAST INV. = 842.79
12" SOUTH INV. = 842.73
8" WEST INV. = 842.75

EX. LEGEND

● = SET 1/2" BAR WITH CAP	Ⓢ = SANITARY MANHOLE
□ = FOUND IRON AS NOTED	Ⓓ = DRAINAGE MANHOLE
= DEED LINE	● ■ = CATCHBASIN
= DISTANCE NOT TO SCALE	O_{CO} = SANITARY CLEANOUT
= FENCE	= FIRE HYDRANT
= ASPHALT	= VALVE
= CONCRETE	= LIGHT POLE
= ADA PLATES	= UTILITY PEDESTAL
840 = EXISTING SPOT ELEVATION	= TRANSFORMER
840 = EXISTING CONTOUR ELEVATION	= HANDHOLE
= BUILDING OVERHANG	= ELECTRIC METER
= SANITARY SEWER	= GAS METER
= STORM SEWER	= WATER METER
= WATER LINE	= SIGN
= GAS LINE	= POST
= DECIDUOUS TREE	
= CONIFEROUS TREE	

NOTE: WATER SHALL HAVE 10' HORIZONTAL SEPARATION & 18" VERTICAL SEPARATION FROM ALL SEWERS.

NOTE: ALL PUBLIC WATER SHALL BE WITHIN A 20' PUBLIC EASEMENT

LEGEND

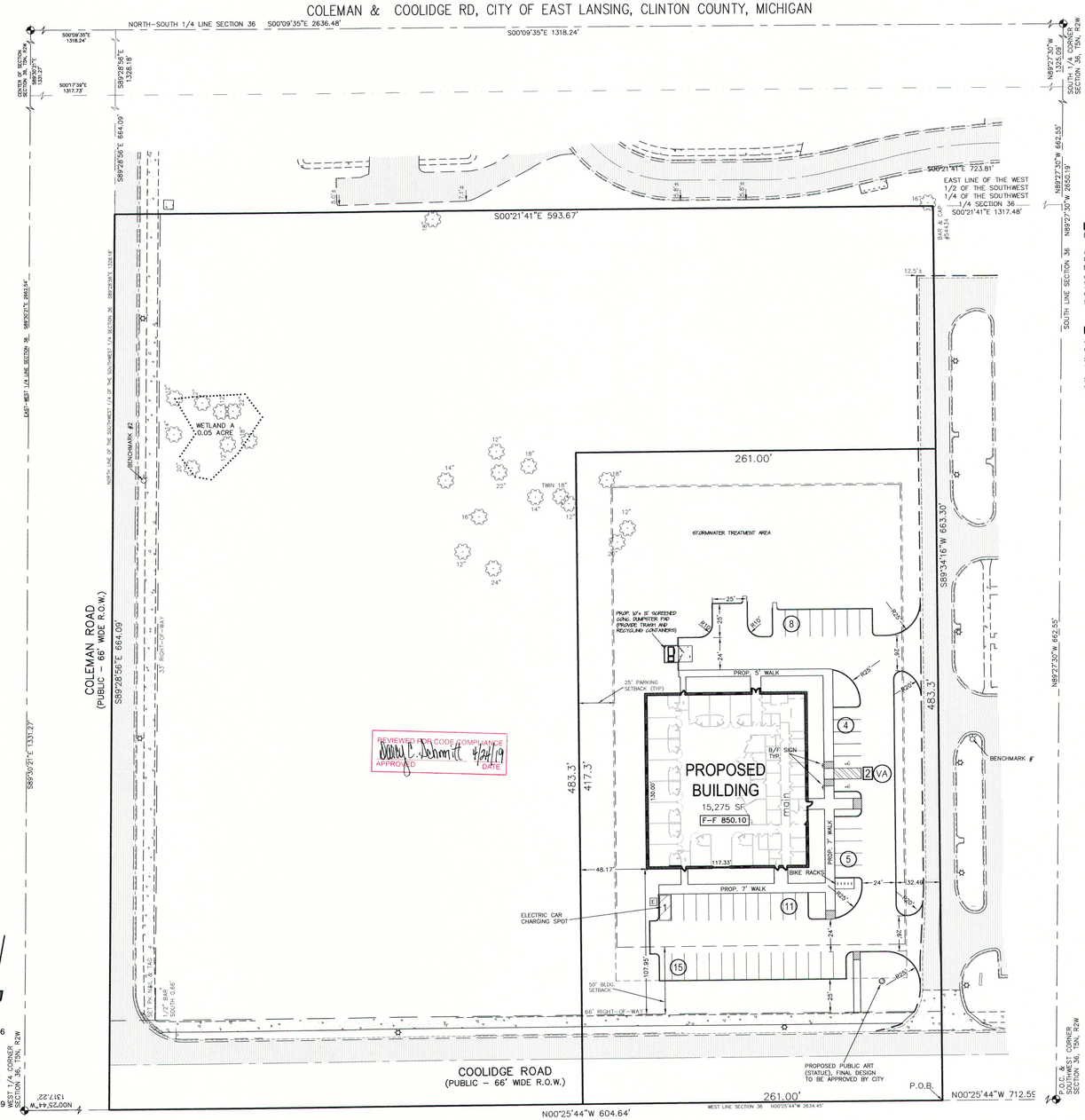
	PROPOSED WATER MAIN
	PROPOSED SANITARY SEWER
	PROPOSED STORM SEWER
	PROPOSED HYDRANT
⊘	PROPOSED GATE VALVE
Ⓢ	PROPOSED SAN. M.H.
Ⓓ	PROPOSED STORM M.H.
□	PROPOSED C.B.
800	PROPOSED GRADES
F-F 800.00	PROPOSED FIRST FLOOR ELEV.
▲T/C 800.00	PROPOSED TOP OF CURB ELEV.
▲T/G 800.00	PROPOSED TOP OF GROUND ELEV.
▲T/P 800.00	PROPOSED TOP OF PAVT ELEV.
▲T/W 800.00	PROPOSED TOP OF WALK ELEV.
(SS)	DENOTES S.E.S.C. KEYING SYSTEM

72 HOURS (3 WORKING DAYS) BEFORE YOU DIG CALL MISS DIG 800-482-7171 (TOLL-FREE)

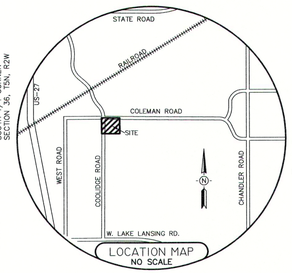
BENCHMARKS

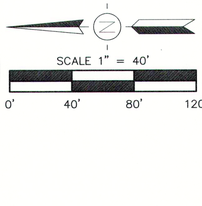
BENCHMARK #1 ELEV. = 852.76 (NAVD88)
SSE FLANGE BOLT, UNDER "A" IN "USA", FIRE HYDRANT, SOUTH SIDE OF ACCESS DRIVE ON SOUTH SIDE OF SITE, 215' EAST OF EAST BACK OF CURB OF COOLIDGE ROAD.

BENCHMARK #2 ELEV. = 848.40 (NAVD88)
SOUTHWEST FLANGE BOLT, UNDER "O" IN "OPEN", FIRE HYDRANT, SOUTH SIDE OF COLEMAN ROAD, 415' EAST OF EAST BACK OF CURB OF COOLIDGE ROAD.



REVIEWED FOR CODE COMPLIANCE
APPROVED
Darryl E. Schmidt 4/24/19
DATE





LEGAL DESCRIPTION: (OVERALL PARCEL)
(As provided by Chicago Title Insurance Company, Commitment No. 191050611NTS, dated February 28, 2018)

A parcel of land in the Southwest ¼ of Section 36, T5N, R2W, DeWitt Township, now the City of East Lansing, Clinton County, Michigan, described as: Commencing at the Southwest corner of said Section 36; thence N00°25'44"W along the West line of said Section 36 a distance of 712.59 feet to the point of beginning of this description; thence N00°25'44"W continuing along said West line 604.64 feet to the North line of the Southwest ¼ of the Southwest ¼ of said Section 36; thence S89°28'56"E along said North line 664.09 feet to the East line of the West 1/2 of the Southwest ¼ of said Southwest 1/4; thence S00°21'41"E along said East line 593.67 feet; thence S89°34'16"W 663.30 feet to the point of beginning.

LEGAL DESCRIPTION: (PROPOSED PARCEL)
A parcel of land in the Southwest 1/4 of Section 36, T5N, R2W, DeWitt Township, now the City of East Lansing, Clinton County, Michigan, described as: Commencing at the Southwest corner of said Section 36; thence N00°25'44"W along the West line of said Section 36 a distance of 712.59 feet to the point of beginning of this description; thence N00°25'44"W continuing along said West line 261.00 feet; thence N89°34'16"E 483.30 feet; thence S00°25'44"E parallel with said West line 261.00 feet; thence S89°34'16"W 483.30 feet to the point of beginning.

SITE INFORMATION:
PATIENT CARE FACILITY
EX. ZONING: A (AGRICULTURE DEWITT TWP)
PROPOSED ZONING: B-1 (BUSINESS)
TOTAL SITE AREA = 126,112 S.F. OR 2.90 AC.
TOTAL NET SITE AREA = 108,886 SF OR 2.50 ACRES (NOT INCLUDING THE R.O.W.). R.O.W. AREA = 17,226 S.F.

BUILDING SETBACKS
FRONT – 20' FEET
SIDES – 20' FEET
REAR – 20' FEET

BUILDING INFORMATION
15,275 S.F. (1 STORY)

TOTAL BLDG. COVERAGE: 15,275
TOTAL BLDG. COVERAGE: (15,275/108,886) = 14.03%
MAXIMUM BLDG. COVERAGE = MAX. 30%, 30% > 14.03% = OK

TOTAL GROUND COVERAGE
BUILDING: 15,275 S.F.
ASPHALT: 23,852 S.F. (PROPOSED) + 5,374 S.F. (EXISTING)
WALK: 3,029 S.F. (INCLUDES BIKE RACK)
TOTAL GROUND COVERAGE: 15,275 + 29,226 + 3,029 = 47,530 S.F.
TOTAL GROUND COVERAGE = 47,530/108,886 SF = 43.65%
MAX. GROUND COVERAGE = 45% > 43.65%

PARKING
REQUIRED:
PATIENT CARE: 1 SPACE PER 2 BEDS
TOTAL BEDS = 23 / (2 SPACES/BED) = 11.5 = 12
SPACES REQUIRED = 12
EMPLOYEES @ SITE: 60 TOTAL WITHIN 2 SHIFTS
LARGEST SHIFT = 30 EMPLOYEES (1 PER EMPLOYEE)
SPACES REQUIRED = 30
TOTAL REQUIRED = 12 + 30 = 42 SPACES (INCL. 2 B/F)
46 SPACES PROVIDED (INCL. 2 B/F)

[1] DENOTES NUMBER OF B/F SPACES
(VA) DENOTES VAN ACCESS B/F SPACES
(0) DENOTES PROPOSED NUMBER OF 9'x20' PARKING SPACES

SITE ADDRESS: VACANT – COLEMAN & COOLIDGE ROADS, EAST LANSING, MI.

93741.ALT

STATE OF MICHIGAN – GREGORY A. PETRU – ENGINEER NO. 50953 – LICENSED PROFESSIONAL ENGINEER

REVISIONS
8-28-18 SUBMITTAL
12-19-18 REVISIONS
3-18-19 FOR CONSTRUCTION
4-19-19 FINAL PLANS TO CITY

KEBS, INC. — KYES ENGINEERING, BRYAN LAND SURVEYS
2116 HASLETT ROAD, HASLETT, MI 48840
PH. 517-339-1014 FAX. 517-339-8047
Marshall Office
Ph. 269-781-9800

EAST LANSING HEALTHCARE PARTNERS
SITE & DIMENSION PLAN

SCALE: 1"= 40'	DESIGNER: GAP	APPROVED BY: GAP
DATE: 7-31-18	PROJECT MGR. GAP	SHEET 2 OF 7
AUTHORIZED BY: LEO BROWN GROUP		JOB #: 93741

Planning Commission

AGENDA ITEM REPORT

To:	Planning Commission
Subject:	Consideration of proposed Ordinance 1575, amendments to Chapter 50 of the City Code, the Zoning Ordinance, and to Chapter 4 of the City Code to modify requirements related to electric vehicles and charging stations; parking ratios for automobiles and bicycles; landscaping, green space, & trees; and the keeping of bees and chickens.
Meeting:	Planning Commission - 24 Jun 2026
Department:	Planning, Building, and Housing
Staff Contact:	Grace Whitney, Associate Planner

BACKGROUND INFORMATION:

This is a staff-led proposal to amend the City of East Lansing Code of Ordinances (the Zoning Ordinance). These amendments originated with recommendations made by the Green Code Study Committee. This Committee met during the summer of 2025.

If approved, the amendment would modify the requirements for electric vehicle charging spaces, parking ratios for automobiles and bike, landscaping and greenspace requirements, allow the keeping of bees and relocating the keeping of chickens to be part of the zoning ordinance.

The recommendations of the Green Code Study Committee were discussed at the December 16, 2025 Discussion Only City Council Meeting. A summary of the proposed changes presented at that meeting are attached to this report. A redline and clean copy of the proposed ordinance changes are also attached to this report.

The City Council introduced and referred the ordinance to Planning Commission and Commission on the Environment on May 12, 2026. The Planning Commission will held a public hearing on June 10 and provided a recommendation of approval to City Council City. Staff is requesting Planning Commission revise that recommendation to correct an error in the ordinance presented on June 10. Council has scheduled their own public hearing for their August meeting to review the Planning Commission’s recommendation.

FINANCIAL IMPACT:

None

STRATEGIC PRIORITIES:

This aligns with Goal 7: To be responsible stewards of the environment by reducing or eliminating reliance on carbon and reducing activities that adversely impact climate change.

ATTACHMENTS:

Green Code Staff report PC 6.24.26
Summary of Green Code Zoning Recommendations
Redline OrdinanceDraft No. 1575 Green Code PC 6.24.26
Clean Copy OrdinanceDraft No. 1575 Green Code PC 6.24.26

Department of Planning,
Building & Housing

STAFF REPORT

Address	N/A
Type of Case	Ordinance Amendment
Staff person	Grace McCarthy, AICP
CASE Number	Ordinance 1575
PC hearing date	June 10, 2026
CC review date	

Overview

- The Green Code Study Committee met during the summer of 2025 to review the City's existing Code of Ordinances and suggest changes to make it more environmentally friendly.
- Staff presented a summary of the committee's recommendations to City Council at a December 2025 discussion-only meeting.
- At its May 12, 2026 meeting, City Council introduced and referred Zoning Ordinance amendments related to the findings of the committee to the Planning Commission.
- Planning Commission recommended approval of the draft Ordinance on June 10, 2026, and at that time noted a potential discrepancy of recommended parking ratios as provided in the draft ordinance.
- Staff asks that the Commission consider a change to the recommendation provided on June 10 for a correction to the required parking ratio for Class A Multiple Family Dwellings to require 0.5 spaces per efficiency or 1 bedroom apartment. A clean copy and redline copy with these adjustments are included in the packet.

Project Summary and Next Steps

- The Planning Commission held a public hearing at its June 10 2026, meeting and recommended approval to City Council.
- The Commission on the Environment reviewed the proposed ordinance at its May and June meetings, and will review the ordinance again at its July 20 meeting.
- City Council has scheduled a public hearing for this ordinance at its August 11 meeting.

Suggested Motion

Move to recommend approval of Ordinance 1575 as presented in the June 24, 2026 Planning Commission Packet noting the following changes from the recommended ordinance language on June 10, 2026:

- **a correction to the required parking ratio for Class A Multiple Family Dwellings to require 0.5 spaces per efficiency or 1 bedroom apartment**
- ***[any additional changes recommended by the Commission]***

Zoning

- **Landscaping Requirements:**
  - Increase screening requirements to also include shrubs. Previously one shade tree per 40 linear feet. Update to one deciduous, ornamental, or evergreen tree and 4 shrubs planted for each 40 linear feet of side or rear yard.
  - Add preservation of Landmark Trees as an important site design element in the standards for site plan review. Provide a definition of Landmark Trees that is consistent with the tree manual. A landmark tree's size varies depending on the species of tree,
  - Require plantings to be consistent with species provided in the tree manual and limit the percent of one species/genus/family of plant material on one site to 10%/20%/30% to promote canopy diversity.
  - Require a landscape bond to be held for 2 years following the completion of construction.
  - Clearly define tree replacement standards and mirror the replacement standards in the tree ordinance. Additionally, clarify that trees required to meet replacement standards will not count towards other required landscaping.
- **Parking Requirements:**
  - Lower some minimum parking requirements where applicable and appropriate.
  - Provide a process for waivers to minimum parking requirements to be granted during approval processes. Smaller waivers (<25%) may be granted by the Zoning Administrator and larger waivers by the Planning Commission (>25%) based on a set of criteria evaluating incentivizing public or nonmotorized transportation, shared parking between uses, use of available public parking, and shared vehicle programs.
  - Require sites requesting more than 10% in excess of the required parking to receive a waiver from the Planning Commission.
  - Require a minimum of 50% of required bike parking be covered.
- **Electric Vehicles:**
  - Require a mix of EV-Capable, EV-Ready, and EV-Installed spaces.
  - Provide specific requirements for ratios of EV spaces to be provided based on use of the site.

    - Allow a Level-3 charger to be installed as a substitute for 5 required Level-2 chargers.
- **Ground Coverage Requirements:**
    - Allow permeable pavers to count only partially against ground coverage.
    - Allow for a green roof to count partially against ground coverage.

- **Beekeeping**
    - Allow beekeeping as a permitted use in residential districts similar to chickens.
    - Require a license to be obtained for beekeeping similar to chickens.
    - Require minimum lot sizes and setbacks from other properties for hives.
        - Two (2) hives for properties with a lot that is not greater than eleven thousand (11,000) square feet in area.
        - Four (4) hives for properties with a lot area of greater than eleven thousand (11,000) square feet and not greater than twenty-two thousand (22,000) square feet in area.
        - Five (5) hives for properties with a lot area greater than twenty-two thousand (22,000) square feet and not greater than forty-three thousand five hundred sixty (43,560) square feet.
        - Eight (8) hives for properties with a lot area of greater than forty-three thousand five hundred sixty (43,560) square feet (one acre) in area.
        - One additional hive is allowed for each additional acre of land.
        - All hives shall be located at least six (6) feet from any property line, and where public sidewalk is present at least ten (10) feet distant from it.
    - Include additional best practices
        - A flyway barrier at least six (6) feet in height shall shield any part of a property line that is within twenty-five (25) feet of a hive.
        - A constant supply of water shall be provided for all hives.

Introduced: May 12, 2026
Public Hearing:
Adopted:
Effective:

CITY OF EAST LANSING, MICHIGAN

ORDINANCE 1575

AN ORDINANCE TO AMEND THE ZONING USE DISTRICT MAP OF CHAPTER 50 - ZONING - OF THE CODE OF THE CITY OF EAST LANSING

THE CITY OF EAST LANSING ORDAINS:

Section 1 of Ordinance

City of East Lansing City Code Chapter 4, *Animals* will be amended as follows:

Sec. 4-4 Keeping domestic animals and fowl; feeding stray cats; leashes for dogs

(a) Except for service animals as defined and regulated under the Americans with Disabilities Act, and except as provided in this section, no person shall keep or house any animal, bird, or reptile within the city except dogs, cats, canaries, or other animals which are commonly kept and housed inside dwellings as household pets, and in all cases with regard to dogs or cats no person or persons shall keep or house more than four dogs or four cats or a combination making a total of four of both within any dwelling within the city. No dog shall be kept, restrained, confined, or housed in the front yard unless attended by a person who is present in the front yard of any single-family or two-family residence. Horses may be kept for private use in those areas of the city zoned agricultural. No person, except for law enforcement officers acting in the course of their official duties or as otherwise authorized pursuant to a parade permit or as otherwise authorized by the city manager for horse and wagon rides, may ride or lead a horse on public property.

(b) No person shall place outdoors, or in any other place readily accessible by stray cats, more than one-half pound per day of cat food or food intended for consumption by cats.

(c) No person shall have at any time outdoors on their property or property leased by them, or in any other place readily accessible by stray cats, more than one-half pound of cat food or food intended for consumption by cats.

(d) No person owning or in control of any dog shall allow the dog to enter upon any public sidewalk, street, or any other public property unless the dog is being held by a responsible person with a physical leash that does not exceed eight feet in length.

(e) Notwithstanding subsection (a) of this section, persons may keep chickens if done so in conformity with Section 50-157 of the Zoning Ordinance.~~all of the following:~~

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~~(1) Any person who keeps chickens in the city shall obtain a permit from the city prior to acquiring the chickens. Application shall be made to the city clerk with a fee as determined by council resolution.~~

~~(2) Permits expire and become invalid five years after the date of issuance. A person who wishes to continue keeping chickens shall obtain a new permit on or before the expiration date of the previous permit. Application for a new permit shall be pursuant to the procedures and requirements that are applicable at the time the person applies for a new permit.~~

~~(3) Notwithstanding the issuance of a permit by the city, private restrictions on the use of property shall remain enforceable and take precedence over a permit. Private restrictions include but are not limited to deed restrictions, condominium master deed restrictions, neighborhood association by-laws, and covenant deeds. A permit issued to a person whose property is subject to private restrictions that prohibit the keeping of chickens is void. The interpretation and enforcement of the private restriction is the sole responsibility of the private parties involved.~~

~~(4) A person who keeps or houses chickens on his or her property shall comply with all of the following requirements:~~

~~a. Have been issued the permit required under subsection (1) of this section.~~

~~b. Keep no more than four chickens.~~

~~c. The principal use of the person's property is for a single-family dwelling.~~

~~d. No person shall keep any rooster.~~

~~e. No person shall slaughter any chickens.~~

~~f. The chickens shall be provided with a covered enclosure and must be kept in the covered enclosure or an adjoining fenced enclosure at all times. Fenced and covered enclosures are subject to all provisions of~~ chapter 50 ~~(zoning).~~

~~g. A person shall not keep chickens in any location on the property other than in the backyard as defined by the zoning code.~~

~~h. No covered enclosure or fenced enclosure shall be located closer than ten feet to any property line of an adjacent property.~~

~~i. All enclosures for the keeping of chickens shall be so constructed or repaired as to prevent rats, mice, or other rodents from being harbored~~

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~~underneath, within, or within the walls of the enclosure. A covered enclosure or fenced enclosure shall not be located closer than 40 feet to any residential structure on an adjacent property.~~

~~j. All feed and other items associated with the keeping of chickens that are likely to attract or to become infested with or infected by rats, mice, or other rodents shall be protected so as to prevent rats, mice, or other rodents from gaining access to or coming into contact with them.~~

~~(5) If the above requirements are not complied with, the city may revoke any permit granted under this section and/or initiate prosecution for a civil infraction violation. Each day a violation exists shall constitute a separate offense.~~

~~(6) A person who has been issued a permit shall submit it for examination upon demand by any police officer or code enforcement officer.~~

~~(7) This section shall not regulate the keeping of chickens in those areas zoned residential agricultural district, RA, or agricultural-A, where the raising of poultry is a permitted principal use when conducted in compliance with the Michigan Right to Farm Act and the Generally Accepted Agricultural and Management Practices promulgated thereunder.~~

City of East Lansing City Code Chapter 50, *Zoning*, will be amended as follows:

ARTICLE I. -IN GENERAL

…

Sec. 50-6. - Definitions, D through F.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Diameter at breast height (d.b.h.) means the diameter of a tree as measured at 4.5 feet above grade level.

Dispensary means any of the following: (1) two or more primary caregivers growing medical marihuana in the same building, structure or lot except for multiple-unit residential structures; (2) two or more primary caregivers storing medical marihuana in the same building, structure or lot except for multiple-unit residential structures; (3) two or more primary caregivers delivering, transferring or providing qualifying patients with medical marihuana out of the same building, structure or lot except for multiple-unit residential structures; (4) two or more primary caregivers growing medical marihuana in the same unit of a multiple-unit residential structure; (5) two or more primary caregivers storing medical marihuana in the same unit of a multiple-unit residential structure; or (6) two or more primary caregivers delivering,

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transferring or providing qualifying patients with medical marihuana out of the same unit of a multiple-unit residential structure.

Domestic unit. See subsection (3) under "Family."

Drive-ins means establishments which offer goods or services directly to customers either waiting in motor vehicles or to customers who return to their vehicles to consume the goods while on the premises. Car washing establishments are deemed to be drive-ins.

Driveway means a paved surface which provides for access for motor vehicles from a street, alley, or private road to one or more garages, carports, parking spaces, or parking lots. Driveways may also include paved areas provided for maneuvering vehicles on a lot, such as circular driveways and turnarounds.

Dwelling means any house, building, structure, shelter, or portion thereof which is designed for, or occupied exclusively as the home, residence, living or sleeping place of one or more human beings, either permanently or transiently.

Dwelling unit means a room or group of rooms located within a building and forming a single habitable unit with facilities which are used or intended to be used for living, eat, sleeping, cooking, and sanitation excluding public halls, public stairs, and areas not included within the perimeter of the room or group of rooms.

Dwellings, classes of. For the purpose of this chapter, dwellings are divided into the following classes: (1) "one-family dwellings," (2) "two-family dwellings," and (3) "multiple-family dwellings."

(1) A one-family dwelling is a detached building designed for or occupied exclusively by one family.

(2) A two-family dwelling is a detached building designed for or occupied exclusively by two families living independently of each other.

(3)A multiple-family dwelling is a building used or designed as a residence for three or more families living independently of each other or occupied by five or more unrelated persons whether or not equipped with cooking facilities, including apartments, hotels, fraternities, and sororities.

Dwellings, classes of multiple. All multiple dwellings for the purpose of this chapter are divided into two classes, namely: class A and class B.

(1) *Class A.* Multiple dwellings of class A are dwellings which are occupied for residence purposes and in which the rooms are occupied in apartments, suites or groups, in which each combination of rooms is so arranged and designed as to provide a separate room for cooking and kitchen sink accommodations or a kitchenette, and a toilet room within each of the separate units. This class includes tenement houses, flats, apartment houses, apartment hotels, bachelor apartments, and all other dwellings similarly occupied whether specifically enumerated herein or not.

(2) *Class B.* Multiple dwellings of class B are dwellings which are occupied by individuals who are lodged, with or without meals, and in which as a rule the rooms are occupied singly and without any provision therein or therewith for cooking or kitchen accommodations for the individual occupants. This class includes fraternities, sororities, hotels, lodginghouses, boardinghouses, and all other dwellings similarly occupied, whether specifically enumerated herein or not.

*Electric vehicle*s means

a fully electric automobile or hybrid gas and electric automobile

Electric Vehicle Capable (EV-C) means a parking space which has an installed electrical panel capacity with a dedicated branch circuits(s) and cable/raceway that is capped for future EV Parking Space(s). The dedicated branch circuit panel space shall be stenciled or marked legibly with the following text: Future Electric Vehicle Charging Circuit

Electric Vehicle Ready (EV-R) means a parking space which has an installed electrical panel capacity with a dedicated branch circuit(s) including conductor in a raceway or direct buried, terminated in an approved method in a junction box, for an EV Parking Space(s). The junction box shall be clearly marked and labeled with the following text: EV Ready Circuit.

Electric Vehicle Installed (EV-I) means a parking space which has an installed electrical panel capacity with a dedicated branch circuit(s) including conductor in a raceway or direct buried, and an Electric Vehicle Charging Station (EVCS) capable of providing charge energy to an EV Parking Space(s)

Erected includes built, constructed, reconstructed, moved upon, or any physical operations on the premises required for the building. Excavations, fill, drainage, and the like, shall be considered a part of erecting.

Essential services means the erection, construction, alteration, maintenance, addition, reconstruction, or replacement or maintenance by public utilities or municipal departments or commissions of underground, surface, or overhead distribution of gas, electricity, communications (but excluding wireless communication facilities), steam, or water transmission or distributing systems, collection, supply or disposal systems including poles, mains, drains, sewers, pipes, conduits, wires, cables, high voltage transmission lines, towers in connection with such lines, fire alarm boxes, police call boxes, traffic signals, hydrants, and other similar equipment and accessories in connection therewith, but not including buildings reasonably necessary for the furnishing of adequate service to this city and surrounding territory by such public utilities or municipal departments or commissions or for public health, safety, or general welfare.

Extended care/nursing facility means a building wherein infirm, aged, or incapacitated persons are accepted and furnished, for compensation, care, food and lodging and may receive on-site medical care.

Exterior site boundaries means the outer boundaries on one or more lots that have been identified on a plan for existing or proposed development.

Facade means the elevation or "face" of a building, from ground level to roof line.

Family means (a) one person or two related persons or two unrelated persons residing in a dwelling unit; (b) more than two persons residing in a dwelling unit who are related to each other as husband, wife, son, daughter, father, mother, brother, sister, grandfather, grandmother, grandson, granddaughter, aunt, uncle, niece, nephew, stepchildren, foster children, persons living with the dwelling unit owner under guardianship, or legally adopted children; or (c) a collective number of individuals living together in one dwelling unit whose relationship is of a regular and permanent nature and having a distinct domestic character or a demonstrable and recognizable bond where each party is responsible for the basic material needs of the other and all are living and cooking as a single housekeeping unit. This definition shall not include any society, club, fraternity, sorority, association, lodge, combine, federation, group, coterie, or organization, nor include a group of individuals whose association is temporary or seasonal in character or nature or for the limited duration of their education, nor a group whose sharing of a house is not to function as a family, but merely for convenience and economics. First story means the lowest story of a building, the ceiling of which is more than six feet above the average finished grade at the front of the building, or a public sidewalk adjacent to its exterior walls.

Floodplain, 100-year means the low land near a watercourse which has been, or may be, covered by water of a flood of 100-year frequency, as established by engineering practices of the U.S. Army Corps of Engineers. It shall also mean that a flood of this magnitude may have a one-percent chance of occurring in any given year.

Floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Floodway encroachment means any fill, structure, building, accessory use, or development in the floodway.

Floodplain/floodway remediation means the process of improving the floodway capacity that has by natural and manmade circumstances decreased over the years, causing an increase in the 100-year floodplain.

Floor area, gross, means the total of all floor areas of a building as measured to the outside surfaces of exterior walls and including halls, stairways, elevator shafts, attached garages, porches, balconies, and basements.

Floor area, net, means the total of all floor areas of a building excluding stairwells and elevator shafts; maintenance, equipment, and utility rooms; interior vehicular parking or loading areas; common or public areas such as central lobbies, hallways, and restrooms; and all areas below first or ground floor when used solely for ancillary storage.

Sec. 50-7. - Definitions, G through M.

modified

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Garage, private, means a building or other structure designed for the housing of automobiles and having capacity for not more than four automobiles.

Garage, public, means any building or premises, other than a gasoline filling station, used for housing or care of more than four automobiles, or where any such automobiles are equipped for operation, repaired, or kept for remuneration, hire, or sale.

Ground coverage means that part or percent of lot area included within the outside boundary lines of all buildings and structures located on the lot, including porches, decks, patios, breezeways, balconies, bay windows, paved drives and walks, and other area covered with impervious materials. Permeable paving/pavers as defined in Sec 50-8 shall count towards ground coverage at a rate of 50% of their actual area.

Ground-mounted solar energy systems is a freestanding solar energy system that is not attached, and is separate from, any building on the parcel of land.

Habitable room means a room designed for living and/or sleeping, excluding bathrooms, kitchens, dining areas, closets, hallways, and service areas.

Home occupation means an accessory use of a dwelling for gainful employment on a recurring basis involving the manufacture, sale, or provision of goods, materials or services. Class A home occupations may involve the provision of personal service, such as typing, computing, sewing and tutoring; the provision of professional services such as medical and health care, legal, financial, accounting, engineering, architectural, real estate, insurance, counseling, and religious assistance; the creation and/or sale of goods, materials, or handicrafts, except for the sale of food or beverages to be consumed on the premises; and the repair of small appliances, bicycles, and similar products which are not powered by internal combustion engines. Class A home occupations shall be established and operated in compliance with the provisions of section 50-147(7). Also, for the purposes of this chapter, "child care organizations," as defined in section 50-5, shall be considered separate from home occupations.

Hotel means a multiple-family dwelling in which persons are lodged for hire as the more or less temporary abiding place, and in which as a rule the rooms are occupied singly and without any provision therein for cooking, and in which there are more than 25 sleeping rooms, and a public dining room with kitchen facilities for accommodation of at least 25 guests.

Household pet daycare means a premises containing up to six cats or dogs or a combination making a total of six where care and supervision are provided for periods of 12 hours or less per day with or without financial compensation. This does not include household pets as allowed under section 4-4 of this Code.

Kennel means any premises where more than four cats or dogs or a combination making a total of more than four are kept overnight or where more than ten animals, including those allowed

under section 4-4 of this Code, are provided care and supervision regardless of duration, except where accessory to an agricultural use.

Lodginghouse means a building or part thereof, other than a hotel, where lodging is provided for hire, more or less transiently, including so-called tourist homes, and with or without provisions for meals.

Lot means a parcel of land occupied or to be occupied by a building and its accessory buildings together with such open spaces as are required under this chapter and having its principal frontage upon a street.

Lot line. Lot line or adjacent property line shall be any boundary line separating one lot from another, whether the line be at the side, rear, or front of the properties.

Lot width means the distance from one side lot line to the other side lot line measured at the minimum building setback permitted in this chapter.

Lots, corner, interior, and through. A "corner lot" is a lot of which at least two contiguous sides abut upon a street for their full length. An "interior lot" is a lot other than a corner lot. A "through lot" is an interior lot or a corner lot, having a frontage on two streets which do intersect at a point contiguous to such lot.

Lots, front, rear, and depth. The front of a lot is that boundary line which borders on a street other than an alley. In the case of a through lot, the front of the lot shall be that boundary which does not border on a major street as designated in the major street plan and which would most conform to adjacent development patterns as designated in the approved plat, or otherwise, as determined by the planning and zoning official. In the case of a corner lot, the side which has the narrowest dimension bordering on a street shall be deemed to be the front of such lot. The rear of a lot is the side opposite to the front. In the case of a triangular or irregular lot, the rear is the boundary line not bordering on a street. The depth of a lot is the dimension measured from the front of the lot to the extreme rear line of the lot. In the case of irregularly shaped lots, the mean depth shall be taken.

Marihuana means that term as defined in section 7106 of the public health code, 1978 PA 368, MCL 333.7106.

Marihuana establishment means a marihuana grower, marihuana safety compliance facility, marihuana processor, marihuana microbusiness, marihuana retailer, marihuana secure transporter, or any other type of marihuana-related business licensed by the department of licensing and regulatory affairs pursuant to the Michigan Regulation and Taxation of Marihuana Act.

Marihuana grower means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to cultivate marihuana and sell or otherwise transfer marihuana to marihuana establishments.

Marihuana-infused product means a topical formulation, tincture, beverage, edible substance, or similar product containing any usable marihuana, as defined by the Michigan Medical

Marihuana Facilities Act, that is intended for human consumption in a manner other than smoke inhalation. Marihuana-infused products shall not be considered a food.

Marihuana microbusiness means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to cultivate not more than 150 marihuana plants; process and package marihuana; and sell or otherwise transfer marihuana to individuals who are 21 years of age or older or to a marihuana safety compliance facility, but not to other marihuana establishments.

Marihuana processor means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to obtain marihuana from marihuana establishments; process and package marihuana; and sell or otherwise transfer marihuana to marihuana establishments.

Marihuana retailer means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to obtain marihuana from marihuana establishments and to sell or otherwise transfer marihuana to marihuana establishments and to individuals who are 21 years of age or older.

Marihuana safety compliance facility means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to test marihuana, including certification for potency and the presence of contaminants.

Marihuana secure transporter means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to obtain marihuana from marihuana establishments in order to transport marihuana to marihuana establishments.

Medical marihuana grower facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act, to cultivate, dry, trim, or cure and package marihuana for sale to a processor or provisioning center.

Medical marihuana processor facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act, to purchase marihuana from a grower and extract resin from the marihuana or create a marihuana-infused product for sale and transfer in packaged form to a provisioning center.

Medical marihuana provisioning center facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act to purchase marihuana from a grower or processor and sell, supply, or provide marihuana to registered qualifying patients, directly or through the patients' primary caregivers. Provisioning center includes any commercial property where marihuana is sold at retail, under the Michigan Medical Marihuana Facilities Act, to registered qualifying patients or registered primary caregivers. Dispensaries and noncommercial locations used by primary caregivers to

assist qualifying patients connected to the caregiver through the marihuana registration process in accordance with the Michigan Medical Marihuana Act are not provisioning centers.

Medical marihuana safety compliance facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act, to receive marihuana from a marihuana facility or primary caregiver, test it for contaminants and for tetrahydrocannabinol and other cannabinoids, return the test results and the marihuana to the marihuana facility.

Medical marihuana secure transporter facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act, to store marihuana and transport marihuana between marihuana facilities for a fee.

Michigan Medical Marihuana Act means the Michigan Medical Marihuana Act, Public Act 1 of 2008, being MCL 333.26421 to 333.26430.

Michigan Medical Marihuana Facilities Act means the Michigan Medical Marihuana Facilities Act, Public Act 281 of 2016, being MCL 333.27101 to 333.27801.

Michigan Regulation and Taxation of Marihuana Act means the Michigan Regulation and Taxation of Marihuana Act, 2018 IL 1, being MCL 333.27951 to 333.27967.

Mixed market rental unit means a rental dwelling unit within a multiple-family dwelling which has a mix of studio, one-bedroom, two-bedroom and three-bedroom units with no more than 25 percent of the units being three-bedroom units and each dwelling unit rented under a single rental contract.

…

ARTICLE II. -ADMINISTRATION AND ENFORCEMENT

DIVISION 1. – GENERALLY

…

Sec. 50-38. - Standards of review for site plan approval.

A site plan application shall meet the development standards of the use district in which it is to be located and all other required conditions for development in this chapter, comply with other applicable local ordinances and state and federal statutes, and be consistent with the objectives of the comprehensive plan as approved and amended by the city. A site plan application shall also substantially comply with the standards of review specified below. A site plan may be approved subject to certain conditions or modifications necessary to bring the plan into conformance with these requirements, including the approval of any variance that may be granted by the zoning board of appeals.

(1) *General site conditions.* The site shall be designed and developed to provide a logical relationship between functional elements, to effectively serve the purposes for which it is to be developed, and to be reasonably compatible with surrounding properties.

a. The size, height, design and architectural treatment of buildings shall be reasonably compatible with surrounding properties; except, if the site is in an area which is expected to redevelop in accordance with the provisions of the comprehensive plan, the size, height, design and architectural treatment of buildings shall be consistent with the objectives in the comprehensive plan.

b. Buildings, including windows, balconies and other openings, shall be located and designed to provide reasonable privacy for residents and employees on the site and those adjacent to the site; buffers such as walls, fencing, landscape plantings or additional setbacks may be required to protect residents and employees from adverse impacts from adjacent uses or streets.

c. Yard areas on the site shall be arranged and improved to provide adequate light and ventilation; separation between buildings, roads and other activity areas; trees and other vegetation; passive and active recreational areas; and to improve the appearance of the property, ensure reasonable privacy and enjoyment for residents and employees and promote the public health, safety and welfare.

d. Outdoor activity areas, such as pools, playgrounds, courts, cooking or dining facilities, shall be located and screened sufficiently to minimize impacts on adjacent properties or dwelling units on the site and to provide appropriate security.

(2) *Natural features.* The site shall be designed and developed to minimize the disruption or loss of its desirable natural elements and to enhance its overall appearance by incorporating those elements into required open spaces and setbacks.

a. The design and placement of buildings, other site improvements and open space shall respect the natural topography of the site to minimize the extent of site grading, excavation and filling.

b. Mature trees and significant clusters of trees and shrubs shall be retained where possible to provide shade for buildings and over parking areas and driveways, to maintain privacy between adjacent properties and to enhance the appearance of the site. Site design should consider Landmark Trees, as defined in Sec 50-840, as an important site design element and should only remove them if other alternatives are not feasible.

c. Within a regulated wetland, no filling, grading, dredging, excavating, draining or construction shall be permitted unless the required permit is first obtained from the Michigan Department of Environmental Quality and/or the city in accordance with chapter 49 of the City Code. Existing wetland areas not regulated by the state or the city and surface drainageways shall be preserved to the maximum practicable extent to maintain stormwater control, water quality, natural habitat and open space.

d. Buildings and other site improvements shall be set back an appropriate distance from the perimeter of preserved natural features to protect them from encroachment, damage,

degradation or pollution, both during and after construction, to preserve the aesthetic and functional values of the resources and to provide access to use and maintain the site improvements. All construction activities within the drip line of existing trees shall be minimized to avoid damage to their root systems. Buildings and other site improvements shall be set back from the edge of a wetland or other surface water feature the following minimum distances:

Setbacks from preserved wetlands and other surface water features:	Minimum distance:
Principal buildings	25 feet
Accessory buildings and site features supported by frost footings	15 feet
Decks, stairways and other features supported by post footings	10 feet
Parking areas, driveways and curbing	15 feet
Sidewalks, patios and other flatwork	10 feet
Stormwater collection, detention or retention facilities	10 feet

A vegetation strip at least ten feet wide consisting of plant species that are consistent with a wetland habitat shall be provided and maintained around the perimeter of a preserved wetland or surface water feature. Existing trees, shrubs and ground cover may be preserved within this strip or appropriate trees, shrubs and other perennial species native to a Michigan wetland habitat shall be installed to enhance the strip. Once established, this strip shall not be mowed or clear cut, except for vegetation that requires cutting to reseed and maintain healthy growth, and trees and shrubs may be selectively pruned to maintain views of the wetland or water feature and to protect and maintain access to buildings and other site improvements. Pathways no more that ten feet in width may be cleared and maintained to provide access to the wetland or surface water feature. Observation decks or docks may also be permitted to allow viewing of the water feature or wetland.

The setback and vegetation strip requirements in this subsection may be increased or

decreased if it is determined that a proposed activity is in the public interest. In determining whether the proposed activity is 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 activity, taking into consideration the local, state and national concern for the protection and preservation of the environmental feature in question. The following general criteria shall be applied in undertaking this balancing test:

1. The relative extent of the public and private need for the proposed activity.

2. The availability of feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity.

3.The extent and permanence of the beneficial or detrimental effects which the proposed activity may have on the public and private use to which the area is suited, including the benefits the natural feature and/or natural feature open space provides.

4. The probable impact of the activity in relation to the cumulative effect created by other existing and anticipated activities in or near the natural feature to be protected.

5. The probable impact on recognized historic, cultural, scenic, ecological, or recreational values, and on fish, wildlife and public health.

6. The size and quantity of the natural feature open space being considered.

7. The amount and quantity of the remaining natural feature open space.

8. Proximity of the proposed activity in relation to the natural feature, taking into consideration the degree of slope and the soil type within and adjacent to the natural feature and the setback area, the quantity and speed of surface runoff expected and the nature of the natural feature to be protected.

9. Economic value, both public and private, of the proposed activity and economic value, both public and private, if the proposed activity were not permitted.

e. Development within designated floodplain areas shall be accomplished in a way that does not alter or obstruct stormwater flow within a designated floodway, maintains the overall stormwater storage capacity of the site and does not increase risks to persons and property.

f. Appropriate ground cover, trees and other vegetation shall be planted and maintained on the site to control stormwater runoff and prevent erosion, siltation and dust, to provide privacy between adjacent uses and mitigate impacts from noise and lights, and to enhance the appearance of the site.

g. Parking and access facilities shall be landscaped in accordance with the requirements of section 50-816(8) of this chapter.

(3) *Traffic access.* The site shall be designed and developed to provide safe and efficient access for all forms of travel and to minimize impacts on adjacent public facilities.

a. The site shall not overburden adjacent public streets nor cause significant hazards to public safety due to excessive traffic generation or inadequate traffic control.

b. Existing and proposed public streets shall be designed and constructed in accordance with the requirements of chapter 40 of the City Code and applicable local standards and specifications.

c. Roadway or driveway connections between the site and adjacent public streets shall be spaced sufficiently apart and may be limited in number to minimize congestion and delays in traffic flow along the adjacent public streets and to minimize conflicts with other turning movements on adjacent public streets or private driveways.

d. Where practicable, principal access to and from the site shall be provided from major streets; access to local streets shall be designed to avoid excessive traffic volumes and speed through adjacent neighborhoods.

e. Appropriate curb radii and lane widths shall be provided and acceleration and deceleration lanes may be required at roadway or driveway openings to protect public safety and minimize congestion and delays along adjacent public streets.

f. Separate turn lanes may be required at roadway or driveway openings to reduce on-site stacking and congestion and such lanes shall be clearly marked.

g. Secondary access may be required to adjacent public streets or alleys or through adjacent private parking areas to provide sufficient access for emergency vehicles.

h. Where two or more adjacent sites may be developed for similar or complementary uses, the city may require the creation of shared or linked access facilities, which may be constructed in phases, to minimize turning movements on public streets and provide access between the adjacent uses.

i. Roadways and driveways within the site shall be designed to provide safe and efficient access while minimizing speeds and safety risks; the placement of traffic control devices within the site may be required to regulate speeds and minimize safety risks.

j. Sidewalks shall be installed to provide safe and convenient pedestrian and bicycle access to and within the site, including sidewalks along public street frontages and linkages between such sidewalks and all principal buildings, between the principal buildings and parking facilities on the site, and between adjacent sites, where practicable.

k. Sidewalks and other pedestrian access pathways within the site shall be located to minimize conflicts with vehicular traffic and enhance safety; pavement markings and signs may be required at principal points where pedestrians would cross driveways within the site.

l. Sidewalks and ramps within the site shall be designed to provide safe and convenient barrier-free access.

m. Parking facilities shall be located and designed to provide safe and convenient access to the building(s) they are intended to serve and, where practicable, to separate maneuvering areas from principal routes of traffic flow through the site.

n. Parking areas shall be located or sufficiently screened to avoid headlights projecting into windows of residential dwellings.

o. Parking and access facilities shall be designed and constructed in accordance with the requirements of section 50-816 of this chapter.

p. Bicycle parking and storage facilities shall be provided in accordance with the requirements of section 50-820 of this chapter.

q. Parking facilities shall be designed to provide the required electric vehicle charging stations required by section 50-821.

(4) *Utilities and public services.* The site shall be designed and developed to facilitate the efficient provision and maintenance of adequate public services.

a. Existing and proposed utility services to and within the site shall be of adequate size and design to serve the expected needs of the development.

b. Appropriate easements shall be provided to the city to afford access to all existing, proposed and known future extensions of public utilities on or adjacent to the site.

c. The site shall be designed and developed to afford adequate access for fire suppression and other emergency services; fire hydrants, stand pipes and similar water service connections may be required; designated fire lanes may also be required.

d. Stormwater collection and discharge facilities shall be provided and designed to minimize the risk of flooding or soil erosion, on or off the site; stormwater detention or retention facilities may be required to regulate the rate of flow of stormwater off the site to avoid flooding and to comply with the requirements of article IV, chapter 34, of the City Code.

e. Stormwater collection and discharge facilities and site grading shall be designed to avoid runoff onto adjacent properties and public streets and sidewalks.

f. Stormwater treatment facilities shall be provided as required by the city engineer to comply with the city's Michigan Department of Environmental Quality NPDES Phase II Stormwater Permit.

g. Loading docks, loading spaces and other service areas and external utility and mechanical equipment shall be located and screened to minimize noise, vibration, or visual impacts which may affect adjacent properties or residents within the development; walls or other solid screens may be required to attenuate noise impacts.

h. Adequate containers or compactors shall be provided on the site to collect and store trash or other waste materials and recyclable materials; such containers or compactors shall be effectively screened to obscure them from view, prohibit materials from blowing

away and to control access; such containers shall also be located as inconspicuously as possible on the site.

i. In order to further the goal of the city to minimize the disposal of solid waste and to maximize waste diversion through recycling, every owner of a multiple dwelling approved for construction after January 1, 2007, shall construct, provide, and maintain adequate and safe facilities or containers for the collection, storage, and disposal of recyclable materials placed for collection by their tenants, unless such premises is approved by the director of public works for city curbside recycling services as provided in article III of chapter 36 of this Code.

j. Exterior lighting shall be installed as necessary to provide adequate safety and security; all exterior lighting shall be designed and shielded to direct the light downward and avoid projecting light onto adjacent properties or creating glare along public streets; pole-mounted lights shall be restricted in height to be in scale with the site and its environment and avoid projecting light onto adjacent properties.

(5) *Environmental protection.* The site shall be designed and developed to minimize any risk of pollution of natural resources and to protect the public health, safety and welfare.

a. The project and related improvements shall be designed to protect land and water resources from pollution, including pollution of soils, groundwater, rivers, streams, lakes, ponds, open drains and wetlands.

b. Stormwater retention, detention, transport, and drainage facilities shall be designed to use or enhance the natural stormwater system on-site, including the storage and filtering capacity of wetlands, watercourses, and water bodies, and/or the infiltration capability of the natural landscape. Stormwater facilities shall not cause flooding or the potential for pollution of surface or groundwater, on-site or off-site. Stormwater facilities shall not damage natural features by depositing pollutants in them, by draining them or by depriving them of sufficient stormwater runoff to maintain their natural condition.

c. General purpose floor drains shall be connected to a public sanitary or combined sewer system or an on-site holding tank (not a septic system) in accordance with state, county and municipal requirements, unless a groundwater discharge permit has been obtained from the Michigan Department of Environmental Quality. General purpose floor drains which discharge to the public stormwater system or into the groundwater are generally prohibited.

d. Sites at which hazardous substances, hazardous wastes, or potentially polluting materials are stored, used, or generated shall be designed to prevent spills and discharges of such materials to the air, surface of the ground, groundwater, lakes, streams, rivers or wetlands.

e. Secondary containment facilities shall be provided for aboveground storage of hazardous substances, hazardous wastes, or potentially polluting materials in accordance with state and federal requirements. Aboveground secondary containment facilities shall be designed and constructed so that the potentially polluting material cannot escape from the unit by gravity through sewers, drains, or other means, directly or indirectly into a

sewer system, or to the waters of the state (including groundwater).

f. Underground storage tanks shall be registered, installed, operated, maintained, closed or removed in accordance with regulations of the Michigan Department of Environmental Quality.

g. Aboveground storage tanks shall be certified, installed, operated, maintained, closed or removed in accordance with regulations of the Michigan Department of Environmental Quality.

h. Bulk storage facilities for pesticides and fertilizers shall be in compliance with requirements of the Michigan Department of Agriculture.

i. Abandoned water wells (wells that are no longer in use or are in disrepair), abandoned monitoring wells, and cisterns shall be plugged in accordance with regulations and procedures of the Michigan Department of Environmental Quality.

j. State and federal requirements for storage, spill prevention, recordkeeping, emergency response, transport and disposal of hazardous substances, hazardous wastes, liquid industrial waste or potentially polluting materials shall be met. No discharge to surface water or groundwater, including direct and indirect discharges of waste, waste effluent, wastewater, pollutants, or cooling water, shall be allowed without approval from appropriate state, county and local agencies.

(6) *Public art requirement.* Unless the project is exempt from this requirement pursuant to subparagraph (6)d. of this paragraph, the site shall be designed and developed to contain public art as defined by section 2-313 of the City Code and in accordance with the following:

a. A budget for the public art required by this section shall be established based on the allocation of one percent of the total project cost up to $25,000.00 to be committed to the procurement and display of public art on the site.

b. The public art shall be a work of art as defined by section 2-313 of the City Code and shall be approved by the city's arts commission in accordance with the definition of public art and the standards set forth in section 2-315(a)(1) and (7) of the City Code and the city council prior to site plan approval. The approval by the arts commission and city council shall not be unreasonably withheld.

c. The total allocation as established pursuant to subparagraph (6)a. shall be expended on those items listed in section 2-314(a)(1) through (4) of the City Code and shall not include any other expenditures. Maintenance shall be the responsibility of the owner of the property in addition to the allocation established by subparagraph (6)a. Failure to install the public art as required by this subparagraph and in accordance with the approved site plan shall result in denial of a certificate of occupancy. Failure to properly maintain the public art in accordance with the approved site plan is a violation of the zoning code and subject to enforcement pursuant to the provisions of section 50-33. Prior to any enforcement action a violation notice shall be sent to the responsible party. A failure to cure the violation within 30 days shall constitute a violation and each day thereafter that the violation remains uncured shall constitute a separate offense.

d. The following projects are exempt from the public art requirements of this section:

1. Projects where the application of this requirement would constitute a governmental taking or otherwise be contrary to law, as determined by the zoning administrator, under the particular facts and circumstances of that case as explained in detail by the applicant. The zoning administrator may request additional information from the applicant if insufficient information is provided with the site plan to make a determination. The applicant has all appeal rights as would otherwise be applicable to any determination by the zoning administrator.

2. Projects where the total project cost is less than $500,000.00.

3. Residential projects containing less than four residential units.

4. Projects where, upon issuance of the building permit, the applicant donates an amount equivalent to the amount established pursuant to subparagraph (6)a. of this paragraph to the public art fund as established pursuant to section 2-312 of the City Code or donates a "work of art" approved by the art commission of equal value to the fund as established pursuant to subparagraph (6)a. of this paragraph.

e. A developer may choose to partially exempt a project from the public art requirement of this section to the extent the developer chooses to donate funds or works of art less than the amount established pursuant to subparagraph (6)a. of this paragraph in which case the budget required for public art shall be reduced by a corresponding amount.

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ARTICLE III. - GENERAL DISTRICT REGULATIONS

…

Sec. 50-157 Bee Keeping

No person shall keep honeybees unless they obtain a honeybee permit and comply with the following conditions:

1. The maximum number of hives permitted per property shall be as follows:

a. Two (2) hives for properties with a lot that is not greater than eleven thousand (11,000) square feet in area.

b. Four (4) hives for properties with a lot area of greater than eleven thousand (11,000) square feet and not greater than twenty-two thousand (22,000) square feet in area.

c. Five (5) hives for properties with a lot area greater than twenty-two thousand (22,000) square feet and not greater than forty-three thousand five hundred sixty (43,560) square feet.

d. Eight (8) hives for properties with a lot area of greater than forty-three thousand five

hundred sixty (43,560) square feet (one acre) in area.

e. One additional hive is allowed for each additional acre of land.

2. Each hive shall have a maximum size of twenty (20) cubic feet.

3. A flyway barrier at least six (6) feet in height shall shield any part of a property line that is within twenty-five (25) feet of a hive. Such flyway barrier must be at least four (4) feet in width. The flyway barrier shall consist of a wall, fence, dense vegetation or a combination thereof.

4. A constant supply of water shall be provided for all hives.

5. All hives shall be located at least six (6) feet from any property line, and where public sidewalk is present at least ten (10) feet distant from it.

6. The applicant shall pay the fee required by the fee resolution periodically adopted by the city council.

7. Applications for honeybee permits shall be submitted to, and permits shall be issued by, the City Clerk's Office.

8. An initial honeybee permit shall be valid indefinitely or until the property is sold or transferred to another owner, unless suspended or revoked due to noncompliance with this ordinance section.

Sec. 50-158 Keeping of fowl

(1) Any person who keeps chickens in the city shall obtain a permit from the City prior to acquiring the chickens. Application shall be made to the city clerk with a fee as determined by council resolution.

(2) Permits expire and become invalid five years after the date of issuance. A person who wishes to continue keeping chickens shall obtain a new permit on or before the expiration date of the previous permit. Application for a new permit shall be pursuant to the procedures and requirements that are applicable at the time the person applies for a new permit.

(3) Notwithstanding the issuance of a permit by the city, private restrictions on the use of property shall remain enforceable and take precedence over a permit. Private restrictions include but are not limited to deed restrictions, condominium master deed restrictions, neighborhood association by-laws, and covenant deeds. A permit issued to a person whose property is subject to private restrictions that prohibit the keeping of chickens is void. The interpretation and enforcement of the private restriction is the sole responsibility of the private parties involved.

(4) A person who keeps or houses chickens on his or her property shall comply with all of the

following requirements:

a. Have been issued the permit required under subsection (1) of this section.

b. Keep no more than four chickens.

c. No person shall keep any rooster.

d. No person shall slaughter any chickens.

e. The chickens shall be provided with a covered enclosure and must be kept in the covered enclosure or an adjoining fenced enclosure at all times. Fenced and covered enclosures are subject to all provisions of chapter 50 (zoning).

f. A person shall not keep chickens in any location on the property other than in the backyard as defined by the zoning code.

g. No covered enclosure or fenced enclosure shall be located closer than ten feet to any property line of an adjacent property.

h. All enclosures for the keeping of chickens shall be so constructed or repaired as to prevent rats, mice, or other rodents from being harbored underneath, within, or within the walls of the enclosure. A covered enclosure or fenced enclosure shall not be located closer than 40 feet to any residential structure on an adjacent property.

i. All feed and other items associated with the keeping of chickens that are likely to attract or to become infested with or infected by rats, mice, or other rodents shall be protected so as to prevent rats, mice, or other rodents from gaining access to or coming into contact with them.

(5) If the above requirements are not complied with, the city may revoke any permit granted under this section and/or initiate prosecution for a civil infraction violation. Each day a violation exists shall constitute a separate offense.

(6) A person who has been issued a permit shall submit it for examination upon demand by any police officer or code enforcement officer.

(7) This section shall not regulate the keeping of chickens in those areas zoned residential agricultural district, RA, or agricultural-A, where the raising of poultry is a permitted principal

use when conducted in compliance with the Michigan Right to Farm Act and the Generally Accepted Agricultural and Management Practices promulgated thereunder.

…

ARTICLE IV. - SINGLE-FAMILY AND TWO-FAMILY RESIDENTIAL DISTRICTS

…

DIVISION 2. - RESIDENTIAL AGRICULTURAL DISTRICT, RA

…

Sec. 50-222. - Permitted uses.

(1) Permitted principal uses.

a. Foster family homes, foster family group homes, and family day care homes, subject to the requirements of Sec. 50-150(1).

b. Nurseries and allied uses, general farming, orchards, greenhouses, and truck farming, except that the raising of poultry, pets, or livestock for strictly commercial purposes or on a scale that would be objectionable because of noise or odor shall not be permitted.

c. Single-family dwellings.

(2) Permitted principal uses subject to an approved site plan as set forth in section 50-36 of this chapter.

a. Commercial outdoor recreation establishment.

b. Private or parochial schools.

c. Public schools.

d. Publicly owned parks and recreation areas.

(3) Permitted principal uses subject to an approved special use permit as provided for in article II, division 3 of this chapter.

a. Child care centers, day care centers, and group day care homes, subject to the requirements of Sec. 50-150.

b. Construction contracting businesses that provide services off-premises, including concrete, masonry, carpentry, plumbing, electrical, mechanical, roofing, siding, fencing and similar services; provided, that all equipment, materials, trailers and vehicles, except typical passenger vehicles, used in conjunction with the business, shall be stored in enclosed buildings or in yard areas that are completely enclosed with screen fencing or walls.

c. Household pet daycare as defined in section 50-7 which is provided in conjunction with an owner occupied residential property.

d. Religious institutions.

e. Retail sale of related supplies and accessories in conjunction with a nursery or greenhouse, such as soil, fertilizer, mulch, ground cover materials, planters, gardening tools, and equipment.

f. Utility scale solar energy systems, subject to the regulations in section 50-155.

(4) Permitted accessory uses.

a. Class A home occupations.

b. Outdoor sheds and storage buildings.

c. Private garages, the capacity of which shall not exceed three automobiles, in conjunction with a single-family dwelling.

d. Retail sale of items grown upon the premises.

e. Roomer. The keeping of not more than one roomer by an owner residing in a single-family dwelling, except that a person owning a single-family dwelling on May 24, 1997, the effective date of Ordinance No. 900, shall be permitted to keep two roomers while continuing to own and reside in the dwelling. The maximum occupancy shall not exceed three unrelated persons, including the owner, for an owneroccupied dwelling or two unrelated persons for a non-owner-occupied dwelling. For purposes of this subsection, persons comprising a "domestic unit" as defined under "family" in section 50-6 shall be deemed related persons.

f. Swimming pools, tennis courts, and other similar uses when used for noncommercial purposes.

e. Bee keeping, subject to the regulations in Section 50-157.

f. The keeping of fowl, subject to the regulations in Section 50-158

…

DIVISION 3. - LOW DENSITY SINGLE-FAMILY RESIDENTIAL DISTRICT, R-1

…

Sec. 50-242. - Permitted uses.

In the R-1 single-family residential districts, no buildings or premises shall be used and no building shall be hereafter erected or altered, unless otherwise specifically provided for in this chapter, except for the following uses:

(1) Permitted principal uses.

a. Clustered development plan, in accordance with the provisions of division 7 of this article.

b. Foster family homes, foster family group homes, and family day care homes, subject to the requirements of Sec. 50-150(1).

c. Single-family dwellings.

(2) Permitted principal uses subject to an approved site plan as set forth in section 50-36 of this chapter.

a. Private or parochial schools.

b. Public parks.

c. Public schools.

(3) Permitted principal uses subject to an approved special use permit as provided for in article II, division 3 of this chapter.

a. Child care centers, day care centers, and group day care homes, subject to the requirements of Sec. 50-150(2).

b. Religious institutions.

(4) Permitted accessory uses.

a. Class A home occupations.

b. Outdoor sheds and storage buildings.

c. Private garages, the capacity of which shall not exceed three automobiles.

d. Roomer. The keeping of not more than one roomer by an owner residing in a single-family dwelling, except that a person owning a single-family dwelling on May 24, 1997, the effective date of Ordinance No. 900, shall be permitted to keep two roomers while continuing to own and reside in the dwelling. The maximum occupancy shall not exceed three unrelated persons, including the owner, for an owneroccupied dwelling or two unrelated persons for a non-owner-occupied dwelling. For purposes of this subsection, persons comprising a "domestic unit" as defined under "Family" in section 50-6 shall be deemed related persons.

e. Swimming pools, tennis courts, and other similar uses when not used for commercial purposes.

f. Bee keeping, subject to the regulations in Section 50-157.

g. The keeping of fowl, subject to the regulations in Section 50-158

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DIVISION 4. - MEDIUM DENSITY SINGLE-FAMILY RESIDENTIAL DISTRICT, R-2

…

Sec. 50-262. - Permitted uses.

(1) Permitted principal uses.

a. Clustered development plan, in accordance with the provisions of division 7 of this article.

b. Foster family homes, foster family group homes, and family day care homes, subject to the requirements of Sec. 50-150(1).

c. Neo-traditional neighborhood redevelopment plan, in accordance with the provisions of division 8 of this article.

d. Single-family dwellings.

(2) Permitted principal uses subject to an approved site plan as set forth in section 50-36 of this chapter.

a. Private or parochial schools.

b. Public parks.

c. Public schools.

(3) Permitted principal uses subject to an approved special use permit as provided for in article II, division 3 of this chapter.

a. Religious institutions.

b. Child care centers, day care centers, and group day care homes, subject to the requirements of Sec. 50-150(2).

(4) Permitted accessory uses.

a. Class A home occupations.

b. Outdoor sheds and storage buildings.

c. Private garages, the capacity of which shall not exceed three automobiles.

d. Roomer. The keeping of not more than one roomer by an owner residing in a single-family dwelling, except that a person owning a single-family dwelling on May 24, 1997, the effective date of Ordinance No. 900, shall be permitted to keep two roomers while continuing to own and reside in the dwelling. The maximum occupancy shall not exceed three unrelated persons, including the owner, for an owneroccupied dwelling or two unrelated persons for a non-owner-occupied dwelling. For purposes of this subsection, persons comprising a "domestic unit" as defined under "Family" in section 50-6 shall be deemed related persons.

e. Swimming pools, tennis courts, and other similar uses when not used for commercial purposes.

f. Bee keeping, subject to the regulations in Section 50-157.

g. The keeping of fowl, subject to the regulations in Section 50-158

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DIVISION 5. -SINGLE-FAMILY AND TWO-FAMILY RESIDENTIAL DISTRICT, R-3

…

Sec. 50-282. - Permitted uses.

In the R-3 district no buildings or premises shall be used and no building shall be hereafter erected or altered, unless otherwise specifically provided for in this chapter, except for the following uses.

(1) Permitted principal uses.

a. Foster family homes, foster family group homes, and family day care homes, subject to the requirements of Sec. 50-150(1).

b. Neo-traditional neighborhood redevelopment plan in accordance with the provisions of division 8 of this article.

c. Single-family dwellings.

d. Two-family dwellings.

(2) Permitted principal uses subject to an approved site plan as set forth in section 50-36 of this chapter.

a. Private or parochial schools.

b. Public parks.

c. Public schools.

(3) Permitted principal uses subject to an approved special use permit as provided for in article II, division 3 of this chapter.

a. Child care centers, day care centers, and group day care homes, subject to the requirements of Sec. 50-150(2).

b. Religious institutions.

(4) Permitted accessory uses.

a. Class A home occupations.

b. Private garages, the capacity of which shall not exceed four automobiles.

c. Outdoor sheds and storage buildings.

d. Roomer in Single-Family Dwelling. The keeping of not more than one roomer by an owner residing in a single-family dwelling.

e. Roomer in Two-Family Dwelling. The keeping of not more than one roomer by an owner residing in each unit of a two-family dwelling. The maximum occupancy shall

not exceed three unrelated persons per dwelling unit for an owner-occupied dwelling unit or two unrelated persons for a non-owner-occupied dwelling unit.

f. Swimming pools, tennis courts, and other similar uses when used for noncommercial purposes.

g. Bee keeping, subject to the regulations in Section 50-157.

h. The keeping of fowl, subject to the regulations in Section 50-158

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ARTICLE VIII. - OFF-STREET PARKING REQUIREMENTS

…

Sec. 50-812. - Required parking ratios.

It shall be the responsibility of both the owner and occupant of any property to provide off-street parking as required and regulated in this article. Except as otherwise provided in this chapter, such parking shall be provided on the same premises with the use it is required to serve. The minimum number of required parking spaces shall be determined from the ratios listed below. Appropriate evidence, such as building floor plans and seating plans, shall be submitted to determine the minimum parking requirement for each use. Where per-roomer or per-person standards are used, the minimum parking space requirement shall be based upon the maximum potential occupancy of the dwelling as determined from relevant lot area and floor area standards in this chapter and chapter 6, article III of the City Code. Where per-seat standards are used but a fixed seating plan is not provided, the parking ratio for the use shall be based upon the maximum permitted occupancy of the identified room(s) as computed from the Uniform Building Code. Where buildings contain multiple tenancy, gross floor area shall exclude common public hallways, arcades, and mechanical/maintenance rooms which support the entire building. Where alternative standards are provided, the one resulting in the highest number of parking spaces shall be used. Where the computed ratios for a use result in a fractional requirement, the requirement shall be rounded up to the nearest whole number of spaces. Also, the ratios below assume that typical accessory uses as permitted may be present and no additional parking spaces are required for them except as specifically stated in the standards below.

			~~Minimum Parking Ratio~~	
(1)	~~*Residential uses:*~~			
	a.		~~Single- and two-family structures~~	~~2 spaces per dwelling unit, plus 1 space per roomer.~~
	b.		~~Multiple-family structures:~~	
		1.	~~Class A units~~	~~.75 space per efficiency unit~~ ~~1 space per 1-bedroom unit~~ ~~1.50 spaces per 2-bedroom unit~~ ~~2.5 spaces per unit with 3 bedrooms~~

				3.5 spaces per unit with 4 bedrooms 1 space per bedroom above 4 bedrooms.
			In no case shall the maximum permitted occupancy for a Class A multiple-family dwelling exceed a ratio of 1.5 persons per parking space provided.	
		2.	Class B units	0.5 space per person.
			For Class B units marketed to and occupied by elderly persons, generally 62 years of age or older, minimum parking spaces shall be provided at the rate of 0.5 space per person. If such units subsequently are not occupied by elderly persons, the basic standards above shall apply and sufficient parking shall be provided.	
(2)	*Nonresidential uses.*			
	a.		Elementary school	1 per classroom plus 4.
	b.		High school/middle school	1 per 6 seats in main auditorium or assembly room.
	c.		Library	1 per 6 seats in reading rooms or main assembly room.
	d.		Church, synagogue, mosque	1 per 3.5 seats in main worship room.
	e.		Hospital, extended care facility	1 per 2 beds or 2 residents.
	f.		Funeral home	1 per 6 seats or 50 square feet in assembly rooms.
	g.		Museum/art gallery	1 per 500 square feet of public viewing area.
	h.		Medical or dental office or clinic (no overnight facilities)	2 per examination room plus 1 per 100 square feet of patient waiting room.
	i.		General business or professional office (excluding medical and dental office); bank; savings and loan or other financial institution	1 per 300 square feet net floor area.
	j.		Private club or lodge, community center	1 per 100 square feet in main meeting or club room.
	k.		Automotive service center, motor vehicle sales	2 per service bay plus 1 per 300 square feet of office and customer service/waiting area.
	l.		Theater, auditorium	1 per 4 seats.
	m.		Bowling alley	6 per lane.
	n.		Regional or community shopping center	4 per 1,000 square feet gross floor area.
	o.		Hotel or motel (excluding restaurant)	1 per lodging or dwelling unit plus 1

			~~per 100 square feet of meeting and banquet rooms.~~
	p.	~~Restaurant~~	~~1 per 4 seats or 1 per 50 square feet in dining room and lounge area; plus 1 per each 20 square feet of customer waiting area if take-out service is provided.~~
	q.	~~Child care facility~~	~~1 per employee plus 1 per each 10 children.~~
	r.	~~Other nonresidential uses~~:	
		1. ~~B-3 district~~	~~1 per 500 square feet gross floor area.~~
		2. ~~Other districts~~	~~1 per 300 square feet gross floor area~~.
	s.	~~Automatic teller machine~~	~~2 per machine.~~
	t.	~~Carwash, drive-through auto service~~	~~1 per service bay or 1 per employee.~~
	u.	~~Essential services~~	~~Determined by planning commission (see section 50-148).~~
	v.	~~Commercial recreation uses:~~	
		1. ~~Softball, baseball, soccer fields; skating rinks; swimming pools~~	~~25 spaces per field, rink or pool.~~
		2. ~~Tennis, racquet or handball courts~~	~~4 spaces per court.~~
		3. ~~Golf courses~~	~~6 spaces per hole.~~
		4. ~~Golf, firearm or archery ranges~~	~~1 space per tee or target.~~
		5. ~~Health and fitness centers; gymnasiums~~	~~5 spaces per 1,000 gross square feet.~~
		~~In addition to the requirements above, commercial recreation facilities shall also provide parking for:~~	
		~~Restaurants or retail facilities, at the rates required in subsections (2)p and r of this section;~~	
		~~Spectators, at the ratio of 1 space per each 4 persons permitted based on maximum occupancy standards for seating and viewing areas; and~~	
		~~Employees, at the ratio of 1 space for each employee present.~~	
	~~w.~~	~~College, university, business or trade school or similar education or training facilities~~	~~1 space per 50 sq. ft. of classrooms plus 1 per 300 sq. ft. of administrative offices.~~

Use	Minimum Parking Ratio	Required EV Spaces
(1) Residential		
Single- and two-family structures	2 spaces per dwelling unit	100% EV-R for new buildings

Multiple-family Structures			
	Class A Units	One half (0.5) spaces per efficiency or 1 bedroom dwelling unit. Two (2) spaces per each unit with 2 or more bedrooms	65% EV-C Plus 25% EV-R Plus 10% EV-I
	Class B Units	0.5 space per person	65% EV-C Plus 25% EV-R Plus 10% EV-I
(2) Nonresidential			
Elementary School/ Middle School		1 per classroom plus 4	25% EV-C plus 15% EV-R plus 10% EV-I
High School		5 per classroom	25% EV-C plus 15% EV-R plus 10% EV-I
Library		1 per 300 square feet of floor area	15% EV-C plus 10% EV-R plus 10% EV-I
Religious Assembly		1 per 6 seats in reading rooms or main assembly room	10% EV-R plus 10% EV-I
Hospital, extended care facility		1 per 2 beds or 2 residents.	25% EV-C plus 15% EV-R plus 10% EV-I
Funeral home		1 per 100 square feet of Floor Area used for viewing or services	None
Museum/art gallery		1 per 300 square feet of Floor Area	15% EV-C plus 10% EV-R plus 10% EV-I
Medical or dental office or clinic (no overnight facilities)		1 per examination room plus 1 per 100 square feet of patient waiting room.	15% EV-C plus 10% EV-R plus 10% EV-I
General business or professional office (excluding medical/dental office); financial institution		1 per 300 square feet net floor area.	25% EV-C plus 15% EV-R plus 10% EV-I
Private club or lodge, community center		1 per 100 square feet in main meeting or club room	15% EV-C plus 10% EV-R plus 10% EV-I
Automotive service center		1 per 200 square feet of Floor Area	10% EV-R plus 10% EV-I
Motor vehicle sales		1 per 300 square feet of Floor Area	15% EV-C plus 10% EV-R plus 10% EV-I
Theater, auditorium		1 per 4 seats.	25% EV-C plus 15% EV-R plus 10% EV-I
Bowling alley		5 per lane	15% EV-C plus 10% EV-R plus 10% EV-I
Regional or community shopping center		1 per 300 square feet of Floor Area	10% EV-R plus 10% EV-I
Hotel or motel (excluding restaurant)		1 per lodging or dwelling unit plus 1 per 100 square feet of meeting and banquet rooms	25% EC-C plus 50% EV-R plus 25% EV-I

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Restaurant		1 space for each 100 sq. ft. of Floor Area	15% EV-C plus 10% EV-R plus 10% EV-I
Childcare facility		1 per employee plus 1 per each 10 children.	15% EV-C plus 10% EV-R plus 10% EV-I
Other nonresidential uses:		1 per 300 square feet gross floor area.	10% EV-R plus 10% EV-I
Carwash, drive-through auto service		1 per service bay or 1 per employee	10% EV-R plus 10% EV-I
Essential services		Determined by planning commission (see section 50-148).	Determined by planning commission (see section 50-148).
Commercial recreation uses:			
	Softball, baseball, soccer fields; skating rinks; swimming pools	25 spaces per field, rink or pool.	15% EV-C plus 10% EV-R plus 10% EV-I
	Tennis, pickleball, racquet or handball courts	4 spaces per court.	15% EV-C plus 10% EV-R plus 10% EV-I
	Golf courses	6 spaces per hole.	15% EV-C plus 10% EV-R plus 10% EV-I
	Golf, firearm or archery ranges	1 space per tee or target.	15% EV-C plus 10% EV-R plus 10% EV-I
	Health and fitness centers; gymnasiums	1 space per 200 gross square feet	15% EV-C plus 10% EV-R plus 10% EV-I
College, university, business or trade school or similar education or training facilities		5 spaces per classroom	25% EV-C plus 15% EV-R plus 10% EV-I

(3) Parking Reductions. The Zoning Administrator may grant a reduction of up to 25% of the required number of parking spaces. The Planning Commission may grant a reduction of the required number of parking spaces by over 25%. The reductions shall be based upon one or more of the following:

(a) Owner shall provide documentation such as a parking study or traffic count taken from developments of a similar size and use which demonstrates that the amount of parking provided will be sufficient to accommodate the needs of the proposed use(s) during peak demand. This shall include delivery needs, the number of employees in the largest shift, the number of residential units by bedroom count, and a projection of the maximum number of visitors to the site during its most active time. The City may require the owner to submit a plan for providing additional parking, up to the required amount if the actual parking needed exceeds the parking provided.

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(b) Owner demonstrates that there is available shared parking available, either in a municipal lot, parking structure, or shared with another property. For shared use of a private lot, the owner shall demonstrate that there will be sufficient parking available for all users during the time of peak shared demand.

(c) Owner provides incentives for employees to use public transit, bicycle or live within walking distance of the use. In such case the applicant shall provide information on the program that demonstrates effectiveness to the city. This could include priority on-site bicycle parking, stipends for use of transit, employee reward programs for non-single occupant vehicle commutes or similar incentives. The accepted parking reduction program would be a condition of zoning approval.

(d) The amount of required parking may be reduced if a shared car or program is provided. The amount of the reduction shall be determined by the Zoning Administrator, with input from the Director of Public Works, in consideration of the number of shared vehicles provided and the level of availability.

(e) The Planning Commission may permit a reduction for shared parking between two or more uses where the applicant can document that the amount of parking provided will meet the peak needs of the uses collectively.

(~~43~~) Consistent with the city's objectives to maximize open space and minimize the adverse effects of excess ground coverage on the general environment, neighboring properties, and storm sewers, the total amount of parking provided ~~for uses that require 50 or more parking spaces shall not exceed a figure equal to 1.25 times the~~ shall not exceed an excess of 10% of the minimum parking requirement determined from 50-812 of this chapter. ~~However, the developer of a project may obtain a waiver of the maximum allowable amount of parking or 1.25 times the minimum requirement under this Code~~ However, at the request of the applicant, the planning commission may waive this restriction, in whole or in part, upon consideration of the needs of the applicant where the applicant can demonstrate a need for additional parking spaces which cannot be appropriately satisfied by other off-premises or on-street parking spaces. The demonstration of need may be based on one or more of the following factors:

a. Employee, customer, tenant, or visitor demands.

b. Regular or seasonal peak demands.

c. Potential conversion of part or all of the property to a use which has a higher parking requirement.

d. Potential congestion or safety hazards, either on site or along adjacent public streets.

~~Where anticipated parking needs and impacts cannot be accurately predicted, the city may require that construction of additional parking spaces in excess of the 1.25 ratio be~~

~~deferred until the need for the additional spaces can be demonstrated by actual measurements.~~

(54) Consistent with the city's objectives to maximize open space and minimize the adverse effects of excess ground coverage in the RA, R-1, R-2 and R-3 low density residential zones and to minimize the adverse impacts of automobiles on neighboring properties and on the general environment, the total amount of parking provided for residential uses permitted in these zones, exclusive of driveways in front yards, shall not exceed six parking spaces, or 1.5 times the permitted residential occupancy, whichever is less. Residential parking includes a garage or paved surface, at least eight feet by 16 feet in size, which is accessible and can be used at all times for parking a motor vehicle.

(65) The parking requirements established by this section may be modified subject to an approved special use permit where the applicant is able to show reduced parking needs for the intended use of the building.

…

Sec. 50-820. - Bicycle storage requirements.

It shall be the responsibility of both the owner and occupant of any multiple-family or nonresidential premises to provide on-site storage facilities for bicycles according to the following provisions.

(1) *Number of spaces.* The number of bicycle storage spaces shall be determined as follows:

a. For Class A multiple-family dwellings, there shall be one storage space for each bedroom ~~two bedrooms~~ within a structure.

b. For Class B multiple-family dwellings, there shall be one storage space for each two occupants, based on maximum permitted occupancy.

c. For non-residential uses, there shall be one storage space for each ten required parking spaces through the first 100 required parking spaces and one storage space for each 15 required parking spaces in excess of 100.

d. A minimum of 50% of required bicycle storage spaces must be covered spaces. These spaces may either be located outdoors, covered by a canopy or overhang with a minimum clearance of 7 feet, or provided indoors.

(2) *Outdoor storage facilities.* A portion of the bicycle storage spaces must be located outdoors. Outdoor storage spaces are subject to the following requirements:

a. The outdoor storage spaces must be on the premises, except that in the B-3 district, the bicycle racks or similar locking devices may be located within the public right-of-way as approved by the city engineer.

b. Outdoor storage spaces must be in a location that is conveniently accessible to visitors or customers.

c. Outdoor storage spaces must be in the form of a rack or other locking device that is constructed of durable material and is securely anchored in place. Each storage space in a rack must be at least two feet wide.

(3) *Indoor storage facilities.* A portion of the bicycle storage spaces can be located indoors. Indoor storage spaces are subject to the following requirements:

a. Indoor storage facilities must contain bicycle racks, lockable doors, or some other means to enable bicycles to be secured.

b. Indoor storage facilities can be lockers, closets, storage rooms, or other facilities within a building that are accessible to occupants and employees of the premises.

c. Indoor storage facilities cannot be habitable rooms, kitchens, dining rooms, bathrooms, hallways, balconies, or patios.

d. Each indoor storage space must be at least 10 square feet.

~~(4) *Exemptions*. Hotels and motels located within the B-3 City Center commercial district shall be exempt from the requirements of this section.~~

Sec. 50-821. - Electric vehicle charging stations.

(1) ~~Each non-residential use of a property, combined residential with a non-residential use, or multiple-family residential property with at least 50 required parking spaces shall have one level 2 or better charging station installed in the parking lot~~. All residential, mixed-use, or non-residential properties shall provide Electric Vehicle Capable (EV-C), Electric Vehicle Ready (EV-R), and Electric Vehicle Installed (EV-I) at the ratios required by Section 50-812. These spaces shall be provided as a percentage of proposed total parking spaces to be provided. These chargers shall be a level 2 or better charging station installed in the parking lot. One (1) level 3 charger may be installed as a substitute for five (5) required level 2 chargers. The charging stations on private property may be either private restricted use charging stations or public use charging stations at the property owner's discretion. ~~One additional level 2 or better charger shall be installed for each 50 additional parking spaces required or installed on the premises identified in this provision.~~ All chargers required by this provision shall be maintained in operational condition at all times.

(2) This provision shall apply to each new site plan and to each revised or amended site plan which expands the current parking on the premises.

(3) An electric vehicle charging station required pursuant to this section may be counted as a parking space in the calculation of the parking spaces required by this Code.

(4) Public use charging stations shall be reserved for parking and charging of electric vehicles only. Electric vehicles may be parked in any space designated for parking subject to the restrictions that would apply to any other vehicle that would park in that space.

(5) A developer or property owner may apply for an exemption to this requirement or a reduction in the number of stations required if the developer or property owner can show one or more of the following:

a. That the anticipated parking duration due to the particular use of the property, or similar considerations, would not make the presence of charging stations reasonable due to the lack of the likelihood of use of the station or stations.

b. That the expense of complying with this requirement significantly outweighs the level of cost of the improvement so as to preclude the improvement if this requirement was imposed.

c. That the imposition of this requirement would constitute a governmental taking as defined by law.

…

ARTICLE IX. - LANDSCAPING REQUIREMENTS

Sec. 50-840. - Generally.

Appropriate ground cover, trees and other vegetation shall be planted and maintained on the site to control stormwater runoff and prevent erosion, siltation and dust; to provide privacy between adjacent uses; to mitigate impacts from parking, noise and lights; and to enhance the appearance of the site.

(1) *Landscape screen requirements.* Landscaping screen shall mean trees, shrubs, vines, fences, walls, or earth berms, or some combination thereof. When required, parking spaces and parking areas shall be effectively screened with perimeter landscaping on all sides adjacent to or visible from adjacent properties, streets, or alleys and interior landscape islands where larger areas of paving are needed. Landscaping shall address the visual impact, and improve the heat radiation effect and air pollution impact of the paved area.

a. When required. Landscape screening shall be installed and maintained as may be required elsewhere in this chapter and under the following conditions:

1. For single- and two-family uses on individual lots, unenclosed parking spaces or driveways in the rear yard or in the side yard which have an area of 500 square feet or more shall be screened. Screening shall consist of plant materials or fencing which meets the height requirements for rear yard placement in subsection (1)b of this section;

2. Screening shall be provided for all other uses where five or more unenclosed parking spaces are provided, exclusive of driveways. Screening shall be provided in accordance with a landscape plan as defined in subsection 50-840(2) and it shall meet the design standards in subsection (1)b of this section, except when screening in the vicinity of public rights-of-way conflicts with the clear view of traffic, in accordance with section 48-36 of the City Code.

b. *Design standards.*

1. Plant selection shall consist of a combination of evergreen and deciduous trees and shrubs which provide year-round interest.

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2. Plant material installed for a perimeter landscape screen shall be placed in a planting bed at least eight feet wide and shall be at least two feet high at initial planting and be expected to grow to a height of at least three feet in the front yard and five feet in the side and rear yards within two years of planting.

3. Fences, walls, or earth berms used in a perimeter landscape screen shall be at least three feet high in a front yard and five feet high in a side or rear yard.

4.The required height of a perimeter landscape screen shall be reduced where it is determined by the city engineer that such landscaping would interfere with vehicular or pedestrian traffic safety and visibility.

5. The height of a perimeter landscape screen may be increased where significant changes in elevations between an adjacent property or public right-of-way make it necessary to comply with the intent of this article.

6. One deciduous, ornamental, or evergreen ~~shade~~ tree of a minimum 3½-inch caliper and 4 shrubs of a minimum of two feet in height shall be planted for each 40 linear feet of side or rear yard.

7. At least one deciduous or ornamental ~~shade~~ tree of a minimum 3½-inch caliper shall be planted within or adjacent to the public right-of-way for each 40 feet of lot frontage.

8. Where fences, walls, or earth berms are used to provide the perimeter landscape screen, at least one shrub or vine shall be planted along such features, visible from the adjacent property or public right-of-way, for each ten linear feet of such features.

9. Loose ground cover or mulch materials shall be placed or effectively contained so they do not spill over into parking and access facilities or the public right-of-way. All ground cover in the public right-of-way shall be approved by the planning and zoning administrator.

10. All required landscape features within three feet of the edge of parking or access facilities shall be protected from vehicle encroachment by curbing, wheel stops, or similar means.

11. Where 20 or more parking spaces are provided, there shall be at least ten square feet of interior landscaped area per space provided within the overall perimeter of the parking area.

12. Interior landscaped areas shall be at least 125 square feet in an area with a minimum dimension of not less than eight feet.

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13. At least one shade tree of a minimum 3½-inch caliper shall be planted in each interior landscaped area.

14. There shall be at least one interior landscaped area for each 20 parking spaces provided or fraction thereof.

15. The application of the above standards may be adjusted, in part or in whole, to allow credit for healthy plant material to be retained on or adjacent to the site if such an adjustment is consistent with the intent of this article.

16. All plant material shall be consistent with the City of East Lansing Tree Manual. Other materials shall be approved by the planning and zoning administrator.

17. Proposed plant material should consist of no more than 10% of one species, 20% of one genus, 30% of one family to promote a diverse urban canopy.

(2) *Landscape plan approval requirements.*

a. Submittal requirements:

1. A preliminary landscape plan shall be submitted where required to the department of planning, building and development. Landscape plan means a plan prepared by a landscape architect registered in the State of Michigan showing the type, height, and placement of all materials, including a grading plan. The grading plan shall be prepared by an engineer, architect, landscape architect, or land surveyor registered in the State of Michigan. Where a development plan is required, the applicant must also submit a preliminary landscape plan and cost estimate with the development plan application.

b. Review requirements:

1. Staff will provide the applicant with a preliminary review of the landscape plan prior to the city council taking action on a development plan.

2. When an application for a development plan is approved, the applicant must provide staff with a revised landscape plan and cost estimate including any changes required by the preliminary staff review and conditions of final approval.

3. At the time the landscape plans receive final approval, the applicant must submit a cash bond 1.5 times the cost of completing the plan. Building permits will not be issued~~construction plans will not be accepted~~ until the bond is submitted.

4. The landscape installation must be complete in order to receive a final certificate of occupancy. ~~and to release the bond.~~

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5. All landscaping materials planted per the approved site plan shall have a two (2) -year warranty following the issuance of the final certificate of occupancy. At the completion of this two-year period, the landscaping materials must be found to be in healthy condition in order for the bond to be released.

(4) Tree Replacement Standards. The standards below are intended to encourage the preservation of existing mature, healthy trees on private property which contribute to the character, welfare, and quality of life. The purpose of this division is to provide for the protection, preservation, and use of trees, shrubs, forest resources, and other forms of existing vegetation and to minimize adverse impacts and loss of resource value in the removal of vegetation and alteration of existing topography.

(a) These standards shall apply to any site subject to site plan approval. A tree removal/land clearing permit shall be obtained from the city engineer prior to removal in accordance with Section 48-94.

(b) For each tree permitted to be removed:

1. Trees with a Diameter at Breast Height (D.B.H) of less than 20-inches must be replaced on a **1:1** ratio (one tree replaced for each tree removed). Replacement trees must be a minimum of three (3) inches D.B.H at the time of planting.

2. The removal of landmark or significant trees (20-inch D.B.H. or greater) must be mitigated by planting three (3) replacement trees with a minimum D.B.H. of 3 inches, unless otherwise approved by the Planning Commission. Landmark trees are defined as follows:

Landmark Tree List		
Common Name	Scientific Name	DBH
Ash	Fraxinus spp. (no cultivars)	18"
Basswood	Tilia spp.	18"
Beech	Fagust spp.	18"
Buckeye (Horsechestnut)	Aesculus spp.	18"
Cherry, Black	Prunus serotina	18"
Elm	Ulmus spp. (except pumila)	18"
Fir	Abies spp.	18"
Fir, Douglas	Pseudotsuga menziesii	18"
Kentucky Coffeetree	Gynocladus dioicus	18"
Maple, Silver	Acer saccharinum	18"
Pine	Pinus spp.	18"
Spruce	Picea spp.	18"
Sycamore; London Plane	Platanus spp.	18"
Tuliptree	Liriodendron tulipifera	18"
Walnut, Black	Juglans nigra	18"

Hickory	Carya spp.	16"
Honeylocust	Gleditsia triacanthos	16"
Maple	Acer spp. (unless otherwise noted)	16"
Oak	Quercus spp.	16"
Arborvitae	Thuja occidentalis	12"
Bald Cypress	Taxodium distichum	12"
Birch	Betula spp.	12"
Black Tupelo	Nyssa sylvatica	12"
Cherry, Flowering	Prunus spp.	12"
Crabapple (cultivar)	Malus spp.	12"
Dawn Redwood	Metasequoia glyptostroboides	12"
Eastern Hemlock	Tsuga canadensis	12"
Ginkgo	Ginkgo biloba	12"
Hackberry	Celtis occidentalis	12"
Hawthorn	Crataegus spp.	12"
Larch/Tamarack	Larix spp.	12"
Pear	Pyrus spp.	12"
Persimmon	Diospyros virginiana	12"
Populus	Populus (except deltoides, alba)	12"
Sassafras	Sassafras albidum	12"
Sweetgum	Liquidambar styraciflua	12"
Yellowwood	Cladrastis lutea	12"
American Chestnut	Castanea dentata	8"
Butternut	Juglans cinera	8"
Cedar	Juniperus spp & upright cultivars	8"
Cedar of Lebanon	Cedrus spp.	8"
Eastern Redbud	Cercis canadensis	8"
Dogwood, Flowering	Cornus florida	8"
Hornbeam, Blue Beech	Carpinus spp.	8"
Ironwood	Ostrya virginiana	8"
Maple, Mountain/Striped	Acer spicatum/pensylvanicum	8"
Pawpaw	Asimina triloba	8"

3. If on-site planting is not feasible, applicants may seek payment in lieu as defined in Section 48-96 to support canopy coverage efforts in other areas.

4. On-site planting of replacement trees shall not contribute towards other landscaping requirements provided in Section 50-840.

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(c) The following shall be exempt from the tree replacement requirements:

1. Removal of trees or shrubs as necessary to survey or maintain public streets, sidewalks and rights-of-way, public utility services and easements, and public drains and easements, accomplished by or on behalf of the city, public utility companies, the Ingham County or Clinton County Road Commission, the Ingham County or Clinton County Drain Commissioners, the Michigan Department of Transportation.

2. Ongoing cultivation activities on the premises of an established nursery or orchard.

3. A farming operation as defined by the Michigan Right to Farm Act, MCL 286.472 which has been approved by the planning and zoning administrator in accordance with the provisions of chapter 50, Zoning.

4. Removal of trees or shrubs substantially damaged by insect infestations or disease, after written verification by the city engineer

5. Removal of any noxious tree, shrub, plant, or weed which is declared a nuisance and ordered to be abated by the city engineer or city manager pursuant to chapters 48 and 26 of this Code.

6. The clearing of paths as may be nominally necessary to survey the property, subject to approval of the city engineer.

7. Trees that are considered invasive after written verification by the city engineer.

8. Trees that the City Arborist or a recognized landscape professional has determined to be unhealthy.

(3) *Landscape maintenance.* Landscaping must be maintained in a neat, clean, orderly and healthful condition. This includes, among other things, pruning, mowing, weeding, litter removal, replacement of dead or diseased plants, repair or replacement of broken or damaged fences or walls, and regular fertilizing and watering of plant materials.

Section 2 of Ordinance. Repealer.

All ordinances or parts of ordinances in conflict with this Ordinance are hereby repealed only to the extent necessary to give this Ordinance full force and effect, and the City of East Lansing Code of Ordinances shall remain in full force and effect, amended only as specified above.

Section 3 of Ordinance. Savings.

All proceedings pending and all rights and liabilities existing, acquired, or incurred at the time

this Ordinance takes effect are saved and may be consummated according to the law in force when they were commenced.

Section 4 of Ordinance. Severability.

If any section, clause, or provision of this Ordinance shall be declared to be unconstitutional, void, illegal, or ineffective by any court of competent jurisdiction, such section, clause, or provision declared to be unconstitutional, void, or illegal shall thereby cease to be a part of this Ordinance, but the remainder of this Ordinance shall stand and be in full force and effect.

Section 5 of Ordinance. Effective Date.

The provisions of this Ordinance are hereby ordered to take effect immediately upon publication.

Section 6 of Ordinance. Enactment.

This Ordinance is declared to have been enacted by the City Council of the City of East Lansing at a meeting called and held on the _____ day of _____, 2026, and ordered to be given publication in the manner prescribed by law.

Moved by Council member:
Supported by Council member:

ADOPTED:
Yeas:
Nays:
Absent:

_____
Mayor Erik Altmann

Dated: _____, 2026

CLERKS CERTIFICATION: I hereby certify that the foregoing is a true and complete copy of an Ordinance introduced at the East Lansing City Council meeting held on Tuesday, May 12, 2026, and adopted by the East Lansing City Council at its meeting held on _____, 2026, the original of which is part of the Council's minutes.

_____
Emily Gordon, City Clerk
City of East Lansing
Ingham and Clinton Counties, Michigan

Approved as to form:

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_____
Steven P. Joppich, Esq.
East Lansing City Attorney

DRAFT

Introduced: May 12, 2026
Public Hearing:
Adopted:
Effective:

CITY OF EAST LANSING, MICHIGAN

ORDINANCE 1575

AN ORDINANCE TO AMEND THE ZONING USE DISTRICT MAP OF CHAPTER 50 - ZONING - OF THE CODE OF THE CITY OF EAST LANSING

THE CITY OF EAST LANSING ORDAINS:

Section 1 of Ordinance

City of East Lansing City Code Chapter 4, *Animals* will be amended as follows:

Sec. 4-4 Keeping domestic animals and fowl; feeding stray cats; leashes for dogs

(a) Except for service animals as defined and regulated under the Americans with Disabilities Act, and except as provided in this section, no person shall keep or house any animal, bird, or reptile within the city except dogs, cats, canaries, or other animals which are commonly kept and housed inside dwellings as household pets, and in all cases with regard to dogs or cats no person or persons shall keep or house more than four dogs or four cats or a combination making a total of four of both within any dwelling within the city. No dog shall be kept, restrained, confined, or housed in the front yard unless attended by a person who is present in the front yard of any single-family or two-family residence. Horses may be kept for private use in those areas of the city zoned agricultural. No person, except for law enforcement officers acting in the course of their official duties or as otherwise authorized pursuant to a parade permit or as otherwise authorized by the city manager for horse and wagon rides, may ride or lead a horse on public property.

(b) No person shall place outdoors, or in any other place readily accessible by stray cats, more than one-half pound per day of cat food or food intended for consumption by cats.

(c) No person shall have at any time outdoors on their property or property leased by them, or in any other place readily accessible by stray cats, more than one-half pound of cat food or food intended for consumption by cats.

(d) No person owning or in control of any dog shall allow the dog to enter upon any public sidewalk, street, or any other public property unless the dog is being held by a responsible person with a physical leash that does not exceed eight feet in length.

(e) Notwithstanding subsection (a) of this section, persons may keep chickens if done so in conformity with Section 50-157 of the Zoning Ordinance.

DRAFT

City of East Lansing City Code Chapter 50, *Zoning*, will be amended as follows:

ARTICLE I. -IN GENERAL

…

Sec. 50-6. - Definitions, D through F.

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Diameter at breast height (d.b.h.) means the diameter of a tree as measured at 4.5 feet above grade level.

Dispensary means any of the following: (1) two or more primary caregivers growing medical marihuana in the same building, structure or lot except for multiple-unit residential structures; (2) two or more primary caregivers storing medical marihuana in the same building, structure or lot except for multiple-unit residential structures; (3) two or more primary caregivers delivering, transferring or providing qualifying patients with medical marihuana out of the same building, structure or lot except for multiple-unit residential structures; (4) two or more primary caregivers growing medical marihuana in the same unit of a multiple-unit residential structure; (5) two or more primary caregivers storing medical marihuana in the same unit of a multiple-unit residential structure; or (6) two or more primary caregivers delivering, transferring or providing qualifying patients with medical marihuana out of the same unit of a multiple-unit residential structure.

Domestic unit. See subsection (3) under "Family."

Drive-ins means establishments which offer goods or services directly to customers either waiting in motor vehicles or to customers who return to their vehicles to consume the goods while on the premises. Car washing establishments are deemed to be drive-ins.

Driveway means a paved surface which provides for access for motor vehicles from a street, alley, or private road to one or more garages, carports, parking spaces, or parking lots. Driveways may also include paved areas provided for maneuvering vehicles on a lot, such as circular driveways and turnarounds.

Dwelling means any house, building, structure, shelter, or portion thereof which is designed for, or occupied exclusively as the home, residence, living or sleeping place of one or more human beings, either permanently or transiently.

Dwelling unit means a room or group of rooms located within a building and forming a single habitable unit with facilities which are used or intended to be used for living, eat, sleeping, cooking, and sanitation excluding public halls, public stairs, and areas not included within the perimeter of the room or group of rooms.

Dwellings, classes of. For the purpose of this chapter, dwellings are divided into the following classes: (1) "one-family dwellings," (2) "two-family dwellings," and (3) "multiple-family dwellings."

(1) A one-family dwelling is a detached building designed for or occupied exclusively by one family.

(2) A two-family dwelling is a detached building designed for or occupied exclusively by two families living independently of each other.

(3)A multiple-family dwelling is a building used or designed as a residence for three or more families living independently of each other or occupied by five or more unrelated persons whether or not equipped with cooking facilities, including apartments, hotels, fraternities, and sororities.

Dwellings, classes of multiple. All multiple dwellings for the purpose of this chapter are divided into two classes, namely: class A and class B.

(1) *Class A.* Multiple dwellings of class A are dwellings which are occupied for residence purposes and in which the rooms are occupied in apartments, suites or groups, in which each combination of rooms is so arranged and designed as to provide a separate room for cooking and kitchen sink accommodations or a kitchenette, and a toilet room within each of the separate units. This class includes tenement houses, flats, apartment houses, apartment hotels, bachelor apartments, and all other dwellings similarly occupied whether specifically enumerated herein or not.

(2) *Class B.* Multiple dwellings of class B are dwellings which are occupied by individuals who are lodged, with or without meals, and in which as a rule the rooms are occupied singly and without any provision therein or therewith for cooking or kitchen accommodations for the individual occupants. This class includes fraternities, sororities, hotels, lodginghouses, boardinghouses, and all other dwellings similarly occupied, whether specifically enumerated herein or not.

*Electric vehicle*s means

a fully electric automobile or hybrid gas and electric automobile

Electric Vehicle Capable (EV-C) means a parking space which has an installed electrical panel capacity with a dedicated branch circuits(s) and cable/raceway that is capped for future EV Parking Space(s). The dedicated branch circuit panel space shall be stenciled or marked legibly with the following text: Future Electric Vehicle Charging Circuit

Electric Vehicle Ready (EV-R) means a parking space which has an installed electrical panel capacity with a dedicated branch circuit(s) including conductor in a raceway or direct buried, terminated in an approved method in a junction box, for an EV Parking Space(s). The junction box shall be clearly marked and labeled with the following text: EV Ready Circuit.

Electric Vehicle Installed (EV-I) means a parking space which has an installed electrical panel capacity with a dedicated branch circuit(s) including conductor in a raceway or direct buried, and

an Electric Vehicle Charging Station (EVCS) capable of providing charge energy to an EV Parking Space(s)

Erected includes built, constructed, reconstructed, moved upon, or any physical operations on the premises required for the building. Excavations, fill, drainage, and the like, shall be considered a part of erecting.

Essential services means the erection, construction, alteration, maintenance, addition, reconstruction, or replacement or maintenance by public utilities or municipal departments or commissions of underground, surface, or overhead distribution of gas, electricity, communications (but excluding wireless communication facilities), steam, or water transmission or distributing systems, collection, supply or disposal systems including poles, mains, drains, sewers, pipes, conduits, wires, cables, high voltage transmission lines, towers in connection with such lines, fire alarm boxes, police call boxes, traffic signals, hydrants, and other similar equipment and accessories in connection therewith, but not including buildings reasonably necessary for the furnishing of adequate service to this city and surrounding territory by such public utilities or municipal departments or commissions or for public health, safety, or general welfare.

Extended care/nursing facility means a building wherein infirm, aged, or incapacitated persons are accepted and furnished, for compensation, care, food and lodging and may receive on-site medical care.

Exterior site boundaries means the outer boundaries on one or more lots that have been identified on a plan for existing or proposed development.

Facade means the elevation or "face" of a building, from ground level to roof line.

Family means (a) one person or two related persons or two unrelated persons residing in a dwelling unit; (b) more than two persons residing in a dwelling unit who are related to each other as husband, wife, son, daughter, father, mother, brother, sister, grandfather, grandmother, grandson, granddaughter, aunt, uncle, niece, nephew, stepchildren, foster children, persons living with the dwelling unit owner under guardianship, or legally adopted children; or (c) a collective number of individuals living together in one dwelling unit whose relationship is of a regular and permanent nature and having a distinct domestic character or a demonstrable and recognizable bond where each party is responsible for the basic material needs of the other and all are living and cooking as a single housekeeping unit. This definition shall not include any society, club, fraternity, sorority, association, lodge, combine, federation, group, coterie, or organization, nor include a group of individuals whose association is temporary or seasonal in character or nature or for the limited duration of their education, nor a group whose sharing of a house is not to function as a family, but merely for convenience and economics. First story means the lowest story of a building, the ceiling of which is more than six feet above the average finished grade at the front of the building, or a public sidewalk adjacent to its exterior walls.

Floodplain, 100-year means the low land near a watercourse which has been, or may be, covered by water of a flood of 100-year frequency, as established by engineering practices of

the U.S. Army Corps of Engineers. It shall also mean that a flood of this magnitude may have a one-percent chance of occurring in any given year.

Floodway means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height.

Floodway encroachment means any fill, structure, building, accessory use, or development in the floodway.

Floodplain/floodway remediation means the process of improving the floodway capacity that has by natural and manmade circumstances decreased over the years, causing an increase in the 100-year floodplain.

Floor area, gross, means the total of all floor areas of a building as measured to the outside surfaces of exterior walls and including halls, stairways, elevator shafts, attached garages, porches, balconies, and basements.

Floor area, net, means the total of all floor areas of a building excluding stairwells and elevator shafts; maintenance, equipment, and utility rooms; interior vehicular parking or loading areas; common or public areas such as central lobbies, hallways, and restrooms; and all areas below first or ground floor when used solely for ancillary storage.

Sec. 50-7. - Definitions, G through M.

modified

The following words, terms and phrases, when used in this chapter, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Garage, private, means a building or other structure designed for the housing of automobiles and having capacity for not more than four automobiles.

Garage, public, means any building or premises, other than a gasoline filling station, used for housing or care of more than four automobiles, or where any such automobiles are equipped for operation, repaired, or kept for remuneration, hire, or sale.

Ground coverage means that part or percent of lot area included within the outside boundary lines of all buildings and structures located on the lot, including porches, decks, patios, breezeways, balconies, bay windows, paved drives and walks, and other area covered with impervious materials. Permeable paving/pavers as defined in Sec 50-8 shall count towards ground coverage at a rate of 50% of their actual area.

Ground-mounted solar energy systems is a freestanding solar energy system that is not attached, and is separate from, any building on the parcel of land.

Habitable room means a room designed for living and/or sleeping, excluding bathrooms, kitchens, dining areas, closets, hallways, and service areas.

Home occupation means an accessory use of a dwelling for gainful employment on a recurring basis involving the manufacture, sale, or provision of goods, materials or services. Class A home occupations may involve the provision of personal service, such as typing, computing, sewing and tutoring; the provision of professional services such as medical and health care, legal, financial, accounting, engineering, architectural, real estate, insurance, counseling, and religious assistance; the creation and/or sale of goods, materials, or handicrafts, except for the sale of food or beverages to be consumed on the premises; and the repair of small appliances, bicycles, and similar products which are not powered by internal combustion engines. Class A home occupations shall be established and operated in compliance with the provisions of section 50-147(7). Also, for the purposes of this chapter, "child care organizations," as defined in section 50-5, shall be considered separate from home occupations.

Hotel means a multiple-family dwelling in which persons are lodged for hire as the more or less temporary abiding place, and in which as a rule the rooms are occupied singly and without any provision therein for cooking, and in which there are more than 25 sleeping rooms, and a public dining room with kitchen facilities for accommodation of at least 25 guests.

Household pet daycare means a premises containing up to six cats or dogs or a combination making a total of six where care and supervision are provided for periods of 12 hours or less per day with or without financial compensation. This does not include household pets as allowed under section 4-4 of this Code.

Kennel means any premises where more than four cats or dogs or a combination making a total of more than four are kept overnight or where more than ten animals, including those allowed under section 4-4 of this Code, are provided care and supervision regardless of duration, except where accessory to an agricultural use.

Lodginghouse means a building or part thereof, other than a hotel, where lodging is provided for hire, more or less transiently, including so-called tourist homes, and with or without provisions for meals.

Lot means a parcel of land occupied or to be occupied by a building and its accessory buildings together with such open spaces as are required under this chapter and having its principal frontage upon a street.

Lot line. Lot line or adjacent property line shall be any boundary line separating one lot from another, whether the line be at the side, rear, or front of the properties.

Lot width means the distance from one side lot line to the other side lot line measured at the minimum building setback permitted in this chapter.

Lots, corner, interior, and through. A "corner lot" is a lot of which at least two contiguous sides abut upon a street for their full length. An "interior lot" is a lot other than a corner lot. A "through lot" is an interior lot or a corner lot, having a frontage on two streets which do intersect at a point contiguous to such lot.

Lots, front, rear, and depth. The front of a lot is that boundary line which borders on a street other than an alley. In the case of a through lot, the front of the lot shall be that boundary which does not border on a major street as designated in the major street plan and which would

most conform to adjacent development patterns as designated in the approved plat, or otherwise, as determined by the planning and zoning official. In the case of a corner lot, the side which has the narrowest dimension bordering on a street shall be deemed to be the front of such lot. The rear of a lot is the side opposite to the front. In the case of a triangular or irregular lot, the rear is the boundary line not bordering on a street. The depth of a lot is the dimension measured from the front of the lot to the extreme rear line of the lot. In the case of irregularly shaped lots, the mean depth shall be taken.

Marihuana means that term as defined in section 7106 of the public health code, 1978 PA 368, MCL 333.7106.

Marihuana establishment means a marihuana grower, marihuana safety compliance facility, marihuana processor, marihuana microbusiness, marihuana retailer, marihuana secure transporter, or any other type of marihuana-related business licensed by the department of licensing and regulatory affairs pursuant to the Michigan Regulation and Taxation of Marihuana Act.

Marihuana grower means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to cultivate marihuana and sell or otherwise transfer marihuana to marihuana establishments.

Marihuana-infused product means a topical formulation, tincture, beverage, edible substance, or similar product containing any usable marihuana, as defined by the Michigan Medical Marihuana Facilities Act, that is intended for human consumption in a manner other than smoke inhalation. Marihuana-infused products shall not be considered a food.

Marihuana microbusiness means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to cultivate not more than 150 marihuana plants; process and package marihuana; and sell or otherwise transfer marihuana to individuals who are 21 years of age or older or to a marihuana safety compliance facility, but not to other marihuana establishments.

Marihuana processor means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to obtain marihuana from marihuana establishments; process and package marihuana; and sell or otherwise transfer marihuana to marihuana establishments.

Marihuana retailer means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to obtain marihuana from marihuana establishments and to sell or otherwise transfer marihuana to marihuana establishments and to individuals who are 21 years of age or older.

Marihuana safety compliance facility means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to test marihuana, including certification for potency and the presence of contaminants.

Marihuana secure transporter means a person licensed pursuant to the Michigan Regulation and Taxation of Marihuana Act to obtain marihuana from marihuana establishments in order to transport marihuana to marihuana establishments.

Medical marihuana grower facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act, to cultivate, dry, trim, or cure and package marihuana for sale to a processor or provisioning center.

Medical marihuana processor facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act, to purchase marihuana from a grower and extract resin from the marihuana or create a marihuana-infused product for sale and transfer in packaged form to a provisioning center.

Medical marihuana provisioning center facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act to purchase marihuana from a grower or processor and sell, supply, or provide marihuana to registered qualifying patients, directly or through the patients' primary caregivers. Provisioning center includes any commercial property where marihuana is sold at retail, under the Michigan Medical Marihuana Facilities Act, to registered qualifying patients or registered primary caregivers. Dispensaries and noncommercial locations used by primary caregivers to assist qualifying patients connected to the caregiver through the marihuana registration process in accordance with the Michigan Medical Marihuana Act are not provisioning centers.

Medical marihuana safety compliance facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act, to receive marihuana from a marihuana facility or primary caregiver, test it for contaminants and for tetrahydrocannabinol and other cannabinoids, return the test results and the marihuana to the marihuana facility.

Medical marihuana secure transporter facility means a location where an individual, corporation, limited liability company, partnership, limited partnership, limited liability partnership, limited liability limited partnership, trust, or other legal entity is licensed as a commercial entity by the State of Michigan, under the Michigan Medical Marihuana Facilities Act, to store marihuana and transport marihuana between marihuana facilities for a fee.

Michigan Medical Marihuana Act means the Michigan Medical Marihuana Act, Public Act 1 of 2008, being MCL 333.26421 to 333.26430.

Michigan Medical Marihuana Facilities Act means the Michigan Medical Marihuana Facilities Act, Public Act 281 of 2016, being MCL 333.27101 to 333.27801.

Michigan Regulation and Taxation of Marihuana Act means the Michigan Regulation and Taxation of Marihuana Act, 2018 IL 1, being MCL 333.27951 to 333.27967.

Mixed market rental unit means a rental dwelling unit within a multiple-family dwelling which has a mix of studio, one-bedroom, two-bedroom and three-bedroom units with no more than 25 percent of the units being three-bedroom units and each dwelling unit rented under a single rental contract.

…

ARTICLE II. -ADMINISTRATION AND ENFORCEMENT

DIVISION 1. – GENERALLY

…

Sec. 50-38. - Standards of review for site plan approval.

A site plan application shall meet the development standards of the use district in which it is to be located and all other required conditions for development in this chapter, comply with other applicable local ordinances and state and federal statutes, and be consistent with the objectives of the comprehensive plan as approved and amended by the city. A site plan application shall also substantially comply with the standards of review specified below. A site plan may be approved subject to certain conditions or modifications necessary to bring the plan into conformance with these requirements, including the approval of any variance that may be granted by the zoning board of appeals.

(1) *General site conditions.* The site shall be designed and developed to provide a logical relationship between functional elements, to effectively serve the purposes for which it is to be developed, and to be reasonably compatible with surrounding properties.

a. The size, height, design and architectural treatment of buildings shall be reasonably compatible with surrounding properties; except, if the site is in an area which is expected to redevelop in accordance with the provisions of the comprehensive plan, the size, height, design and architectural treatment of buildings shall be consistent with the objectives in the comprehensive plan.

b. Buildings, including windows, balconies and other openings, shall be located and designed to provide reasonable privacy for residents and employees on the site and those adjacent to the site; buffers such as walls, fencing, landscape plantings or additional setbacks may be required to protect residents and employees from adverse impacts from adjacent uses or streets.

c. Yard areas on the site shall be arranged and improved to provide adequate light and ventilation; separation between buildings, roads and other activity areas; trees and other vegetation; passive and active recreational areas; and to improve the appearance of the property, ensure reasonable privacy and enjoyment for residents and employees and promote the public health, safety and welfare.

d. Outdoor activity areas, such as pools, playgrounds, courts, cooking or dining facilities, shall be located and screened sufficiently to minimize impacts on adjacent properties or

dwelling units on the site and to provide appropriate security.

(2) *Natural features.* The site shall be designed and developed to minimize the disruption or loss of its desirable natural elements and to enhance its overall appearance by incorporating those elements into required open spaces and setbacks.

a. The design and placement of buildings, other site improvements and open space shall respect the natural topography of the site to minimize the extent of site grading, excavation and filling.

b. Mature trees and significant clusters of trees and shrubs shall be retained where possible to provide shade for buildings and over parking areas and driveways, to maintain privacy between adjacent properties and to enhance the appearance of the site. Site design should consider Landmark Trees, as defined in Sec 50-840, as an important site design element and should only remove them if other alternatives are not feasible.

c. Within a regulated wetland, no filling, grading, dredging, excavating, draining or construction shall be permitted unless the required permit is first obtained from the Michigan Department of Environmental Quality and/or the city in accordance with chapter 49 of the City Code. Existing wetland areas not regulated by the state or the city and surface drainageways shall be preserved to the maximum practicable extent to maintain stormwater control, water quality, natural habitat and open space.

d. Buildings and other site improvements shall be set back an appropriate distance from the perimeter of preserved natural features to protect them from encroachment, damage, degradation or pollution, both during and after construction, to preserve the aesthetic and functional values of the resources and to provide access to use and maintain the site improvements. All construction activities within the drip line of existing trees shall be minimized to avoid damage to their root systems. Buildings and other site improvements shall be set back from the edge of a wetland or other surface water feature the following minimum distances:

Setbacks from preserved wetlands and other surface water features:	Minimum distance:
Principal buildings	25 feet
Accessory buildings and site features supported by frost footings	15 feet
Decks, stairways and other features supported by post footings	10 feet

Setbacks from preserved wetlands and other surface water features:	Minimum distance:
Parking areas, driveways and curbing	15 feet
Sidewalks, patios and other flatwork	10 feet
Stormwater collection, detention or retention facilities	10 feet

A vegetation strip at least ten feet wide consisting of plant species that are consistent with a wetland habitat shall be provided and maintained around the perimeter of a preserved wetland or surface water feature. Existing trees, shrubs and ground cover may be preserved within this strip or appropriate trees, shrubs and other perennial species native to a Michigan wetland habitat shall be installed to enhance the strip. Once established, this strip shall not be mowed or clear cut, except for vegetation that requires cutting to reseed and maintain healthy growth, and trees and shrubs may be selectively pruned to maintain views of the wetland or water feature and to protect and maintain access to buildings and other site improvements. Pathways no more that ten feet in width may be cleared and maintained to provide access to the wetland or surface water feature. Observation decks or docks may also be permitted to allow viewing of the water feature or wetland.

The setback and vegetation strip requirements in this subsection may be increased or decreased if it is determined that a proposed activity is in the public interest. In determining whether the proposed activity is 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 activity, taking into consideration the local, state and national concern for the protection and preservation of the environmental feature in question. The following general criteria shall be applied in undertaking this balancing test:

1. The relative extent of the public and private need for the proposed activity.

2. The availability of feasible and prudent alternative locations and methods to accomplish the expected benefits from the activity.

3.The extent and permanence of the beneficial or detrimental effects which the proposed activity may have on the public and private use to which the area is suited, including the benefits the natural feature and/or natural feature open space provides.

4. The probable impact of the activity in relation to the cumulative effect created

by other existing and anticipated activities in or near the natural feature to be protected.

5. The probable impact on recognized historic, cultural, scenic, ecological, or recreational values, and on fish, wildlife and public health.

6. The size and quantity of the natural feature open space being considered.

7. The amount and quantity of the remaining natural feature open space.

8. Proximity of the proposed activity in relation to the natural feature, taking into consideration the degree of slope and the soil type within and adjacent to the natural feature and the setback area, the quantity and speed of surface runoff expected and the nature of the natural feature to be protected.

9. Economic value, both public and private, of the proposed activity and economic value, both public and private, if the proposed activity were not permitted.

e. Development within designated floodplain areas shall be accomplished in a way that does not alter or obstruct stormwater flow within a designated floodway, maintains the overall stormwater storage capacity of the site and does not increase risks to persons and property.

f. Appropriate ground cover, trees and other vegetation shall be planted and maintained on the site to control stormwater runoff and prevent erosion, siltation and dust, to provide privacy between adjacent uses and mitigate impacts from noise and lights, and to enhance the appearance of the site.

g. Parking and access facilities shall be landscaped in accordance with the requirements of section 50-816(8) of this chapter.

(3) *Traffic access.* The site shall be designed and developed to provide safe and efficient access for all forms of travel and to minimize impacts on adjacent public facilities.

a. The site shall not overburden adjacent public streets nor cause significant hazards to public safety due to excessive traffic generation or inadequate traffic control.

b. Existing and proposed public streets shall be designed and constructed in accordance with the requirements of chapter 40 of the City Code and applicable local standards and specifications.

c. Roadway or driveway connections between the site and adjacent public streets shall be spaced sufficiently apart and may be limited in number to minimize congestion and delays in traffic flow along the adjacent public streets and to minimize conflicts with other turning movements on adjacent public streets or private driveways.

d. Where practicable, principal access to and from the site shall be provided from major streets; access to local streets shall be designed to avoid excessive traffic volumes and speed through adjacent neighborhoods.

e. Appropriate curb radii and lane widths shall be provided and acceleration and deceleration lanes may be required at roadway or driveway openings to protect public safety and minimize congestion and delays along adjacent public streets.

f. Separate turn lanes may be required at roadway or driveway openings to reduce on-site stacking and congestion and such lanes shall be clearly marked.

g. Secondary access may be required to adjacent public streets or alleys or through adjacent private parking areas to provide sufficient access for emergency vehicles.

h. Where two or more adjacent sites may be developed for similar or complementary uses, the city may require the creation of shared or linked access facilities, which may be constructed in phases, to minimize turning movements on public streets and provide access between the adjacent uses.

i. Roadways and driveways within the site shall be designed to provide safe and efficient access while minimizing speeds and safety risks; the placement of traffic control devices within the site may be required to regulate speeds and minimize safety risks.

j. Sidewalks shall be installed to provide safe and convenient pedestrian and bicycle access to and within the site, including sidewalks along public street frontages and linkages between such sidewalks and all principal buildings, between the principal buildings and parking facilities on the site, and between adjacent sites, where practicable.

k. Sidewalks and other pedestrian access pathways within the site shall be located to minimize conflicts with vehicular traffic and enhance safety; pavement markings and signs may be required at principal points where pedestrians would cross driveways within the site.

l. Sidewalks and ramps within the site shall be designed to provide safe and convenient barrier-free access.

m. Parking facilities shall be located and designed to provide safe and convenient access to the building(s) they are intended to serve and, where practicable, to separate maneuvering areas from principal routes of traffic flow through the site.

n. Parking areas shall be located or sufficiently screened to avoid headlights projecting into windows of residential dwellings.

o. Parking and access facilities shall be designed and constructed in accordance with the requirements of section 50-816 of this chapter.

p. Bicycle parking and storage facilities shall be provided in accordance with the requirements of section 50-820 of this chapter.

q. Parking facilities shall be designed to provide the required electric vehicle charging stations required by section 50-821.

(4) *Utilities and public services.* The site shall be designed and developed to facilitate the efficient provision and maintenance of adequate public services.

a. Existing and proposed utility services to and within the site shall be of adequate size and design to serve the expected needs of the development.

b. Appropriate easements shall be provided to the city to afford access to all existing, proposed and known future extensions of public utilities on or adjacent to the site.

c. The site shall be designed and developed to afford adequate access for fire suppression and other emergency services; fire hydrants, stand pipes and similar water service connections may be required; designated fire lanes may also be required.

d. Stormwater collection and discharge facilities shall be provided and designed to minimize the risk of flooding or soil erosion, on or off the site; stormwater detention or retention facilities may be required to regulate the rate of flow of stormwater off the site to avoid flooding and to comply with the requirements of article IV, chapter 34, of the City Code.

e. Stormwater collection and discharge facilities and site grading shall be designed to avoid runoff onto adjacent properties and public streets and sidewalks.

f. Stormwater treatment facilities shall be provided as required by the city engineer to comply with the city's Michigan Department of Environmental Quality NPDES Phase II Stormwater Permit.

g. Loading docks, loading spaces and other service areas and external utility and mechanical equipment shall be located and screened to minimize noise, vibration, or visual impacts which may affect adjacent properties or residents within the development; walls or other solid screens may be required to attenuate noise impacts.

h. Adequate containers or compactors shall be provided on the site to collect and store trash or other waste materials and recyclable materials; such containers or compactors shall be effectively screened to obscure them from view, prohibit materials from blowing away and to control access; such containers shall also be located as inconspicuously as possible on the site.

i. In order to further the goal of the city to minimize the disposal of solid waste and to maximize waste diversion through recycling, every owner of a multiple dwelling approved for construction after January 1, 2007, shall construct, provide, and maintain adequate and safe facilities or containers for the collection, storage, and disposal of recyclable materials placed for collection by their tenants, unless such premises is approved by the director of public works for city curbside recycling services as provided in article III of chapter 36 of this Code.

j. Exterior lighting shall be installed as necessary to provide adequate safety and security; all exterior lighting shall be designed and shielded to direct the light downward and avoid projecting light onto adjacent properties or creating glare along public streets; pole-mounted lights shall be restricted in height to be in scale with the site and its environment and avoid projecting light onto adjacent properties.

(5) *Environmental protection.* The site shall be designed and developed to minimize any risk of

pollution of natural resources and to protect the public health, safety and welfare.

a. The project and related improvements shall be designed to protect land and water resources from pollution, including pollution of soils, groundwater, rivers, streams, lakes, ponds, open drains and wetlands.

b. Stormwater retention, detention, transport, and drainage facilities shall be designed to use or enhance the natural stormwater system on-site, including the storage and filtering capacity of wetlands, watercourses, and water bodies, and/or the infiltration capability of the natural landscape. Stormwater facilities shall not cause flooding or the potential for pollution of surface or groundwater, on-site or off-site. Stormwater facilities shall not damage natural features by depositing pollutants in them, by draining them or by depriving them of sufficient stormwater runoff to maintain their natural condition.

c. General purpose floor drains shall be connected to a public sanitary or combined sewer system or an on-site holding tank (not a septic system) in accordance with state, county and municipal requirements, unless a groundwater discharge permit has been obtained from the Michigan Department of Environmental Quality. General purpose floor drains which discharge to the public stormwater system or into the groundwater are generally prohibited.

d. Sites at which hazardous substances, hazardous wastes, or potentially polluting materials are stored, used, or generated shall be designed to prevent spills and discharges of such materials to the air, surface of the ground, groundwater, lakes, streams, rivers or wetlands.

e. Secondary containment facilities shall be provided for aboveground storage of hazardous substances, hazardous wastes, or potentially polluting materials in accordance with state and federal requirements. Aboveground secondary containment facilities shall be designed and constructed so that the potentially polluting material cannot escape from the unit by gravity through sewers, drains, or other means, directly or indirectly into a sewer system, or to the waters of the state (including groundwater).

f. Underground storage tanks shall be registered, installed, operated, maintained, closed or removed in accordance with regulations of the Michigan Department of Environmental Quality.

g. Aboveground storage tanks shall be certified, installed, operated, maintained, closed or removed in accordance with regulations of the Michigan Department of Environmental Quality.

h. Bulk storage facilities for pesticides and fertilizers shall be in compliance with requirements of the Michigan Department of Agriculture.

i. Abandoned water wells (wells that are no longer in use or are in disrepair), abandoned monitoring wells, and cisterns shall be plugged in accordance with regulations and procedures of the Michigan Department of Environmental Quality.

j. State and federal requirements for storage, spill prevention, recordkeeping, emergency

response, transport and disposal of hazardous substances, hazardous wastes, liquid industrial waste or potentially polluting materials shall be met. No discharge to surface water or groundwater, including direct and indirect discharges of waste, waste effluent, wastewater, pollutants, or cooling water, shall be allowed without approval from appropriate state, county and local agencies.

(6) *Public art requirement.* Unless the project is exempt from this requirement pursuant to subparagraph (6)d. of this paragraph, the site shall be designed and developed to contain public art as defined by section 2-313 of the City Code and in accordance with the following:

a. A budget for the public art required by this section shall be established based on the allocation of one percent of the total project cost up to $25,000.00 to be committed to the procurement and display of public art on the site.

b. The public art shall be a work of art as defined by section 2-313 of the City Code and shall be approved by the city's arts commission in accordance with the definition of public art and the standards set forth in section 2-315(a)(1) and (7) of the City Code and the city council prior to site plan approval. The approval by the arts commission and city council shall not be unreasonably withheld.

c. The total allocation as established pursuant to subparagraph (6)a. shall be expended on those items listed in section 2-314(a)(1) through (4) of the City Code and shall not include any other expenditures. Maintenance shall be the responsibility of the owner of the property in addition to the allocation established by subparagraph (6)a. Failure to install the public art as required by this subparagraph and in accordance with the approved site plan shall result in denial of a certificate of occupancy. Failure to properly maintain the public art in accordance with the approved site plan is a violation of the zoning code and subject to enforcement pursuant to the provisions of section 50-33. Prior to any enforcement action a violation notice shall be sent to the responsible party. A failure to cure the violation within 30 days shall constitute a violation and each day thereafter that the violation remains uncured shall constitute a separate offense.

d. The following projects are exempt from the public art requirements of this section:

1. Projects where the application of this requirement would constitute a governmental taking or otherwise be contrary to law, as determined by the zoning administrator, under the particular facts and circumstances of that case as explained in detail by the applicant. The zoning administrator may request additional information from the applicant if insufficient information is provided with the site plan to make a determination. The applicant has all appeal rights as would otherwise be applicable to any determination by the zoning administrator.

2. Projects where the total project cost is less than $500,000.00.

3. Residential projects containing less than four residential units.

4. Projects where, upon issuance of the building permit, the applicant donates an amount equivalent to the amount established pursuant to subparagraph (6)a. of this paragraph to the public art fund as established pursuant to section 2-312 of

the City Code or donates a "work of art" approved by the art commission of equal value to the fund as established pursuant to subparagraph (6)a. of this paragraph.

e. A developer may choose to partially exempt a project from the public art requirement of this section to the extent the developer chooses to donate funds or works of art less than the amount established pursuant to subparagraph (6)a. of this paragraph in which case the budget required for public art shall be reduced by a corresponding amount.

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ARTICLE III. - GENERAL DISTRICT REGULATIONS

…

Sec. 50-157 Bee Keeping

No person shall keep honeybees unless they obtain a honeybee permit and comply with the following conditions:

1. The maximum number of hives permitted per property shall be as follows:

a. Two (2) hives for properties with a lot that is not greater than eleven thousand (11,000) square feet in area.

b. Four (4) hives for properties with a lot area of greater than eleven thousand (11,000) square feet and not greater than twenty-two thousand (22,000) square feet in area.

c. Five (5) hives for properties with a lot area greater than twenty-two thousand (22,000) square feet and not greater than forty-three thousand five hundred sixty (43,560) square feet.

d. Eight (8) hives for properties with a lot area of greater than forty-three thousand five hundred sixty (43,560) square feet (one acre) in area.

e. One additional hive is allowed for each additional acre of land.

2. Each hive shall have a maximum size of twenty (20) cubic feet.

3. A flyway barrier at least six (6) feet in height shall shield any part of a property line that is within twenty-five (25) feet of a hive. Such flyway barrier must be at least four (4) feet in width. The flyway barrier shall consist of a wall, fence, dense vegetation or a combination thereof.
4. A constant supply of water shall be provided for all hives.

5. All hives shall be located at least six (6) feet from any property line, and where public sidewalk is present at least ten (10) feet distant from it.

6. The applicant shall pay the fee required by the fee resolution periodically adopted by the city council.

7. Applications for honeybee permits shall be submitted to, and permits shall be issued by, the

City Clerk's Office.

8. An initial honeybee permit shall be valid indefinitely or until the property is sold or transferred to another owner, unless suspended or revoked due to noncompliance with this ordinance section.**Sec. 50-158 Keeping of fowl**

(1) Any person who keeps chickens in the city shall obtain a permit from the City prior to acquiring the chickens. Application shall be made to the city clerk with a fee as determined by council resolution.

(2) Permits expire and become invalid five years after the date of issuance. A person who wishes to continue keeping chickens shall obtain a new permit on or before the expiration date of the previous permit. Application for a new permit shall be pursuant to the procedures and requirements that are applicable at the time the person applies for a new permit.

(3) Notwithstanding the issuance of a permit by the city, private restrictions on the use of property shall remain enforceable and take precedence over a permit. Private restrictions include but are not limited to deed restrictions, condominium master deed restrictions, neighborhood association by-laws, and covenant deeds. A permit issued to a person whose property is subject to private restrictions that prohibit the keeping of chickens is void. The interpretation and enforcement of the private restriction is the sole responsibility of the private parties involved.

(4) A person who keeps or houses chickens on his or her property shall comply with all of the following requirements:

a. Have been issued the permit required under subsection (1) of this section.

b. Keep no more than four chickens.

c. No person shall keep any rooster.

d. No person shall slaughter any chickens.

e. The chickens shall be provided with a covered enclosure and must be kept in the covered enclosure or an adjoining fenced enclosure at all times. Fenced and covered enclosures are subject to all provisions of chapter 50 (zoning).

f. A person shall not keep chickens in any location on the property other than in the backyard as defined by the zoning code.

g. No covered enclosure or fenced enclosure shall be located closer than ten feet to any property line of an adjacent property.

h. All enclosures for the keeping of chickens shall be so constructed or repaired as to prevent rats, mice, or other rodents from being harbored underneath, within, or within the walls of the enclosure. A covered enclosure or fenced enclosure shall not be located closer than 40 feet to any residential structure on an adjacent property.

i. All feed and other items associated with the keeping of chickens that are likely to attract or to become infested with or infected by rats, mice, or other rodents shall be protected so as to prevent rats, mice, or other rodents from gaining access to or coming into contact with them.

(5) If the above requirements are not complied with, the city may revoke any permit granted under this section and/or initiate prosecution for a civil infraction violation. Each day a violation exists shall constitute a separate offense.

(6) A person who has been issued a permit shall submit it for examination upon demand by any police officer or code enforcement officer.

(7) This section shall not regulate the keeping of chickens in those areas zoned residential agricultural district, RA, or agricultural-A, where the raising of poultry is a permitted principal use when conducted in compliance with the Michigan Right to Farm Act and the Generally Accepted Agricultural and Management Practices promulgated thereunder.

…

ARTICLE IV. - SINGLE-FAMILY AND TWO-FAMILY RESIDENTIAL DISTRICTS

…

DIVISION 2. - RESIDENTIAL AGRICULTURAL DISTRICT, RA

…

Sec. 50-222. - Permitted uses.

(1) Permitted principal uses.

a. Foster family homes, foster family group homes, and family day care homes, subject to

the requirements of Sec. 50-150(1).

b. Nurseries and allied uses, general farming, orchards, greenhouses, and truck farming, except that the raising of poultry, pets, or livestock for strictly commercial purposes or on a scale that would be objectionable because of noise or odor shall not be permitted.

c. Single-family dwellings.

(2) Permitted principal uses subject to an approved site plan as set forth in section 50-36 of this chapter.

a. Commercial outdoor recreation establishment.

b. Private or parochial schools.

c. Public schools.

d. Publicly owned parks and recreation areas.

(3) Permitted principal uses subject to an approved special use permit as provided for in article II, division 3 of this chapter.

a. Child care centers, day care centers, and group day care homes, subject to the requirements of Sec. 50-150.

b. Construction contracting businesses that provide services off-premises, including concrete, masonry, carpentry, plumbing, electrical, mechanical, roofing, siding, fencing and similar services; provided, that all equipment, materials, trailers and vehicles, except typical passenger vehicles, used in conjunction with the business, shall be stored in enclosed buildings or in yard areas that are completely enclosed with screen fencing or walls.

c. Household pet daycare as defined in section 50-7 which is provided in conjunction with an owner occupied residential property.

d. Religious institutions.

e. Retail sale of related supplies and accessories in conjunction with a nursery or greenhouse, such as soil, fertilizer, mulch, ground cover materials, planters, gardening tools, and equipment.

f. Utility scale solar energy systems, subject to the regulations in section 50-155.

(4) Permitted accessory uses.

a. Class A home occupations.

b. Outdoor sheds and storage buildings.

c. Private garages, the capacity of which shall not exceed three automobiles, in conjunction with a single-family dwelling.

d. Retail sale of items grown upon the premises.

e. Roomer. The keeping of not more than one roomer by an owner residing in a single-family dwelling, except that a person owning a single-family dwelling on May 24, 1997, the effective date of Ordinance No. 900, shall be permitted to keep two roomers while continuing to own and reside in the dwelling. The maximum occupancy shall not exceed three unrelated persons, including the owner, for an owneroccupied dwelling or two unrelated persons for a non-owner-occupied dwelling. For purposes of this subsection, persons comprising a "domestic unit" as defined under "family" in section 50-6 shall be deemed related persons.

f. Swimming pools, tennis courts, and other similar uses when used for noncommercial purposes.

e. Bee keeping, subject to the regulations in Section 50-157.

f. The keeping of fowl, subject to the regulations in Section 50-158

…

DIVISION 3. - LOW DENSITY SINGLE-FAMILY RESIDENTIAL DISTRICT, R-1

…

Sec. 50-242. - Permitted uses.

In the R-1 single-family residential districts, no buildings or premises shall be used and no building shall be hereafter erected or altered, unless otherwise specifically provided for in this chapter, except for the following uses:

(1) Permitted principal uses.

a. Clustered development plan, in accordance with the provisions of division 7 of this article.

b. Foster family homes, foster family group homes, and family day care homes, subject to the requirements of Sec. 50-150(1).

c. Single-family dwellings.

(2) Permitted principal uses subject to an approved site plan as set forth in section 50-36 of this chapter.

a. Private or parochial schools.

b. Public parks.

c. Public schools.

(3) Permitted principal uses subject to an approved special use permit as provided for in article II, division 3 of this chapter.

a. Child care centers, day care centers, and group day care homes, subject to the requirements of Sec. 50-150(2).

b. Religious institutions.

(4) Permitted accessory uses.

a. Class A home occupations.

b. Outdoor sheds and storage buildings.

c. Private garages, the capacity of which shall not exceed three automobiles.

d. Roomer. The keeping of not more than one roomer by an owner residing in a single-family dwelling, except that a person owning a single-family dwelling on May 24, 1997, the effective date of Ordinance No. 900, shall be permitted to keep two roomers while continuing to own and reside in the dwelling. The maximum occupancy shall not exceed three unrelated persons, including the owner, for an owneroccupied dwelling or two unrelated persons for a non-owner-occupied dwelling. For purposes of this subsection, persons comprising a "domestic unit" as defined under "Family" in section 50-6 shall be deemed related persons.

e. Swimming pools, tennis courts, and other similar uses when not used for commercial purposes.

f. Bee keeping, subject to the regulations in Section 50-157.

g. The keeping of fowl, subject to the regulations in Section 50-158

…

DIVISION 4. - MEDIUM DENSITY SINGLE-FAMILY RESIDENTIAL DISTRICT, R-2

…

Sec. 50-262. - Permitted uses.

(1) Permitted principal uses.

a. Clustered development plan, in accordance with the provisions of division 7 of this article.

b. Foster family homes, foster family group homes, and family day care homes, subject to the requirements of Sec. 50-150(1).

c. Neo-traditional neighborhood redevelopment plan, in accordance with the provisions of division 8 of this article.

d. Single-family dwellings.

(2) Permitted principal uses subject to an approved site plan as set forth in section 50-36 of this chapter.

a. Private or parochial schools.

b. Public parks.

c. Public schools.

(3) Permitted principal uses subject to an approved special use permit as provided for in article II, division 3 of this chapter.

a. Religious institutions.

b. Child care centers, day care centers, and group day care homes, subject to the requirements of Sec. 50-150(2).

(4) Permitted accessory uses.

a. Class A home occupations.

b. Outdoor sheds and storage buildings.

c. Private garages, the capacity of which shall not exceed three automobiles.

d. Roomer. The keeping of not more than one roomer by an owner residing in a single-family dwelling, except that a person owning a single-family dwelling on May 24, 1997, the effective date of Ordinance No. 900, shall be permitted to keep two roomers while continuing to own and reside in the dwelling. The maximum occupancy shall not exceed three unrelated persons, including the owner, for an owneroccupied dwelling or two unrelated persons for a non-owner-occupied dwelling. For purposes of this subsection, persons comprising a "domestic unit" as defined under "Family" in section 50-6 shall be deemed related persons.

e. Swimming pools, tennis courts, and other similar uses when not used for commercial purposes.

f. Bee keeping, subject to the regulations in Section 50-157.

g. The keeping of fowl, subject to the regulations in Section 50-158

…

DIVISION 5. -SINGLE-FAMILY AND TWO-FAMILY RESIDENTIAL DISTRICT, R-3

…

Sec. 50-282. - Permitted uses.

In the R-3 district no buildings or premises shall be used and no building shall be hereafter erected or altered, unless otherwise specifically provided for in this chapter, except for the following uses.

(1) Permitted principal uses.

a. Foster family homes, foster family group homes, and family day care homes, subject to the requirements of Sec. 50-150(1).

b. Neo-traditional neighborhood redevelopment plan in accordance with the provisions of division 8 of this article.

c. Single-family dwellings.

d. Two-family dwellings.

(2) Permitted principal uses subject to an approved site plan as set forth in section 50-36 of this chapter.

a. Private or parochial schools.

b. Public parks.

c. Public schools.

(3) Permitted principal uses subject to an approved special use permit as provided for in article II, division 3 of this chapter.

a. Child care centers, day care centers, and group day care homes, subject to the requirements of Sec. 50-150(2).

b. Religious institutions.

(4) Permitted accessory uses.

a. Class A home occupations.

b. Private garages, the capacity of which shall not exceed four automobiles.

c. Outdoor sheds and storage buildings.

d. Roomer in Single-Family Dwelling. The keeping of not more than one roomer by an owner residing in a single-family dwelling.

e. Roomer in Two-Family Dwelling. The keeping of not more than one roomer by an owner residing in each unit of a two-family dwelling. The maximum occupancy shall not exceed three unrelated persons per dwelling unit for an owner-occupied dwelling unit or two unrelated persons for a non-owner-occupied dwelling unit.

f. Swimming pools, tennis courts, and other similar uses when used for noncommercial purposes.

g. Bee keeping, subject to the regulations in Section 50-157.

h. The keeping of fowl, subject to the regulations in Section 50-158

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ARTICLE VIII. - OFF-STREET PARKING REQUIREMENTS

…

Sec. 50-812. - Required parking ratios.

It shall be the responsibility of both the owner and occupant of any property to provide off-street parking as required and regulated in this article. Except as otherwise provided in this

chapter, such parking shall be provided on the same premises with the use it is required to serve. The minimum number of required parking spaces shall be determined from the ratios listed below. Appropriate evidence, such as building floor plans and seating plans, shall be submitted to determine the minimum parking requirement for each use. Where per-roomer or per-person standards are used, the minimum parking space requirement shall be based upon the maximum potential occupancy of the dwelling as determined from relevant lot area and floor area standards in this chapter and chapter 6, article III of the City Code. Where per-seat standards are used but a fixed seating plan is not provided, the parking ratio for the use shall be based upon the maximum permitted occupancy of the identified room(s) as computed from the Uniform Building Code. Where buildings contain multiple tenancy, gross floor area shall exclude common public hallways, arcades, and mechanical/maintenance rooms which support the entire building. Where alternative standards are provided, the one resulting in the highest number of parking spaces shall be used. Where the computed ratios for a use result in a fractional requirement, the requirement shall be rounded up to the nearest whole number of spaces. Also, the ratios below assume that typical accessory uses as permitted may be present and no additional parking spaces are required for them except as specifically stated in the standards below.

Use		Minimum Parking Ratio	Required EV Spaces
(1) Residential			
Single- and two-family structures		2 spaces per dwelling unit	100% EV-R for new buildings
Multiple-family Structures			
	Class A Units	One half (0.5) spaces per efficiency or 1 bedroom dwelling unit. Two (2) spaces per unit with 2 or more bedrooms	65% EV-C Plus 25% EV-R Plus 10% EV-I
	Class B Units	0.5 space per person	65% EV-C Plus 25% EV-R Plus 10% EV-I
(2) Nonresidential			
Elementary School/ Middle School		1 per classroom plus 4	25% EV-C plus 15% EV-R plus 10% EV-I
High School		5 per classroom	25% EV-C plus 15% EV-R plus 10% EV-I
Library		1 per 300 square feet of floor area	15% EV-C plus 10% EV-R plus 10% EV-I
Religious Assembly		1 per 6 seats in reading rooms or main assembly room	10% EV-R plus 10% EV-I
Hospital, extended care facility		1 per 2 beds or 2 residents.	25% EV-C plus 15% EV-R plus 10% EV-I
Funeral home		1 per 100 square feet of Floor Area used for viewing or services	None

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Museum/art gallery		1 per 300 square feet of Floor Area	15% EV-C plus 10% EV-R plus 10% EV-I
Medical or dental office or clinic (no overnight facilities)		1 per examination room plus 1 per 100 square feet of patient waiting room.	15% EV-C plus 10% EV-R plus 10% EV-I
General business or professional office (excluding medical/dental office); financial institution		1 per 300 square feet net floor area.	25% EV-C plus 15% EV-R plus 10% EV-I
Private club or lodge, community center		1 per 100 square feet in main meeting or club room	15% EV-C plus 10% EV-R plus 10% EV-I
Automotive service center		1 per 200 square feet of Floor Area	10% EV-R plus 10% EV-I
Motor vehicle sales		1 per 300 square feet of Floor Area	15% EV-C plus 10% EV-R plus 10% EV-I
Theater, auditorium		1 per 4 seats.	25% EV-C plus 15% EV-R plus 10% EV-I
Bowling alley		5 per lane	15% EV-C plus 10% EV-R plus 10% EV-I
Regional or community shopping center		1 per 300 square feet of Floor Area	10% EV-R plus 10% EV-I
Hotel or motel (excluding restaurant)		1 per lodging or dwelling unit plus 1 per 100 square feet of meeting and banquet rooms	25% EC-C plus 50% EV-R plus 25% EV-I
Restaurant		1 space for each 100 sq. ft. of Floor Area	15% EV-C plus 10% EV-R plus 10% EV-I
Childcare facility		1 per employee plus 1 per each 10 children.	15% EV-C plus 10% EV-R plus 10% EV-I
Other nonresidential uses:		1 per 300 square feet gross floor area.	10% EV-R plus 10% EV-I
Carwash, drive-through auto service		1 per service bay or 1 per employee	10% EV-R plus 10% EV-I
Essential services		Determined by planning commission (see section 50-148).	Determined by planning commission (see section 50-148).
Commercial recreation uses:			
	Softball, baseball, soccer fields; skating rinks; swimming pools	25 spaces per field, rink or pool.	15% EV-C plus 10% EV-R plus 10% EV-I
	Tennis, pickleball, racquet or handball courts	4 spaces per court.	15% EV-C plus 10% EV-R plus 10% EV-I
	Golf courses	6 spaces per hole.	15% EV-C plus 10% EV-R plus 10% EV-I

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	Golf, firearm or archery ranges	1 space per tee or target.	15% EV-C plus 10% EV-R plus 10% EV-I
	Health and fitness centers; gymnasiums	1 space per 200 gross square feet	15% EV-C plus 10% EV-R plus 10% EV-I
College, university, business or trade school or similar education or training facilities		5 spaces per classroom	25% EV-C plus 15% EV-R plus 10% EV-I

(3) Parking Reductions. The Zoning Administrator may grant a reduction of up to 25% of the required number of parking spaces. The Planning Commission may grant a reduction of the required number of parking spaces by over 25%. The reductions shall be based upon one or more of the following:

(a) Owner shall provide documentation such as a parking study or traffic count taken from developments of a similar size and use which demonstrates that the amount of parking provided will be sufficient to accommodate the needs of the proposed use(s) during peak demand. This shall include delivery needs, the number of employees in the largest shift, the number of residential units by bedroom count, and a projection of the maximum number of visitors to the site during its most active time. The City may require the owner to submit a plan for providing additional parking, up to the required amount if the actual parking needed exceeds the parking provided.

(b) Owner demonstrates that there is available shared parking available, either in a municipal lot, parking structure, or shared with another property. For shared use of a private lot, the owner shall demonstrate that there will be sufficient parking available for all users during the time of peak shared demand.

(c) Owner provides incentives for employees to use public transit, bicycle or live within walking distance of the use. In such case the applicant shall provide information on the program that demonstrates effectiveness to the city. This could include priority on-site bicycle parking, stipends for use of transit, employee reward programs for non-single occupant vehicle commutes or similar incentives. The accepted parking reduction program would be a condition of zoning approval.

(d) The amount of required parking may be reduced if a shared car or program is provided. The amount of the reduction shall be determined by the Zoning Administrator, with input from the Director of Public Works, in consideration of the number of shared vehicles provided and the level of availability.

(e) The Planning Commission may permit a reduction for shared parking between two or

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more uses where the applicant can document that the amount of parking provided will meet the peak needs of the uses collectively.

(4) Consistent with the city's objectives to maximize open space and minimize the adverse effects of excess ground coverage on the general environment, neighboring properties, and storm sewers, the total amount of parking provided shall not exceed an excess of 10% of the minimum parking requirement determined from 50-812 of this chapter. However, at the request of the applicant, the planning commission may waive this restriction, in whole or in part, upon consideration of the needs of the applicant where the applicant can demonstrate a need for additional parking spaces which cannot be appropriately satisfied by other off-premises or on-street parking spaces. The demonstration of need may be based on one or more of the following factors:

a. Employee, customer, tenant, or visitor demands.

b. Regular or seasonal peak demands.

c. Potential conversion of part or all of the property to a use which has a higher parking requirement.

d. Potential congestion or safety hazards, either on site or along adjacent public streets.

(5) Consistent with the city's objectives to maximize open space and minimize the adverse effects of excess ground coverage in the RA, R-1, R-2 and R-3 low density residential zones and to minimize the adverse impacts of automobiles on neighboring properties and on the general environment, the total amount of parking provided for residential uses permitted in these zones, exclusive of driveways in front yards, shall not exceed six parking spaces, or 1.5 times the permitted residential occupancy, whichever is less. Residential parking includes a garage or paved surface, at least eight feet by 16 feet in size, which is accessible and can be used at all times for parking a motor vehicle.

(6) The parking requirements established by this section may be modified subject to an approved special use permit where the applicant is able to show reduced parking needs for the intended use of the building.

…

Sec. 50-820. - Bicycle storage requirements.

It shall be the responsibility of both the owner and occupant of any multiple-family or nonresidential premises to provide on-site storage facilities for bicycles according to the following provisions.

(1) *Number of spaces.* The number of bicycle storage spaces shall be determined as follows:

a. For Class A multiple-family dwellings, there shall be one storage space for each bedroom within a structure.

b. For Class B multiple-family dwellings, there shall be one storage space for each two occupants, based on maximum permitted occupancy.

c. For non-residential uses, there shall be one storage space for each ten required parking spaces through the first 100 required parking spaces and one storage space for each 15 required parking spaces in excess of 100.

d. A minimum of 50% of required bicycle storage spaces must be covered spaces. These spaces may either be located outdoors, covered by a canopy or overhang with a minimum clearance of 7 feet, or provided indoors.

(2) *Outdoor storage facilities.* A portion of the bicycle storage spaces must be located outdoors. Outdoor storage spaces are subject to the following requirements:

a. The outdoor storage spaces must be on the premises, except that in the B-3 district, the bicycle racks or similar locking devices may be located within the public right-of-way as approved by the city engineer.

b. Outdoor storage spaces must be in a location that is conveniently accessible to visitors or customers.

c. Outdoor storage spaces must be in the form of a rack or other locking device that is constructed of durable material and is securely anchored in place. Each storage space in a rack must be at least two feet wide.

(3) *Indoor storage facilities.* A portion of the bicycle storage spaces can be located indoors. Indoor storage spaces are subject to the following requirements:

a. Indoor storage facilities must contain bicycle racks, lockable doors, or some other means to enable bicycles to be secured.

b. Indoor storage facilities can be lockers, closets, storage rooms, or other facilities within a building that are accessible to occupants and employees of the premises.

c. Indoor storage facilities cannot be habitable rooms, kitchens, dining rooms, bathrooms, hallways, balconies, or patios.

d. Each indoor storage space must be at least 10 square feet.

Sec. 50-821. - Electric vehicle charging stations.

(1). All residential, mixed-use, or non-residential properties shall provide Electric Vehicle Capable (EV-C), Electric Vehicle Ready (EV-R), and Electric Vehicle Installed (EV-I) at the ratios required by Section 50-812. These spaces shall be provided as a percentage of proposed total parking spaces to be provided. These chargers shall be a level 2 or better charging station installed in the parking lot. One (1) level 3 charger may be installed as a substitute for five (5) required level 2 chargers. The charging stations on private property may be either private restricted use charging stations or public use charging stations at the property owner's discretion. All chargers required by this provision shall be maintained in operational condition at all times.

(2) This provision shall apply to each new site plan and to each revised or amended site plan which expands the current parking on the premises.

(3) An electric vehicle charging station required pursuant to this section may be counted as a parking space in the calculation of the parking spaces required by this Code.

(4) Public use charging stations shall be reserved for parking and charging of electric vehicles only. Electric vehicles may be parked in any space designated for parking subject to the restrictions that would apply to any other vehicle that would park in that space.

(5) A developer or property owner may apply for an exemption to this requirement or a reduction in the number of stations required if the developer or property owner can show one or more of the following:

a. That the anticipated parking duration due to the particular use of the property, or similar considerations, would not make the presence of charging stations reasonable due to the lack of the likelihood of use of the station or stations.

b. That the expense of complying with this requirement significantly outweighs the level of cost of the improvement so as to preclude the improvement if this requirement was imposed.

c. That the imposition of this requirement would constitute a governmental taking as defined by law.

…

ARTICLE IX. - LANDSCAPING REQUIREMENTS

Sec. 50-840. - Generally.

Appropriate ground cover, trees and other vegetation shall be planted and maintained on the site to control stormwater runoff and prevent erosion, siltation and dust; to provide privacy between adjacent uses; to mitigate impacts from parking, noise and lights; and to enhance the appearance of the site.

(1) *Landscape screen requirements.* Landscaping screen shall mean trees, shrubs, vines, fences, walls, or earth berms, or some combination thereof. When required, parking spaces and parking areas shall be effectively screened with perimeter landscaping on all sides adjacent to or visible from adjacent properties, streets, or alleys and interior landscape islands where larger areas of paving are needed. Landscaping shall address the visual impact, and improve the heat radiation effect and air pollution impact of the paved area.

a. When required. Landscape screening shall be installed and maintained as may be required elsewhere in this chapter and under the following conditions:

1. For single- and two-family uses on individual lots, unenclosed parking spaces or driveways in the rear yard or in the side yard which have an area of 500 square feet or more shall be screened. Screening shall consist of plant materials or fencing which meets the height requirements for rear yard placement in subsection (1)b of this section;

2. Screening shall be provided for all other uses where five or more unenclosed

parking spaces are provided, exclusive of driveways. Screening shall be provided in accordance with a landscape plan as defined in subsection 50-840(2) and it shall meet the design standards in subsection (1)b of this section, except when screening in the vicinity of public rights-of-way conflicts with the clear view of traffic, in accordance with section 48-36 of the City Code.

b. *Design standards.*

1. Plant selection shall consist of a combination of evergreen and deciduous trees and shrubs which provide year-round interest.

2. Plant material installed for a perimeter landscape screen shall be placed in a planting bed at least eight feet wide and shall be at least two feet high at initial planting and be expected to grow to a height of at least three feet in the front yard and five feet in the side and rear yards within two years of planting.

3. Fences, walls, or earth berms used in a perimeter landscape screen shall be at least three feet high in a front yard and five feet high in a side or rear yard.

4.The required height of a perimeter landscape screen shall be reduced where it is determined by the city engineer that such landscaping would interfere with vehicular or pedestrian traffic safety and visibility.

5. The height of a perimeter landscape screen may be increased where significant changes in elevations between an adjacent property or public right-of-way make it necessary to comply with the intent of this article.

6. One deciduous, ornamental, or evergreen tree of a minimum 3½-inch caliper and 4 shrubs of a minimum of two feet in height shall be planted for each 40 linear feet of side or rear yard.

7. At least one deciduous or ornamental tree of a minimum 3½-inch caliper shall be planted within or adjacent to the public right-of-way for each 40 feet of lot frontage.

8. Where fences, walls, or earth berms are used to provide the perimeter landscape screen, at least one shrub or vine shall be planted along such features, visible from the adjacent property or public right-of-way, for each ten linear feet of such features.

9. Loose ground cover or mulch materials shall be placed or effectively contained so they do not spill over into parking and access facilities or the public right-of-way. All ground cover in the public right-of-way shall be approved by the planning and zoning administrator.

10. All required landscape features within three feet of the edge of parking or

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access facilities shall be protected from vehicle encroachment by curbing, wheel stops, or similar means.

11. Where 20 or more parking spaces are provided, there shall be at least ten square feet of interior landscaped area per space provided within the overall perimeter of the parking area.

12. Interior landscaped areas shall be at least 125 square feet in an area with a minimum dimension of not less than eight feet.

13. At least one shade tree of a minimum 3½-inch caliper shall be planted in each interior landscaped area.

14. There shall be at least one interior landscaped area for each 20 parking spaces provided or fraction thereof.

15. The application of the above standards may be adjusted, in part or in whole, to allow credit for healthy plant material to be retained on or adjacent to the site if such an adjustment is consistent with the intent of this article.

16. All plant material shall be consistent with the City of East Lansing Tree Manual. Other materials shall be approved by the planning and zoning administrator.

17. Proposed plant material should consist of no more than 10% of one species, 20% of one genus, 30% of one family to promote a diverse urban canopy.

(2) *Landscape plan approval requirements.*

a. Submittal requirements:

1. A preliminary landscape plan shall be submitted where required to the department of planning, building and development. Landscape plan means a plan prepared by a landscape architect registered in the State of Michigan showing the type, height, and placement of all materials, including a grading plan. The grading plan shall be prepared by an engineer, architect, landscape architect, or land surveyor registered in the State of Michigan. Where a development plan is required, the applicant must also submit a preliminary landscape plan and cost estimate with the development plan application.

b. Review requirements:

1. Staff will provide the applicant with a preliminary review of the landscape plan prior to the city council taking action on a development plan.

2. When an application for a development plan is approved, the applicant must provide staff with a revised landscape plan and cost estimate including any

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changes required by the preliminary staff review and conditions of final approval.

3. At the time the landscape plans receive final approval, the applicant must submit a cash bond 1.5 times the cost of completing the plan. Building permits will not be issueduntil the bond is submitted.

4. The landscape installation must be complete in order to receive a final certificate of occupancy.

5. All landscaping materials planted per the approved site plan shall have a two (2) -year warranty following the issuance of the final certificate of occupancy. At the completion of this two-year period, the landscaping materials must be found to be in healthy condition in order for the bond to be released.

(4) Tree Replacement Standards. The standards below are intended to encourage the preservation of existing mature, healthy trees on private property which contribute to the character, welfare, and quality of life. The purpose of this division is to provide for the protection, preservation, and use of trees, shrubs, forest resources, and other forms of existing vegetation and to minimize adverse impacts and loss of resource value in the removal of vegetation and alteration of existing topography.

(a) These standards shall apply to any site subject to site plan approval. A tree removal/land clearing permit shall be obtained from the city engineer prior to removal in accordance with Section 48-94.

(b) For each tree permitted to be removed:

1. Trees with a Diameter at Breast Height (D.B.H) of less than 20-inches must be replaced on a **1:1** ratio (one tree replaced for each tree removed). Replacement trees must be a minimum of three (3) inches D.B.H at the time of planting.

2. The removal of landmark or significant trees (20-inch D.B.H. or greater) must be mitigated by planting three (3) replacement trees with a minimum D.B.H. of 3 inches, unless otherwise approved by the Planning Commission. Landmark trees are defined as follows:

Landmark Tree List		
Common Name	Scientific Name	DBH
Ash	Fraxinus spp. (no cultivars)	18"
Basswood	Tilia spp.	18"
Beech	Fagust spp.	18"
Buckeye (Horsechestnut)	Aesculus spp.	18"
Cherry, Black	Prunus serotina	18"
Elm	Ulmus spp. (except pumila)	18"
Fir	Abies spp.	18"

Fir, Douglas	Pseudotsuga menziesii	18"
Kentucky Coffeetree	Gynocladus dioicus	18"
Maple, Silver	Acer saccharinum	18"
Pine	Pinus spp.	18"
Spruce	Picea spp.	18"
Sycamore; London Plane	Platanus spp.	18"
Tuliptree	Liriodendron tulipifera	18"
Walnut, Black	Juglans nigra	18"
Hickory	Carya spp.	16"
Honeylocust	Gleditsia triacanthos	16"
Maple	Acer spp. (unless otherwise noted)	16"
Oak	Quercus spp.	16"
Arborvitae	Thuja occidentalis	12"
Bald Cypress	Taxodium distichum	12"
Birch	Betula spp.	12"
Black Tupelo	Nyssa sylvatica	12"
Cherry, Flowering	Prunus spp.	12"
Crabapple (cultivar)	Malus spp.	12"
Dawn Redwood	Metasequoia glyptostroboides	12"
Eastern Hemlock	Tsuga canadensis	12"
Ginkgo	Ginkgo biloba	12"
Hackberry	Celtis occidentalis	12"
Hawthorn	Crataegus spp.	12"
Larch/Tamarack	Larix spp.	12"
Pear	Pyrus spp.	12"
Persimmon	Diospyros virginiana	12"
Populus	Populus (except deltoides, alba)	12"
Sassafras	Sassafras albidum	12"
Sweetgum	Liquidambar styraciflua	12"
Yellowwood	Cladrastis lutea	12"
American Chestnut	Castanea dentata	8"
Butternut	Juglans cinera	8"
Cedar	Juniperus spp & upright cultivars	8"
Cedar of Lebanon	Cedrus spp.	8"
Eastern Redbud	Cercis canadensis	8"
Dogwood, Flowering	Cornus florida	8"
Hornbeam, Blue Beech	Carpinus spp.	8"
Ironwood	Ostrya virginiana	8"
Maple, Mountain/Striped	Acer spicatum/pensylvanicum	8"

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Pawpaw	Asimina triloba	8"

3. If on-site planting is not feasible, applicants may seek payment in lieu as defined in Section 48-96 to support canopy coverage efforts in other areas.

4. On-site planting of replacement trees shall not contribute towards other landscaping requirements provided in Section 50-840.

(c) The following shall be exempt from the tree replacement requirements:

1. Removal of trees or shrubs as necessary to survey or maintain public streets, sidewalks and rights-of-way, public utility services and easements, and public drains and easements, accomplished by or on behalf of the city, public utility companies, the Ingham County or Clinton County Road Commission, the Ingham County or Clinton County Drain Commissioners, the Michigan Department of Transportation.

2. Ongoing cultivation activities on the premises of an established nursery or orchard.

3. A farming operation as defined by the Michigan Right to Farm Act, MCL 286.472 which has been approved by the planning and zoning administrator in accordance with the provisions of chapter 50, Zoning.

4. Removal of trees or shrubs substantially damaged by insect infestations or disease, after written verification by the city engineer

5. Removal of any noxious tree, shrub, plant, or weed which is declared a nuisance and ordered to be abated by the city engineer or city manager pursuant to chapters 48 and 26 of this Code.

6. The clearing of paths as may be nominally necessary to survey the property, subject to approval of the city engineer.

7. Trees that are considered invasive after written verification by the city engineer.

8. Trees that the City Arborist or a recognized landscape professional has determined to be unhealthy.

(3) *Landscape maintenance.* Landscaping must be maintained in a neat, clean, orderly and healthful condition. This includes, among other things, pruning, mowing, weeding, litter removal, replacement of dead or diseased plants, repair or replacement of broken or damaged fences or walls, and regular fertilizing and watering of plant materials.

Section 2 of Ordinance. Repealer.

All ordinances or parts of ordinances in conflict with this Ordinance are hereby repealed only to the extent necessary to give this Ordinance full force and effect, and the City of East Lansing Code of Ordinances shall remain in full force and effect, amended only as specified above.

Section 3 of Ordinance. Savings.

All proceedings pending and all rights and liabilities existing, acquired, or incurred at the time this Ordinance takes effect are saved and may be consummated according to the law in force when they were commenced.

Section 4 of Ordinance. Severability.

If any section, clause, or provision of this Ordinance shall be declared to be unconstitutional, void, illegal, or ineffective by any court of competent jurisdiction, such section, clause, or provision declared to be unconstitutional, void, or illegal shall thereby cease to be a part of this Ordinance, but the remainder of this Ordinance shall stand and be in full force and effect.

Section 5 of Ordinance. Effective Date.

The provisions of this Ordinance are hereby ordered to take effect immediately upon publication.

Section 6 of Ordinance. Enactment.

This Ordinance is declared to have been enacted by the City Council of the City of East Lansing at a meeting called and held on the _____ day of _____, 2026, and ordered to be given publication in the manner prescribed by law.

Moved by Council member:
Supported by Council member:

ADOPTED:
Yeas:
Nays:
Absent:

_____
Mayor Erik Altmann

Dated: _____, 2026

CLERKS CERTIFICATION: I hereby certify that the foregoing is a true and complete copy of an Ordinance introduced at the East Lansing City Council meeting held on Tuesday, May 12, 2026, and adopted by the East Lansing City Council at its meeting held on _____, 2026, the original of which is part of the Council's minutes.

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Emily Gordon, City Clerk
City of East Lansing
Ingham and Clinton Counties, Michigan

Approved as to form:

Steven P. Joppich, Esq.
East Lansing City Attorney

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