



Planning Commission  
97 North Broad Street  
Hillsdale, Michigan 49242-1695  
(517) 437-6440 Fax: (517) 437-6450

**Planning Commission Agenda**  
**June 15, 2022**

- I. Call to Order 5:30 pm**
  - A. Pledge of Allegiance
  - B. Roll Call
  
- II. Public Comment**

Any agenda item – 3 min. limit
  
- III. Consent Items/Communications**
  - A. Approval of agenda – **Action**
  - B. Approval of Planning Commission 05/18/2022 minutes – **Action**
  - C. Region 2 Planning Committee Packet – June
  
- IV. Site Plan Review**
  - A. 258 Union St. – **Action**
  - B. Lakeview Cemetery Expansion - **Action**
  
- V. Old Business**
  - A. No Old Business
  
- VI. New Business**
  - A. Land Division – Pearl Tree Park LLC – **Action**
  - B. Fence Ordinance – **Discussion**
  - C. Landscape Ordinance – **Discussion**
  
- VII. Zoning Administrator Report**
  
- VIII. Commissioners' Comments**
  
- IX. Public Comment**

Any Commission related item – 3 min. limit
  
- X. Adjournment**

Next meeting Wednesday, July 20, 2022 at 5:30 pm

---

## Special Planning Commission Meeting Minutes

Hillsdale City Hall

Council Chambers

May 18, 2022

5:30 pm

### I. Call to Order

Meeting opened at 5:32 pm followed by the Pledge of Allegiance, and Roll Call.

### II. Members Present

- A. Members Present: Chairman Eric Moore, Vice Chairman Ron Scholl, Commissioner William Morrissey, Commissioner Swan, Commissioner Elias McConnell
- B. Members Absent: Commissioner Kerry Laycock, Secretary Jacob Parker
- C. Public Present: Matt Taylor, Scott Brown

### III. Consent Agenda and Minutes

- A. Motion by Commissioner Swan to approve consent agenda without minutes from May 11 meeting, seconded by Commissioner Morrissey. Motion passed.
- B. Commissioner Swan moved to amend consent items to include minutes from May 11 meeting, seconded by Commissioner Morrissey. Motion passed unanimously.

### IV. Public Comment

No public comment

### V. Site Plan Review

- A. **240 W. Carleton Rd.:**
  - Scott Brown described the project located at 240 W. Carleton Rd.
  - Motion to approve by Commissioner Swan, seconded by Commissioner Morrissey, approved unanimously.

### VI. Old Business

No old business

### VII. New Business

- A. Fence and Landscape ordinance
  - Motion to table by Commissioner Swan, seconded by Commissioner Morrissey, approved unanimously.

### VIII. Zoning Administrator Report

No report.

### IX. Commissioner's Comments

Discussion on the new mural on Moore Insurance Building

- X. **Public Comment**  
None
- XI. **Adjournment**  
Commissioner Swan moved adjourn the meeting, Commissioner Morrisey seconded.  
Motion passed unanimously. Meeting adjourned at 5:54 pm.
- XII. **Next regular meeting: June 15, 2022 at 5:30 pm.**

# AGENDA

# REGION 2 PLANNING COMMISSION

## Executive Committee

**FOR FURTHER INFORMATION, CONTACT:**

**Jacob Hurt, Executive Director  
(517) 768-6705**

**DATE: Thursday, June 9, 2022**

**TIME: 2:00 P.M.**

**WHERE:**

**Jackson County Tower Bldg.  
120 W. Michigan Ave.  
Jackson, MI 49201**

Comments will be solicited on each item following discussion and prior to any final action.

	<b><u>PAGE #</u></b>
1. Call to Order	
2. Approval of the Agenda – <b>ACTION</b>	
3. Public Comment	
4. Approval of Minutes of the April 14, 2022 Executive Committee Meeting (see enclosure) – <b>ACTION</b>	<b>2</b>
5. Receipt of Treasurer's Report of May 31, 2022 (see enclosure) – <b>ACTION</b>	<b>6</b>
6. Approval of the June 9, 2022 Submitted Bills (see enclosure) – <b>ACTION</b>	<b>10</b>
7. Staff Progress Report for May 2022 (see enclosure) – <b>DISCUSSION</b>	<b>11</b>
8. The Enterprise Group Update, Alex Masten – <b>PRESENTATION</b>	
9. Approval of Amendments to the JACTS FY 2020-2023 Transportation Improvement Program (TIP) (see enclosures) – <b>ACTION</b>	<b>15</b>
<ul style="list-style-type: none"><li>• City of Jackson</li><li>• Jackson County Department of Transportation</li><li>• Jackson Area Transportation Authority</li></ul>	
10. Opportunity for Public Comment FY 2023-2026 Transportation Improvement Program (TIP) (see enclosure) – <b>DISCUSSION</b>	<b>19</b>
11. Other Business	
<ul style="list-style-type: none"><li>• Notice of Availability of Summit Township Master Plan for Public Comment</li><li>• Vacancy on JACTS Policy Committee / R2PC Executive Committee</li></ul>	<b>30</b>
12. Public Comment/Commissioner Comments	
13. Adjournment	

**\*\* PLEASE NOTE: IN ORDER TO TAKE ACTION ON THE ITEMS NEEDING APPROVAL, A QUORUM IS NECESSARY AT EACH MEETING \*\***

# Region 2 PLANNING COMMISSION

Serving Hillsdale, Jackson & Lenawee Counties

## MINUTES – (Corrected)

Region 2 Planning Commission – Executive Committee  
Old Courthouse, Commission Chambers – Lenawee County  
301 N. Main Street  
Adrian, MI 49221

**Thursday, April 14, 2022**

1. **Call to Order** – Chair Jancek called the meeting to order at 2:01 p.m. A quorum was present.

Executive Committee Members:

✓ Bair	✓ Goetz	Sigers
✓ Beeker	✓ Gould	✓ Swartzlander
✓ Drake	Greene	✓ Tillotson
Driskill	Guetschow	Witt
Duckham	✓ Jancek	✓ Wittenbach
✓ Elwell	✓ Overton	
Gaede	✓ Shotwell	

**Key: ✓ = present**

Other Commissioners Present: Christine Beecher, Rives Township; Judy Southworth, Jackson County

Others Present: Mike Davis, MDOT; Jon Dowling, City of Jackson; and Angie Kline, Jackson County Department of Transportation; Tim Robinson, Lenawee Now; Jack Townsley, LISD

Staff Present: Stephen Bezold, Jacob Hurt, James Latham, Jill Liogghio, and Anton Schauerte

2. **Pledge of Allegiance** – Those present rose for the Pledge of Allegiance.
3. **Approval of the Agenda** – A motion was made by Comm. Goetz, supported by Comm. Bair, to approve the April 14, 2022 Executive Committee agenda as presented. The motion carried unanimously.
4. **Public Comment** – Chair Jancek announced the first opportunity for public comment. No public comments were received.

5. **Approval of Minutes of the February 10, 2022 Executive Committee Meeting** – A motion was made by Comm. Bair, supported by Comm. Drake, to approve the February 10, 2022 Executive Committee meeting minutes as submitted. The motion carried unanimously.
6. **Receipt of the Treasurer’s Report of March 31, 2022** – A motion was made by Comm. Shotwell, supported by Comm. Elwell, to approve receipt of the Treasurer’s Report for March 31, 2022. The motion carried unanimously.
7. **Approval of the April 14, 2022 Submitted Bills** – A motion was made by Comm. Bair, supported by Comm. Shotwell, to approve payment of the April 14, 2022, submitted bills as presented. The motion carried unanimously.
8. **Staff Progress Report for March, 2022** – Mr. Hurt presented highlights from the staff progress report for the month of March, 2022.
9. **Approval of Amendments to the JACTS FY 2020-2023 Transportation Improvement Program (TIP)** – The following amendments to the JACTS FY 2020-2023 and FY 2023-2026 Transportation Improvement Programs (TIP) were submitted for review and approval.

Michigan Department of Transportation:

Fiscal Year	Job no.	Phase	Project Name	Limits	Length	Project Description	Federal Budget	State Budget	Federal Fund Source	Total Phase Cost	Amendment Type
2022	213442	PE	I-94 BL	Dwight Street to Bender Street	1.25	Road reconstruction from Dwight Street to Bender Street, including curb & gutter replacement, etc.	\$2,864,750	\$579,666 Local Budget \$55,584	NH	\$3,500,000	Phase add
2022	215209	PES	W Ganson St	SN 4526: Hanover Road over the South Branch of the Kalamazoo River in Jackson County SN 4541: East Ganson Street over the Grand River in the City of Jackson		Design Work for upcoming Bridge Replacement work as part of the HIP-CRRSAA Bridge Bundling Program	\$626,400	\$0	HIC	\$626,400	Phase Add as part of Local Bridge Bundle Program
2024	201223	CON	US-127N	North of Henry Road to Huntoon Creek	5.58	HMA Cold Milling and Multi-Course HMA Resurfacing	\$20,462,500	\$4,537,500	NH	\$25,000,000	Phase delayed from 2021 to 2024
2030	120275	CON	M-60	Emerson Rd to Renfrew Rd	2.52	2 course HMA milling & resurfacing with minor drainage, intersection improvements, & signal modernization.	\$6,150,823	\$1,363,927	ST	\$7,514,750	Phase delayed from 2022 to 2030
2028	202034	CON	TSC Wide	US-127 over Conrail and under Springport & Parnall		Epoxy Overlay with deck patching	\$2,702,318	\$599,232	NH	\$3,301,550	Phase delayed from 2022 to 2028

Jackson County Department of Transportation:

Fiscal Year	Job #	Project Name	Limits	Project Description	Funding	Action
2022	TBD	Pavement Marking	Various Roads	Pavement Markings	\$200,000 STL \$0 Local \$200,000 Total	Add
2022	210343	McCain and Dearing Compact Roundabout	Intersection	Construct Compact Roundabout	\$294,204.60 HRRR \$121,085.40 State D \$0 Local \$415,290 Total	Change Project Cost
2022	211779	Systemic Horizontal Curve Signing West and Northeast	Various Roads	Install Signage at Horizontal Curves	\$224,658 HSIP CON \$114,345 STL CON \$37,667 Local CON \$114,345 HSIP PE \$12,705 Local PE \$376,670 Total CON \$127,050 Total PE	Change Project Cost

2022	206637	Preventive Maintenance	Various Roads	One Course Overlay	\$265,133.00 STL \$33,912.60 State D \$32,370.65 Local \$331,416.25 Total	Change Project Cost
------	--------	------------------------	---------------	--------------------	--	---------------------

JCDOT, City of Jackson, Jackson Area Transportation Authority, Village of Brooklyn:

Transportation Amendments / Urban + Rural / FY 2022-2026 (4/14/22 R2PC Board Meeting)							
Fiscal Year (FY)	Urban or Rural	Projects				Requested Action: "Add Project to the ..."	
		Agency	Project	Location	Federal \$\$	FY 2020-2023 TIP"	FY 2023-2026 TIP"
FY 2022	Urban	JCDOT	Pavement Markings	TBD	\$ 193,389	✓	
		City of Jackson	Traffic Signal	Greenwood/High	\$ 193,389	✓	
	Rural	JATA	Purchase 2 Vans	Transit / Areawide	\$ 100,000	✓	
		Village of Brooklyn	Mill/HMA Resurface	Mill St. + 655' of Marshall St.	\$ 118,507	✓	
FY 2023	Urban	JCDOT	Signal Replacement	Parnell/Lansing	\$ 351,000	✓	✓
	Rural	Village of Brooklyn	Mill/HMA Resurface	Constitution Ave. (Main - Tiffany)	\$ 232,000	✓	✓
FY 2024	Urban	City of Jackson	MLK Trail - 8' to 12'	Prospect-MLK	\$ 375,000		✓
	Rural	JATA	Purchase 2 Vehicles	Transit / Areawide	\$ 104,000		✓
FY 2025	Urban	City of Jackson	MLK Trail - 8' to 12'	MLK - Merriman	\$ 384,000		✓
	Rural	JATA	Purchase 1 Vehicle	Transit / Areawide	\$ 52,000		✓
FY 2026	Urban	JCDOT	Signal Modernization	TBD	\$ 393,000		✓
	Rural	JATA	Purchase 1 Vehicle	Transit / Areawide	\$ 52,000		✓

The motion was made by Comm. Shotwell, supported by Comm. Swartzlander, to approve the proposed amendments for the JACTS FY 2020-2023 Transportation Improvement Program (TIP) as presented. The motion carried unanimously.

The motion was made by Comm. Bair, supported by Comm. Drake, to approve the proposed amendments for the JACTS FY 2023-2026 Transportation Improvement Program (TIP) as presented. The motion carried unanimously.

10. **Draft FY 2023 Urban Transportation UWP** – Mr. Schauerte stated that a draft version of the FY2023 UWP was recently completed and is available for public comment through May 9, 2022. Mr. Schauerte indicated that the document included a new program for Complete Streets planning tasks, which make up 2.5% of the anticipated allocations to the MPO. Mr. Schauerte outlined that the UWP would come back to the Board in May for approval.
11. **Presentation of FY 2021 R2PC Annual Audit Report** – Mr. Latham, R2PC Accountant, reviewed the FY 2021 Annual Audit Report prepared by Smith and Klaczkiewicz, PC. Mr. Latham reported that the auditors found no significant findings or deficiencies. The motion was made by Comm. Tiltonson, supported by Comm. Bair, to accept the R2PC FY 2021 audit. The motion carried unanimously.
12. **Other Business** – Mr. Hurt reported that NOI's were received for the Village of Blissfield, Village of Clinton, Jackson County Parks, and Columbia Township. It was also reported that Mr. Hurt has been appointed to a three-year term to represent the Michigan Association of Regions on the Michigan Transportation Asset Management Council.
13. **Public Comment / Commissioners Comments** – No public or commissioner comments were received.
14. **Adjournment** – There being no further business, the meeting was adjourned by Chair Jancek at 2:40 p.m.

Alan Beeker  
Secretary



**REGION 2 PLANNING COMMISSION**  
**Treasurer's Report - Monthly Summary**  
**as of May 31, 2022**

<b>Checking Account Balance ending April 30, 2021</b>		\$	<b>545,242.78</b>
Deposit Summary:			
<i>May 2022 EFT Deposits</i>		\$	397.00
<i>May 2022 Bank Deposits</i>			-
<i>May 2022 Adjustments</i>			(1,327.31)
Total Deposits plus Bank Balance		<u>\$</u>	<u>544,312.47</u>
Expenses:			
<i>Submitted Expenses - May 2022 **</i>	\$		(6,486.50)
<i>Interim Expenses</i>			(919.98)
<i>Payroll/Related Expenses</i>			(30,682.03)
<b>Subtotal of Expenses</b>	<u>\$</u>		<u>(38,088.51)</u>
<b>Balance Checking Account ending May 31, 2022</b>		<u>\$</u>	<u>506,223.96</u>
<i>Balance CD Investments ending May 31, 2022</i>		<u>\$</u>	<u>106,259.91</u>
<b>Total Cash on Hand</b>		<u>\$</u>	<u>612,483.87</u>

\*\*Note that this amount can include cleared checks from prior months' submitted bills.

**REGION 2 PLANNING COMMISSION**  
**Deposits and Adjustments to Cash**  
**as of May 31, 2022**

5/31/2022	<b>EFT Deposits:</b>	
	OHSP grant through March 31	397.00
	<b>Subtotal - EFT Deposits</b>	<b>\$ 397.00</b>
5/31/2022	<b>Check Deposits:</b>	
	None	-
	<b>Subtotal - Check Deposits</b>	<b>\$ -</b>
5/31/2022	<b>Adjustments to cash:</b>	
	<i>Bank fees - May</i>	(159.94)
	<i>Paycor Fees - May</i>	(273.00)
	<i>Credit Card Charges - MI Economic Development Association - dues</i>	(315.00)
	<i>Credit Card Charges - Meijer - supplies</i>	(68.40)
	<i>Credit Card Charges - Michigan Tech U - conference fee</i>	(20.00)
	<i>Credit Card Charges -ACT Lisd Programming - fee</i>	(250.00)
	<i>Credit Card Charges - USPS - postage</i>	(70.00)
	<i>Credit Card Charges - City of Jackson - parking pass</i>	(56.65)
	<i>Credit Card Charges - Adobe Creative Cloud</i>	(42.39)
	<i>Credit Card Charges - OfficeMax - supplies</i>	(71.93)
	<b>Subtotal - Adjustments to Cash</b>	<b>\$ (1,327.31)</b>
	<b>Total Net Deposits</b>	<b>\$ (930.31)</b>

**REGION 2 PLANNING COMMISSION  
INTERIM BILLING and PAYROLL EXPENSES  
as of May 31, 2022**

Interim Billing for May, 2022

<u>Vendor</u>	<u>Description</u>	<u>Amount</u>	<u>Check #</u>
<b>Allegra</b>	May R2PC Pkt.	\$ 102.68	15175
<b>Cash</b>	Replenish Petty Cash	\$ 85.00	15178
<b>Jackson County</b>	Postage - April 2022	\$ 73.73	15179
<b>Mlive</b>	JACTS Advertising	\$ 500.81	15181
<b>The SBAM Plan</b>	Employee Life Insurance	\$ 157.76	15182
<b>Total Interim Billing for May, 2022</b>		<b>\$ 919.98</b>	

**Payroll & Travel Related Expenses:**

<i>Paid May 13, 2022</i>		<i>by Direct Deposit/EFT</i>	
Paycor	Payroll Disbursement	\$ 15,036.03	
G. Bauman	Travel Reimbursement	\$ 38.26	
<b>Total</b>		<b>\$ 15,074.29</b>	

<i>Paid May 27, 2022</i>		<i>by Direct Deposit/EFT</i>	
Paycor	Payroll Disbursement	\$ 15,478.22	
G. Bauman	Travel Reimbursement	\$ 12.52	
S. Bezold	Travel Reimbursement	\$ 74.88	
S. Bezold	Travel Reimbursement	\$ 42.12	
<b>Total</b>		<b>\$ 15,607.74</b>	

<b>Total Payroll Expenses for May, 2022</b>		<b>\$ 30,682.03</b>	
---	--	---------------------	--

**Region 2 Planning Commission  
Outstanding Accounts Receivable  
as of April 30, 2022**

Municipality/Source	Date	Inv. No.	Amount
None			-

<b><i>FY 2021 Balance as of April 30, 2022</i></b>	\$ -
--	------

**REGION 2 PLANNING COMMISSION****Submitted Bills****June 9, 2022**

<u>Vendor</u>	<u>Description</u>	<u>Amount Due</u>
<b>Blue Cross/Blue Shield</b>	Employee Health Coverage (July 2022)	\$ 4,372.66
<b>County of Jackson</b>	Rent Expense for June 2022	\$ 3,201.58
<b>County of Jackson</b>	Postage for May 2022	\$ 15.49
<b>Gannett Holdings</b>	The Daily Telegram Subscription Renewal	\$ 442.00
<b>ICMA Retirement Trust</b>	ICMA 401 Contribution	\$ 1,826.10
<b>Jackson Area Trans. Auth.</b>	JACTS UWP FY 2022	\$ 10,000.73
<b>MML Workers' Comp Fund</b>	Annual Policy Premium 7/1/2022-7/1/2023	\$ 934.00
<b>The Water Store</b>	Supplies - May 2022	\$ 45.50
<b>Vantage Point Transfer Agents</b>	ICMA RHS Contribution	\$ 280.94
<b>Total Submitted Billing - June, 2022</b>		<b>\$ 21,119.00</b>

# Region 2

## PLANNING COMMISSION

Serving Hillsdale, Jackson & Lenawee Counties

### Staff Progress Report *May 2022*

#### Area-Wide Regional Planning Activities

#### Economic Development Activities

- **Economic Development Administration (EDA).** Staff was involved in the following activities on behalf of the R2PC Economic Development District (EDD):
  - Non-competitive EDD (Economic Development District) CARES (Coronavirus Aid, Relief, and Economic Security) Act supplemental grant award to address the economic consequences of the COVID-19 Pandemic. The \$351,183 award will fund the launching of an easy-to-use website that will serve as a resource for local businesses, the hiring of a disaster recovery coordinator, and the implementation of other CEDS goals.
    - Staff worked toward implementation of CEDS goals.
    - Staff met with Hillsdale Economic Development Partnership, Lenawee Now, and MMTC to begin final development of Region 2's COVID Recovery Website on May 11, 2022.
  - EDA grant award for R2PC EDD's FY 2022 Partnership Planning Assistance, which will be used to begin implementation of the 2021 – 2025 CEDS.
    - Staff hosted the initial CEDS Implementation Committee meeting on May 25, 2022.
    - Additional CEDS Implementation Committee meetings will be held on: 6/29; 7/20; 8/17; 9/14; and 10/12/2022.
- **Outdoor Recreation as Economic Development.** Staff continued development of a strategy to leverage regional outdoor recreation assets for economic development purposes as detailed in the 2021 – 2025 CEDS.
- **Downtown Development Authorities (DDAs).**
  - Staff attended the monthly meetings of the City of Jackson and Leoni Township.
  - Staff continued development of the Leoni DDA Downtown Master Plan.
  - Staff continued research of the cost and implementation process for placemaking efforts.
  - Staff continued research of DDA incentives and other potential funding opportunities.

## [May 2022 Staff Progress Report]

### R2PC Activities

- **R2PC Website.** Staff continued updating [www.region2planning.com](http://www.region2planning.com).
- **Training.** Staff attended the following trainings:
  - *Project Management for Organizational Leaders* webinar on May 5 and 6.
  - *Planning and Zoning for Solar Energy Systems* seminar on May 24.

### Regional Transportation Planning Hillsdale, Jackson, and Lenawee Counties

#### Program Management

- **Rural Task Force (RTF).** Staff attended the monthly statewide/MDOT RTF meeting.
- **Asset Management.** Staff participated in the “2022 Intro to Roadsoft: Just the Basics 2-Day Webinar” training.
- **Small Urban Program.** Staff coordinated with local agencies to acquire documentation of FY 2023-2026 Small Urban projects.
- Staff attended the Michigan Association of Regions (MAR) monthly meeting via Zoom.
- Staff attended PASER Training with the City of Hillsdale.

### Metropolitan Area Transportation Planning Jackson Area Comprehensive Transportation Study

#### Program Management

- Staff attended the monthly Michigan Transportation Planning Association (MTPA) meeting.
- Staff prepared for and conducted the April meeting of the JACTS Technical Advisory and Policy Committees.
- Staff completed development of the DRAFT FY 2023 Urban Transportation Unified Work Program (UWP).

#### Transportation Improvement Program (TIP)

- Amendments were incorporated into FY 2020-2023 TIP.
- Staff completed the DRAFT FY 2023-2026 TIP, published the document on the R2PC website and alerted both the Jackson Citizen Patriot and agency partners that the document is available for public comment through May 31, 2022.
- Staff attended the bi-monthly Local Transportation Advisory Committee (LTAC) meeting.
- Staff monitored and updated JobNet as necessary.

## [May 2022 Staff Progress Report]

### PASER Rating Reporting

- Staff accompanied City of Hillsdale officials on pavement rating trips for training.

### Jackson Traffic Safety Program

- Seat belt enforcement period began May 16<sup>th</sup> and runs through June 5<sup>th</sup>.

### Local Planning Assistance

The requests of member units of government within Hillsdale, Jackson, and Lenawee Counties are listed below. These activities were prepared at cost to the individual units of government requesting the service (unless alternative funding was available).

#### *Jackson County*

**Grass Lake Township.** Staff provided the following service(s):

- **Master Plan.** Facilitated a meeting of the Master Plan Subcommittee on May 2 during which further changes were made to the draft *Grass Lake Township Future Land Use Map*. The full Planning Commission subsequently approved those changes.

**Hanover Township.** Staff provided the following service(s):

- **Master Plan.** Facilitated a meeting of the Planning Commission on May 24 during which changes to the draft *Hanover Township Future Land Use Map* proposed by the Township Board were discussed. Various changes to the map were recommended and sent back to the Township Board.

**County of Jackson.** Staff provided the following service(s):

- **County Planning Commission (JCPC).** Facilitated the May 12 JCPC meeting and presented staff reports/advisements regarding 3 proposed rezonings in Napoleon Township. Letters were sent to the Township advising it of the JCPC recommendations and meeting minutes were prepared and posted to the JCPC webpages on the R2PC website. The 2021 Annual Report for the JCPC was also presented to the Jackson County Board of Commissioner's Public Safety and Transportation Committee on May 9.
- **Hazard Mitigation Plan.** Worked with the Michigan State Police and the Jackson County Emergency Management Coordinator to make the changes to the draft *Jackson County Hazard Mitigation Plan* requested by the Federal Emergency Management Agency (FEMA). The updated document was then sent back to FEMA for review.
- **Solid Waste Management.** Presented a recommendation to the Board of Public Works during its meeting on May 16 regarding the proposed Phase V of the Liberty Environmentalist Landfill. Participated in a webinar on May 18 pertaining to the new materials management planning requirements (e.g., recycling and composting as well as landfilling) proposed by the Michigan Department of Environment, Great Lakes, and Energy (EGLE).



## [May 2022 Staff Progress Report]

- **Upper Grand River Watershed Alliance (UGRWA).** Participated in the May 4 UGRWA meeting.
- **Active Jackson Coalition.** Staff attended Active Jackson Coalition monthly meetings and provided administrative assistance.

### *Lenawee County*

**Cambridge Township.** Staff provided the following service(s):

- **Master Plan.** Executed the contract to facilitate the development of the 2023 edition of the *Cambridge Township Master Plan*. Completed a draft of Appendix A of the Plan, which provides a demographic summary of the Township. Began to develop the various maps that will be discussed in Chapter 2 of the Plan.

**County of Lenawee.** Staff provided the following service(s):

- **County Planning Commission (LCPC).** Cancelled the May 19 LCPC meeting due to a lack of agenda items. Updated the LCPC webpages on the R2PC website to reflect the cancellation.

**Rollin Township.** Staff provided the following service(s):

- **Zoning Ordinance.** Answered the questions of the Planning Commission Chair regarding proposed rezonings in the Township.
- **Master Plan.** Provided the Township Supervisor the signed version of the *Rollin Township Master Plan* recently adopted by the Planning Commission and Township Board.

### *Greater Irish Hills*

**Greater Irish Hills Intermunicipality Committee.** Staff provided the following service(s):

- **Greater Irish Hills Recreation Plan.** Compiled and analyzed the 174 responses to the online survey conducted for the *Greater Irish Hills Recreation Plan*. Developed the section of Chapter 3 (Descriptions of the Planning and Public Input Processes) summarizing the results of the survey. Emailed the report to the Intermunicipality Committee since its May meeting was cancelled.

May 2, 2022

Anton Schauerte  
 Principal Transportation Planner  
 Region 2 Planning Commission  
 120 W Michigan Ave  
 Jackson MI 49201

Re: FY 2020-2023 TIP Amendment

Dear Mr. Schauerte:

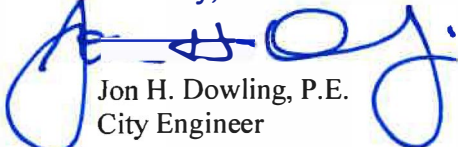
The City of Jackson is hereby requesting approval from the Region 2 Planning Commission, JACTS Technical Advisory & JACTS Policy Committees concerning the following Transportation Improvement Program (TIP) Amendments for FY 2020-2023:

FY	Job No.	Project	Project Description	Length	Funding	Action
2023	207185	Wildwood Ave: West Ave. to Steward Ave.	Mill and HMA Resurface	0.392 mi.	Original Federal \$262,600 City \$ 84,400 TOTAL \$347,000	Change project cost
					Change Federal \$190,000 City \$ 87,000 TOTAL \$277,000	
2023	TBD	Wisner St.: Wildwood Ave. to Ganson St.	Mill and HMA Resurface	0.208 mi.	Federal \$ 72,600 City \$ 95,400 TOTAL \$168,000	Add

This amendment is to amend the current TIP to change the project cost on a project and to add an additional project.

Thank you for your assistance with this request. If you have any questions or need additional information, please contact me at (517) 788-4160.

Sincerely,



Jon H. Dowling, P.E.  
 City Engineer

C: Jonathan Greene, City Manager  
 Troy R. White, P.E., Assistant City Engineer



# Jackson County Department of Transportation

Angela N. Kline, PE, CPM  
Managing Director / Director of Engineering & Technical Services



*Keeping Our Community Safely in Motion...*

## Memorandum

**Date:** May 11, 2022

**To:** Mr. Anton Schauerte  
Region 2 Planning Commission

**From:** Angela N. Kline, PE, CPM  
Managing Director/Director of Engineering

**RE:** May JACTS TIP Amendment

Jackson Department of Transportation is requesting approval from the Region 2 Planning Commission, JACTS Technical Advisory, and JACTS Policy Committees concerning the following Transportation Improvement Program (TIP) Amendment for FY 2020-2023:

Fiscal Year	Job #	Project Name	Limits	Project Description	Funding	Action
2022	210343	McCain and Dearing Compact Roundabout	Intersection	Construct Compact Roundabout	\$312,204.60 HRRR \$301,005.05 STL \$105,198 State D \$0 Local  \$718,407.65 Total	Change Funding
2022	211855	Springport Road and Rives Junction Road	Intersection	Construct Compact Roundabout	\$331,613.10 HRRR \$116,845.55 STL \$49,541.35 State D \$0 Local  \$498,000.00 Total	Change Funding

2022	211703	Horton Road at Springbrook Road	Intersection	Construct Compact Roundabout	\$283,917.60 HRRR \$47,282.40 STL \$36,800.00 Local  \$368,000.00 Total	Change Funding
2022	206637	Preventive Maintenance	Various Roads	One Course Overlay	\$0 STL \$0 Local \$0 State D  \$0 Total	Abandon
2022	TBD	Pavement Marking	Various Roads	Pavement Markings	\$0 STL \$0 Local  \$0 Total	Abandon

<b>Meeting:</b>	6/9/2022 - R2PC Board
<b>Agenda Item:</b>	TIP Amendments

<b>Agency:</b>	Jackson Area Transportation Authority
----------------	---------------------------------------

JOB NUMBER	JOB / AMENDMENT INFORMATION	JOB PHASE(S)		BEFORE / AFTER	FY	FUNDING			
		SP/SCOPE CODE	NAME			FEDERAL	STATE	LOCAL	Total

216535	<b>Location:</b>	County Wide	SP3000	Operating Assistance	<b>BEFORE:</b>	2022	\$ 1,772,342	\$ 1,761,793	\$ -	\$ 3,534,135	
	<b>Description:</b>	Section 5307 - Operating Assistance			<b>AFTER:</b>	2025	NC*	NC*	NC*	NC*	
	<b>Additional Information:</b>	This job was incorrectly programmed for FY22 instead of FY25.		SP1809	1% - Safety & Security	<b>BEFORE:</b>	2022	\$ 14,066	\$ 3,517	\$ -	\$ 17,583
	<b>*Action Requested:</b>	Move job from FY22 (FY 20-23 TIP) to FY25 (FY 23-26 TIP)				<b>AFTER:</b>	2025	NC*	NC*	NC*	NC*

\*NC = No Change

**TO:** Region 2 Planning Commission

**FROM:** Anton Schauerte, Principal Transportation Planner

**RE:** Opportunity for Public Comment - FY 2023-2026 Transportation Improvement Program (TIP)

**DATE:** June 1, 2022

---

On April 28<sup>th</sup>, R2PC staff published the DRAFT FY2023-2026 Transportation Improvement Program (TIP). The public comment period began on April 28<sup>th</sup> and was originally scheduled to end on May 31<sup>st</sup>. During the public comment period, R2PC staff determined there were a small number of changes to the project list. R2PC staff requested MDOT to provide a two-week extension of the due date for the document, which was granted. At the request of the TAC/Policy Committee in May, on May 31<sup>st</sup>, R2PC published a 2<sup>nd</sup> version of the document and alerted the area/agency contacts of both the updated document and extension of the public comment period.

At the June 9<sup>th</sup> R2PC Board meeting, R2PC staff will provide an update of changes between the 1<sup>st</sup> and 2<sup>nd</sup> versions of the DRAFT document and will seek feedback from members of the public in attendance regarding the document.

The FINAL FY 2023-2026 TIP will be presented to JACTS in June and will be presented to R2PC at the regularly scheduled July meeting.

Thank you,  
Anton Schauerte

# Region 2 PLANNING COMMISSION

Serving Hillsdale, Jackson & Lenawee Counties

***\*5/31/22 Update\* – The Opportunity for Public Comment has been extended to June 14<sup>th</sup>, 2022. Edits to projects since the DRAFT FY2023-2026 TIP was published on 4/28/22 are shown beginning on the following page.***

## **Opportunity for Public Comment**

### **Development of the Fiscal Year 2023-2026 Transportation Improvement Program**

The Region 2 Planning Commission (R2PC) and Jackson Area Comprehensive Transportation Study (JACTS) are seeking public input for the development of the Fiscal Year (FY) 2023-2026 Transportation Improvement Program (TIP). The TIP documents the anticipated timing and cost of transportation improvements that utilize federal funds, in addition to any non-federally funded projects that are considered regionally-significant. The types of projects in the TIP include all modes of transportation, such as roadway construction, operations and reconstruction, bicycle and pedestrian, public transit and aviation. The TIP is a program and schedule of intended transportation improvements, or a continuation of current activities, through a four year period (Fiscal Years 2023 through 2026) and is considered the implementing tool of the JACTS 2045 Long Range Transportation Plan.

Please review the listing of projects on the following pages of this document. The listing of projects is available to view/download on the R2PC website, in addition to the full draft document, at: <https://www.region2planning.com/tip-public-comment/> .

Comments can be submitted using any of the following methods:

- (1) R2PC Comment Form** - (<http://www.region2planning.com/contact/>);
- (2) E-Mail** - Anton Schauerte at [aschauerte@mijackson.org](mailto:aschauerte@mijackson.org)
- (3) Mail** – Region 2 Planning Commission, 120 W. Michigan Ave., 9<sup>th</sup> Floor, Jackson, MI 49201
- (4) Remaining Public Meetings** – Additional Information available below:

#### **Region 2 Planning Commission**

Thursday, June 9, 2022

2:00 PM

Jackson County Tower Building  
Comm. Chambers, 5<sup>th</sup> Floor

**Please submit all comments on the draft project list by June 14<sup>th</sup>, 2022**

**Jackson Area Comprehensive Transportation Study (JACTS)**  
**FY 2023-2026 Draft Transportation Improvement Program**

**Funding sources:** STUL - Surface Transportation Urban Local (Federal), NH – National Highway (Federal), IM – Interstate Maintenance (Federal), ST – Surface Transportation (Federal), STL – Surface Transportation Local Rural (Federal), EDD – Economic Development Fund/Category D (State), HSIP – Highway Safety Improvement Program (Federal), CTF – Comprehensive Transportation Fund (State), 5307 Urbanized Area Formula (Federal), 5311 Non-Urbanized Area Formula (Federal), 5339 Alternative Analysis Program (Federal).

**FY 2023**

- M-50 (M-50 in Jackson County) Traffic Safety shoulder widening \$300,495 FED/ \$33,388
- Regionwide (Jackson County) Traffic Safety install recessed pavement markings \$157,500 FED/ \$17,500 State
- **REMOVE: M-124 (US-12 to M-50) Road Rehabilitation Widen paved shoulder \$524,308 FED/ \$58,256 State**
  - **Explanation:** Job abandoned in October 2021
- N Elm Ave (Various) Road Capital Preventive Maintenance One Course Asphalt Overlay \$1,005,000 FED/ \$96,252 Local
- N Elm Ave (Various) Road Capital Preventive Maintenance One Course Asphalt Overlay \$154,998 State
- Badgley Rd (Horton Rd to Stonewall Rd) Road Rehabilitation Crush and Shape \$553,000 FED/ \$138,250 Local
- Wildwood Ave (West Ave to Steward Ave) Road Rehabilitation Mill and HMA Resurface \$262,600 FED/ \$84,400 Local
- Brown St (Morrell St to Michigan Ave) Road Rehabilitation Mill and HMA resurface. \$666,400 FED/ \$166,600 Local
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Longitudinal pavement marking application on University Region trunklines \$2,592 FED/ \$288 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Longitudinal pavement marking application on University Region trunklines \$361,584 FED/ \$40,176 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Special pavement marking application on trunklines in University Region \$2,592 FED/ \$288 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Special pavement marking application on trunklines in University Region \$70,632 FED/ \$7,848 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Pavement Marking retro reflectivity readings on University Region trunklines \$1,814 FED/ \$202 State
- **REMOVE: Transit Operating (Areawide) Operating Assistance FY 2023 Section 5307 Operating \$1,200,000 FED/ \$1,200,000 Local**
- **REMOVE: Transit Operating (Areawide) Operating Assistance FY 2023 Section 5311 Operating \$36,572 FED/ \$36,572 State**
  - **Explanation:** The above two jobs are duplicates of existing job: [“\\*E High St \(Area Wide\) Operating Assistance FY 2023 - Operating \\$1,690,000 FED/ \\$1,374,568 State” job AND “\\*\\*E High St \(Area Wide\) SP1809-safety FY 2023 - Safety \\$13,520 FED/ \\$3,380 State” job, respectively, on following page](#)
- Transit Capital (Areawide) Bus terminal facility improvements FY 2023 Section 5339 Capital (Facility Improvements) \$457,171 FED/ \$114,293 State
- US-127 S (from I-96 to I-94) Traffic Safety Freeway Signing Update \$701,316 FED
- US-127 S (from I-94 to M-50) Traffic Safety Freeway Signing Upgrade \$993,531 FED
- TSC Wide (Various Locations - Jackson TSC) Traffic Safety Modernizing signalized intersection to current standards \$2,694,539 FED
- Transit Capital (Areawide) admin/maintenance facility improvements FY2023 5339 - CTF Bus and Bus Facilities \$88,000 FED/ \$22,000 State
- Transit Capital (Areawide) admin/maintenance facility improvements FY2023 5339 - CTF Bus and Bus Facilities \$48,000 FED/ \$12,000 State
- TSC Wide (VARIOUS TRUNKLINE ROUTES IN JACKSON TSC AREA) Road Capital Preventive Maintenance HMA CRACK TREATMENT AND OVERBAND CRACK FILL \$230,817 FED/ \$51,183 State



## • FY 2023 (cont.)

- N Dearing Rd, Jefferson Road (Jackson County) Traffic Safety Tree removal, signing, pavement marking \$461,101 FED/ \$51,233 Local
- Springport Rd (at Minard Road, Jackson County) Traffic Safety Roundabout \$344,392 FED/ \$38,266 Local
- Citywide (5 crosswalk locations, city of Jackson) Traffic Safety Crosswalk enhancements \$257,398 FED/ \$71,140 Local
- Airport Rd (at Wayland Drive, Jackson County) Traffic Safety Signal modernization \$244,915 FED/ \$77,229 Local
- **REMOVE: E High St (Area Wide) SP operating except JARC and New Freedom FY23: Operating and Safety \$1,690,000 FED/ \$1,690,000 State**
- **REMOVE: E High St (Area Wide) SP1809-safety FY23: Operating and Safety \$13,520 FED/ \$3,380 State**
  - **Explanation:** *The above two jobs are duplicates of existing job: “\*E High St (Area Wide) Operating Assistance FY 2023 - Operating \$1,690,000 FED/ \$1,374,568 State” job AND “\*\*E High St (Area Wide) SP1809-safety FY 2023 - Safety \$13,520 FED/ \$3,380 State” job, respectively, below.*
- \*E High St (Area Wide) Operating Assistance FY 2023 - Operating \$1,690,000 FED/ \$1,374,568 State
- \*\*E High St (Area Wide) SP1809-safety FY 2023 - Safety \$13,520 FED/ \$3,380 State
- E High St (Area Wide) Operating Assistance FY 2023 - Operating \$115,861 FED/ \$112,595 State
- **UPDATE: Lansing Ave (at Parnall Road) Traffic Safety FY 2023 - Signal Replacement \$351,000 FED (STUL)**
  - **Explanation:** *Administrative Error, Job is instead comprised of the following funding sources: \$95,000 FED (STUL) / \$197,000 FED (Carbon Reduction Program) / \$59,000 FED (STP-Flex)*
- **ADD: Wisner (Wildwood Ave to Ganson) – Mill/HMA Resurface FY 2023 - \$72,600 FED / \$95,400 Local**
  - **Explanation:** *This job was approved by JACTS TAC on 5/18/22 and Policy on 5/19/22. Job will be presented to R2PC on 6/9/22 for final approval.*

## FY 2024

- US-127 (Henry Road to County Line) Road Rehabilitation HMA Cold Milling and Multi-Course HMA Resurfacing \$16,942,950 FED/ \$3,757,050 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Longitudinal pavement marking application on University Region trunklines \$2,592 FED/ \$288 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Longitudinal pavement marking application on University Region trunklines \$361,584 FED/ \$40,176 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Special pavement marking application on trunklines in University Region \$2,592 FED/ \$288 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Special pavement marking application on trunklines in University Region \$73,872 FED/ \$8,208 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Pavement marking retro reflectivity readings on University Region trunklines \$1,814 FED/ \$202 State
- US-127 S (from I-96 to I-94) Traffic Safety Freeway Signing Update \$701,316 FED
- M-50 (AT CLARK LAKE ROAD IN NAPOLEON TWP, JACKSON COUNTY) Traffic Safety INSTALL CENTER LEFT TURN LANE \$393,045 FED/ \$43,672 State
- US-127 S (from I-94 to M-50) Traffic Safety Freeway Signing Upgrade \$993,531 FED
- US-127 BR (M-106 over Grand River & I-94 BL / M-50 over Grand River) Bridge Replacement Bridge Replacement & Deck Replacement \$6,995,240 FED/ \$1,415,446 State/\$135,728 Local
- Regionwide (countywide in Jackson county) Traffic Safety install delineation, pavement markings and signs for wrong way treatment \$132,300 FED/ \$14,700 State
- TSC-wide (M-99 (Maple) at M-99 (Main); US-127 SB Off Ramp at Springport) Traffic Safety Modernize signals to current standards \$77,240 FED
- TSC-wide (M-99 (Maple) at M-99 (Main); US-127 SB Off Ramp at Springport) Traffic Safety Modernize signals to current standards \$5,000 FED

## FY 2024 (cont.)

- US-127 (Six structures on US-127 in northern Jackson County) Bridge CPM Epoxy overlay, deck patch, super structure repairs, substructure repairs \$1,461,053 FED/ \$323,985 State
- US-127 S (At Berry Road Interchange) Traffic Safety Install High Friction Surface Treatment \$270,333 FED/ \$30,037 State
- Transit Capital (Area Wide) Bus Rolling Stock FY 2024 RTF - Van Purchase \$104,000 FED/ \$26,000 State
- Napoleon Rd (Various Roads) Road Capital Preventive Maintenance One Course Asphalt Overlay \$782,000 FED/ \$195,500 Local
- Transit Operating (Areawide) SP operating except JARC and New Freedom FY:2024 Operating and Safety \$1,723,800 FED/ \$1,723,800 State
- Transit Operating (Areawide) SP1809-safety FY:2024 Operating and Safety \$13,790 FED/ \$3,448 State
- Transit Capital (Area Wide) SP1303-bus shelter purchase FY 2024 - Facility Improvements \$280,000 FED/ \$70,000 State
- E High St (Area Wide) Operating Assistance FY 2024 - Operating \$118,178 FED/ \$114,847 State
- **ADD: E. High St. (Executive Dr. to South Street) Crush and Shape – FY 2024 - \$399,400 FED / \$98,600 Local**
- **ADD: N. Elm Ave (North St. to Floral Avenue) – Reconstruction - \$329,600 FED/ \$82,400 Local**
- **ADD: MLK Equality Trail (Prospect St. to MLK Drive) – Reconstruct from 8' to 12' - \$375,000 FED / \$123,000 Local**
  - *Explanation: The above 3 jobs were not yet approved in R2PC project-tracking software by time DRAFT TIP published on 4/28/22*

## FY 2025

- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Longitudinal pavement marking application on University Region trunklines \$2,592 FED/ \$288 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Longitudinal pavement marking application on University Region trunklines \$377,784 FED/ \$41,976 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Special pavement marking application on trunklines in University Region \$2,592 FED/ \$288 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Special pavement marking application on trunklines in University Region \$77,112 FED/ \$8,568 State
- Regionwide (All trunkline routes of REGION2 MPO) Traffic Safety Pavement marking retro reflectivity readings on University Region trunklines \$1,814 FED/ \$202 State
- M-99 (South Street north and east to Gibbs Road) Road Rehabilitation Multi-course HMA mill & resurface, concrete pavement repairs, drainage imp. \$4,016,441 FED/ \$89,0635 State
- Transit Capital (Area Wide) Bus Rolling Stock FY 2025 RTF - Van Purchase \$52,000 FED/ \$13,000 State
- S Sutton Rd (from Page Avenue to Ann Arbor Road) Road Rehabilitation Cold-In-Place Recycle & Asphalt Resurfacing \$550,200 FED/ \$137,550 Local
- E High St (Area Wide) admin/maintenance facility improvements FY 2025 - Facility Improvements \$120,000 FED/ \$30,000 State
- E High St (Area Wide) Operating Assistance FY 2025 - Operating \$120,542 FED/ \$117,144 State

## FY 2025 (cont.)

- **MOVE FROM FY22 to FY25:** E High St. (Area Wide) JN 216535 – Operating and Safety – 5307 - SP3000 - \$1,758,276 FED/ \$1,758,276 State
- **MOVE FROM FY22 to FY25:** E High St. (Area Wide) JN 216535 – Operating and Safety – 5307 – SP1809 - \$14,066 FED / \$3,517 State
  - *Explanation: This job (2 phases) was approved (Move from FY22 to FY 25) by JACTS TAC on 5/18/22 and Policy on 5/19/22. Job will be presented to R2PC on 6/9/22 for final approval*
- **ADD:** Lansing Ave (Steward Ave to Clinton Rd) Traffic Safety, FY 2025 - \$988,800 / \$322,200 State
- **ADD:** MLK Equality Trail (MLK Drive to Merriman) – Reconstruct from 8' to 12' - \$384,000 FED / \$99,000 Local
  - *Explanation: The above 2 jobs were not yet approved in R2PC project-tracking software by time DRAFT TIP published on 4/28/22*

## FY 2026

- TSC-wide (M-99 (Maple) at M-99 (Main); US-127 SB Off Ramp at Springport) Traffic Safety Modernize signals to current standards \$527,551 FED/
- Regionwide (All Trunkline Routes in University Region) Traffic Safety Longitudinal Pavement Marking Application on Trunkline Routes in University \$2,592 FED/ \$288 State
- Regionwide (All Trunkline Routes in University Region) Traffic Safety Longitudinal Pavement Marking Application on Trunkline Routes in University \$364,824 FED/ \$40,536 State
- Regionwide (All trunkline routes in REGION2 MPO) Traffic Safety Special marking application on University Region trunklines \$2,592 FED/ \$288 State
- Regionwide (All trunkline routes in REGION2 MPO) Traffic Safety Special marking application on University Region trunklines \$80,352 FED/ \$8,928 State
- University Regionwide Pvmt Mrkg Retro Readings (All of REGION2 MPO) Traffic Safety Pavement Marking retro reflectivity readings on trunklines in University Region \$1,814 FED/ \$202 State
- US-127 N/W I 94 Ramp (M-50, Valley to Rives Jct & NB US-127 ramp to WB I-94) Traffic Safety Install High Friction Surface Treatment \$38,544 FED/ \$4,283 State
- US-127 N/W I 94 Ramp (M-50, Valley to Rives Jct & NB US-127 ramp to WB I-94) Traffic Safety Install High Friction Surface Treatment \$573,256 FED/ \$63,695 State
- M-60 (M-60 at Cross Road) Traffic Safety Install Passing Flare \$66,527 FED/ \$7,392 State
- M-60 (M-60 at Cross Road) Traffic Safety Install Passing Flare \$500,855 FED/ \$55,651 State
- Transit Capital (Area Wide) Bus Rolling Stock FY 2026 RTF - Van Purchase \$52,000 FED/ \$13,000 State
- Various Routes (Various Roads) Road Rehabilitation Two Course Asphalt Resurfacing (GPA) \$874,400 FED/ \$218,600 Local
- Wildwood Ave (Ganson Street to Jackson City Limits (Wayne Street)) Road Capital Preventive Maintenance Milling & One Course Asphalt Overlay (GPA) \$81,850 FED/ \$18,150 Local
- E High St (Area Wide) SP1809-safety FY26: Operating and Safety \$14,347 FED/ \$3,587 State
- E High St (Area Wide) SP operating except JARC and New Freedom FY26: Operating and Safety \$1,793,442 FED/ \$1,793,442 State
- E High St (Area Wide) SP1103-35-39 foot replacement bus with or without lift FY 2026 - Facility Improvements and Bus Replacement \$824,000 FED/ \$206,000 State
- E High St (Area Wide) admin/maintenance facility improvements FY 2026 - Facility Improvements and Bus Replacement \$400,000 FED/ \$100,000 State
- E High St (Area Wide) Operating Assistance FY 2026 - Operating \$122,953 FED/ \$119,487 State

## FY 2026 (cont.)

- E. Ganson St. (Elm Ave to East City Limit) Road Capital Preven. Maintenance – FY 2026 - \$553,600 FED/ \$138,400 Local
- N. Elm Ave (Location TBD) – Signal Modernization - \$393,000 FED / \$0 State / \$0 Local
  - *Explanation: The above 2 jobs were not yet approved in R2PC project-tracking software by time DRAFT TIP published on 4/28/22*

## CONSULTATION CONTACT LIST

*5/31/22 Update – Agencies and Organizations that had no entry for “Contact Person” and “Position/Additional Info” in the 4/28/22 were informed of the public comment period via a general e-mail. For clarification, the chart has been updated to include that information, as well as additional individuals/agencies that were contacted on 5/31/22.*

<b>Contact Person</b>	<b>Agencies &amp; Organizations</b>	<b>Position/Additional Info</b>
Arlene Robinson	City of Jackson City Council	Ward 1
Freddie Dancy	City of Jackson City Council	Ward 2
Angelita V. Gunn	City of Jackson City Council	Ward 3
Laura Dwyer Schlecte	City of Jackson City Council	Ward 4
Karen Bunnell	City of Jackson City Council	Ward 5
Will Forgrave	City of Jackson City Council	Ward 6
Daniel Mahoney	City of Jackson City Council	Mayor
<a href="mailto:editor@jxncopress.com">editor@jxncopress.com</a>	The County Press	General Email
Laurie Ingram	Eastside Neighborhood Resource Center (Ayieko Resource Center)	Jackson Housing Commission, Executive Director
Tim Rogers	The Enterprise Group	President and CEO
<a href="mailto:R5hotline@epa.gov">R5hotline@epa.gov</a>	Environmental Protection Agency	General Email
Theodore Burch	Federal Highway Administration (Michigan Division)	Division Administrator
Susan Weber	Federal Transit Administration (Region 5)	Community Planner
<a href="mailto:info@fallingwatertrail.com">info@fallingwatertrail.com</a>	Friends of the Falling Water Trail	General Email
Wendy Clow	Greater Jackson Habitat for Humanity	Executive Director
Various Contacts	Jackson Area Comprehensive Transportation Study Policy Committee	Various Contacts
Various Contacts	Jackson Area Comprehensive Transportation Study Technical Committee	Various Contacts
Michael Brown	Jackson Area Transportation Authority	Executive Director
Alan Wade	The Jackson Blazer	Publisher, CEO
<a href="mailto:janevents@mlive.com">janevents@mlive.com</a>	Jackson Citizen Patriot	General Email
Juan Zapata	Jackson County Airport/Reynolds Field	Airport Manager
Tony Bair	Jackson County Board of Commissioners	District 1
Rodney Walz	Jackson County Board of Commissioners	District 2
Corey Kennedy	Jackson County Board of Commissioners	District 3
Phillip S. Duckham, III	Jackson County Board of Commissioners	District 4
James E. (Steve) Shotwell Jr.	Jackson County Board of Commissioners	District 5 and Chairman
Earl Poleski	Jackson County Board of Commissioners	District 6
Jeromy Alexander	Jackson County Board of Commissioners	District 7
Darius Williams	Jackson County Board of Commissioners	District 8
Ray Snell	Jackson County Board of Commissioners	District 9
Craig Hatch	Jackson County Chamber of Commerce	President and CEO

Jae Guetschow	Jackson County Townships, Cities, and Villages	Village of Brooklyn (Manager)
Zachery Karnaz	Jackson County Townships, Cities, and Villages	Village of Cement City (President)
Jeremiah Bush	Jackson County Townships, Cities, and Villages	Village of Concord (President)
Sabrina Edgar	Jackson County Townships, Cities, and Villages	Village of Grass Lake (Manager)
	Jackson County Townships, Cities, and Villages	Village of Hanover (Treasurer)
JoAnn Havican	Jackson County Townships, Cities, and Villages	Village of Parma (Clerk)
Jennifer Naylor	Jackson County Townships, Cities, and Villages	Village of Springport (Manager)
Pete Jancek	Jackson County Townships, Cities, and Villages	Blackman Township (Supervisor)
Barry Marsh	Jackson County Townships, Cities, and Villages	Columbia Township (Supervisor)
Davis Saenz	Jackson County Townships, Cities, and Villages	Concord Township (Supervisor)
John Lesinski	Jackson County Townships, Cities, and Villages	Grass Lake Township (Supervisor)
Jeffrey Heath	Jackson County Townships, Cities, and Villages	Hanover Township (Supervisor)
Andrew Grimes	Jackson County Townships, Cities, and Villages	Henrietta Township (Supervisor)
Howard Linnabary	Jackson County Townships, Cities, and Villages	Leoni Township (Supervisor)
Mark Hubbard	Jackson County Townships, Cities, and Villages	Liberty Township (Supervisor)
Dan Gallagher	Jackson County Townships, Cities, and Villages	Napoleon Township (Supervisor)
Wendy Chamberlain	Jackson County Townships, Cities, and Villages	Parma Township (Supervisor)
Chuck Todd	Jackson County Townships, Cities, and Villages	Pulaski Township (Supervisor)
Jerry Adams	Jackson County Townships, Cities, and Villages	Rives Township (Supervisor)
L. Keith Acker	Jackson County Townships, Cities, and Villages	Sandstone Township (Supervisor)
Dave Herlein	Jackson County Townships, Cities, and Villages	Spring Arbor Township (Supervisor)
Jeff Mitchell	Jackson County Townships, Cities, and Villages	Springport Township (Supervisor)
Todd Emmons	Jackson County Townships, Cities, and Villages	Summit Township (Supervisor)
John A. Tuttle, Sr.	Jackson County Townships, Cities, and Villages	Tompkins Township (Supervisor)
Doug Lance	Jackson County Townships, Cities, and Villages	Waterloo Township (Supervisor)
Daniel Phelan	Jackson College	President and CEO
Keith Book	Jackson College	Executive Assistance to the President
Craig Hatch	Jackson County Convention and Visitor's Bureau (Experience Jackson)	President and CEO (same as Chamber of Commerce)
Danielle Pequet	Jackson County Department on Aging	Director
<a href="mailto:Msue.jackson@county.mse.edu">Msue.jackson@county.mse.edu</a>	Jackson County Michigan State University Extension	General Email
Angela Kline	Jackson County Department of Transportation	Managing Director
Geoffrey Snyder	Jackson County Drain Commissioner	Drain Commissioner
N/A	Jackson County Food Bank (Jackson Community Food Pantry)	N/A
Don Hayduk	Jackson County Environmental Health	Director
Kristin Pluta	Jackson County Health Department	Officer
Kevin Oxley	Jackson County Intermediate School District	Superintendent
Tom Kirvan	Jackson County Legal News	Editor-in-Chief
Julie Alexander	Jackson County Legislators	Michigan House District 64
Sarah Lightner	Jackson County Legislators	Michigan House District 65
Mike Shirkey	Jackson County Legislators	Michigan Senate District 16
Mike Rorke	Jackson County Legislators	US House Michigan District 7
Debbie Stabenow	Jackson County Legislators	US Senate Michigan

Joci McMichael	Jackson County Legislators	US Senate Michigan
<a href="#">Destiny Wilkins</a>	Jackson County Medical Care Facility	<a href="#">Administrator</a>
Kyle Lewis	Jackson County Parks Department	Director
Grant Bauman	Jackson County Planning Commission	Staff
Gary Schutte	Jackson County Police Departments (Jackson County Sheriff)	Sheriff
Sara Tackett	Jackson District Library	Director
Cory Mays	Jackson Downtown Development Authority	Executive Director
Chris Atkin	Jackson Historic District Commission	Staff
John Willis	Jackson Human Relations Commission	Staff
Steve Castle	Jackson Interfaith Shelter	CEO
Jeff Beal	Jackson Public Schools	Superintendent
Bart Hawley	JTV	Owner
Karen Cascaddan	Lifeways	Executive Director
<a href="mailto:MDA-Info@michigan.gov">MDA-Info@michigan.gov</a>	Michigan Department of Agriculture (and Rural Development)	<a href="#">General Email</a>
<a href="mailto:EGLE-Assist@michigan.gov">EGLE-Assist@michigan.gov</a>	Michigan Department of Environmental Quality (Michigan Department of Environment, Great Lakes, and Energy)	<a href="#">General Email</a>
Zoe Lyons	Michigan Department of Health & Human Services	Jackson County Director
Daniel Eichinger	Michigan Department of Natural Resources	DNR Director
Michelle Lange	Michigan Department of Technology, Management, and Budget	Acting Director
Aaron Jenkins	Michigan Department of Transportation	University Region Communications Representative
Quentin L. Messer, Jr.	Michigan Economic Development Corporation	CEO
<a href="mailto:MRS-CustomerAssistance@michigan.gov">MRS-CustomerAssistance@michigan.gov</a>	Michigan Rehab Services (Michigan Rehabilitation Services)	<a href="#">General Email</a>
<a href="mailto:MSHDA@michigan.gov">MSHDA@michigan.gov</a>	Michigan State Housing Development Authority	<a href="#">General Email</a>
President Stanley	Michigan State University	President
<a href="#">Alicia Williams</a>	NAACP (Jackson County Branch NAACP)	<a href="#">President</a>
Paul Edmondsdon	National Trust for Historic Preservation	President and CEO
<a href="#">Julie Wetherby</a>	Region 2 Area Agency on Aging	<a href="#">Chief Executive Officer</a>
Alan Scheppelman	Ripstra & Scheppelman Surveyors	<a href="#">General Email</a>
<a href="mailto:wmijackson@usc.salvationarmy.org">wmijackson@usc.salvationarmy.org</a>	The Salvation Army	<a href="#">General Email</a>
Gail Philbin	Sierra Club, Michigan Chapter	State Director
Dr. Brent Ellis	Spring Arbor University	President
Dawn M. Doner	Springport Signal	Owner
<a href="mailto:publicpolicy@mi-ucp.org">publicpolicy@mi-ucp.org</a>	United Cerebral Palsy of Michigan	Lansing Office
<a href="mailto:askusda@usda.gov">askusda@usda.gov</a>	USDA	<a href="#">General Email</a>
Ken Toll	United Way of Jackson	President and CEO
Brian Elliott	Walkable Communities Coalition (Active Jackson Coalition)	<a href="#">Chair</a>

Shawna Tello	YMCA	CEO
Emily Moorhead, FACHE	Allegiance Health (Henry Ford Allegiance Health or Henry Ford Jackson Hospital)	Chief Operating Officer, Interim President
Shane LaPorte	City of Jackson Community Development Department (Neighborhood & Economic Operations)	Director of Neighborhood & Economic Operations/Assistant City Manager
Kelli Hoover	City of Jackson Parks Department (Parks, Recreation, Cemeteries & Trails)	Director of Parks, Recreation, Cemeteries and Grounds
Jon Hart	Disability Connections	Executive Director & Acting Youth Services Director
Dan Shulman	FEMA-Region Office - Region 5	Congressional/Intergovernmental
Kenny Price	Grand River Environmental Action Team (G.R.E.A.T.)	President
Jason Breining	Jackson City/County Emergency Measures (Jackson County Emergency Management & Homeland Security)	Director
John Feldvary	Jackson County Airport-Reynolds Field Board	Chair
Nathan Pinti	Jackson County GIS	GIS Analyst/Developer
Gail Trudell	Jackson County ISD-Special Education	Assistant Director of Special Education
Stevw Castle	Jackson Interfaith Non-Profit Housing Corporation (Jackson Interfaith Shelter)	Chief Executive Officer
Gail Philbin	Mackinac Chapter of the Sierra Club	State Director
Elisha Wiff	MDOT-Freight Division	Freight Planning & FAC
Josh Grab	MDOT-Heritage Routes Program (Pure Michigan Byways)	MDOT Planning
Matt Chynoweth	MDOT-Historic Bridges	Chief Bridge Engineer, Bureau Director
No contact	Michigan Department of Career Development-Jackson Office	No contact
Sandra Clark	Michigan Department of History, Arts, and Library (Michigan History Center)	Director
EDLE-DWEH-Jackson@michigan.gov	Michigan Department of Natural Resources and Environment-Jackson District (EGLE (Environment, Great Lakes, and Energy))	General Email
DNR-Fisheries@michigan.gov	Michigan Fish & Wildlife Service (Michigan Department of Natural Resources Fisheries Division)	General Email
DNR-Wildlife@michigan.gov	Michigan Fish & Wildlife Service (Michigan Department of Natural Resources Wildlife Division)	General Email
Mark A. Rodman	Office of State Archaeologist (State Historic Preservation Office)	State Historic Preservation Officer
Sue Lewis	Retired Senior Volunteer Program (R.S.V.P.) (Catholic Charities of Jackson, Lenawee and Hillsdale Counties)	Executive Director
Ronna Beckman	U.S. Environmental Protection Agency-Region 5	Congressional/Intergovernmental Relations Specialist
Renee Sherman Mulcrone	Upper Grand River Watershed Council (The Upper Grand River Watershed Alliance)	Unknown
Brandon Fewins	USDA-Michigan State Office	State Director
John F. Walker	USGS-Lansing District Office (USGS Michigan Water Science Center Office)	Center Director



**Notice of Availability of the Summit Township  
Master Plan for Public Comment**



On May 10, 2022, the Summit Township Board Passed a Resolution to release the 2022 edition of the Summit Township Master Plan and request comments regarding the document from the recipients of this notice for a period of 63 days. The following local government, commissions/committees, and utility and transportation agencies/companies are receiving this notice of intent as required by Section 41 of the Michigan Planning Enabling Act (MCL 125.3839):

- |   |  |
|---|--|
| <b>City of Jackson</b>                    | <b>Consumers Energy</b>                            |
| <b>Blackman Township</b>                  | <b>Comcast</b>                                     |
| <b>Hanover Township</b>                   | <b>Verizon</b>                                     |
| <b>Leoni Township</b>                     | <b>Jackson County Airport</b>                      |
| <b>Liberty Township</b>                   | <b>Michigan Electric Transmission Company</b>      |
| <b>Napoleon Township</b>                  | <b>Jackson County Department of Transportation</b> |
| <b>Sandstone Township</b>                 | <b>Michigan Department of Transportation</b>       |
| <b>Spring Arbor Township</b>              | <b>Jackson Area Transportation Authority</b>       |
| <b>Jackson County Planning Commission</b> | <b>Norfolk Southern Railway</b>                    |
| <b>Region 2 Planning Commission</b>       | <b>Panhandle Eastern Pipeline</b>                  |
| <b>AT&amp;T</b>                           | <b>BP Products</b>                                 |

The *Summit Township Master Plan* is available for review on the Township website at [www.summittwp.com](http://www.summittwp.com). Please notify John Worden in writing if you prefer to receive a hard copy of the document. Comments must be received in writing by Summit Township attn. John Worden by 5:30 pm on July 25, 2022. His contact information is listed below:

John Worden  
Zoning Administrator  
Summit Township  
2121 Ferguson Road  
Jackson, MI 49203  
517-788-4113 ext. 240  
Zoning @summittwp.com



**TO: Planning Commission**

**FROM: Zoning Administrator**

**DATE: June 15, 2022**

**RE: 258 Union St. – Hillsdale College Dorm**

**Background:** Hillsdale College is proposing a new 42 bed dormitory to be located at 258 Union St. The project includes demolition of two existing residential structures on the two lots that make up the project site. The demolition has been completed and the lots have been combined. The project was reviewed by the City Department Heads on May 23, 2022. The issues cited in the report have been resolved and the revised drawings are submitted for final Planning Commission approval. The Zoning Administrator recommends that the Planning Commission approve the proposed project.

May 23, 2022

Plans for the proposed Residential Dormitory for Hillsdale College located at 258 Union St. were reviewed by the City Dept. Heads on May 23, 2022. Their comments are as follows:

Present: Kristin Bauer (City Engineer), Ryan Kafer (Engineering Intern), Chief Scott Hephner (Police Department), Jason Blake (Dept. of Public Services), Alan Beeker (Planning & Zoning), Jake Hammel (Board of Public Utilities), Jeff Geir (Board of Public Utilities), Eric Sheffer (Board of Public Utilities), Mark Hawkins (Fire Department), Dan Lewis (Project Engineer), Quinn O’Heeny (Project Architect)

#### City Engineer

- Include a Soil Erosion and Sedimentation plan. Soil erosion control permit will be required from County Inspection Dept.
- Storm Water Calculations:
  - Include calculations of existing storm water amounts.

#### Public Services

- The new walk/drive should have a MDOT “L” style approach.
- Remove all of the existing walk along Union St. and upgrade to 5’-0” wide walk transition to 4’ wide at property line.
- Remove existing drive approaches from demolished structures and install curb and gutter to match adjacent.

#### Public Safety

- Requested that the FDC be located on the southeast side of the new dorm. Also requested that there be 2-2 ½” connections. The proposed 12’ wide, 8” thick conc. walk/drive for the fire truck will solve the access issues.

#### Board of Public Utilities

- Electrical:
  - Include enough lead time to order new transformer (currently need 40 week lead time for delivery)
- Water
  - No issues.
- Sanitary
  - Add contractor note to verify location of sanitary gravity and sanitary force main prior to installation of new 6” sanitary line from building.
  - Verify that new sanitary connection is a top connection to main.

#### Planning/Zoning

- No issues

Final drawings with all department approved revisions must be received by the Planning Dept. no later than June 8, 2022. The Planning Commission will review the drawings for final approval at the regular meeting which will be held on June 15, 2022 at 5:30 pm. The location will be at City Hall, 97 N. Broad St. in the 3<sup>rd</sup> Floor Council Chambers.

# Hillsdale College UNION STREET HOUSING

HILLSDALE, MI

PROGRESS SET  
MAY 13, 2022



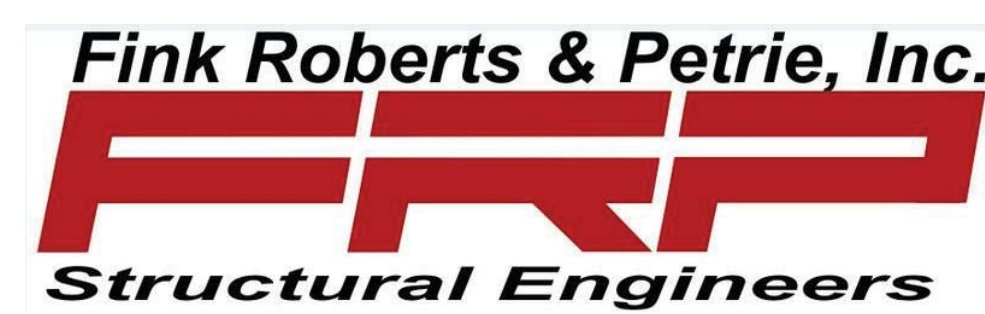
## PROJECT TEAM



**OWNER**  
Hillsdale College  
33 College Street  
Hillsdale, MI  
Voice: 000-000-0000 Fax: 000-000-0000  
Contact:  
Rich Pewe, COO  
email: rpewe@hillsdale.edu



**ARCHITECT, INTERIORS, M&E ENGINEERS**  
Design Collaborative, Inc.  
200 East Main Street  
Suite 600  
Fort Wayne, Indiana 46802  
Voice: 260-422-4241 Fax: 260-422-4847  
Contacts:  
Quinn O'Heeney, Project Manager  
email: qoheeney@designcollaborative.com  
Jessica Rossow, Interior Designer  
email: jrossow@designcollaborative.com  
Jason Baker, Mechanical Engineer  
email: jbaker@designcollaborative.com  
Kelsey Rowe, Electrical Engineer  
email: krowe@designcollaborative.com



**STRUCTURAL ENGINEERS**  
Fink Roberts & Petrie, Inc.  
3535 East 96th Street, Suite 126  
Indianapolis, Indiana 46240  
Voice: 317-872-8400  
Contact:  
Melissa Stump, P.E. Vice President  
email: mstump@frpinc.com



**CONSTRUCTION MANAGER**  
Weigand Construction  
7808 Honeywell Drive  
Fort Wayne, Indiana 46825  
Voice: 260-490-7449 Cell: 260-414-6357  
Contact:  
Kent Gilliom, Project Manager  
email: kgilliom@weigandconstruction.com  
Chad David, Sr. Estimator  
email: cdavid@weigandconstruction.com



**CIVIL ENGINEERS**  
Vriesman & Korhorn  
7885 Byron Center Avenue SW Suite A  
Byron Center, Michigan 49315  
Voice: 616-277-2185  
Contact:  
Dan Lewis, PE, Senior Civil Engineer  
email: dan@vkcivil.com

## WORKING DRAWING INDEX

### GENERAL

G0.1 PROJECT COVER SHEET  
G0.2 GENERAL INFORMATION  
G1.1 CODE STUDY & LIFE SAFETY PLANS  
G1.2 LIFE SAFETY NOTES & DETAILS  
G2.1 GENERAL NOTES & PARTITION TYPES  
G2.2 EXTERIOR ASSEMBLIES

### CIVIL

C1.0 Place Holder  
C2.0 Place Holder  
C3.0 Place Holder  
C4.0 Place Holder  
C5.0 Place Holder  
C6.0 Place Holder

### STRUCTURAL

S0.1 GENERAL NOTES  
S0.2 GENERAL NOTES  
S0.3 DESIGN INFORMATION  
S1.0 FOUNDATION AND SLAB ON GRADE PLAN  
S1.1 FIRST FLOOR WALL AND SECOND FLOOR FRAMING PLANS  
S1.2 SECOND FLOOR WALL AND THIRD FLOOR FRAMING PLANS  
S1.3 THIRD FLOOR WALL AND ROOF FRAMING PLANS  
S3.0 TYPICAL SHALLOW FOUNDATION DETAILS - COLUMN FTGS  
S3.1 TYPICAL SLAB ON GRADE DETAILS  
S5.0 STEEL FRAMING DETAILS  
S6.0 WOOD FRAMING SCHEDULES  
S6.1 TYPICAL WOOD WALL FRAMING DETAILS  
S6.2 WOOD SHEAR WALL ELEVATIONS  
S6.3 WOOD SHEAR WALL SECTIONS AND DETAILS  
S6.4 TYPICAL WOOD FLOOR FRAMING DETAILS (TRUSSES)  
S6.5 TYPICAL WOOD ROOF FRAMING DETAILS (TRUSSES)  
S6.6 TYPICAL WOOD FRAMING DETAILS (MISC)

### ARCHITECTURAL

A1.2 DIMENSION FLOOR PLAN - MAIN & SECOND LEVEL  
A1.4 DIMENSION FLOOR PLAN - THIRD LEVEL  
Date 1 A1.1 FLOOR PLAN - MAIN & SECOND LEVEL  
Date 1 A1.3 FLOOR PLAN - THIRD & ATTIC LEVEL  
Date 1 A2.1 ROOF PLAN  
Date 1 A3.1 ENLARGED FLOOR PLANS  
Date 1 A4.1 EXTERIOR ELEVATIONS  
Date 1 A4.2 BUILDING SECTIONS  
Date 1 A5.1 WALL SECTIONS  
Date 1 A6.1 ENLARGED DETAILS  
A7.1 FRAME ELEVATIONS, SCHEDULES & DETAILS  
A8.1 STAIR SECTIONS & PLANS  
A8.2 STAIR DETAILS  
A9.1 REFLECTED CEILING PLAN - MAIN & SECOND LEVEL  
A9.2 REFLECTED CEILING PLAN - THIRD LEVEL  
A10.1 INTERIOR ELEVATIONS  
A10.2 CASEWORK SECTIONS  
A11.1 FLOOR FINISH PLAN - MAIN & SECOND LEVEL  
A11.2 FLOOR FINISH PLAN - THIRD LEVEL

### PLUMBING

P1.0 PLUMBING PLAN - UNDERGROUND  
P1.1 PLUMBING PLAN - MAIN LEVEL  
P1.2 PLUMBING PLAN - SECOND LEVEL  
P1.3 PLUMBING PLAN - THIRD LEVEL  
P3.1 ENLARGED PLUMBING PLANS  
P4.1 PLUMBING SCHEDULES AND DETAILS

### MECHANICAL

M1.1 MECHANICAL PLAN - MAIN LEVEL  
M1.2 MECHANICAL PLAN - SECOND LEVEL  
M1.3 MECHANICAL PLAN - THIRD LEVEL  
M4.1 MECHANICAL SCHEDULES  
M4.2 MECHANICAL DETAILS  
M5.1 HVAC CONTROLS

### ELECTRICAL

E1.1 ELECTRICAL PLANS - MAIN LEVEL  
E1.2 ELECTRICAL PLANS - SECOND LEVEL  
E1.3 ELECTRICAL PLANS - THIRD LEVEL  
E4.1 ELECTRICAL SCHEDULES  
E4.2 ELECTRICAL DETAILS  
E4.3 LIGHTING DETAILS  
E5.1 ELECTRICAL SITE PLAN



200 East Main Street  
Suite 600  
Fort Wayne, IN 46802  
260.422.4241  
260.422.4847  
designcollaborative.com

Hillsdale College  
**UNION STREET HOUSING**

33 E College Street  
Hillsdale, MI 49242  
PROJECT: 2021.0121

NOT FOR  
CONSTRUCTION

All concepts, ideas, designs, plans and details as shown on this document are the sole property of Design Collaborative, Inc. and shall not be used for any purpose without their expressed written consent. The owner shall be permitted to retain copies for information and reference.

### FOUNDATION SET

ISSUE DATE: 05/13/2022

### REVISIONS

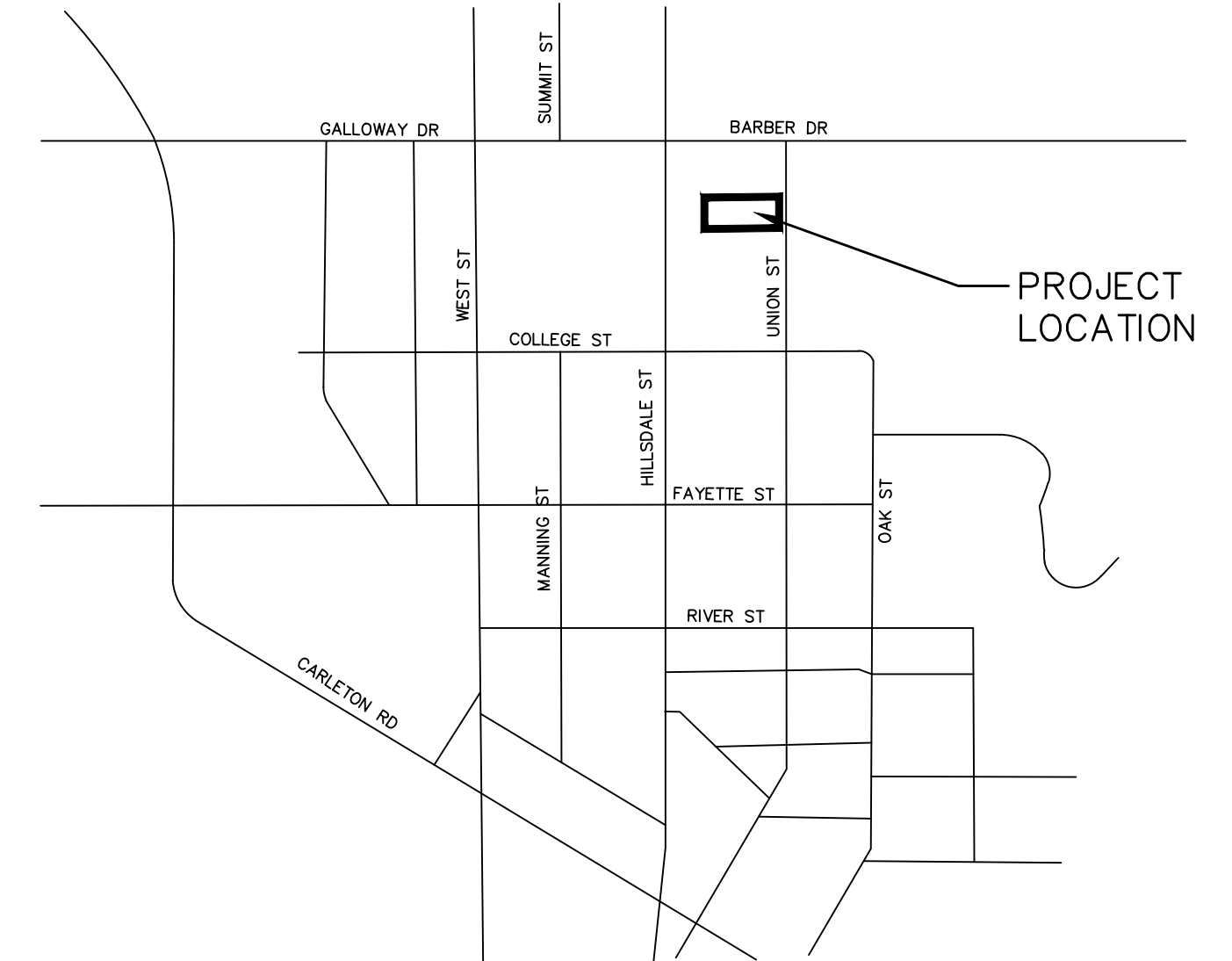
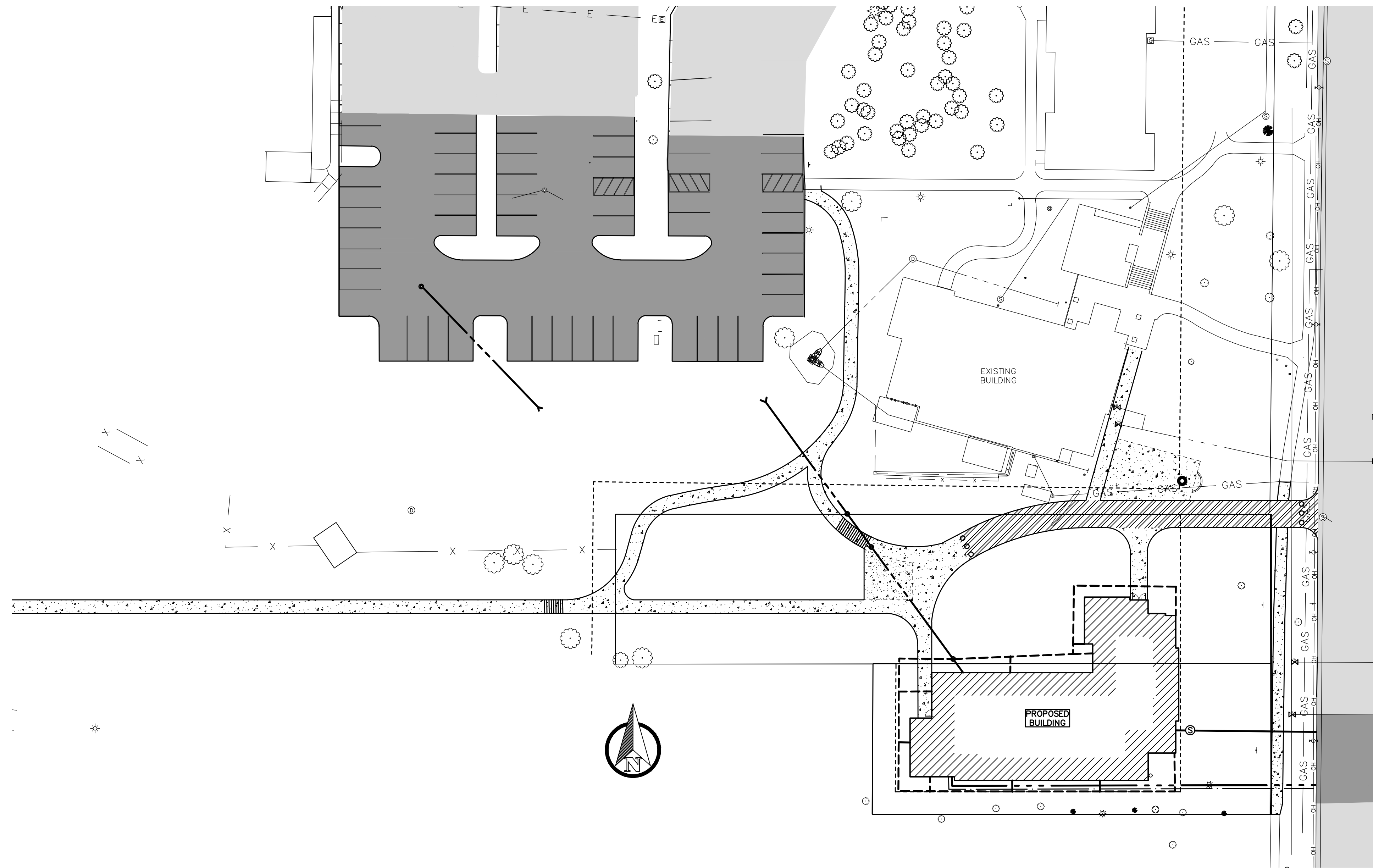
NO.	DATE	DESCRIPTION
-----	------	-------------

PROJECT COVER SHEET

G0.1

**CITY OF HILLSDALE  
HILLSDALE COUNTY, MICHIGAN**

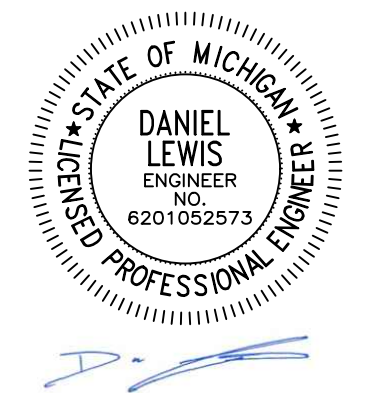
**HILLSDALE COLLEGE  
UNION ST - STUDENT HOUSING ADDITION**



LOCATION MAP  
NOT TO SCALE

PLAN INDEX	
SHEET No.	DESCRIPTION
COVER	TITLE SHEET
C-100	EXISTING CONDITIONS
C-200	DEMO PLAN
C-300	UTILITY PLAN
C-400	GRADING PLAN
C-500	PROJECT DETAILS

DESIGN ENGINEER  
VK CIVIL  
DAN LEWIS, P.E.  
269-697-7120  
DAN@VKCIVIL.COM



NO.	DATE	REVISION	BY
1	04/21/2022	25% DD	NEF
2	04/27/2022	50% DD	NEF
3	05/04/2022	100% CITY SUBMITTAL	NEF
4	05/27/2022	CITY COMMENTS	NEF

CITY OF HILLSDALE  
HILLSDALE COUNTY, MICHIGAN  
HILLSDALE COLLEGE  
STUDENT HOUSING - UNION ST  
TITLE SHEET

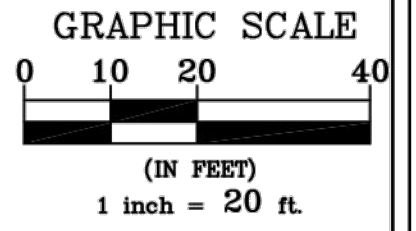
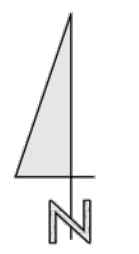
**VK CIVIL** Vriesman & Korhorn  
www.VKcivil.com

Byron Center, MI  
(616) 277-2185  
Kalamazoo, MI  
(269) 697-7120

FILE NO. 1032  
CHECKED DGL  
Sheet No. COVER

TOPOGRAPHIC & BOUNDARY SURVEY  
FOR HILLSDALE COLLEGE

PROPERTY INFO: 254 UNION ST. 30-006-123-301-29  
258 UNION ST. 30-006-123-301-16



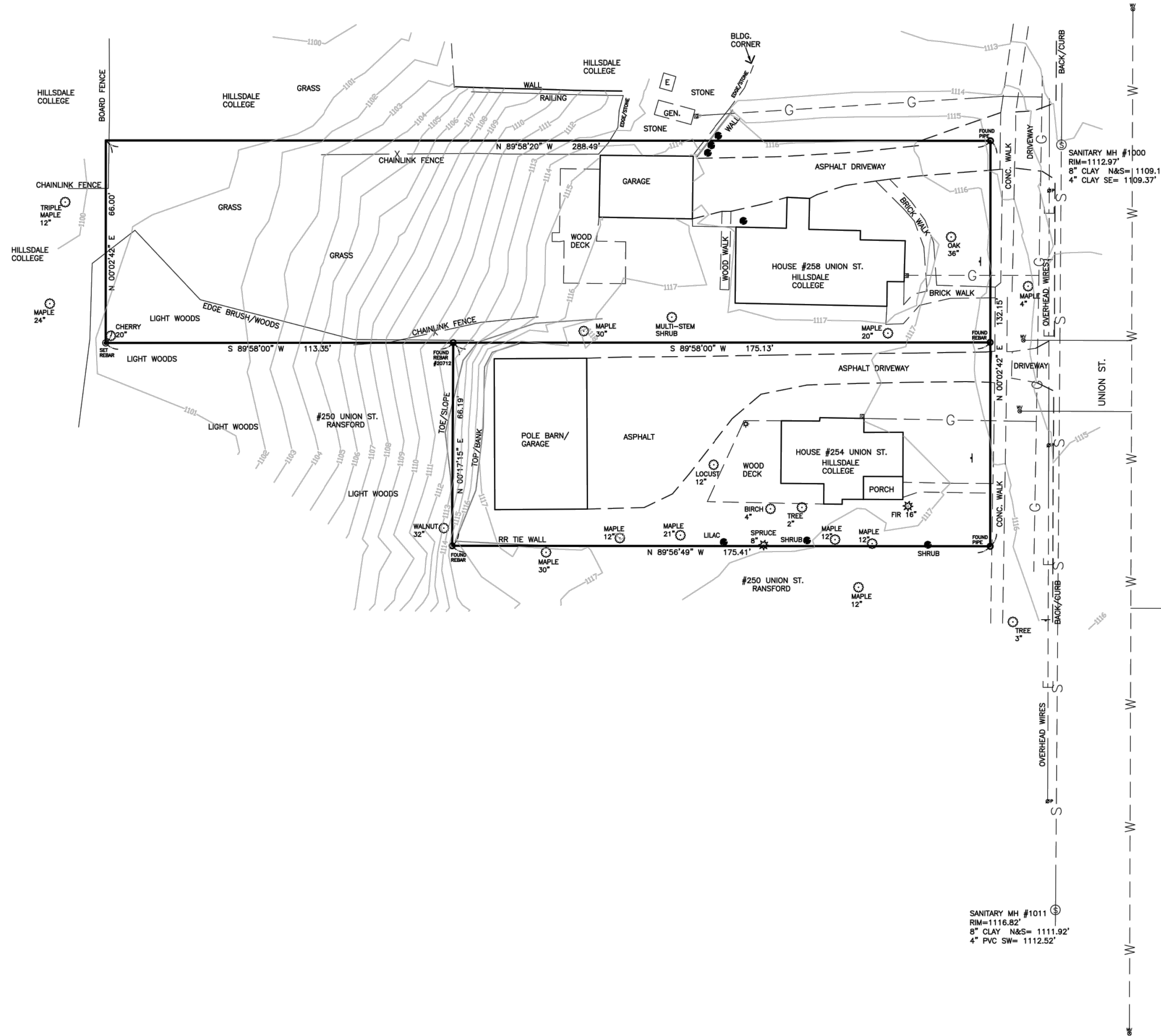
LEGAL DESCRIPTION:

PROPERTY IN THE CITY OF HILLSDALE, HILLSDALE COUNTY, STATE OF MICHIGAN, DESCRIBED AS FOLLOWS:

THE NORTH 1 & 1/2 RODS IN WIDTH OF LOT 67 AND THE SOUTH 2 & 1/2 RODS IN WIDTH OF LOT 68, BLOCK D, BLACKMAR AND GALLAHER'S ADDITION TO THE VILLAGE, NOW CITY OF HILLSDALE, ACCORDING TO THE RECORDED PLAT THEREOF, AS RECORDED IN LIBER 56 OF DEEDS, PAGE 1, HILLSDALE COUNTY RECORDS. BEING 4 RODS FRONT ON UNION STREET.

ALSO:

THE EAST 175 FEET OF THE SOUTH 3 & 1/2 RODS WIDE OF LOT 67 AND THE EAST 175 FEET OF THE NORTH 1/2 ROD WIDE OF LOT 66, BLOCK D, BLACKMAR AND GALLAHER'S ADDITION TO THE VILLAGE, NOW CITY OF HILLSDALE, ACCORDING TO THE RECORDED PLAT THEREOF, AS RECORDED IN LIBER 56 OF DEEDS, PAGE 1, HILLSDALE COUNTY RECORDS.



LEGEND

- SHRUB
- TREE (DECIDUOUS) TRUNK DIAMETER IN INCHES
- TREE (CONIFEROUS) TRUNK DIAMETER IN INCHES
- PARKING BOLLARD
- MANHOLE
- TRAFFIC SIGNAL CONTROL BOX
- WATER VALVE
- CATON BASKIN
- CLEANOUT
- POWER POLE
- LIGHT POLE
- GUY WIRE ANCHOR
- TELEPHONE POWER LIGHT POLE
- TRAFFIC SIGNAL POLE
- MAILBOX
- FLAG POLE
- IRRIGATION SPRINKLER HEAD
- UNDERGROUND TELEPHONE MARKER
- WATER PUMP
- GAS VALVE
- GAS METER
- CURB INLET
- SIGN
- ELECTRIC TRANSFORMER
- TELEPHONE RISER
- CONTROL POINT
- FLOODLIGHT



*Michael Lodzinski*  
Michael J. Lodzinski, P.S.#4001047961  
I HEREBY CERTIFY THAT I HAVE SURVEYED AND MAPPED THE PARCEL(S) HEREON DESCRIBED AND THAT THE RELATIVE POSITIONAL PRECISION OF EACH CORNER IS WITHIN THE LIMITS ACCEPTED BY THE PRACTICE OF PROFESSIONAL SURVEYING AND THAT ALL REQUIREMENTS OF P.A. 132 OF 1970, AS AMENDED, HAVE BEEN COMPLIED WITH.



UTILITY LOCATIONS BASED ON OBSERVED EVIDENCE AND CITY OF HILLSDALE BPU PLANS AND NO GUARANTEE IS MADE TO COMPLETENESS OR EXACT LOCATION.

**Lodzinski & Associates, LLC**

P.O. BOX 129 SOMERSET CENTER, MI. 49282 Phone: (517) 320-1087 E-Mail: LODZINSKI@COMCAST.NET

LOCATION: HILLSDALE COLLEGE CAMPUS 254 & 258 Union St.	SURVEY BY: ML	DRAWN BY: CF/MJL
CLIENT NAME: Hillsdale College	SCALE: 1" = 20'	CHECKED BY: MJL
DESCRIPTION: Boundary & Topographic Survey	DATE: 11-22-2021	JOB NUMBER 21s01739
	JOB NUMBER 21s01739	SHEET 1 of 1
	DRAWING NAME 21s01739 HC UNION ST	

SCALED DOWN TO 90%

NO.	DATE	REVISION	BY
1	04/21/2022	25% DD	NEF
2	04/27/2022	50% DD	NEF
3	05/04/2022	100% CITY SUBMITTAL	NEF
4	05/27/2022	CITY COMMENTS	NEF

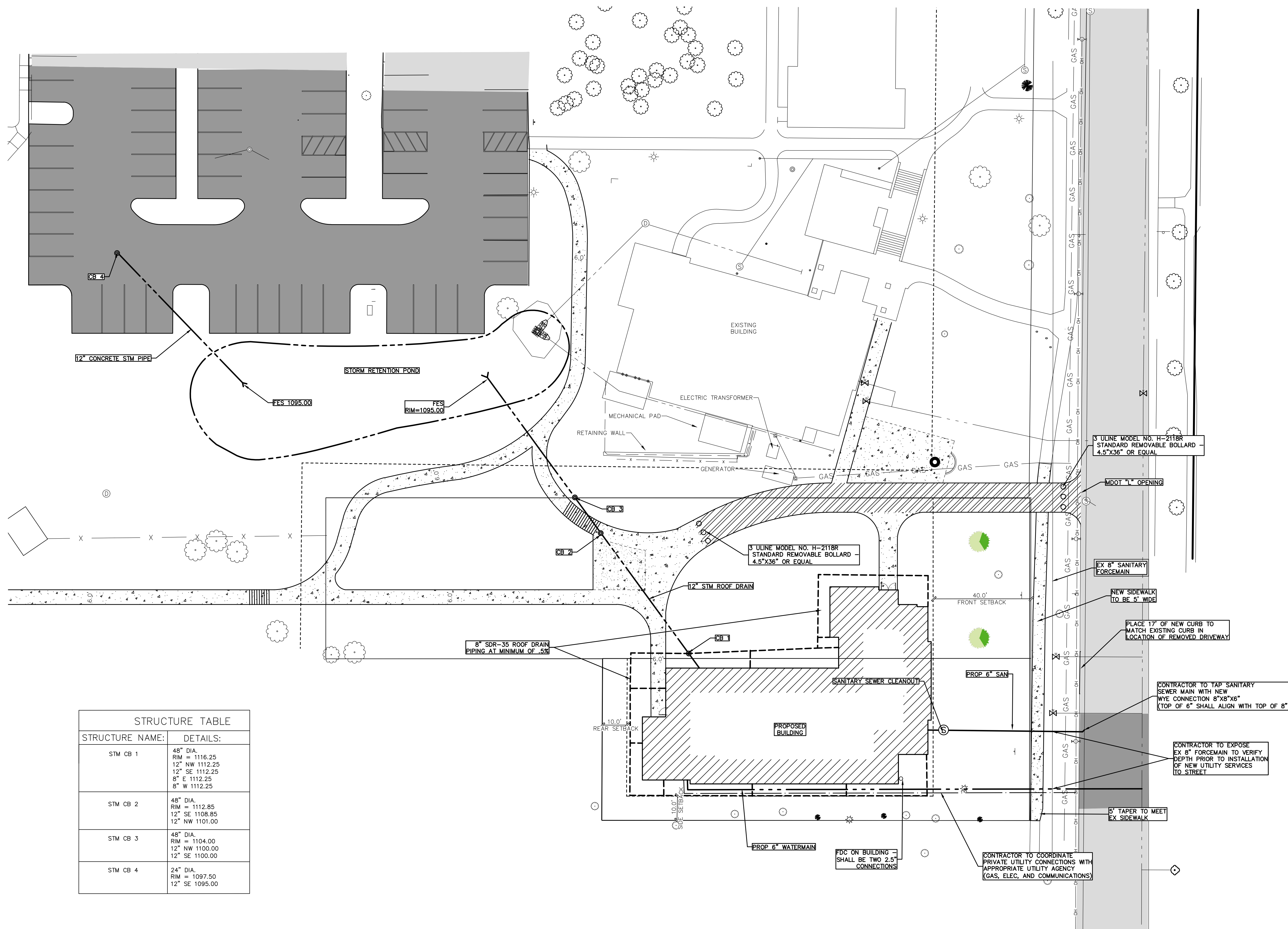
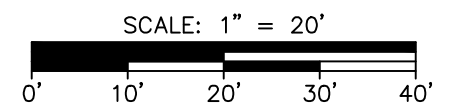
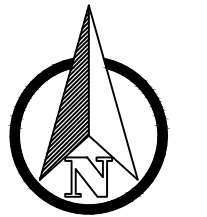
CITY OF HILLSDALE  
HILLSDALE COUNTY, MICHIGAN  
**HILLSDALE COLLEGE**  
STUDENT HOUSING - UNION ST  
EXISTING CONDITIONS



Byron Center, MI (616) 277-2185  
Kalamazoo, MI (269) 697-7120  
www.VKcivil.com

FILE NO. 1032  
CHECKED DGL  
Sheet No. C100





- SITE LAYOUT NOTES:**
- 1) ALL WORK SHALL BE DONE TO ALL FEDERAL, STATE, AND LOCAL LAWS, RULES, AND REGULATIONS.
  - 2) ALL WORK WITHIN ROW SHALL BE DONE IN ACCORDANCE WITH LOCAL ROADWAY JURISDICTION REQUIREMENTS.
  - 3) CONTRACTOR SHALL RESTORE ALL STREET SURFACES, DRIVEWAYS, CULVERTS, ROADSIDE DRAINAGE, AND OTHER INFRASTRUCTURE DISTURBED OR DAMAGED DUE TO CONSTRUCTION ACTIVITIES TO MATCH EXISTING CONDITIONS.
  - 4) ALL DEBRIS SHALL BE REMOVED FROM THE SITE, AND NO STOCKPILING ON SITE SHALL BE ALLOWED UNLESS APPROVED BY OWNER.
  - 5) THE CONTRACTOR SHALL LIMIT SAWCUT AND PAVEMENT REMOVAL TO ONLY THOSE AREAS WHERE REQUIRED OR AS SHOWN. ALL PAVEMENTS TO BE REMOVED SHALL BE SAWCUT AND REMOVED TO FULL DEPTH AT ALL PAVEMENT LIMITS OR EXISTING JOINTS. IF ANY DAMAGE IS INCURRED TO ANY OF THE SURROUNDING PAVEMENT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ITS REMOVAL AND REPAIR AT NO ADDITIONAL COST.
  - 6) CONTRACTOR SHALL CONTACT MISS DIG THREE WORKING DAYS BEFORE YOU DIG. CALL MISS DIG AT 1-800-482-7171 OR 811.
  - 7) ALL WORK SHALL BE DONE TO THE MICHIGAN HANDICAPPED ACCESSIBILITY CODE AND THE AMERICANS WITH DISABILITIES ACT.
  - 8) ADA PARKING SPACES SHALL BE MARKED WITH APPROVED PAVEMENT SYMBOL. MARK ADA SPACES WITH 4" BLUE PAINT AND SIGNS PER MMUTCD.
  - 9) CONTRACTOR SHALL ENSURE ALL ADA RAMPS AND ACCESS MEET CURRENT ADA STANDARDS. IF IT IS DISCOVERED THAT ANY ITEMS WILL NOT MEET ADA STANDARDS IT SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION.
  - 10) ALL SIGNAGE SHALL BE PER MDOT AND MMUTCD STANDARDS.
  - 11) THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS, PERMIT COSTS, DEMOLITION PERMITS, TAP FEES, ASSESSMENTS, UTILITY PERMITS, ROW PERMITS, BONDS, INSURANCE, OR OTHER FEES ASSOCIATED WITH CONSTRUCTION.
  - 12) SITE CONCRETE TO HAVE A COMPRESSIVE STRENGTH OF A MINIMUM 4000 PSI AND SHALL HAVE LIMESTONE AGGREGATE AND SHALL HAVE A 4-6% AIR ENTRAINMENT WITH A BROOM FINISH.
  - 13) INSTALL EXPANSION JOINTS AT ALL LOCATIONS WHERE CONCRETE ABUTS HMA PAVEMENT.
  - 14) CONTRACTOR SHALL REVIEW THE GEOTECHNICAL AND ENVIRONMENTAL REPORTS FOR THE SITE AND INCORPORATE INTO THEIR CONSTRUCTION MEANS AND METHODS.
  - 15) THESE PLANS HAVE BEEN DEVELOPED FOR ELECTRONIC FIELD SURVEY LAYOUT. DIMENSIONS SHOWN ARE FOR GRAPHIC PRESENTATION ONLY AND SHOULD NOT BE USED FOR LAYOUT. CONTACT THE ENGINEER IF ANY DISCREPANCIES BETWEEN THE PLAN AND ELECTRONIC DATA ARE DISCOVERED.
  - 16) THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY LIGHTS, BARRICADES, FLAGMEN, ETC. AS REQUIRED TO PERFORM THE WORK. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL AND TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE THESE WORK LIMITS.
  - 17) THE CONTRACTOR SHALL PROTECT LOCATION OF ALL PROPERTY MARKERS AND BENCHMARKS.
  - 18) THE CONTRACTOR IS RESPONSIBLE FOR ALL SIGNS, BARRICADES, AND SAFETY FENCES TO DETER PEOPLE FROM ENTERING THE WORK AREA AND FOR MAINTAINING AND PROTECTING THE FLOW OF VEHICULAR AND PEDESTRIAN TRAFFIC AROUND THE JOB SITE. TRAFFIC CONTROLS SHALL BE COORDINATED WITH THE LOCAL POLICE DEPARTMENT AND MUNICIPALITY.
  - 19) PRIOR TO CONSTRUCTION OR GRADING A PROTECTIVE BARRIER, FENCE, POST, AND SIGNS CLEARLY INDICATING LIMITS OF DISTURBANCE SHALL BE INSTALLED INDICATING NO TREE REMOVAL OR DISTURBANCES OUTSIDE LIMITS.
  - 20) NO PARKING OF CONTRACTOR OR SUBCONTRACTORS SHALL BE ALLOWED ON PUBLIC STREETS WITHOUT PRIOR APPROVAL.
  - 21) NO BUILDING MATERIAL, EQUIPMENT, VEHICLES, OR CHEMICALS SHALL BE STORED OR PLACED OUTSIDE OF THE LIMITS OF DISTURBANCE.
  - 22) CONSTRUCTION NOISE SHALL BE KEPT TO A MINIMUM DURING NIGHTTIME HOURS AND MUST COMPLY WITH LOCAL MUNICIPAL ORDINANCES.

- UTILITY PLAN NOTES:**
- 1) CONTRACTOR SHALL CONTACT PRIVATE AND PUBLIC UTILITY COMPANIES IF ANY COORDINATION IS NEEDED BETWEEN PROPOSED WORK AND EXISTING UTILITIES.
  - 2) UTILITIES SHOWN (IF ANY) ARE APPROXIMATE LOCATIONS DERIVED FROM MEASUREMENTS OR AVAILABLE RECORDS. THIS MAP IS NOT TO BE INTERPRETED AS SHOWING EXACT LOCATIONS OR SHOWING ALL UTILITIES IN THE AREA. THE ENGINEER ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF EXISTING UTILITY INFORMATION. THE CONTRACTOR SHALL FIELD VERIFY FOR ACCURACY, LOCATION, AND CONDITION.
  - 3) ALL WATERMAIN TO BE CONSTRUCTED IN ACCORDANCE WITH LOCAL WATER UTILITY STANDARDS AND EGE STANDARDS.
  - 4) ALL SANITARY SEWER TO BE CONSTRUCTED IN ACCORDANCE WITH LOCAL SANITARY SEWER UTILITY STANDARDS AND EGE STANDARDS.
  - 5) ALL 6" UNDERDRAIN TO BE CORRUGATED PLASTIC PIPE WITH SOCK, ADS N-12 OR APPROVED EQUAL.
  - 6) ALL STORM SEWER SHALL BE SMOOTH LINED CORRUGATED PLASTIC PIPE, ADS N-12 OR EQUAL, UNLESS OTHERWISE LABELED ON THE PLANS.
  - 7) ALL EXISTING CASTINGS FOR STRUCTURES TO BE ADJUSTED OR RECONSTRUCTED TO GRADE SHALL BE FIELD VERIFIED AT THE TIME OF CONSTRUCTION AND MARKED SUITABLE FOR SALVAGE AND REUSE OR REPLACED.
  - 8) ROOF DRAINS, FOUNDATION DRAINS, AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER ARE PROHIBITED.
  - 9) CATCH BASINS WITHIN CONCRETE HEAD CURB SHALL HAVE EJ 7045 CASTINGS.
  - 10) CATCH BASINS WITHIN BIT VALLEY CURB SHALL HAVE EJ 7065 CASTINGS WITH M1 GRATE.
  - 11) CATCH BASINS WITHIN PAVED AREAS SHALL HAVE EJ 5105 CASTINGS.
  - 12) STORM SEWER MANHOLES SHALL HAVE EJ 1020 CASTINGS WITH SOLID COVERS.
  - 13) STORM SEWER YARD DRAINS SHALL HAVE EJ 6508 CASTINGS.
  - 14) ROOF DRAINS SHALL BE PVC SCH-40.
  - 15) CONTRACTOR IS TO UNCOVER AND VERIFY ALL TAP LOCATIONS AND INVERTS. LOCATION AND INVERT DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION FOR RESOLUTION PRIOR TO CONTINUING WORK.
  - 16) SANITARY AND STORM STRUCTURES SHALL BE PRECAST AND HAVE A MAXIMUM OF 2 ADJUSTING RINGS FOR FINISH GRADE ADJUSTMENT.
  - 17) THE CONTRACTOR SHALL MAINTAIN EXISTING UTILITY SERVICE TO ALL ADJOINING PROPERTIES.

**SYMBOL LEGEND**

- ⊙ STORM CB
- ⊙ SAN STRUCTURE
- 6" TALL EVERGREEN

**LINE AND HATCH LEGEND**

- WATER MAIN
- - - STORM SEWER
- - - SANITARY SEWER
- ▨ HMA EXISTING
- ▨ PROP CONCRETE
- ▨ PROP HEAVY DUTY CONCRETE
- ▨ PROP HMA

STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
STM CB 1	48" DIA. RIM = 1116.25 12" NW 1112.25 12" SE 1112.25 8" E 1112.25 8" W 1112.25
STM CB 2	48" DIA. RIM = 1112.85 12" SE 1108.85 12" NW 1101.00
STM CB 3	48" DIA. RIM = 1104.00 12" NW 1100.00 12" SE 1100.00
STM CB 4	24" DIA. RIM = 1097.50 12" SE 1095.00

- PROJECT SITE INFORMATION:**
- 1) PARCEL ADDRESS 612 S DETROIT STREET
  - 2) TOTAL ACREAGE 1.05 ACRES
  - 3) ZONING C-1
  - 4) ADJACENT ZONING - C-1 NORTH, EAST, WEST AND SOUTH
  - 5) MINIMUM SETBACKS:
    - FRONT SETBACK: 40'
    - SIDE SETBACKS: 10'
    - REAR SETBACK: 10'
  - 6) PARKING CALCULATION: 1 PARKING SPOT FOR EVERY 3 BEDS.
    - PROPOSED 56 BEDS. 19 PARKING SPACES REQUIRED. 18 ADDITIONAL PARKING SPACES PROPOSED
  - 7) SIGNAGE, LIGHTING, AND LANDSCAPING SHALL MEET MUNICIPAL REQUIREMENTS.

**LANDSCAPING CALCULATION FOR TWO PARCELS AROUND PROPOSED BUILDING:**

REQUIRED:  
25% LANDSCAPING = 7,656 SQFT

PROVIDED:  
68%  
1 EVERGREEN REQUIRED EVERY 1000 SQFT OF LANDSCAPING=8  
1 DECIDUOUS OR SHRUB REQUIRED EVERY 2000 SQFT OF LANDSCAPING=4  
TOTAL PROVIDED=20 (18 EXISTING 2 PROPOSED) > 12 REQUIRED

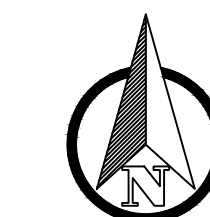
NO.	DATE	REVISION	BY
1	04/21/2022	25% DD	NEF
2	04/27/2022	50% DD	NEF
3	05/04/2022	100% CITY SUBMITTAL	NEF
4	05/27/2022	CITY COMMENTS	NEF

CITY OF HILLSDALE  
HILLSDALE COUNTY, MICHIGAN  
**HILLSDALE COLLEGE**  
STUDENT HOUSING - UNION ST  
SITE AND UTILITY PLAN

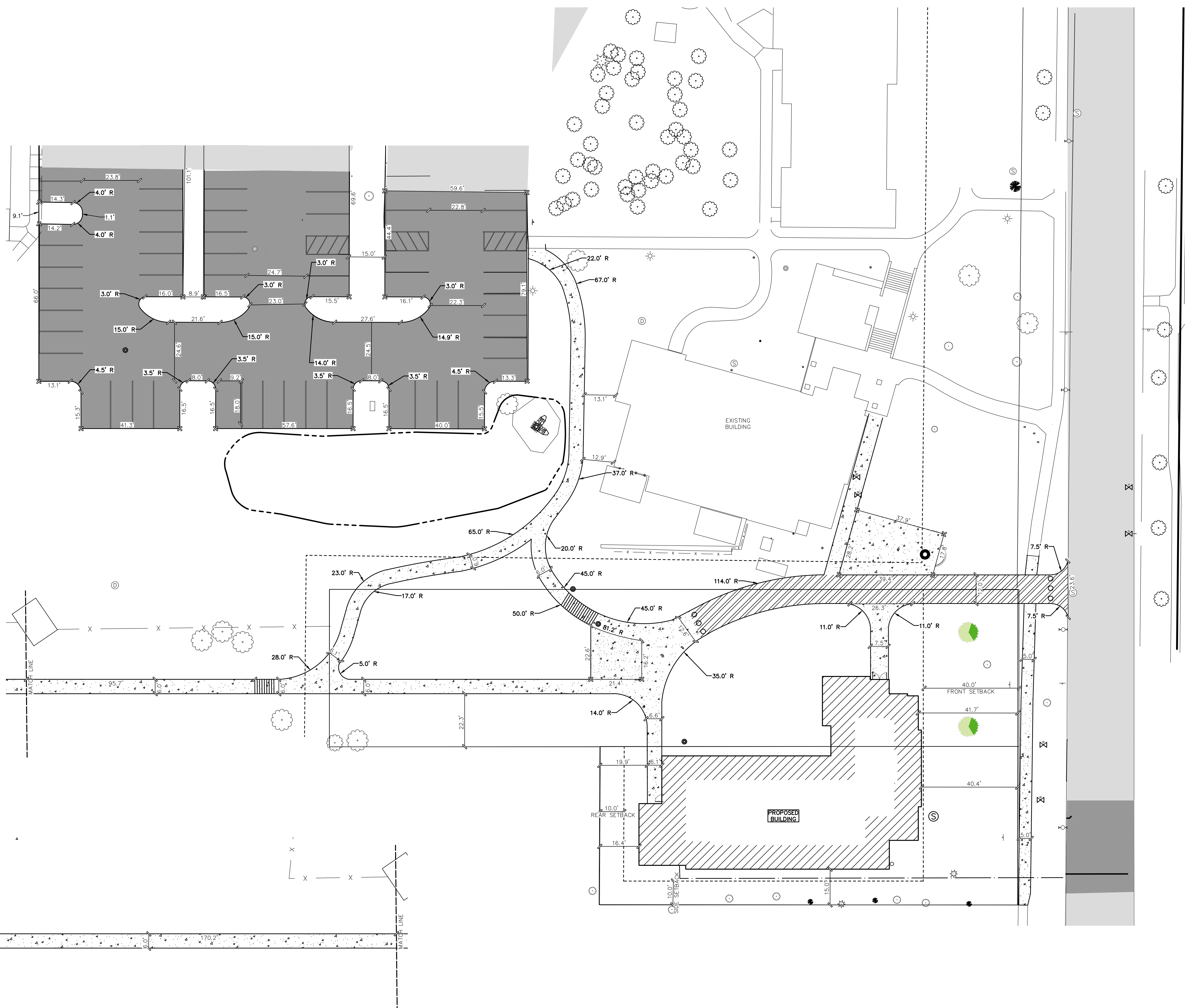
**VK CIVIL** Vriesman & Korhorn  
Byron Center, MI (616) 277-2185  
Kalamazoo, MI (269) 697-7120  
www.VKcivil.com

FILE NO. 1032  
CHECKED DGL  
Sheet No. C300





SCALE: 1" = 20'  
0' 10' 20' 30' 40'



**SYMBOL LEGEND**

- STORM CB
- SAN STRUCTURE
- 6' TALL EVERGREEN

**LINE AND HATCH LEGEND**

- WATER MAIN
- STORM SEWER
- SANITARY SEWER

- HMA EXISTING
- PROP CONCRETE
- PROP HMA
- PROP HEAVY DUTY CONCRETE

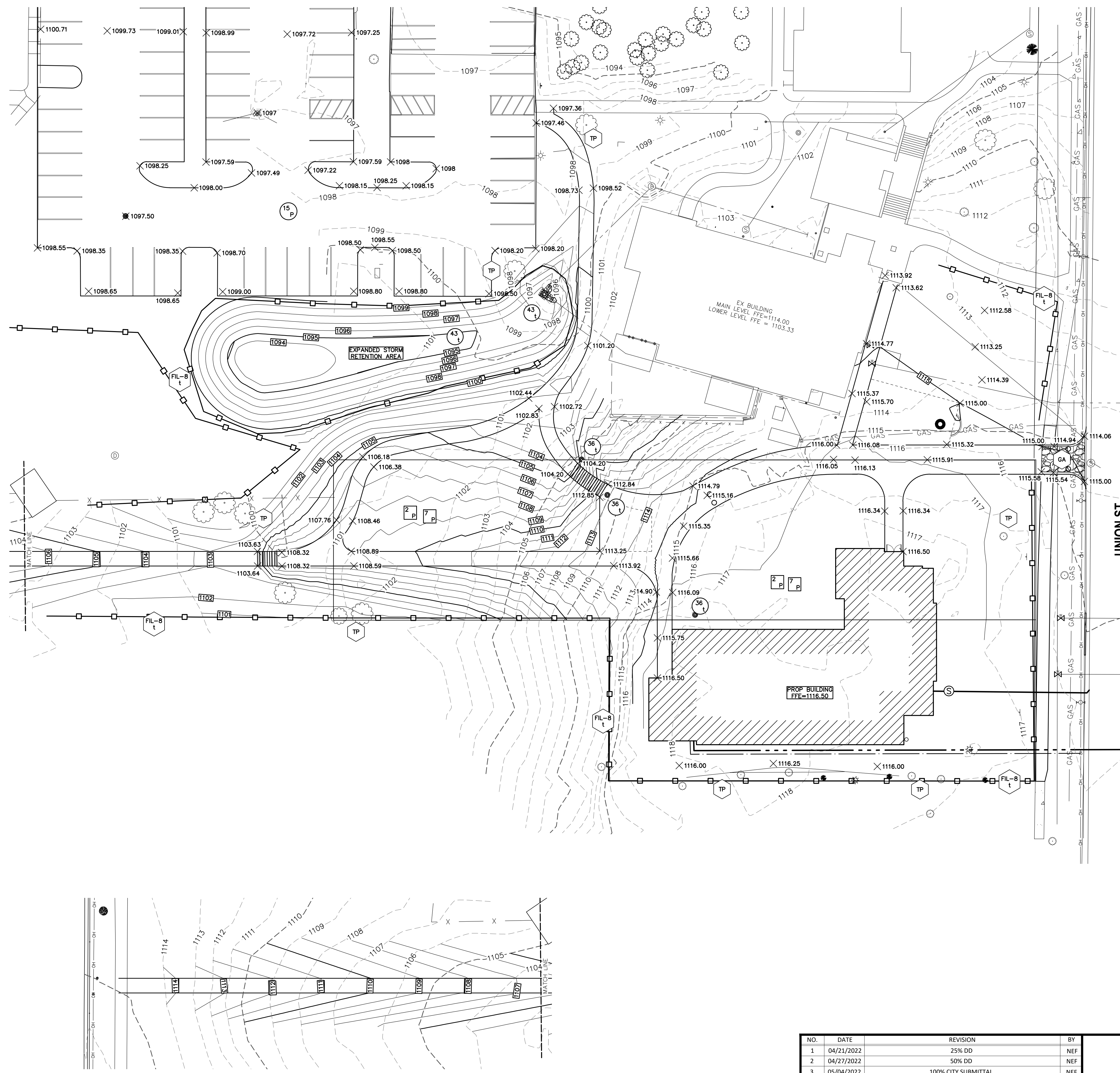
NO.	DATE	REVISION	BY
1	04/21/2022	25% DD	NEF
2	04/27/2022	50% DD	NEF
3	05/04/2022	100% CITY SUBMITTAL	NEF
4	05/27/2022	CITY COMMENTS	NEF

CITY OF HILLSDALE  
HILLSDALE COUNTY, MICHIGAN  
**HILLSDALE COLLEGE  
STUDENT HOUSING - UNION ST**  
SITE DIMENSIONS



Byron Center, MI  
(616) 277-2185  
Kalamazoo, MI  
(269) 697-7120

FILE NO. 1032  
CHECKED DGL  
Sheet No. C301



**CONTROL MEASURE KEY**

- 2 P SELECTIVE GRADING & SHAPING, PERMANENT
- 7 P HYDROSEEDING, PERMANENT, TYPICAL IN ALL NON-PAVED AREAS DISTURBED BY CONSTRUCTION ACTIVITIES
- 14 t AGGREGATE COVER, TEMPORARY, TYPICAL ON ALL STREETS DISTURBED BY CONSTRUCTION ACTIVITIES
- 15 P PAVING, PERMANENT, TYPICAL ON ALL STREETS DISTURBED BY CONSTRUCTION ACTIVITIES.
- FIL-2 t SEDIMENT BASIN BMP EXHIBIT 2, SEDIMENT BASIN, TEMPORARY REQUIRED FOR DE-WATERING ACTIVITIES, SEVERE SLOPES, AND LARGE DISTURBED AREAS.
- 36 t SILTSACK, TEMPORARY, TYPICAL AT ALL CATCH BASINS WITHIN OR DISTURBED BY CONSTRUCTION ACTIVITIES
- 43 t CULVERT SEDIMENT TRAP, TEMPORARY, TYPICAL AT ALL STORM OUTLETS AND STREAMS DISTURBED BY CONSTRUCTION ACTIVITIES
- FIL-8 t FILTER BMP EXHIBIT 8A, SILT FENCE, TEMPORARY, TYPICAL IN ALL AREAS, ESPECIALLY ADJACENT TO STREAMS, PONDS, ETC. AND ALONG PROJECT UNITS.
- TP TREE PROTECTION, INCLUDES TUNNELING UNDER TREES, TYPICAL FOR ALL TREES ENCOUNTERED UNLESS TREE REMOVAL IS DIRECTED BY THE ENGINEER.
- GA DENOTES GRAVEL ACCESS APPROACH. APPROACH SHALL BE INSTALLED TO PROVIDE STABLE ACCESS TO ROADWAYS AND MINIMIZE DUST AND TRACKING OF MATERIALS ONTO PUBLIC STREETS AND HIGHWAYS. THE APPROACH SHALL BE A MIN. OF 12' WIDE, 6" DEEP, AND CONSIST OF 2"-4" AGGREGATE.

**GENERAL SOIL EROSION MEASURES (APPLICABLE TO ENTIRE SITE)**

- 7 P
- 14 t
- 15 P
- 36 t
- FIL-8 t
- TP

**LEGEND**

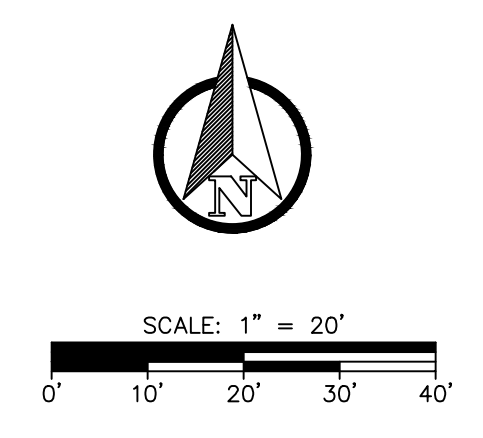
- 34 t MICHIGAN UNIFIED KEYING SYSTEM (MUKS)
- t BEST MANAGEMENT PRACTICE (BMP)
- t TEMPORARY CONTROL MEASURE (DURING CONSTRUCTION AND UNTIL PERMANENT MEASURES ARE ESTABLISHED)
- P PERMANENT CONTROL MEASURE

**NOTE:**

SOIL EROSION AND SEDIMENTATION CONTROL MEASURES INDICATED ARE KNOWN OR ANTICIPATED CONTROL MEASURES NEEDED DURING TYPICAL CONSTRUCTION ACTIVITIES. ADDITIONAL CONTROL MEASURES MAY BE REQUIRED DUE TO CONSTRUCTION ACTIVITY, LOCATION, SOIL TYPE, WEATHER EVENT, ETC. ALL ADDITIONAL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES WILL BE INCIDENTAL TO THE CONSTRUCTION CONTRACT.

**GRADING PLAN NOTES:**

- 1) SOILS EXPOSED IN THE BASE OF ALL SATISFACTORY FOUNDATION EXCAVATIONS SHOULD BE PROTECTED AGAINST ANY DETRIMENTAL CHANGES IN CONDITION SUCH AS FROM DISTURBANCE, RAIN AND FREEZING. RUN-OFF WATER SHOULD BE DRAINED AWAY FROM THE EXCAVATION AND NOT ALLOWED TO POND. IF POSSIBLE, ALL FOOTING CONCRETE SHOULD BE POURED THE SAME DAY THE EXCAVATION IS MADE. IF THIS IS NOT PRACTICAL, THE FOOTING EXCAVATIONS SHOULD BE ADEQUATELY PROTECTED.
- 2) REMOVE ALL SUBGRADE MATERIAL THAT MAY BE SOFTENED BY RAINS, FREEZING, OR CONSTRUCTION TRAFFIC, ETC., AND REPLACE WITH COMPACTED GRANULAR FILL.
- 3) ALL CONSTRUCTION METHODS SHALL BE DONE IN COMPLIANCE WITH MDOE-MDEQ. THE OWNER SHALL BE RESPONSIBLE FOR OBTAINING A "SOIL EROSION PERMIT" FROM THE COUNTY AND A "PERMIT BY RULE/NOTICE OF COVERAGE" FROM ECLIF IF APPLICABLE, PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH ALL REQUIREMENTS IF THE COUNTY "SOIL EROSION PERMIT" AND FOR ALL CERTIFIED STORM WATER INSPECTION SERVICE REQUESTED BY THE "PERMIT BY RULE." EROSION CONTROL MEASURES SHOWN ON THE PLANS ARE THE MINIMUM REQUIREMENTS AND SHALL NOT RELIEVE THE CONTRACTORS RESPONSIBILITY FOR PROVIDING ALL REQUIRED EROSION CONTROL MEASURES.
- 4) AVOID UNNECESSARY DISTURBING OR REMOVING OF EXISTING VEGETATED TOPSOIL OR EARTH COVER. THESE COVER AREAS ACT AS SEDIMENT FILTERS.
- 5) ALL TEMPORARY SOIL EROSION PROTECTION SHALL REMAIN IN PLACE UNTIL REMOVAL IS REQUIRED FOR FINAL CLEAN UP AND APPROVAL.
- 6) GEOTEXTILE SILT FENCE SHALL BE INSTALLED AS REQUIRED WHEN CROSSING CREEKS OR WHEN ADJACENT TO WETLANDS OR SURFACE WATER BODIES TO PREVENT SILTATION AND ELSE WHERE AS DIRECTED BY THE ENGINEER. SEEDING AND/OR SODDING SHALL BE INSTALLED ON CREEK BANKS IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.
- 7) CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID TRACKING SOIL ONTO ADJACENT ROADWAYS. CONTRACTOR SHALL SWEEP IMMEDIATELY IF OCCURS.
- 8) ANY DISTURBED AREA WHICH WILL BE LEFT UNWORKED 20 DAYS OR LONGER MUST BE SEEDED TO ESTABLISH VEGETATION FOR TEMPORARY STABILIZATION. BASINS TO BE SEEDED AND MULCH BLANKETS APPLIED IMMEDIATELY TO PROVIDE A STABLE BASE AND AVOID EXCESSIVE EROSION.
- 9) ALL SOIL EROSION CONTROL MEASURES ARE TO BE IN PLACE PRIOR TO THE START OF ANY GRADING.
- 10) ALL NON PAVED AREAS TO BE TOPSOILED (6" MIN.) & SEEDED.
- 11) VARIATION IN EXISTING SOIL CONDITIONS MAY AFFECT THE EARTHWORK QUANTITIES IF UNUSABLE SOILS ARE ENCOUNTERED DURING CONSTRUCTION.
- 12) DUST CONTROL: THE CONTRACTOR SHALL SUPPLY ALL LABOR, MATERIALS, AND EQUIPMENT NECESSARY SUCH AS CALCIUM CHLORIDE, WATER OR A MOTORIZED DUST-FREE STREET SWEEPING DEVICE TO MAINTAIN ALL ROADWAYS BEING USED FOR ACCESS TO THE CONSTRUCTION SITE AND SHALL ADHERE TO ALL ORDINANCES OF THE TOWNSHIP, COUNTY, MDEQ OR ANY OTHER GOVERNMENT AGENCY.
- 13) IF MUD, SOIL OR OTHER DEBRIS IS DEPOSITED ON ADJACENT STREETS, ROADS OR OTHER PROPERTY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF SUCH AT THE END OF EACH WORK DAY OR AS REQUIRED DURING THE WORK DAY.
- 14) STORMWATER POLLUTION PREVENTION ITEMS SHALL BE IN PLACE PRIOR TO COMMENCING CLEARING OPERATIONS, EARTHWORK GRADING, OR ANY OTHER TYPE OF CONSTRUCTION ACTIVITY.
- 15) CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLYING WITH THE SOIL EROSIONS AND SEDIMENT CONTROL PERMIT.
- 16) PLACE TEMPORARY EROSION CONTROL MEASURES PRIOR TO EARTH MOVING ACTIVITIES.
- 17) MULCH BLANKETS SHALL BE PLACED, STAPLED, AND OVERLAPPED ON ALL SLOPES THAT ARE 1 ON 3 OR GREATER AFTER.
- 18) CONTRACTOR TO INSTALL SILT SACK IN ALL CATCH BASINS ONCE THEY ARE CONSTRUCTED.
- 19) ALL SOIL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED BY A CERTIFIED STORM WATER OPERATOR AND MAINTAINED BY CONTRACTOR EVERY 7 DAYS AND AFTER EVERY SIGNIFICANT RAIN EVENT IN ACCORDANCE WITH NPDES PERMIT BY RULE REQUIREMENTS IF APPLICABLE.
- 20) EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL VEGETATION IS ESTABLISHED.
- 21) BEST MANAGEMENT PRACTICES WILL BE UTILIZED DURING AND AFTER CONSTRUCTION OF THE PROJECT. MEASURES WILL INCLUDE THE USE OF SILT FENCING, SEEDING AND MULCHING, SEDIMENT INLET FILTERS, COMPACTION AND PAVING. THE OWNER OF THE SUBJECT PARCEL SHALL HAVE THE RESPONSIBILITY TO MAINTAIN THE PERMANENT SOIL EROSION PROTECTION MEASURES.



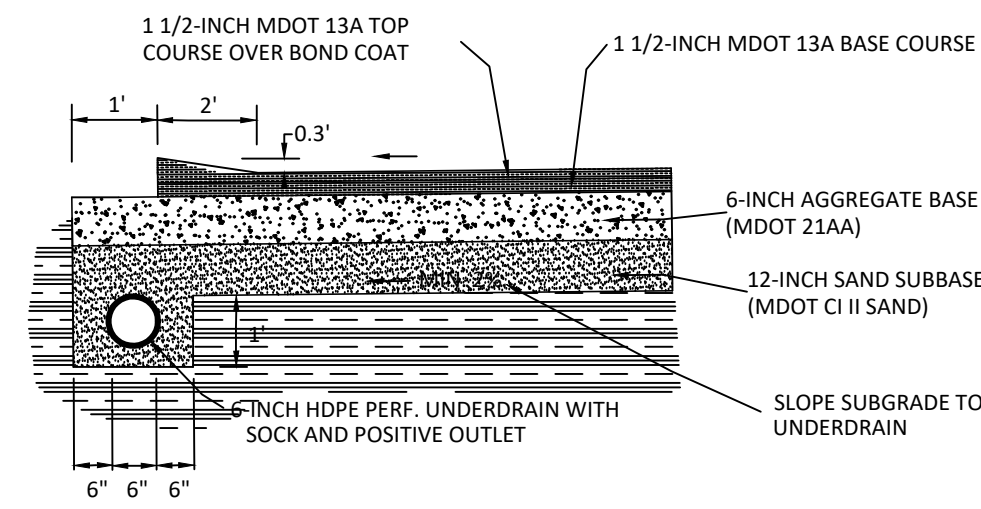
NO.	DATE	REVISION	BY
1	04/21/2022	25% DD	NEF
2	04/27/2022	50% DD	NEF
3	05/04/2022	100% CITY SUBMITTAL	NEF
4	05/27/2022	CITY COMMENTS	NEF

CITY OF HILLSDALE  
HILLSDALE COUNTY, MICHIGAN  
**HILLSDALE COLLEGE**  
STUDENT HOUSING - UNION ST  
GRADING PLAN

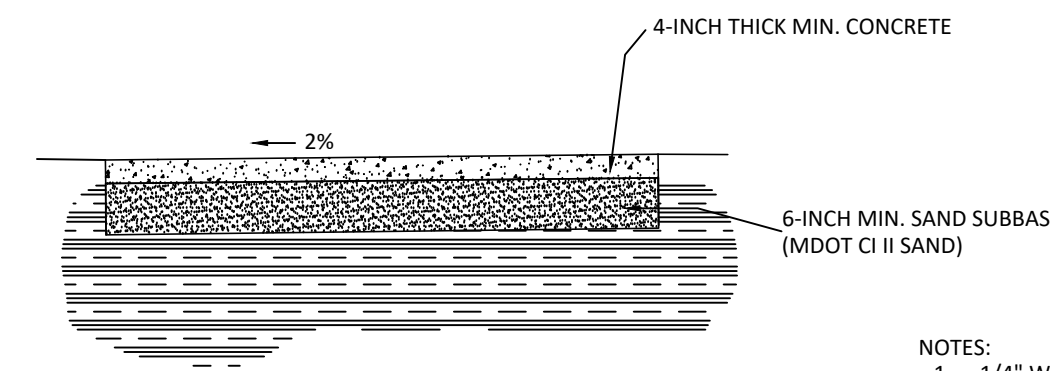


Byron Center, MI (616) 277-2185  
Kalamazoo, MI (269) 697-7120  
Sheet No. C400

FILE NO. 1032  
CHECKED DGL  
Sheet No. C400

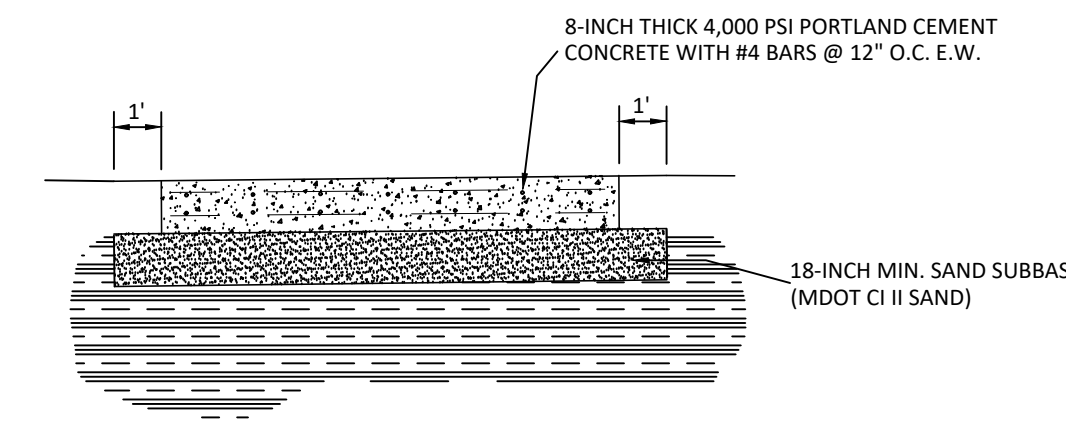


**LIGHT DUTY PAVEMENT DETAIL**  
NOT TO SCALE



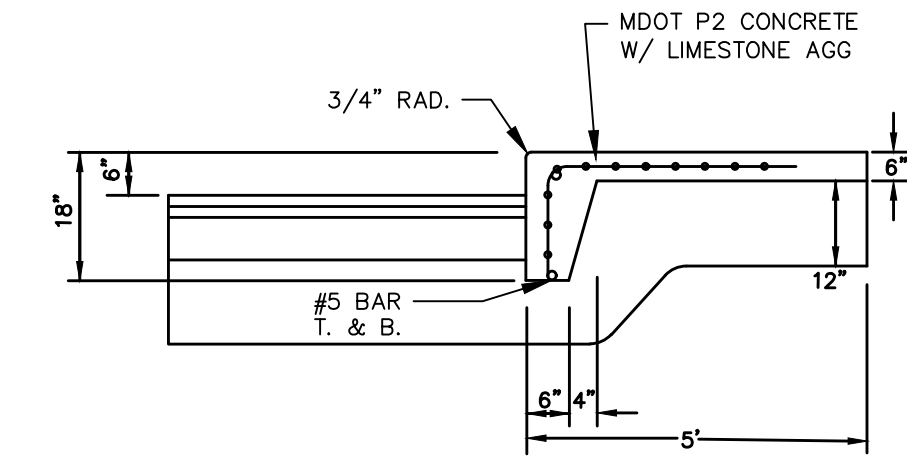
**CONCRETE SIDEWALK DETAIL**  
NOT TO SCALE

- NOTES:
1. 1/4" WIDE TOOLED CONTRACTION JOINTS TO 1" DEPTH AT 5 FOOT INTERVALS.
  2. WHERE SIDEWALK IS PLACED ADJACENT TO CURB AND GUTTER, CONTRACTION JOINTS SHALL LINE UP WITH CURB AND GUTTER JOINTS.
  3. ISOLATION JOINTS WHERE PAVEMENT ABUTS PROPOSED STRUCTURES OR OTHER PAVEMENTS.

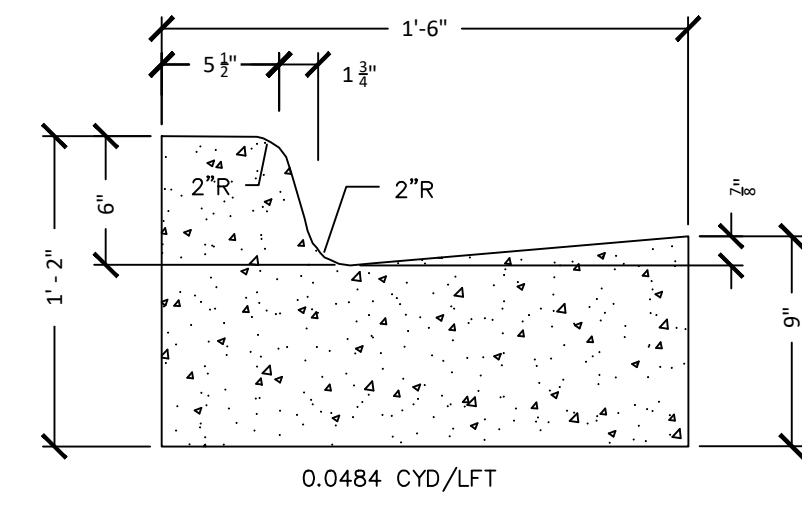


**HEAVY DUTY CONCRETE PAVEMENT DETAIL**  
NOT TO SCALE

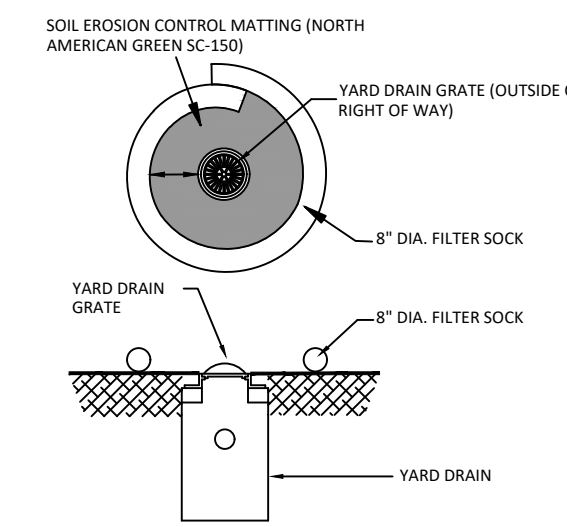
- NOTES:
1. 1/4" WIDE SAWCUT CONTROL JOINTS TO 2.5" DEPTH AT 10' O.C. EACH DIRECTION WITHIN 12 HOURS OF FINISHING CONCRETE.
  2. ISOLATION JOINTS WHERE PAVEMENT ABUTS PROPOSED STRUCTURES OR OTHER PAVEMENTS.



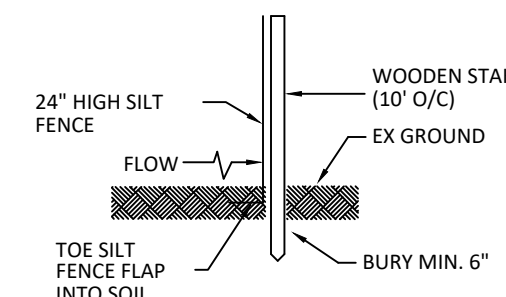
**CONCRETE TURNDOWN EDGE DETAIL FOR ALL RAISED CONCRETE ADJACENT TO DRIVE AREA**  
NOT TO SCALE



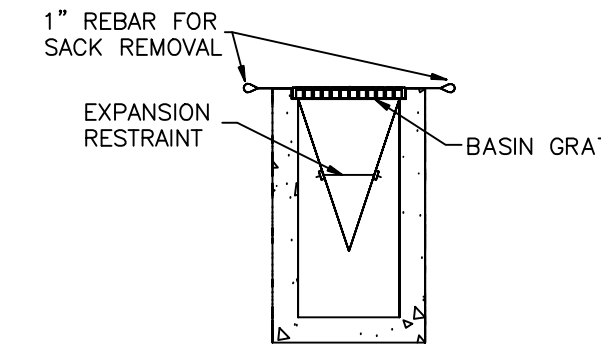
**18" CONCRETE CURB & GUTTER**



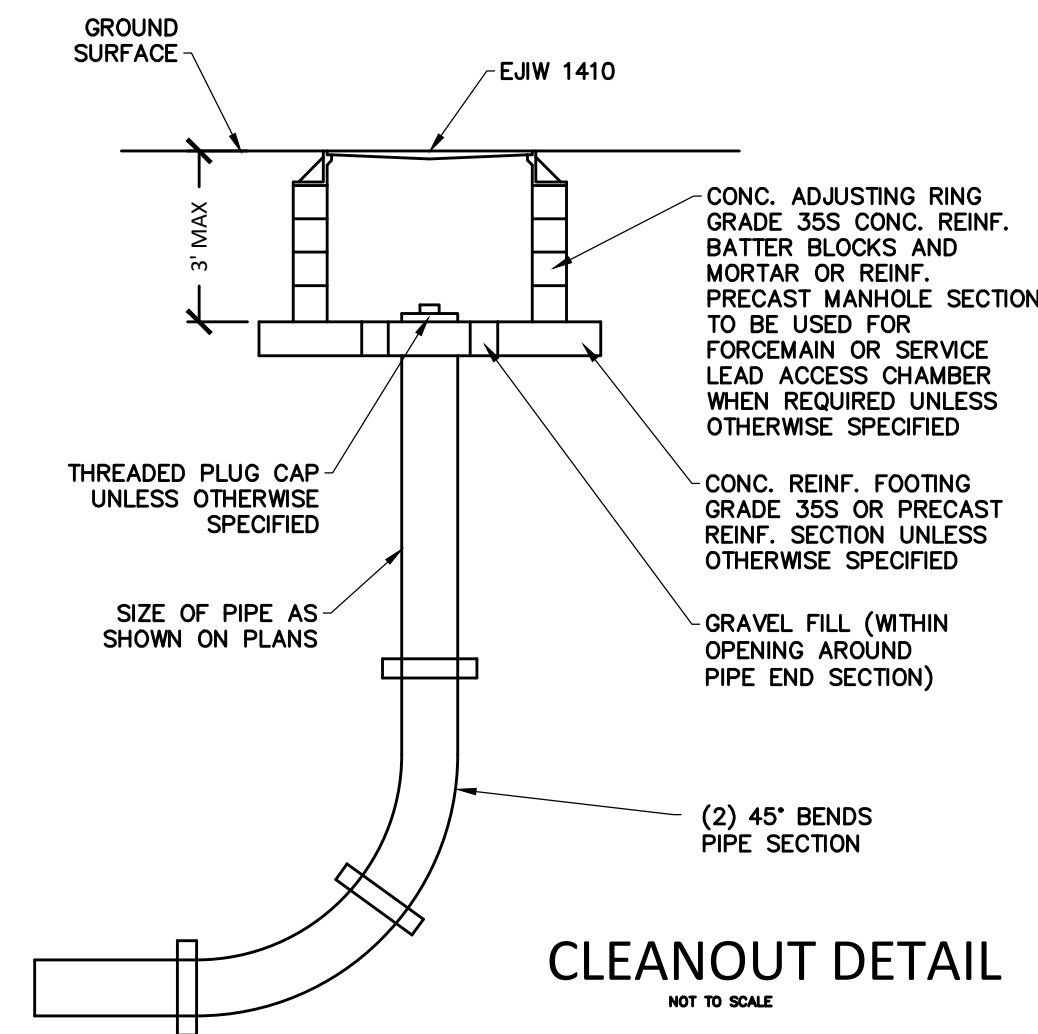
**INLET PROTECTION DETAIL**  
NOT TO SCALE



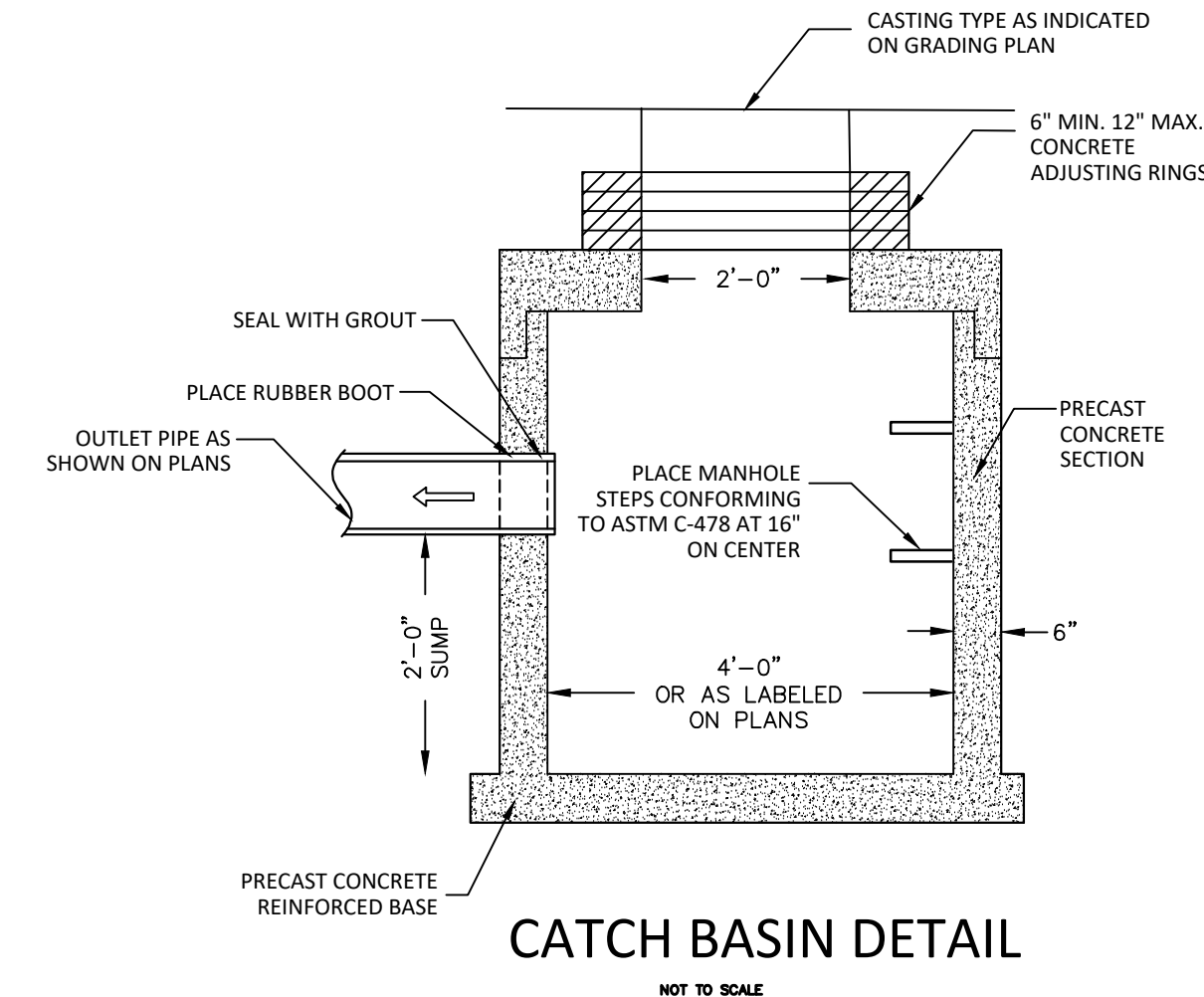
**SILT FENCE DETAIL**  
NOT TO SCALE



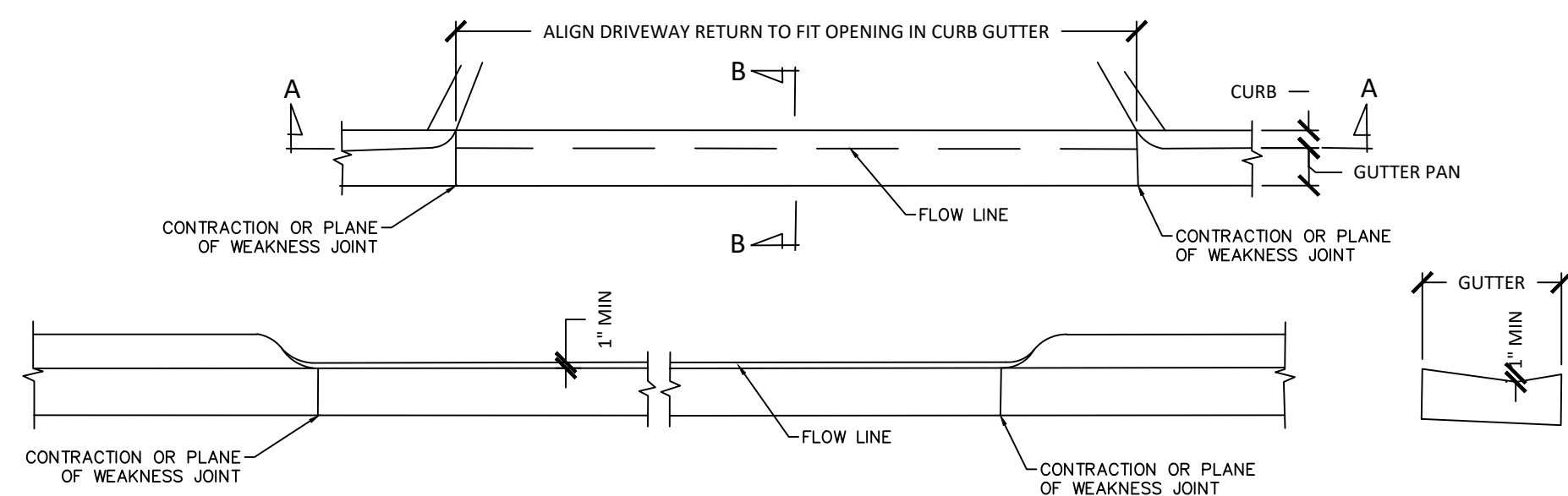
**SILT SACK DETAIL**  
NOT TO SCALE



**CLEANOUT DETAIL**  
NOT TO SCALE



**CATCH BASIN DETAIL**  
NOT TO SCALE



**MDOT CONCRETE DRIVEWAY OPENING, DETAIL L**  
NOT TO SCALE

NO.	DATE	REVISION	BY
1	04/21/2022	25% DD	NEF
2	04/27/2022	50% DD	NEF
3	05/04/2022	100% CITY SUBMITTAL	NEF
4	05/27/2022	CITY COMMENTS	NEF

CITY OF HILLSDALE  
HILLSDALE COUNTY, MICHIGAN  
**HILLSDALE COLLEGE**  
STUDENT HOUSING - UNION ST  
PROJECT DETAILS



Byron Center, MI (616) 277-2185  
Kalamazoo, MI (269) 697-7120

FILE NO.	1032
CHECKED	DGL
SHEET NO.	C500



**TO: Planning Commission**

**FROM: Zoning Administrator**

**DATE: June 15, 2022**

**RE: Lakeview Cemetery Expansion**

**Background:** The City is planning for the expansion of the existing Lakeview Cemetery. The project will be developed and operated through the Department of Public Services. There are no utilities and the expansion is allowed within the zoning ordinance. Service roads and additional burial plots will be added as the project develops. The Zoning Administrator recommends approval of the initial phase of the expansion.

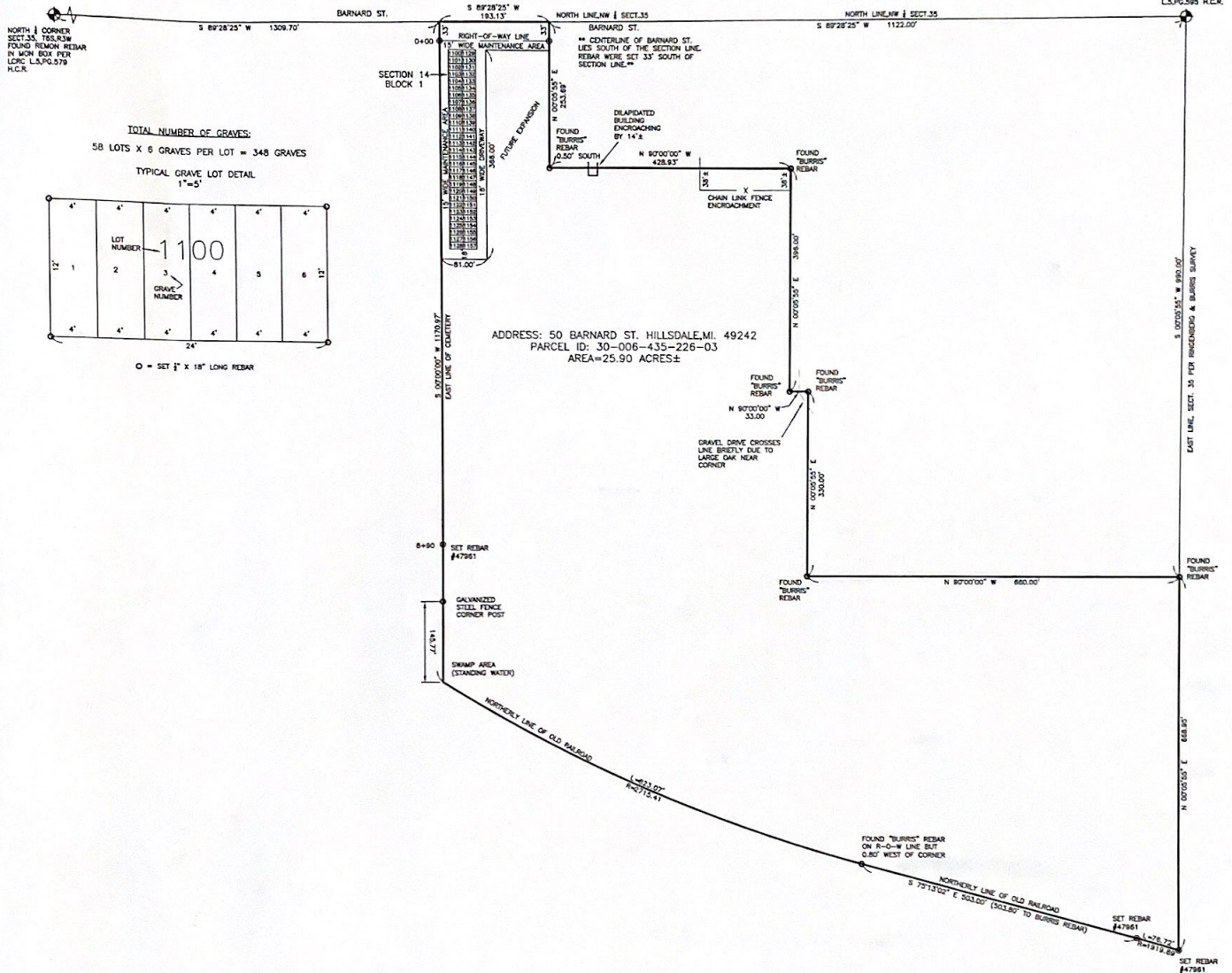


CITY OF HILLSDALE  
 CITY OF HILLSDALE  
 DEPARTMENT OF PUBLIC SERVICES  
 149 WATERWORKS AVE.  
 HILLSDALE, MI 49242

# BOUNDARY SURVEY FOR LAKEVIEW CEMETERY ADDITION

MADE AT THE REQUEST OF JASON BLAKE, CITY OF HILLSDALE DEPARTMENT OF PUBLIC SERVICES  
 AND FRANK ENGLE, SEXTON, CITY OF HILLSDALE

NORTHEAST CORNER  
 SECT. 35, T18S, R29E  
 LIES P.C.C. FOUND  
 REBAR FOR LORC  
 L.S. PG. 295 N.C.R.





**LEGAL DESCRIPTION PER DEED:**

ALL THAT CERTAIN PIECE OR PARCEL OF LAND SITUATE IN THE CITY OF HILLSDALE, COUNTY OF HILLSDALE, AND STATE OF MICHIGAN, DESCRIBED AS FOLLOWS, TO-WIT:

COMMENCING 68 RODS WEST OF THE NORTHEAST CORNER OF SECTION 35, TOWN 6 SOUTH, RANGE 3 WEST, THENCE WEST 12 RODS MORE OR LESS TO THE EAST LINE OF THE CEMETERY; THENCE SOUTH ALONG THE EAST LINE OF THE CEMETERY TO THE NORTH LINE OF THE L.S.&M.S.R.R.; THENCE SOUTHEASTERLY ALONG THE R.R. TO THE EAST LINE OF SAID SECTION, THENCE NORTH ON THE SECTION LINE TO A POINT 60 RODS SOUTH OF THE NORTHEAST CORNER, THENCE WEST 40 RODS; THENCE NORTH 20 RODS; THENCE WEST 2 RODS; THENCE NORTH 24 RODS; THENCE WEST 26 RODS; THENCE NORTH TO THE PLACE OF BEGINNING.

**SURVEYED LEGAL DESCRIPTION PER RINGENBERG & BURRIS 1973 SURVEY:**

A PARCEL OF LAND, SITUATED IN THE NORTHEAST ONE-QUARTER, SECTION 35, TOWN 6 SOUTH, RANGE 3 WEST, CITY OF HILLSDALE, COUNTY OF HILLSDALE, STATE OF MICHIGAN, DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT, ON THE NORTH LINE OF SAID SECTION 35, ALSO KNOWN AS THE CENTERLINE OF BARNARD STREET, BEING 66 FEET WIDE, SAID POINT BEING 1122.00 FEET (68 RODS) WEST OF THE NORTHEAST CORNER OF SAID SECTION 35; THENCE S 89°28'25" W, ALONG THE NORTH LINE OF SAID SECTION 35, A DISTANCE OF 193.13 FEET, TO THE EAST LINE OF THE CEMETERY; THENCE SOUTH, ALONG SAID EAST LINE OF THE CEMETERY, A DISTANCE OF 1170.97 FEET, TO THE NORTHERLY RIGHT-OF-WAY LINE OF THE OLD LAKE SHORE AND MICHIGAN SOUTHERN RAILROAD PROPERTY; THENCE SOUTHEASTERLY, ALONG THE NORTHERLY RIGHT-OF-WAY LINE OF SAID RAILROAD PROPERTY, ON A CURVE TO THE LEFT, WHICH HAS A CENTRAL ANGLE OF 172°2'01", A RADIUS OF 2715.41 FEET, A CHORD BEARING OF S 66°32'01" E, A CHORD DISTANCE OF 819.92 FEET, A DISTANCE, ALONG THE ARC, OF 823.07 FEET, TO A POINT OF TANGENCY FOR SAID CURVE; THENCE S 75°13'02" E, ALONG THE NORTHERLY RIGHT-OF-WAY LINE OF SAID RAILROAD PROPERTY, A DISTANCE OF 503.00 FEET, TO A POINT OF CURVATURE; THENCE CONTINUING ALONG THE NORTHERLY RIGHT-OF-WAY LINE OF SAID RAILROAD PROPERTY, ON A CURVE TO THE RIGHT, WHICH HAS A CENTRAL ANGLE OF 2°17'22", A RADIUS OF 1919.89 FEET, A CHORD BEARING OF S 74°04'21" E, A CHORD DISTANCE OF 76.71 FEET, A DISTANCE, ALONG THE ARC, OF 76.72 FEET, TO THE EAST LINE OF SAID SECTION 35; THENCE N 00°05'55" E, ALONG THE EAST LINE OF SAID SECTION 35, A DISTANCE OF 668.95 FEET, TO A POINT 990.00 FEET (60 RODS) SOUTH OF THE NORTHEAST CORNER OF SAID SECTION 35; THENCE WEST, A DISTANCE OF 66.00 FEET (40 RODS); THENCE N 00°05'55" W, PARALLEL WITH THE EAST LINE OF SAID SECTION 35, A DISTANCE OF 330.00 FEET (20 RODS); THENCE WEST, A DISTANCE OF 33.00 FEET (2 RODS); THENCE N 00° 05'55" W, PARALLEL WITH THE EAST LINE OF SAID SECTION 35, A DISTANCE OF 396.00 FEET (24 RODS); THENCE WEST, A DISTANCE OF 428.93 FEET (429 FEET OF 26 RODS BY DEED); THENCE N 00°05'55" E, PARALLEL WITH THE EAST LINE OF SAID SECTION 35, A DISTANCE OF 253.69 FEET, TO THE NORTH LINE, OF SAID SECTION 35, THE POINT OF BEGINNING; SUBJECT TO LEGAL HIGHWAYS, RESTRICTIONS, CONDITIONS AND EASEMENTS OF RECORD; CONTAINING 25.903 ACRES.

**SURVEY NOTE:**

THIS SURVEY IS A RETRACEMENT OF A 1973 SURVEY OF TYHE SAME PROPERTY BY RINGENBERG & BURRIS LAND SURVEYORS. JOB NO. 573-167 AND DRAWING NO. 73-289 E. BEARINGS USED HEREON ARE BASED ON SAID SURVEY. WE FOUND THE MAJORITY OF BURRIS' CORNERS STILL IN PLACE.



*Michael J. Lodzinski*  
Michael J. Lodzinski, P.S. #47961

I HEREBY CERTIFY THAT I HAVE SURVEYED AND MAPPED THE PARCEL(S) HEREON DESCRIBED AND THAT THE RELATIVE POSITIONAL PRECISION OF EACH CORNER IS WITHIN THE LIMITS ACCEPTED BY THE PRACTICE OF PROFESSIONAL SURVEYING AND THAT ALL REQUIREMENTS OF P.A. 132 OF 1970, AS AMENDED, HAVE BEEN COMPLIED WITH.

**Lodzinski & Associates, LLC**

P.O. BOX 129  
SOMERSET CENTER, MI 49282  
(517)-320-1087  
Email: Lodzinski@Comcast.net

JOB NAME: LAKEVIEW CEMETERY ADDITION	SURVEY BY: ML/LB	DRAWN BY: MJL
CLIENT NAME: CITY OF HILLSDALE DPS	SCALE: 1" = 100'	CHECKED BY: MJL
DESCRIPTION: BOUNDARY SURVEY	DATE: 06-22-2020	REV: 05-27-22 ADD LOCATION OF NEW GRAVESITES
	JOB NUMBER 20s01447	SHEET
	DRAWING NAME 20s01447 LAKEVIEW	1 of 1



**TO: Planning Commission**

**FROM: Zoning Administrator**

**DATE: June 15, 2022**

**RE: Land Division – Pearl Tree Park LLC**

**Background:** The owner of parcel number 30-006-426-354-14, located at 100 Budlong St. would like to divide a narrow strip from the south of the existing lot and combine it with parcel number 30-006-426-354-13, located adjacent at 96 Budlong St. in order to create a designated drive. The City ordinance requires that platted lots may only be divided after review and permission has been granted by the Assessor, Zoning Administrator, Planning Commission and City Council. The Zoning Administrator and Assessor recommend approval by Planning Commission.



- Approved
- Approved with Conditions
- Denied

\* Please refer to the attached sheet for explanation behind the decision.

Date: \_\_\_\_\_



Application Fee: \$75.00

Receipt #: 54601

Signature: \_\_\_\_\_

Date Received: 6/3/2022  
(by City Clerk or City Treasurer)

## LAND DIVISION APPLICATION

You **MUST** answer all questions and include all attachments or **this application will be returned to you.**

**Bring or mail to:** City of Hillsdale  
City Clerk/Treasurer  
97 N Broad St  
Hillsdale, MI 49242

**Questions:** Hillsdale City Assessor  
(517) 437-6456  
[assessor@cityofhillsdale.org](mailto:assessor@cityofhillsdale.org)

This form is designed to comply with Sections 18-82 and 18-83 of the City of Hillsdale Land Division Ordinance and Section 109 of the Michigan Land Division Act (formerly the Subdivision Control Act), P.A. 288 of 1967, as amended (particularly by P.A. 591 of 1996) MCL 560.101 et seq. Land in the City of Hillsdale shall not be divided without the prior review and approval by the City Council or their designated agent, in accordance with the City of Hillsdale Land Division Ordinance and the State of Michigan Land Division Act.

**Approval of a division is not a determination that the resulting parcels comply with other ordinances or regulations.**

1. **LOCATION** of Parent Parcel or Tract to be split:

*“Tract” means two (2) or more parcels that share a common property line and are under the same ownership.*

- a. Primary Address: 100 BOULONG (a part of PearlTreePark LLC)
- b. Parent Parcel Number: 30 - 006 - 426-354-14 EIN: 81-2632404
- c. Attach Additional Sheets (if more than one parent parcel in the tract)

2. **PROPERTY OWNER** Information:

- a. Name: Amira Fsmareel / Robert Schall (Pearl Tree Park LLC)
- b. Phone Number: (517) 914-5344
- c. Address: 76 E. Sharp St  
City: Hillsdale State: MI Zip Code: 49242
- d. Email: pearl tree park @ gmail.com

3. **PROPOSAL** – Describe the Division(s) being proposed:

a. Reason for proposed division (i.e. sale, lease greater than one year, development, etc.):

To Develop a Paved Driveway

b. Number of New Parcels: 0 (this should include parcel(s) retained by the owner)

c. Intended Use (i.e. Residential, Commercial, etc.): Residential

*\* Note: All resulting parcel must meet the minimum size requirements of the zoning district in which the parcel is located (refer to Hillsdale Municipal Code Section 36-411)*

d. Access (check one):

Each new division has frontage on an existing public street.

A new public street, proposed name: \_\_\_\_\_ (street name cannot duplicate existing street)

A private street or easement, proposed name: \_\_\_\_\_ (street name cannot duplicate existing street)

A recorded easement (driveway)

e. The proposed division will be added to an existing parcel (**complete below only if true**)

Parcel Address: 96 Buolong Hillsdale, MI (a part of Pearl Tree Park, LLC)

Parcel Number: 30 - 006 - 426 - 354 - 13

Legal Description (attach extra sheets as needed): \_\_\_\_\_

See attached Survey

*\* If approved, combination will be processed upon receipt of deed establishing identical ownership.*

4. **ATTACHMENTS** (all attachments **MUST** be included) *Letter each attachment as shown:*

A. A scale drawing or survey that complies with the requirements of P.A. 591 of 1996 as amended for the proposed division(s) of the parent parcel showing:

a) Current **boundaries**;

b) All previous divisions **made after** March 31, 1997 (indicate when made or none);

c) **Dimensions** of the proposed divisions;

- d) **Any existing improvements** (building, wells, septic system, driveways, house, garage, etc.) and setback(s) from proposed parcel lines, and
- e) Proof of fee ownership (**most recent deed of parcel to be divided**)
- B. A **certificate from the County Treasurer** that complies with the requirement of P.A. 23 of 2019, establishing that all property taxes and special assessments due on the parcel or tract subject to the proposed divisions for the 5 years preceding the date of the application have been paid.
- C. Indication of approval, or **permit from City of Hillsdale Department of Public Services** that a proposed easement provides vehicular access to an existing road or street and meets applicable location standards (Right of Way permit). (if applicable)
- D. A copy of any transferred division rights (§109(2) of the Act) of the parent parcel (**Form L-4260a**)
- E. A **\$75.00\*** application fee.

*\* Checks should be made payable to the City of Hillsdale*

## 5. ACKNOWLEDGMENT

The undersigned acknowledges that any approval of the within application is not a determination that the resulting parcels comply with other ordinances, rules, or regulations which may control the use or development of the parcels. Finally, even if this division is approved, I understand ordinances, laws, and regulations are subject to change and that any approved parcel division is subject to such changes that may occur before the recording of the division or the development of the parcel.

PROPERTY OWNER'S SIGNATURE:



DATE:

6/2/22

**All complete application packages will be acted upon within 45 days of receipt. If the application package does not conform to the City of Hillsdale Land Division Ordinance requirements and/or the State of Michigan Land Division Act, the administrator shall return the same to the applicant for completion and refiling in accordance with same.**







<p align="center"><b>PROPERTY INFORMATION</b></p> <p>Property Assessed To: PEARL TREE PARK LLC 96 BUDLONG ST HILLSDALE, MI 49242</p> <p>Prop #: 006-426-354-14      School: 30020 Prop Addr: 100 BUDLONG ST</p> <p>Legal Description: . W4 LOT 17 FERRIS ADD FOURTH WARD.      AS OF 12/31/2018 - WARD 4</p>	<p align="center"><b>PAYMENT INFORMATION</b></p> <p>This tax is due by: 02/14/2022</p> <p>Pay by mail to:      CITY OF HILLSDALE OFFICE OF TREASURER 97 N BROAD ST HILLSDALE MI 49242</p>																																																									
<p align="center"><b>MESSAGE TO THE TAXPAYER</b></p> <p>TO AVOID INTEREST AND PENALTY, THE WINTER TAX NEEDS TO BE PAID AT CITY HALL, BY MAIL, IN DROPBOX OR ONLINE AT WWW.CITYOFHILLSDALE.ORG BY FEBRUARY 14TH, 2022. THE TREASURER'S HOURS ARE 9 AM - 12 PM AND 1 PM - 3 PM, MONDAY THROUGH FRIDAY FROM DECEMBER 1ST 2021 THRU FEBRUARY 28TH 2022. YOU MAY CONTACT THE HILLSDALE CITY TREASURER AT 517-437-6454 OR VIA EMAIL AT TREASURER@CITYOFHILLSDALE.ORG.</p>	<p align="center"><b>OPERATING FISCAL YEARS</b></p> <p>The taxes on bill will be used for governmental operations for the following fiscal year(s) and does NOT affect when the tax is due or the amount:</p> <p>County: 01/01 - 12/31      School: 07/01 - 06/30 Twn/Cty: 07/01 - 06/30      State: 10/01 - 09/30</p>																																																									
<p align="center"><b>MESSAGE FROM THE ASSESSOR</b></p> <p>PLEASE REVIEW YOUR BILL CAREFULLY. TAXPAYERS WHO SUSPECT THAT THERE MAY BE AN ERROR IN THE CALCULATION OF THEIR BILL OR THAT THEY MAY QUALIFY FOR A PROPERTY TAX EXEMPTION NOT REFLECTED ON THE BILL SHOULD SUBMIT A WRITTEN REQUEST ADDRESSED TO THE BOARD OF REVIEW PRIOR TO THE SECOND MONDAY IN DECEMBER. EXEMPTION APPLICATIONS AND ADDITIONAL INFORMATION CAN BE FOUND ONLINE AT <a href="https://www.cityofhillsdale.org/cityassessor">HTTPS://WWW.CITYOFHILLSDALE.ORG/CITYASSESSOR</a>. EMAIL <a href="mailto:ASSESSOR@CITYOFHILLSDALE.ORG">ASSESSOR@CITYOFHILLSDALE.ORG</a> OR CALL (517)437-6456 WITH QUESTIONS.</p>	<p align="center"><b>TAX DETAIL</b></p> <table border="0"> <tr> <td>Taxable Value:</td> <td>79,200</td> <td>RESIDENTIAL-IMPROV</td> </tr> <tr> <td>State Equalized Value:</td> <td>79,200</td> <td>Class: 401</td> </tr> <tr> <td>PRE/MBT %:</td> <td>0.0000</td> <td>Mort Code:</td> </tr> </table> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Taxes are based upon Taxable Value. 1 mil equals \$1.00 per 1000 of Taxable Value. Amounts with no millage are either Special Assessments or other charges added to this bill.</p> </div> <table border="0"> <thead> <tr> <th>DESCRIPTION</th> <th>MILLAGE</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr><td>CO MCF</td><td>0.59210</td><td>46.89</td></tr> <tr><td>CO 2004 SENIOR</td><td>0.48990</td><td>38.80</td></tr> <tr><td>CO AMBULANCE SVC</td><td>0.83880</td><td>66.43</td></tr> <tr><td>CO AMBULANCE CAP</td><td>0.14800</td><td>11.72</td></tr> <tr><td>CO 2008 SENIOR</td><td>0.49310</td><td>39.05</td></tr> <tr><td>CO MENTAL HEALTH</td><td>0.49340</td><td>39.07</td></tr> <tr><td>2006 MCF DEBT</td><td>0.35000</td><td>27.72</td></tr> <tr><td>SCHOOL OPERATING</td><td>8.87890</td><td>703.20</td></tr> <tr><td>SCHOOL BLDG/SITE</td><td>1.11190</td><td>88.06</td></tr> <tr><td>HILLSDALE ISD</td><td>0.13220</td><td>10.47</td></tr> <tr><td>HILLSDALE SPC ED</td><td>1.48280</td><td>117.43</td></tr> <tr><td>HILLSDALE VOC ED</td><td>0.74140</td><td>58.71</td></tr> <tr><td colspan="2">Total Tax</td><td>15.75250</td></tr> <tr><td colspan="2">Administration Fee</td><td>12.48</td></tr> <tr><td colspan="2"><b>TOTAL AMOUNT DUE</b></td><td><b>1,260.03</b></td></tr> </tbody> </table>	Taxable Value:	79,200	RESIDENTIAL-IMPROV	State Equalized Value:	79,200	Class: 401	PRE/MBT %:	0.0000	Mort Code:	DESCRIPTION	MILLAGE	AMOUNT	CO MCF	0.59210	46.89	CO 2004 SENIOR	0.48990	38.80	CO AMBULANCE SVC	0.83880	66.43	CO AMBULANCE CAP	0.14800	11.72	CO 2008 SENIOR	0.49310	39.05	CO MENTAL HEALTH	0.49340	39.07	2006 MCF DEBT	0.35000	27.72	SCHOOL OPERATING	8.87890	703.20	SCHOOL BLDG/SITE	1.11190	88.06	HILLSDALE ISD	0.13220	10.47	HILLSDALE SPC ED	1.48280	117.43	HILLSDALE VOC ED	0.74140	58.71	Total Tax		15.75250	Administration Fee		12.48	<b>TOTAL AMOUNT DUE</b>		<b>1,260.03</b>
Taxable Value:	79,200	RESIDENTIAL-IMPROV																																																								
State Equalized Value:	79,200	Class: 401																																																								
PRE/MBT %:	0.0000	Mort Code:																																																								
DESCRIPTION	MILLAGE	AMOUNT																																																								
CO MCF	0.59210	46.89																																																								
CO 2004 SENIOR	0.48990	38.80																																																								
CO AMBULANCE SVC	0.83880	66.43																																																								
CO AMBULANCE CAP	0.14800	11.72																																																								
CO 2008 SENIOR	0.49310	39.05																																																								
CO MENTAL HEALTH	0.49340	39.07																																																								
2006 MCF DEBT	0.35000	27.72																																																								
SCHOOL OPERATING	8.87890	703.20																																																								
SCHOOL BLDG/SITE	1.11190	88.06																																																								
HILLSDALE ISD	0.13220	10.47																																																								
HILLSDALE SPC ED	1.48280	117.43																																																								
HILLSDALE VOC ED	0.74140	58.71																																																								
Total Tax		15.75250																																																								
Administration Fee		12.48																																																								
<b>TOTAL AMOUNT DUE</b>		<b>1,260.03</b>																																																								

To receive receipt: SEND ENTIRE BILL ALONG WITH A SELF-ADDRESSED, STAMPED ENVELOPE.

Mort Code

Pay this tax to:  
CITY OF HILLSDALE  
OFFICE OF TREASURER  
97 N BROAD ST  
HILLSDALE MI 49242  
517-437-6454

PLEASE RETURN THIS PORTION WITH PAYMENT. THANK YOU.

This tax is due by: 02/14/2022

After 02/14/2022 additional interest and fees apply

---

2021 Winter Tax for Prop #: 006-426-354-14

**TAXPAYER NOTE: Is your name & mailing address correct?**  
If not, please make corrections below. Thank You.

Make Check Payable To: CITY OF HILLSDALE

Property Addr: 100 BUDLONG ST

TOTAL AMOUNT DUE: 1,260.03

Amount Remitted: \_\_\_\_\_

\*\*\*\*\*AUTO\*\*5-DIGIT 49242  
PEARL TREE PARK LLC  
ISMAEL, AMIRA A, RESIDENT AGENT  
96 BUDLONG ST  
HILLSDALE, MI 49242-2053



<p><b>PROPERTY INFORMATION</b></p> <p>Property Assessed To: PEARL TREE PARK, LLC 96 BUDLONG ST HILLSDALE, MI 49242</p> <p>Prop #: 006-426-354-13      School: 30020 Prop Addr: 96 BUDLONG ST</p> <p>Legal Description: . W6 THE S 1/2 ROADS OF LOTS 18, 19 &amp; 20 FERRIS ADD FOURTH WARD. AS OF 12/31/2018 - WARD 4</p>	<p><b>PAYMENT INFORMATION</b></p> <p>This tax is due by: 02/14/2022</p> <p>Pay by mail to: CITY OF HILLSDALE OFFICE OF TREASURER 97 N BROAD ST HILLSDALE MI 49242</p>																																																
<p><b>MESSAGE TO THE TAXPAYER</b></p> <p>TO AVOID INTEREST AND PENALTY, THE WINTER TAX NEEDS TO BE PAID AT CITY HALL, BY MAIL, IN DROPBOX OR ONLINE AT WWW.CITYOFHILLSDALE.ORG BY FEBRUARY 14TH, 2022. THE TREASURER'S HOURS ARE 9 AM - 12 PM AND 1 PM - 3 PM, MONDAY THROUGH FRIDAY FROM DECEMBER 1ST 2021 THRU FEBRUARY 28TH 2022. YOU MAY CONTACT THE HILLSDALE CITY TREASURER AT 517-437-6454 OR VIA EMAIL AT TREASURER@CITYOFHILLSDALE.ORG.</p>	<p><b>OPERATING FISCAL YEARS</b></p> <p>The taxes on bill will be used for governmental operations for the following fiscal year(s) and does NOT affect when the tax is due or the amount:</p> <p>County: 01/01 - 12/31      School: 07/01 - 06/30 Twn/Cty: 07/01 - 06/30      State: 10/01 - 09/30</p>																																																
<p><b>MESSAGE FROM THE ASSESSOR</b></p> <p>PLEASE REVIEW YOUR BILL CAREFULLY. TAXPAYERS WHO SUSPECT THAT THERE MAY BE AN ERROR IN THE CALCULATION OF THEIR BILL OR THAT THEY MAY QUALIFY FOR A PROPERTY TAX EXEMPTION NOT REFLECTED ON THE BILL SHOULD SUBMIT A WRITTEN REQUEST ADDRESSED TO THE BOARD OF REVIEW PRIOR TO THE SECOND MONDAY IN DECEMBER. EXEMPTION APPLICATIONS AND ADDITIONAL INFORMATION CAN BE FOUND ONLINE AT <a href="https://www.cityofhillsdale.org/cityassessor">HTTPS://WWW.CITYOFHILLSDALE.ORG/CITYASSESSOR</a>. EMAIL <a href="mailto:ASSESSOR@CITYOFHILLSDALE.ORG">ASSESSOR@CITYOFHILLSDALE.ORG</a> OR CALL (517)437-6456 WITH QUESTIONS.</p>	<p><b>TAX DETAIL</b></p> <p>Taxable Value: 45,450      RESIDENTIAL-IMPROV. State Equalized Value: 55,800      Class: 401 PRE/MBT %: 0.0000      Mort Code:</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Taxes are based upon Taxable Value. 1 mil equals \$1.00 per 1000 of Taxable Value. Amounts with no millage are either Special Assessments or other charges added to this bill.</p> </div> <table border="1"> <thead> <tr> <th>DESCRIPTION</th> <th>MILLAGE</th> <th>AMOUNT</th> </tr> </thead> <tbody> <tr><td>CO MCF</td><td>0.59210</td><td>26.91</td></tr> <tr><td>CO 2004 SENIOR</td><td>0.48990</td><td>22.26</td></tr> <tr><td>CO AMBULANCE SVC</td><td>0.93880</td><td>38.12</td></tr> <tr><td>CO AMBULANCE CAP</td><td>0.14800</td><td>6.72</td></tr> <tr><td>CO 2008 SENIOR</td><td>0.49310</td><td>22.41</td></tr> <tr><td>CO MENTAL HEALTH</td><td>0.49340</td><td>22.42</td></tr> <tr><td>2006 MCF DEBT</td><td>0.35000</td><td>15.90</td></tr> <tr><td>SCHOOL OPERATING</td><td>8.87890</td><td>403.54</td></tr> <tr><td>SCHOOL BLDG/SITE</td><td>1.11190</td><td>50.53</td></tr> <tr><td>HILLSDALE ISD</td><td>0.13220</td><td>6.00</td></tr> <tr><td>HILLSDALE SPC ED</td><td>1.48280</td><td>67.39</td></tr> <tr><td>HILLSDALE VOC ED</td><td>0.74140</td><td>33.69</td></tr> <tr><td><b>Total Tax</b></td><td><b>15.75250</b></td><td><b>715.89</b></td></tr> <tr><td><b>Administration Fee</b></td><td></td><td><b>7.16</b></td></tr> <tr><td><b>TOTAL AMOUNT DUE</b></td><td></td><td><b>723.05</b></td></tr> </tbody> </table>	DESCRIPTION	MILLAGE	AMOUNT	CO MCF	0.59210	26.91	CO 2004 SENIOR	0.48990	22.26	CO AMBULANCE SVC	0.93880	38.12	CO AMBULANCE CAP	0.14800	6.72	CO 2008 SENIOR	0.49310	22.41	CO MENTAL HEALTH	0.49340	22.42	2006 MCF DEBT	0.35000	15.90	SCHOOL OPERATING	8.87890	403.54	SCHOOL BLDG/SITE	1.11190	50.53	HILLSDALE ISD	0.13220	6.00	HILLSDALE SPC ED	1.48280	67.39	HILLSDALE VOC ED	0.74140	33.69	<b>Total Tax</b>	<b>15.75250</b>	<b>715.89</b>	<b>Administration Fee</b>		<b>7.16</b>	<b>TOTAL AMOUNT DUE</b>		<b>723.05</b>
DESCRIPTION	MILLAGE	AMOUNT																																															
CO MCF	0.59210	26.91																																															
CO 2004 SENIOR	0.48990	22.26																																															
CO AMBULANCE SVC	0.93880	38.12																																															
CO AMBULANCE CAP	0.14800	6.72																																															
CO 2008 SENIOR	0.49310	22.41																																															
CO MENTAL HEALTH	0.49340	22.42																																															
2006 MCF DEBT	0.35000	15.90																																															
SCHOOL OPERATING	8.87890	403.54																																															
SCHOOL BLDG/SITE	1.11190	50.53																																															
HILLSDALE ISD	0.13220	6.00																																															
HILLSDALE SPC ED	1.48280	67.39																																															
HILLSDALE VOC ED	0.74140	33.69																																															
<b>Total Tax</b>	<b>15.75250</b>	<b>715.89</b>																																															
<b>Administration Fee</b>		<b>7.16</b>																																															
<b>TOTAL AMOUNT DUE</b>		<b>723.05</b>																																															

To receive receipt: SEND ENTIRE BILL ALONG WITH A SELF-ADDRESSED, STAMPED ENVELOPE.

Mort Code

Pay this tax to:  
CITY OF HILLSDALE  
OFFICE OF TREASURER  
97 N BROAD ST  
HILLSDALE MI 49242  
517-437-6454

PLEASE RETURN THIS PORTION WITH PAYMENT. THANK YOU.

---

This tax is due by: 02/14/2022

After 02/14/2022 additional interest and fees apply

---

2021 Winter Tax for Prop #: 006-426-354-13

TAXPAYER NOTE: Is your name & mailing address correct? If not, please make corrections below. Thank You.

Make Check Payable To: CITY OF HILLSDALE

Property Addr: 95 BUDLONG ST

TOTAL AMOUNT DUE: 723.05

Amount Remitted: \_\_\_\_\_

\*\*\*\*\*AUTO\*\*5-DIGIT 49242  
PEARL TREE PARK, LLC  
SCHALL, ROBERT E & AMIRA A ISMAEEL  
96 BUDLONG ST  
HILLSDALE, MI 49242-2053





Parent Parcel Number:  
006-426-354-14  
Owner:  
Pearl Tree Park LLC  
(Schall)  
Date: 6-3-2022



**Land Division Review Checklist (to be completed by Assessor and Zoning Administrator)**

1. **Administrative Review** for determination of authority to approve or deny application
  - a. Is the property in question part of a **recorded plat**?
    - i.  Yes – **Planning Commission Review and Council Approval Required**
      1. Does the proposed division result in more than 4 parcels split out of a single platted lot?
        - a.  Yes – Recommend denial (HMC 18-82(b))
        - b.  No
    - ii.  No
      1. Does the proposed Division involve **dedication of a new street**?
        - a.  Yes – Planning Commission Review and Council Approval Required
        - b.  No – Approval/Disapproval may be made by Assessor
  2. **Zoning Review – Zoning District(s)** of the parcel or tract to be divided: 100/96 BUDLONG
    - a. Do all of the parcels resulting from this proposed division (including the remainder parcel) meet or exceed the minimum area required for the zoning district in which they are located?
      - i.  Yes **(LOT WIDTHS OF ORIGINAL PLAT DO NOT MEET CURRENT REQUIREMENTS)**
      - ii.  No – recommend application be DENIED (HMC 18-82; 36-411)
    - b. Do all of the parcels resulting from this proposed division (including the remainder parcel) meet or exceed the minimum lot width for the zoning district in which they are located?
      - i.  Yes **(SEE PREVIOUS NOTE)**
      - ii.  No – recommend application be DENIED (HMC 18-82; 36-411)
    - c. For existing improvements:
      - i. Do all of the parcel boundaries for this proposed division (including the remainder parcel) allow for minimum yard setbacks from existing improvements?
        1.  Yes
        2.  No – recommend application be DENIED (HMC 18-82; 36-411)
      - ii. Do all of the parcels resulting from this proposed division (including the remainder parcel) allow for maximum percentage of lot are covered by all existing buildings?
        1.  Yes
        2.  No – recommend application be DENIED (HMC 18-82; 36-411)
    - d. Zoning Administrator Signature:
    - e. Date Reviewed: 6/6/2022
  3. **Planning Commission Review & Council Approval** Required under item 1?
    - a. Yes
      - i. Date of Planning Commission Meeting (attach minutes):  
\_\_\_\_\_

ii. Date of Council Meeting (attach minutes): \_\_\_\_\_

b. No – Skip to Assessor Review

**4. Assessor Review (Skip to item 5 if Council Approval Required under item 1)**

a. Is the parcel to be divided part of a larger **parent tract** as defined by MCL 560.102(h) (based on ownership as of March 31, 1997)?

i.  Yes – total acreage of tract: \_\_\_\_\_ (For Table 1 calculations)

ii.  No – total acreage of parcel: \_\_\_\_\_ (For Table 1 calculations)

b. **Number of resulting parcels allowed (including remainder) under MCL**

**560.108** - Do the boundaries of the parcel or tract to be divided match the parcel or tract in existence on March 31, 1997?

i.  Yes – Refer to Table 1 below:

**Table 1 – Total number of resulting parcels allowed under MCL 560.108(2) and (3) based on total Acreage of parent parcel or tract as it existed on March 31, 1997:**

First 10 Acres		4
20 acres or more:	+1 for each additional whole 10 acres up to 120 total acres (maximum of 11)	+ _____
	+2 if both of the following statements are true: <ul style="list-style-type: none"> <li>• The proposed division includes establishment of 1 or more new roads so that there are no new driveway accesses to an existing public road for any of the resulting parcels.</li> <li>• One of the resulting parcels comprises not less than 60% of the area of the parent parcel or tract.</li> </ul>	+ _____
120 acres or more:	+1 for each additional whole 40 acres	+ _____
<b>Total number of Resulting Parcels Allowed:</b>		_____

ii.  No - Parcel or tract to be divided was created by an exempt split or a division (after March 31, 1997)

1. Have 10 years or more elapsed since the parcel or tract to be divided was created?

a.  No – Is the parcel or tract to be divided a “new parent”/remainder parcel from a prior division?

i. Yes – How many unallocated divisions were retained for this parcel (refer to deeds and/or form 3278 NOTICE TO ASSESSOR OF TRANSFER OF THE RIGHT TO MAKE A DIVISION OF LAND for any resulting “child” parcels)?

ii.  No - Were any unallocated divisions transferred to this parcel from the parent parcel or tract (refer to deeds and/or form 3278 NOTICE TO ASSESSOR OF TRANSFER OF THE RIGHT TO MAKE A DIVISION OF LAND for this parcel)?

1. Yes – How many? \_\_\_\_\_

2. No - Application is DENIED (MCL 560.108(5)(a))

b.  Yes – Refer to Table 2 below:

**Table 2 – Total number of resulting parcels allowed under MCL 560.108(5) based on total acreage of parcel or tract created by exempt split or division occurring 10 years or more before current request:** \_\_\_\_\_

First 10 Acres		2
20 acres or more: +1 for each additional whole 10 acres	up to 5 additional	+ _____
	Up to 8 additional if one of the resulting parcels from the proposed division comprises not less than 60% of the parcel or tract to be divided	
<b>Total number of Resulting Parcels Allowed (not more than 10):</b>		

c. Total number of resulting parcels – does this number exceed the number of parcels allowed?

i.  No

ii.  Yes – application is DENIED (MCL 560.108)

**Table 3 – Divisions of original parent parcel or tract - total number of parcels created since 1997 with proposed division:**

Number of new parcels created by prior divisions (since March 31, 1997 for parent or remainder of parent parcel or tract; since creation of this parcel or tract for exempt split or child parcel or tract):	_____
Number of parcels (including remainder) created under proposed division:	_____
-1 for each resulting parcel of 40 acres or more if it is accessible:	- _____
<b>Total number of resulting parcels created:</b>	_____

5. Application is

a.  Approved

b.  Approved with Condition(s):

c.  Denied – explain reason(s):

BUDLONG ST

74 E SHARP ST  
SPENCER, LAHRYN ELIZABETH

006-426-354-27

006-426-354-29

76 E SHARP ST  
SCHALL, ROBERTIE

70 E SHARP ST  
PETER, MARY MARGARET

006-426-354-10

006-426-354-26

111 S HOWELL ST  
LEE, KENDALJ

SWSW

006-426-354-13

96 BUDLONG ST  
PEARL TREE PARK, LLC

006-426-354-14

100 BUDLONG ST  
SCHALL, ROBERTIE

119 S HOWELL ST  
SPENCER, DANIEL & MICHELE

006-426-354-04

006-426-354-15

106 BUDLONG ST  
SIKORSKI, DEZIRAE J

006-426-354-05

125 S HOWELL ST  
NOVAK, JOHN F & GINGER P

# SKETCH/AREA TABLE ADDENDUM

Parcel No 006-426-354-13

Property Address 96 BUDLONG ST

City HILLSDALE

County HILLSDALE

State MI

Zip 49242

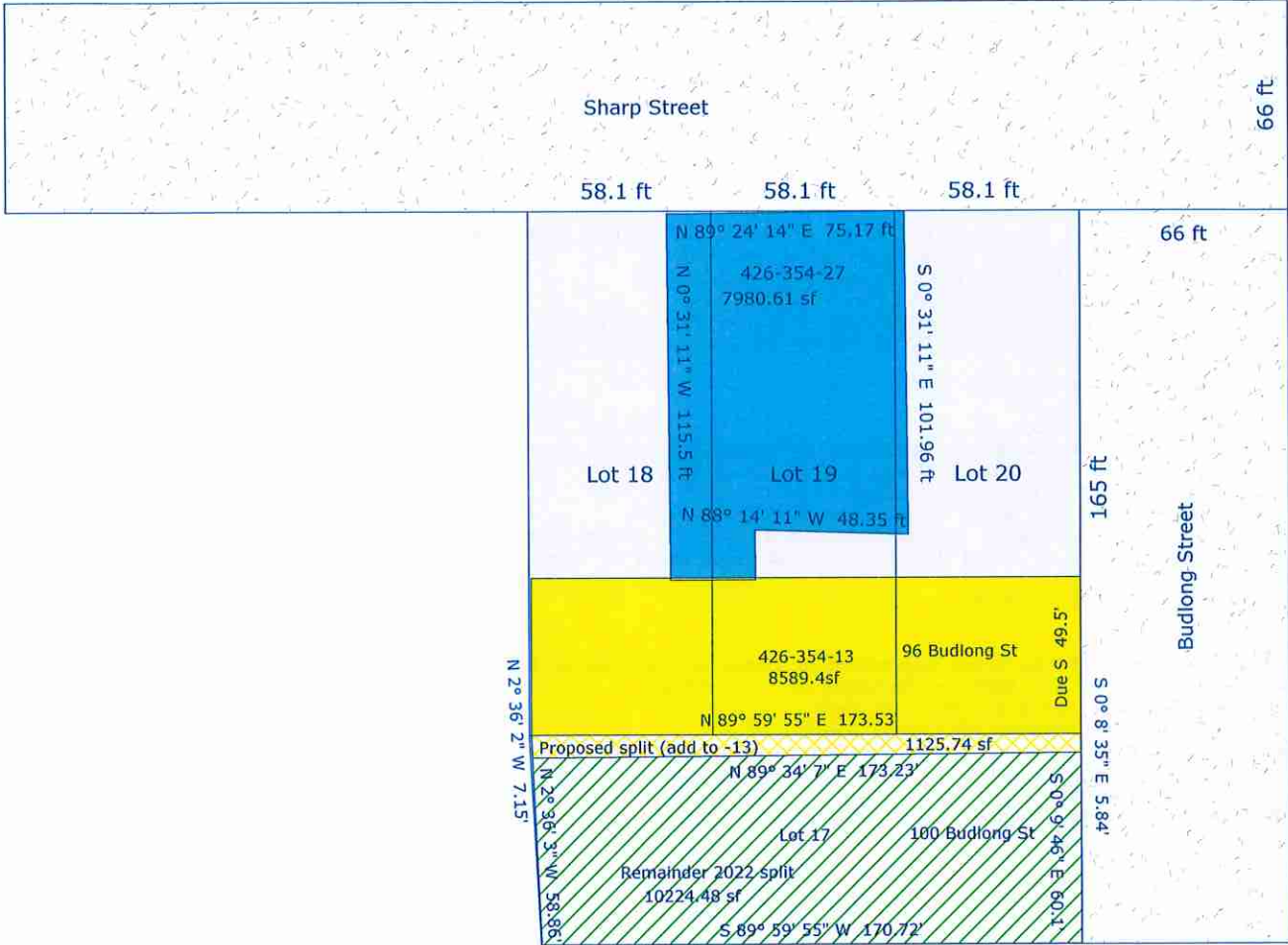
Owner PEARL TREE PARK, LLC

Client

Appraiser Name

SUBJECT

IMPROVEMENTS SKETCH



Scale: 1" = 60'

AREA CALCULATIONS

### AREA CALCULATIONS SUMMARY

Code	Description	Factor	Net Size	Perimeter	Net Totals
LAND	Lot 19	1.00	9583.20	446.2	
	Lot 20	1.00	9583.20	446.2	
	Lot 18	1.00	9583.20	446.2	
	Sharp Street	1.00	26745.84	942.5	
	Budlong Street	1.00	15246.00	594.0	70741.44
SITE	426-354-27	1.00	7980.61	383.4	
	Remainder 2022 split	1.00	10224.48	462.9	
	Proposed split (add to -13)	1.00	1125.74	359.7	
	426-354-13	1.00	8589.37	446.1	27920.20
Net SITE Area			(rounded w/ factors)		27920

### Comment Table 1

Comment Table 2	Comment Table 3



**TO: Planning Commission**

**FROM: Zoning Administrator**

**DATE: June 15, 2022**

**RE: Ordinance Review – Fence & Landscape**

**Background:** When the Planning Commission and Council amended the zoning map of the City in 2015, (removing four zoning districts), we knew that other ordinance sections would be impacted. Two of those ordinances are the Landscape (Sec. 36-150) and Fence (36-681) ordinances. The amendments were submitted for the May 18 meeting but were tabled prior to review. Since then, the City Attorney has returned his comments and the newly amended ordinances are submitted for review.

Sec. 36-150. - Landscaping.

(a) Upon any improvement for which a site plan is required, landscaping shall be required to meet the guidelines listed below:

(1) For the R-1, RD-1, RM-1 and C-1 districts, a minimum of 25 percent of the site shall be in landscaped open space. The open space shall be landscaped with one evergreen tree or shrub for every 1,000 square feet, or portion thereof, plus one small or large deciduous tree or shrub for every 2,000 square feet, or portion thereof. *Plant materials existing on the site prior to development may be included as part of the requirement. Any trees removed for development may not be included as part of such requirement.* Ground cover or lawn is required in all landscaped areas. (See article X, plant material of this chapter for appropriate uses of plant materials.)

(2) For the ~~R-1, R-2, and R-3~~ districts, ~~30 percent of the site under development shall be in landscaped open space. The open space shall be landscaped with one evergreen tree or shrub for every 1,000 square feet, or portion thereof, plus one small or large deciduous tree for every 1,500 square feet, or portion thereof. Plant materials existing on the site prior to development may be included as part of such requirement. Twenty-five percent of the required open space shall be between the roadway and the building. Buildings on corner lots shall have 40 percent of the required open space between the building and the street. Landscaping of an adjacent right-of-way may be included in such requirement if it is maintained by the adjacent property owner. (See article X, plant material of this chapter for appropriate uses of plant materials.)~~

(23) For permitted and special approval uses in the ~~O-4, B-1, B-3, I-1 and I-2~~ districts, a minimum of 15 percent of the site shall be in landscaped open space with one evergreen tree or shrub for every 1,000 square feet, or portion thereof, plus one small or large deciduous tree for every 2,000 square feet, or portion thereof. *Plant materials existing on the site prior to development may be included as part of the requirement. Any trees removed for development may not be included as part of such requirement.* Plant materials existing on the site prior to development may be included as part of such requirement. Thirty percent of the required open space shall be between the roadway and the building. Buildings on corner lots shall have 60 percent of the required open space between the building and the roadway. Whenever feasible, a portion of the landscaping shall be placed adjacent to the buildings. Landscaping of an adjacent right-of-way may be included in the requirement if it is maintained by the adjacent property owner. Parking lots in all office, business and industrial zones which are adjacent to a residentially zoned district shall be fully screened from that residential district through the use of decorative walls, fences, or landscaping. (See article X, plant material of this chapter for appropriate uses of plant materials.)

(34) B-2 parcels in which the building occupies 90 percent or more of the lot shall be exempt from the landscape requirement. For all other B-2 parcels, ten percent of the site shall be in landscaped open space with *one evergreen tree or shrub for every 1,000 square feet, or portion thereof, plus one small or large deciduous tree or shrub for every 2,000 square feet, or portion thereof. . Plant materials existing on the site prior to development may be included as part of the requirement. Any trees removed for development may not be included as part of such requirement. Ground cover or lawn is required in all landscaped areas. (See article X, plant material of this chapter for appropriate uses of plant materials.)*

(4) PRD parcels shall adopt the requirements consistent with the intended use.

(5) For PRF parcels, a minimum of 80 percent of the site shall be in landscaped open space. The open space shall be landscaped with one evergreen tree or shrub for every 1,000 square feet, or portion thereof, plus one small or large deciduous tree or shrub for every 2,000 square feet, or portion thereof. . Plant materials existing on the site prior to development may be included as part of the requirement. Any trees removed for development may not be included as part of such requirement. Ground cover or lawn is

required in all landscaped areas. (See article X, plant material of this chapter for appropriate uses of plant materials.)

~~one evergreen tree or shrub for every 1,000 square feet, or portion thereof, plus one small or large deciduous tree for every 2,000 square feet, or portion thereof. Plant materials existing on the site prior to development may be included as part of the fulfillment of these requirements.~~

(b) *Greenbelt between land uses.*

- (1) Upon any improvement for which a site plan is required, a greenbelt shall be constructed to create a visual screen along a boundary, alley, or street which is adjacent to residentially zoned or used property. In addition, greenbelt shall be constructed along any boundary between single-family unattached housing developments and single-family attached housing developments or multifamily housing developments, for which a site plan is required. In addition, within all districts, except R-1 (single-family), a greenbelt shall be constructed along a boundary, alley or street which is adjacent to a more restrictive zoning district;
- (2) The minimum width of the required greenbelt shall be ten feet, except in the office, business and industrial districts where the minimum width shall be 20 feet. However, wider greenbelt may be required, within any zoning district, at the discretion of the city.

(c) *Parking lot landscaping.*

- (1) Landscaped areas shall be required at the perimeter of parking lots of 16 spaces or greater. Parking lots in all office, business and industrial zones which are adjacent to a residentially zoned district shall be fully screened from that residential district through the use of decorative walls, fences, or landscaping;
- (2) Strips of ten or more continuous spaces may be allowed by planning commission approval, providing each end of the row has a minimum of 50 square feet of landscaped area, exclusive of concrete curbing. Variations may be determined by the planning commission for design and traffic flow. There shall be a minimum of one tree for every ten parking spaces;
- (3) Minimum three-foot wide landscape strips (unobstructed by vehicle overhangs) shall be provided between paved parking surfaces and buildings, fences, and property lines wherever possible. Trees and shrubs shall be planted clear of the vehicle overhang area;
- (4) All parking lot surfaces not needed for ingress, egress, parking or driveways shall be landscaped.

(d) *Front yard landscaping.* A greenbelt with a minimum width determined by the front yard setback of its zoning classification shall be located between the abutting right-of-way of a public street, freeway, or major thoroughfare, and shall be landscaped per the requirements in section 36-150 applicable to its zoning classification access ways from public rights-of-way through required greenbelts shall be permitted.

(e) *Site landscaping.* In addition to any landscape greenbelt and/or parking lot landscaping required by this section, ten percent of the site area, excluding existing thoroughfare right-of-way, shall be landscaped. Areas used for storm drainage purposes, such as unfenced drainage courses or retention areas in front or side yards, may be included as a portion of the required landscaped area, but shall not exceed five percent of the site area.

(f) All plant materials shall follow the minimum standards set forth in article X of this chapter.

(Ord. No. 2016-003, 3-7-2016)



ARTICLE IX. - OBSCURING WALLS AND FENCES

Sec. 36-681. - Requirements.

All fences, walls, and landscape berms of any nature, type or description located in the City of Hillsdale must conform to the following regulations:

- (1) *Approval required.* The erection, construction or alteration of any fence, wall or other type of protective barrier must be approved by the zoning administrator (or designee) as to conformance with the requirements of the zoning district and this section.
- (2) *General fence, wall, and landscape berm standards.*
  - a. Fence wall, or landscape berm height measurement. The height of a fence, wall, or landscape berm will be measured using the following method:
    - 1. The permitted height of all fences, walls, and landscape berms will be measured from the finished grade adjacent to the fence, wall, or berm, as determined by the zoning administrator (or designee).
    - 2. Where elevations differ by more than four feet within ten feet of side or rear lot lines, the zoning administrator (or designee) may allow additional fence, wall, or landscape berm height for the property as measured from the lower elevation.
    - 3. The permitted height of fences or walls will not be measured from any part of a berm or any area of the ground that has been built-up or constructed in a manner that would have the effect of allowing a taller fence than permitted by this chapter.
    - 4. Fencing materials ~~must~~ *should* be all weather and *low zero* maintenance. Treated wood must meet the American Wood Protection Association's UC4B standard for ground contact (heavy duty).
  - b. *Masonry walls.* Masonry walls must be constructed of the same or complementary building material to that of the principal structure and must be un-pierced (except for pedestrian and vehicular connections) and have a decorative cap. Cement or slag blocks will not be permitted.
  - c. *Visibility at intersections.* All fences in the front yards must comply with the requirements of this article, visibility at intersections.
  - d. *Decorative fences, walls and landscape berms.* Fences, walls, and landscape berms which are two and one-half feet or less in height are considered decorative and do not require a permit.
  - e. *Landscape berms.* Where provided, landscape berms must conform to the following standards.
    - 1. Berms must comply with the height restrictions for fences and walls in subsections (3) and (4) of this section, but in no case may they be maintained at a continuous height. All berms must be undulating and include gaps where deemed necessary.
    - 2. Sides of the berm must be constructed with slopes no steeper than one foot vertical for each three feet horizontal.
    - 3. In measuring slope and height, grade elevation will be the average grade elevation adjacent to the proposed berm.
    - 4. Side slopes must be protected from erosion by sod, seed or other living ground cover. If slopes are seeded, they must be protected until the seed germinates and a permanent lawn is established.

Wall and Fence Height Requirements:

Use	Max. Ht. Requirements
1. P-1 Vehicular Parking Districts	Four feet six-inch high wall or fence
2. Off-street parking area (other than P-1 Districts)	Four feet six-inch high wall or fence
3. <del>O-1</del> , B-1, B-2, or B-3 Districts	Four <del>feet six-inch</del> <b><i>feet high to Six</i></b> feet six-inch high wall or fence

4. I-1 and I-2 Districts, open storage areas, loading or unloading areas, service areas.	Six feet high to eight feet high obscured wall or fence (height shall provide the most complete obscuring possible).
5. Hospital, ambulance and delivery areas	Six feet high wall or fence
6. Utility buildings, stations, and/or substations, except that in cases where all equipment is contained within a building or structure constructed so as to be similar in appearance to the residential building in the surrounding area.	Six feet high obscured wall or fence
7. Trailer Courts	<del>Six feet</del> <u>Four feet six inch</u> -high wall or fence
8. Retention areas	At the discretion and approval of both Planning Commission and the City Engineer, a fence may be required around retention areas.
9. Residential Districts (front yard)	<del>Front yard – Four feet</del> <u>Three feet six inches</u> high <u>wall, decorative</u> fence or trellis Rear yard – Six feet high wall or fence
10. Residential Districts (side and rear yards)	Six feet high wall or fence
<u>10. C-1 College District</u>	<u>Four feet high to Six feet high wall or fence</u>
<u>11. PRD District</u>	<u>Height requirements consistent with the intended use.</u>
<u>12. PUD District</u>	<u>Front yard – Four feet high ornamental wall, fence or trellis</u> <u>Rear yard – Six feet high wall or fence</u>
<u>13. PRF District</u>	<u>Six feet high ornamental wall or fence</u>

(2) Fences and walls in the residential districts and manufactured housing communities.

- a. Ornamental fences and walls located in the required and addressed front yard meeting the definition of a non-privacy fence and not intended to restrain animals of any kind may be up to ~~three feet six inches~~ four feet in height, unless otherwise approved by the zoning administrator (or designee), and must be set back at least one foot from the sidewalk/right-of-way line.
- b. All fences or walls must be ornamental in nature and should be made of wrought iron, treated or rot resistant wood, brick, stone and similar replications of these materials. However, when abutting residentially zoned and/or used property, and when used to screen parking or outdoor storage areas, the fence must be constructed of an opaque weatherproof material, woven chain link fencing is not permitted.
- c. Fences and walls located in the required and non-addressed (secondary) front yard of a corner or double frontage lot must be setback from the property line as follows, unless otherwise approved by the zoning administrator (or designee):
  1. No less than one foot for ornamental fences and walls meeting the definition of a non-privacy fence and not intended to restrain animals of any kind up to ~~three feet six inches~~ four feet in height;
  2. No less than four feet for fences and walls up to four feet in height.
  3. No less than six feet for fences and walls up to six feet in height.
- d. Fences and walls located in the side and rear yards may have a maximum height of six feet, unless otherwise approved by the zoning administrator (or designee), and may be located on the property line assuming the front yard fencing requirements are satisfied.

- e. Residents are encouraged to utilize ornamental materials, including but not limited to materials such as wrought iron, brick, stone, treated wood and similar replications of these materials, such as vinyl fencing that has the appearance of one of these materials.
- f. Chain link or similar fencing is permitted everywhere except within the front yard.
- g. The finished side of a fence or wall must face outward toward any adjacent property or right-of-way.
- h. No fences or walls are permitted within the required site clearance triangles. The same site clearance triangle applies to solid fences abutting detached garages located on the non-addressed frontage of a corner lot, visibility at intersections.

(4) *Fences and walls in commercial and industrial districts.*

- a. No fence or wall may exceed eight feet in height, unless otherwise approved by the zoning administrator (or designee).
- b. Fences located in the required non-addressed (secondary) front yard of a corner or double frontage lot, must be set back from the property line, unless otherwise approved by the zoning administrator (or designee), as follows:
  - 1. No less than one foot for ornamental fences and walls meeting the definition of a non-privacy fence and not intended to restrain animals of any kind up to ~~three feet six inches~~ **four feet** in height;
  - 2. No less than four feet for fences up to four feet in height;
  - 3. No less than six feet for fences up to six feet in height; and
  - 4. No less than eight feet for fences up to eight feet in height.
- c. All fences or walls must be ornamental in nature and should be made of wrought iron, treated or rot resistant wood, brick, stone and similar replications of these materials. However, when abutting residentially zoned and/or used property, and when used to screen parking or outdoor storage areas, the fence must be constructed of an opaque weatherproof material, woven chain link fencing is not permitted.
- d. Chain link or similar fencing is permitted everywhere except within the front yard and when abutting residentially zoned and/or used property.
- e. No fences or walls are permitted within the required site clearance triangles, visibility at intersections.

(5) Temporary protective fencing associated with construction projects. During construction, protective fencing must be placed around existing vegetation proposed for preservation and other site elements which cannot be easily removed or stored.

- a. Proposed protective fencing must be clearly identified on the landscape plan.
- b. Protective fencing cannot be located closer than one foot outside the perimeter of the following, as identified on the landscape plan:
  - 1. The drip lines of existing trees and shrubs; and
  - 2. Planting beds and other site element.

(6) *Prohibited fences.* The following fences are prohibited:

- a. A fence consisting in whole or part of coils of barbed wire, concertina wire or razor wire;
- b. A fence with razor edges, broken glass, affixed spikes, projecting nails or other pointed instruments of any kind or description attached; fence gates cannot be constructed so as to create a hazard to the public by the projection of any pointed instrument or member when open or partially open;
- c. A fence charged or connected with an electrical current, provided however, this provision cannot be construed to apply to electrical fences installed below ground as elements of an animal control or security system;
- d. A standard barbed wire fence except upon essential service sites or industrial properties which do not abut property zoned or used for residential purposes; in such locations, standard barbed wire may be installed on the top of a fence on arms or cradles extending inward over the owner's property provided that the fence

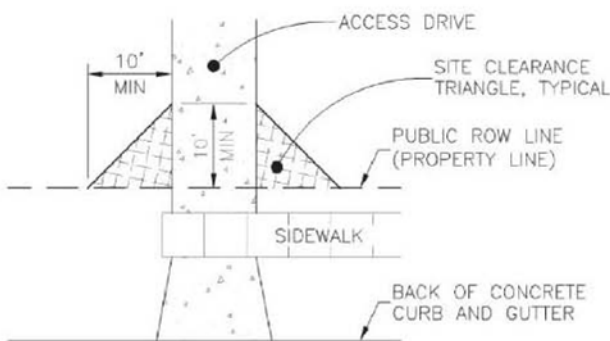
has a minimum height of six feet above the adjacent grade and the combined height of the fence and barbed wire and arms does not exceed eight feet above the adjacent grade;

- e. A fence which consists in whole or part of woven plastic or other similar materials utilized within a chain link fence; and
- f. A fence with all metal opaque paneling (e.g., barn siding, roof material, etc.) unless it is part of a conditional use permit.
- g. Concrete barrier units such as are used on construction sites or highways to restrict traffic flow.

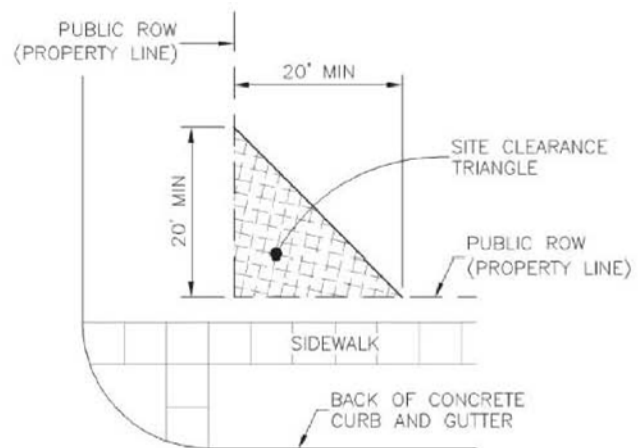
(7) *Visibility at intersections.*

- a. When a driveway intersects a public right-of-way or when the subject property abuts the intersection of public rights-of-way, all fences, walls, berms, hedges, screens, structures, plantings or other landscaping within the site clearance triangle areas described below must permit unobstructed cross-visibility. Shrubs and groundcovers located in a site clearance triangle may not be permitted to grow to a height of more than two and one-half feet above the grade at the edge of the pavement. Portions of required berms located within sight clearance triangle cannot exceed a height of two and one-half feet above the pavement grade at the edge of the pavement. Canopy trees may be maintained in this area provided that all branches are trimmed to maintain a clear vision for a vertical height of ten feet above the roadway surface. Other landscaping, except turf grass or ground cover maintained at a height of two and one-half feet, cannot be located closer than three feet from the edge of a driveway.
- b. The site clearance triangles referred to above are:
  - 1. The area formed at the corner intersection of a public right-of-way and a driveway, two sides of the triangle area being ten feet in length measured along the right-of-way line and access drive line and the third side being a line connecting these two sides. For the purpose of plantings located in the lawn extension/terrace, the site clearance triangle extends beyond the right-of-way line to the curb/edge of pavement at an angle perpendicular to both of those lines.

The area formed at a corner intersection of two public right-of-way lines, the two sides of the triangular area being 20 feet in length measured along the abutting public right-of-way lines and the third side being a line connecting these two sides. For the purpose of plantings located in the lawn extension/terrace, the site clearance triangle extends beyond the right-of-way line to the curb/edge of pavement at an angle perpendicular to both of those lines.



**Driveway**




**Public Rights-of-Way**

MICHIGAN STATE UNIVERSITY | Extension

**M** GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

# Planning and Zoning for Solar Energy Systems

May 2022



1

MICHIGAN STATE UNIVERSITY | Extension

**M** GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## This program brought to you by:

MICHIGAN STATE UNIVERSITY | Extension

**M** GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN



**EGLE** MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

2

MICHIGAN STATE UNIVERSITY | Extension

**GRAHAM SUSTAINABILITY INSTITUTE**  
 UNIVERSITY OF MICHIGAN

MSU is an affirmative-action, equal-opportunity employer. Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, sex, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status or veteran status.

**AND JUSTICE FOR ALL**

Conforme a la ley federal y las políticas y regulaciones de...  
 La información del programa puede estar disponible en otros idiomas además del inglés. Las personas con discapacidades que requieran medidas de comunicación alternativas para obtener información sobre el programa (por ejemplo, braille, vídeo interpretado, grabación de audio o intérprete de señas americanas) deben comunicarse con el agente de ventas o el representante de admisión al programa o con el TARGET Center de USDA al (202) 720-3660 y TTY o con USDA a través de...

MICHIGAN STATE UNIVERSITY | Extension

**GRAHAM SUSTAINABILITY INSTITUTE**  
 UNIVERSITY OF MICHIGAN

## Authors/Presenters

- **Wayne Beyea, JD, AICP**
  - Senior Specialist, MSU School of Planning, Design and Construction
  - [beyea@msu.edu](mailto:beyea@msu.edu)
- **Harmony Gmazel, AICP**
  - MSU Extension Educator – Land Use
  - [gmazelh@msu.edu](mailto:gmazelh@msu.edu)
- **Charles Gould**
  - MSU Extension Educator – Bioenergy
  - [gouldm@msu.edu](mailto:gouldm@msu.edu)

MICHIGAN STATE UNIVERSITY | Extension

M GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Authors/Presenters

- **Sarah Mills, PhD**
  - University of Michigan, Graham Sustainability Institute
  - [sbmills@umich.edu](mailto:sbmills@umich.edu)
- **Brad Neumann, AICP**
  - MSU Senior Extension Educator – Land Use
  - [neuman36@msu.edu](mailto:neuman36@msu.edu)
- **Mary Reilly, AICP**
  - MSU Extension Educator – Land Use
  - [reillym8@msu.edu](mailto:reillym8@msu.edu)





5

5

MICHIGAN STATE UNIVERSITY | Extension

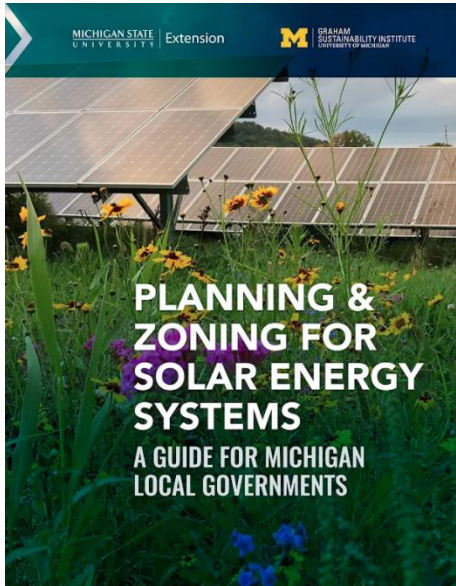
M GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## NEW RESOURCE

[extension.msu.edu/solarzoning](https://extension.msu.edu/solarzoning)

**Additional Author Credits:**

**Hannah Smith**, University of Michigan graduate student  
**Jason Derry**, MSU Urban and Regional Planning student  
**Emma Gilbert**, MSU Urban and Regional Planning student



6

6

## What We Will Cover

- A. Background
- B. Scale and Configuration
- C. Planning for Renewable Energy
  - Resource Analysis
  - Goals Analysis
- D. Sample Zoning for Solar Energy Systems
- E. Other Resources

7

7

## A. Background



Have landowners in your community been approached about **renewable energy leases** (such as wind or solar)?

8

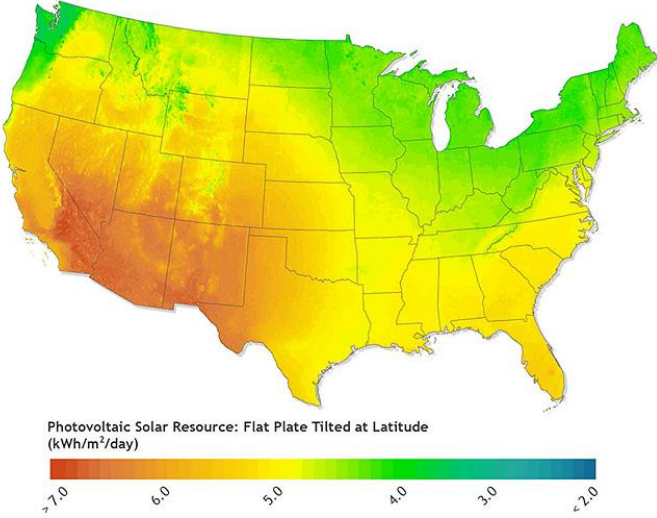


MICHIGAN STATE UNIVERSITY | Extension
M
GRAHAM SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

## Michigan's Solar Resource

*Is there enough sun in Michigan to use solar?*

**Yes! (>3.5 kWh/m<sup>2</sup>/day)**



Photovoltaic Solar Resource: Flat Plate Tilted at Latitude (kWh/m<sup>2</sup>/day)

Source: SolarGIS

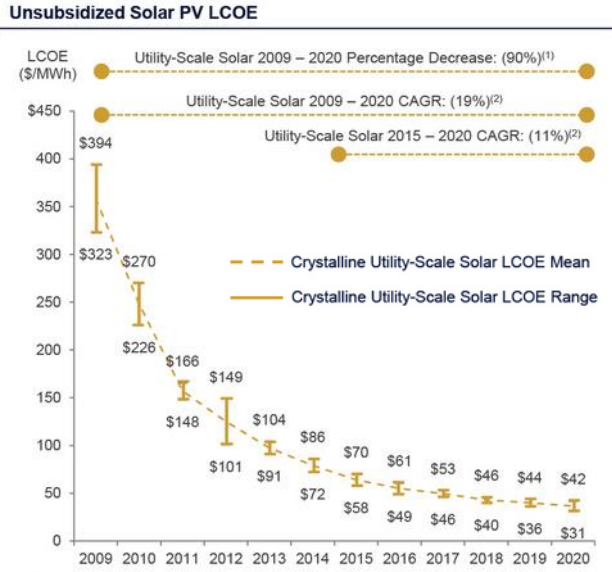
9

9

MICHIGAN STATE UNIVERSITY | Extension
M
GRAHAM SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

## Costs of Solar Declining

### Unsubsidized Solar PV LCOE



LCOE (\$/MWh)

2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020

LCOE Version 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0

--- Crystalline Utility-Scale Solar LCOE Mean  
— Crystalline Utility-Scale Solar LCOE Range

Utility-Scale Solar 2009 – 2020 Percentage Decrease: (90%)(1)  
Utility-Scale Solar 2009 – 2020 CAGR: (19%)(2)  
Utility-Scale Solar 2015 – 2020 CAGR: (11%)(2)

<https://www.lazard.com/perspective/lcoe2020>

10

10

MICHIGAN STATE UNIVERSITY Extension GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Utilities have plans for renewables

**Solar Power World**  
**DTE Energy bringing 420 MW of solar to Michigan by 2022**  
 By Billy Ludt | September 1, 2020

Consumers Energy 2021 Clean Energy Plan

11

11

MICHIGAN STATE UNIVERSITY Extension GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Distributed Generation (DG) legacy net metering

Figure 1: Michigan Distributed Generation Program Customers

Year	Total Customers
2006	11
2007	24
2008	56
2009	254
2010	632
2011	1,069
2012	1,406
2013	1,531
2014	1,840
2015	2,148
2016	2,582
2017	3,277
2018	5,219
2019	8,147
2020	10,553

- At end of 2020, total capacity of DG installations was 90,989kW, a 37% increase.
- Utilities vary in the number of DG customers they will allow.
- Consumers (full), DTE (65%), and UPPCO (73%) have space remaining (Cat. 1 < 20kW).

Source: MPSC, Distributed Generation Program Report for 2020 and MPSC "Michigan's distributed generation program capacity grew 37% in 2020 and added 2,400 customers, October 6, 2021

12

12

MICHIGAN STATE UNIVERSITY Extension GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## B. Scale and Configuration

13

MICHIGAN STATE UNIVERSITY Extension GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

### Solar in the Landscape: Using the Rural-to-Urban Transect

Rural Context Zones	Urban Context Zones				Urban
<b>T1 NATURAL ZONE</b> Wilderness, forests, undisturbed shorelines, and other natural landscapes	<b>T2 RURAL ZONE</b> Farms, woodlands, wetlands, streams, large regional parks	<b>T3 SUB-URBAN ZONE</b> Large-lot single family homes, shopping centers, and connected green spaces	<b>T4 GENERAL URBAN ZONE</b> Small-lot single family homes, apartments, mixed use, and locally run shops	<b>T5 URBAN CENTER ZONE</b> Wide housing choices, mixed use, retail shops, galleries, offices, restaurants and bars	<b>T6 URBAN CORE ZONE</b> Tall multi-use buildings, cultural and entertainment districts, and civic spaces for parades and festivals
Natural Scenic Tourism	Agri-Tourism/Farm to Food		Urban Cultural Tourism		

14

## Dual Use and Co-Location

Solar allows for more than one use of the property.



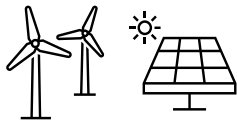
Photo: Lexie Hain

- Solar - agriculture (***dual use***)
- Solar - parking lot (parking garage, carports)
- Solar - rooftop
- Solar - school grounds
- Solar - brownfields
- Solar - community garden/park

15

15

## C. Planning for Renewable Energy



Raise your hand if your local government covers **renewable energy** in your **Master Plan**.

16

## Why Plan Now?

- (More) renewable energy is coming!
- Best to be prepared before a proposal is on the table
  - Fewer conflicts of interest
  - Analysis
  - Strategize
  - Engage



Photo: <https://www.uppermichiganssource.com/content/news/Friends-of-the-Huron-Mountains-not-in-favor-of-wind-turbine-project-in-LAnse-489183491.html>

All communities will be approached about renewables within 5 years.

17

17

## Is Michigan ready for renewables?



Zoning must be based on a plan.  
For decades, there was little to no focus on energy planning.

Scalability of Renewables + Decreasing Costs + Resiliency =  
**All plans should now include renewable energy**



Michigan Zoning Ordinances (2021):

- 26% address large scale solar
- 32% address small scale solar
- 51% address large scale wind
- 59% address small scale wind

Michigan Office of Climate and Energy. (2021). Michigan Zoning Database. Available online at [https://www.michigan.gov/climateandenergy/0,4580,7-364-85453\\_85458-519951--,00.html](https://www.michigan.gov/climateandenergy/0,4580,7-364-85453_85458-519951--,00.html)

18

18

# Why every community needs to plan for renewable energy

Fuel	Footprint of 1,000 MW
Natural gas, coal	100 acres
Solar (utility-scale)	5,000-10,000 acres
Solar (rooftop)	0*
Wind	500-1,000 acres; 100,000+ under lease

19

19

## Steps to Plan for Renewable Energy

- Resource Analysis
- Goals Analysis
  - Energy-specific
  - Synergies and conflicts



20

MICHIGAN STATE UNIVERSITY | Extension
M
GRAHAM SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

## Resource Analysis

**NREL: State and Local Planning for Energy (SLOPE) Platform**  
<https://maps.nrel.gov/slope>

- County level, technical potential
- Solar
  - Onsite (rooftop): Residential, Commercial
  - Utility-scale (ground-mount)
- Wind
  - Onsite: "Distributed"
  - Utility: "Land-based"

**St. Clair County**

21

21

MICHIGAN STATE UNIVERSITY | Extension
M
GRAHAM SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

## Spatial/Physical Elements

	Onsite Solar/Wind	Large Scale Solar	Large Scale Wind
Supporting	Wind/solar availability (consistency) On-site energy demand	Solar resource Existing (transmission) substation	Wind speed Existing (transmission) substation <b>Proximity to major road</b>
Detracting	Interconnection limitations (varies by utility)	Wetlands Sensitive habitat Protected lands <b>Wooded vegetation</b> <b>Steep slopes</b>	Wetlands Sensitive habitat Protected lands <b>Proximity to airport</b>

Population Density (proxy for land availability)

22

22

## Resource Analysis – The Grid

- Utility-scale requires energy infrastructure within the area – ideally within 3 miles
  - Transmission lines, typically 69kV or greater, are needed for projects >20MW
  - Distribution lines could support a small commercial solar project of 2MW
- Distributed, on-site projects may be connected to distribution lines



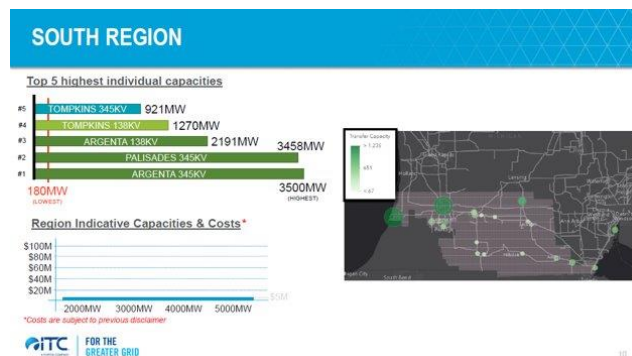
Neumann

23

23

## New analysis estimates transmission line capacity / upgrade costs

- By region (UP excluded), which lines have most capacity
- Upgrade costs for significant additions of renewables
- South region + Wayne, Washtenaw, Monroe Counties, prepare!



24

[https://www.michigan.gov/mpsc/0,9535,7-395-93307\\_93313\\_17280-570564--00.html](https://www.michigan.gov/mpsc/0,9535,7-395-93307_93313_17280-570564--00.html)

24



## Resource Analysis – Land Availability

- Large utility-scale: Land of sufficient size for project to minimize land assembly
  - Wind: typically tens of thousands of acres
  - Solar: hundreds of acres; cleared, minimal slope
- Small utility-scale
  - Brownfields, in-fill, parking lots (but typically need other supportive policies)



Lapeer Solar Park; Barton Malow

25

25

## Principal-Use SES: Megawatt Output to Acres Needed

Megawatts (DC)	Acres
1 MW*	5-8
2 MW	10-20
20 MW	100-200
100 MW	500-1,000
200 MW	1,000-2,000

\* Current national average (through 2018) 1 MW provides enough power to serve about 190 homes annually. Past averages range from 150-210 homes/MW.

26

26

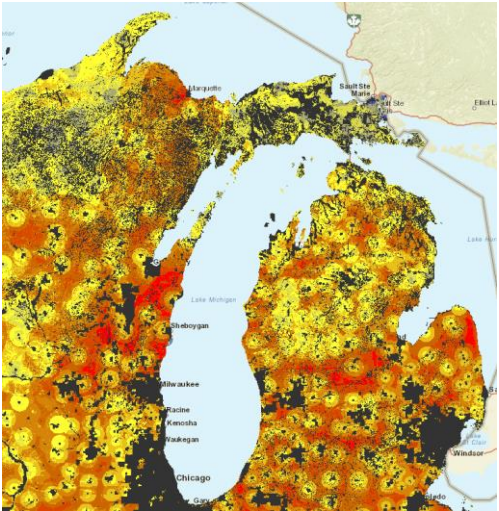
MICHIGAN STATE UNIVERSITY | Extension

GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Energy Zones Mapping Tool for localized mapping

- Access to 100+ data layers
  - Resource potential
  - Substations
  - Airports, habitat, etc.
- <https://ezmt.anl.gov/>
- Pre-run models for utility-scale PV and wind
- EGLE/UM demo –
  - Step-by-step tutorial

<https://youtu.be/FomzP9reVMY>



EZMT Wind Suitability 100m

27

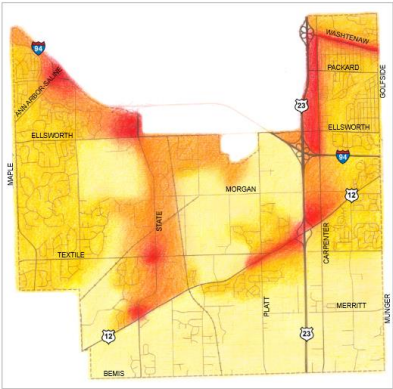
27

MICHIGAN STATE UNIVERSITY | Extension

GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Goals Analysis - Master Plan Elements to Review

- **Vision:** Are broad community statements and principles [in]compatible with a renewable energy future?
- **Goals:** What existing planning goals, objectives, policies are [in]compatible with the varying scales of renewable energy?
  - What does this mean for the future land use map and zoning plan in terms of **what scale** of renewable energy generation is to be allowed **where**?



Envisioned Development Intensity


Pittsfield Township

28

28

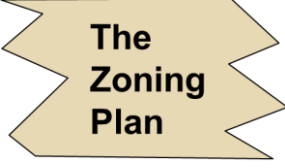
MICHIGAN STATE UNIVERSITY | Extension M GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## The Zoning Plan: Connecting the Plan to Zoning



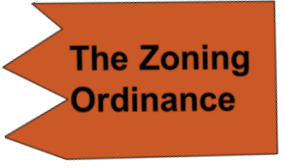
**The Master Plan**

The **Plan** includes well-supported vision and goals that provide a framework to implement renewable energy objectives. Consider farm viability, historic preservation, natural features, other goals.



**The Zoning Plan**

The **Zoning Plan** includes the preferred scale and/or location of renewable energy within each land use classification [and by extension, zoning district]. This will require consensus and community input.



**The Zoning Ordinance**

**Detailed amendments** addressing scale/location of renewable energy technologies will serve to implement the zoning plan.


29

MICHIGAN STATE UNIVERSITY | Extension M GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Gratiot County-Wide Master Plan

**AGRICULTURE**

The Agriculture category includes farming, livestock, farming related business, wind farms, and related farmsteads. The County contemplates the development of commercial solar as appropriate for agricultural areas. Residential development within this category will be limited to preserve the overall rural character and prevent the fragmentation of farmland.



**GOAL 1: PRESERVE THE COUNTY'S RURAL CHARACTER**

OBJECTIVE 1.1 Direct growth towards existing urban areas	TIME FRAME	POTENTIAL PARTNERS	POTENTIAL RESOURCES/ FUNDING
<p>Strategy 1.1.1 <i>Apply and uphold agricultural preservation zoning by limiting non-farm uses in agricultural districts.</i></p>	SHORT TERM	<ul style="list-style-type: none"> <li>• Townships</li> <li>• County</li> <li>• MSU Extension</li> </ul>	<ul style="list-style-type: none"> <li>• Michigan Department of Agriculture &amp; Rural Development Farmland Preservation Program</li> </ul>
<p>Strategy 4.3.2 <i>Continue to pursue alternative energy companies, market the County as an alternative energy industry hub</i></p>	MID TERM	<ul style="list-style-type: none"> <li>• Townships</li> <li>• Villages</li> <li>• Cities</li> <li>• County</li> <li>• Chamber of Commerce</li> <li>• Greater Gratiot Development, Inc.</li> </ul>	<ul style="list-style-type: none"> <li>• Michigan Agency for Energy</li> </ul>
<p>Strategy 4.3.8 <i>Attract solar development</i></p>	SHORT TERM	<ul style="list-style-type: none"> <li>• Greater Gratiot Development, Inc.</li> <li>• Gratiot County Planning Commission</li> <li>• Cities</li> </ul>	<ul style="list-style-type: none"> <li>• A Guidebook for Community Solar Programs in Michigan</li> <li>• Michigan Public Service Commission</li> <li>• Cherryland Electric Community Solar</li> <li>• US Department of Energy Solar Energy Resource Center</li> </ul>

Gratiot Master Plan. 2017. Future Land Use, p. 40; Implementation, p. 46

MICHIGAN STATE UNIVERSITY | Extension
M
GRAHAM SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

## Planning for Renewable Energy, Huron County

Renewable Energy Type	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Methane Gas Capture	19%	30%	37%	8%	6%
Solar	36%	37%	19%	4%	4%
Wind	22%	21%	18%	14%	25%

2021 Master Plan:

- Survey to identify preferences** for various forms of renewable energy.
  - Solar and geothermal were most popular, wind and methane gas capture were least popular.
- Specific **renewable energy goals**.
- Action plan** for commercial solar energy (directing the regulation to certain areas and zoning considerations).

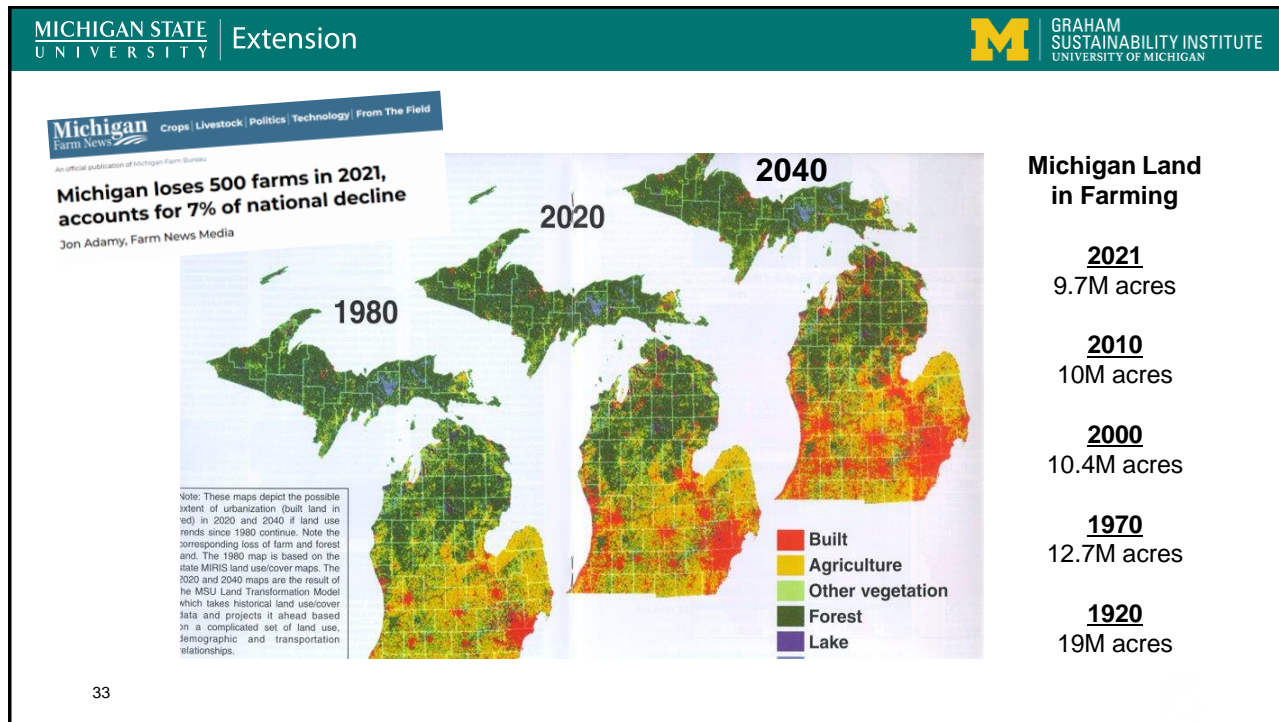
31
Huron County Draft Master Plan, updated Sept. 3, 2020.

MICHIGAN STATE UNIVERSITY | Extension
M
GRAHAM SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

## Goals Analysis for Compatibility Across Scale

Typical Principles and/or Goals	Solar		
	Accessory	Small Principal	Large Principal
Mixed-Use (density, walkability); Enhance Existing Neighborhoods	Yes	Yes	No
Farmland Preservation (conventional definition)	Y	Y	N
Farm Viability	Y	Y	Y
Tourism Development (viewsheds, outdoor recreation)	Y	Y	Y/N
Natural Resource (Open Space) Protection (community-wide)	Y	Y	N
Natural Feature Protection (onsite)	Y	N	N
Historic Preservation	Y	N	N
Sustainability; Resiliency; Energy Waste Reduction; Green Buildings	Y	Y	Y
Economic Diversification (job creation)	Y	Y	Y
<i>Other goals – Could there be a conflict at a certain scale?</i>			

*This table is hypothetical! 'Compatibility' dependent on your community goals and public opinion.*



33

**MICHIGAN STATE UNIVERSITY** | Extension | **M** GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Ag Protection - What are you trying to preserve?

- Is the goal to:
  - Limit urban/suburban growth?
  - Protect rural vistas?
  - Prevent moving, compacting soil?
  - Maintain farm livelihoods?
- **Are there existing adopted tools to implement those Ag protection goals?**
  - i.e., Are other types of development prohibited?
  - e.g., Ag protection zoning, purchase of development rights program, etc.

34

34

## Planning and Land Use Considerations Activity

- **In my opinion, our planning commission needs to prioritize time on the following topics (spend a buck: 100 pennies):**
  - \_\_\_ Engage with farmers and rural landowners to hear interests, concerns
  - \_\_\_ Explore the capacity and locations of utility lines and substations
  - \_\_\_ Learn more about solar compatibility with urban and suburban land uses
  - \_\_\_ Consider solar compatibility with local agricultural production
  - \_\_\_ Explore parcel sizes and land availability
  - \_\_\_ Consider renewable energy goals relative to other master plan goals
  - \_\_\_ Other: \_\_\_\_\_
- Determine your own priorities, then discuss with your neighbor.

35

35



## D. Sample Zoning for Solar Energy Systems












36

MICHIGAN STATE UNIVERSITY | Extension
M
GRAHAM SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

## Solar is Scalable Across all Landscapes

Source: *Planning and Zoning for Solar Energy Systems: A Guide for Michigan Local Governments*

37

Solar Energy System Type	Natural	Rural	Urban	General Urban
Accessory Roof Mounted				
Accessory Ground Mounted				
Principal Use (Small)				
Principal Use (Large)				

37

MICHIGAN STATE UNIVERSITY | Extension
M
GRAHAM SUSTAINABILITY INSTITUTE  
UNIVERSITY OF MICHIGAN

## SES Scale, Type as applied to Example Zoning Districts

Example Zoning District:	Resource Production / Agricultural	Low-Density Residential	Commercial / Office	Industrial	Medium-Density Residential	Mixed Use
Roof-Mounted	P	P	P	P	P	P
Accessory Ground-Mounted	P	P	P	P	P	P
Principal Use (Small)	SPR	SLU	SPR	SPR	SLU	SPR
Principal Use (Large)	SLU	X	SLU	SLU	X	X

P = Permitted Use (zoning standards apply); SPR = Site Plan Review; SLU = Special Land Use; X = Not Permitted

38

38

## General Provisions – Roof-Mounted

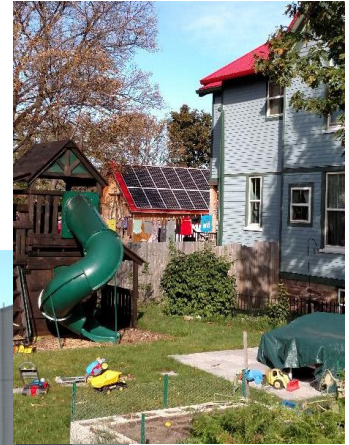
An Accessory-Use SES is a permitted accessory use in all zoning districts where structures of any sort are allowed...

- **Roof-Mounted SES**

- **Height:** not to exceed \_\_\_ [e.g. 5-10] feet above the finished roof (or add to exceptions)
- Not an expansion of a nonconformity



Ludington; Mary Reilly



Marquette; Brad Neumann

39

39

## General Provisions – Accessory Ground-Mounted

- **Ground-Mounted SES**

- **Height:** Not to exceed \_\_\_ [e.g. 20] feet to the top of the system when oriented at maximum tilt; OR same height standard as other accessory structures in the district.
- **Setback:** Min. of \_\_\_ [e.g. 5] feet or ½ the required setback for accessory structures in the district, whichever is greater.



Rock River Township; Brad Neumann

40

40



## General Provisions – Accessory Ground-Mounted

### • Ground-Mounted SES

- **Lot Coverage:** Not to exceed \_\_\_ [e.g. 50]% of the sq. ft. of primary building unless sited over required parking.
  - Not count towards the max. # or sq. ft. of accessory structures allowed on site, or max. impervious surface
- **Visibility:** Shall be located in side or rear yard to minimize visual impacts, unless decrease efficiency or impacts to utilities.

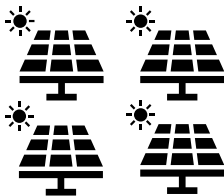


City of Marquette; Brad Neumann

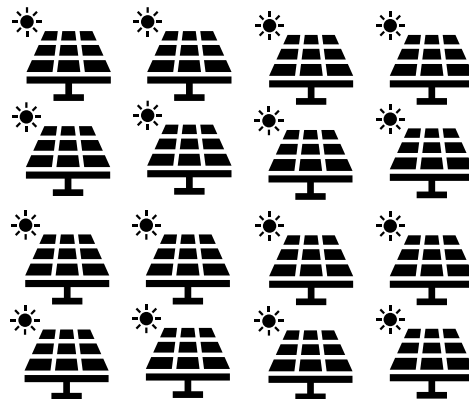
41

41

## Principal-Use SES Small and Large



**Principal Use (Small) SES**  
Up to and including \_\_\_ [e.g. 2] MW DC (or \_\_\_ [e.g. 5-20] acres).



**Principal Use (Large) SES**  
More than \_\_\_ [e.g. 2] MW DC (or \_\_\_ [e.g. 5-20] acres).


42

42

MICHIGAN STATE UNIVERSITY | Extension M GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## General Provisions – Small Principal-Use

- **Height:** Not to exceed \_\_\_\_ [e.g. 20 ft]
- **Setbacks:** Shall follow the setbacks for primary structures for the district.
  - Not subject to setbacks for common property lines of participating lots.
- **Fencing:** May [shall] be secured... (i.e. be flexible - no fencing, wood split rail, 7' chain link, wildlife fencing)



Wolverine Power Cooperative – 1.2 MW Cadillac array; Spartan Renewable Energy

43




43

MICHIGAN STATE UNIVERSITY | Extension M GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Small Principal-Use: Screening

- Follow the screening and/or landscaping standards for the district.
  - When adjoining non-participating lot has existing residential or public use
- When determined to be in adequate, ZA [or PC] may require:
  - Deciduous trees \_\_ [30] feet and evergreen trees \_\_ [15] feet on center.
- May reduce or waive in keeping with the intent of the Ordinance and is appropriately documented.

Coldwater Solar

PROPOSED SOLAR ARRAY	EXISTING VEGETATION AND ADDED PLANTINGS	HOUSE
		

44

44

## General Provisions – Small Principal-Use

- **Ground Cover:** Shall include the installation of perennial ground cover
  - Sites with majority existing impervious surface, or those that are included in a brownfield plan, are exempt from ground cover requirements.
- Shall not count towards maximum **lot coverage** or impervious surface



WMU; Mary Reilly

45

45

## Small/Large Principal-Use

- **Sound** shall not exceed [45] dBA (Leq (1-hour)) at the property line of an adjoining non-participating lot
- Site plan shall include modeled sound isolines extending from the sound source to the property lines to demonstrate compliance



Pre-Construction Sound Level Impact Assessment: Figure 9-2. High River Solar – Montgomery County, NY

46

46

## Repowering

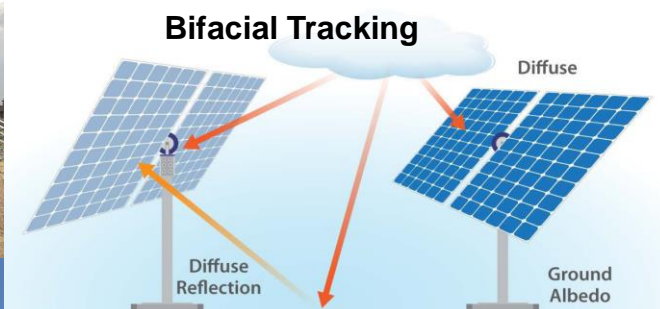
- A SES owner may at any time:
  - Repair or replace SES components to maintain the system;
  - Repower the SES to increase the power rating within the existing project footprint
- A proposal to change the project footprint of an existing SES shall be a new application.

**Repowering:**  
*Reconfiguring, renovating, or replacing a SES to maintain or increase the power rating within the existing project footprint.*

47

47

## Repowering



48

48

### Large Principal-Use SES (more than \_\_\_\_ [e.g. 2] MW)

- Similar sample standards as Small Principal-Use, but permitted as a **special land use** with detailed site plan requirements
- Additional standards apply, e.g., **Dual Use** ground cover



Lapeer Solar Park; DTE Energy

49

49

### Typical Ground Cover



National Renewable Energy Laboratory



E.ON Climate and Renewables

50

50

## Ground Cover – Large Principal-Use SES

### Dual Use Solar Energy System

- A SES that employs one or more land management and conservation practices:
  - **Conservation Cover**
  - **Forage**
  - **Agrivoltaics**
  - **Pollinator Habitat**

Recognizes beneficial use opportunities:

- Agricultural colocation
- Pollinator habitat
- Carbon sequestration
- Soil regeneration
- Wildlife habitat
- Ecosystem services, etc.

51

51

## Dual Use SES

### Conservation Cover:

Solar sites designed in consultation with conservation organizations that focus on restoring native plants, grasses, and prairie with the aim of protecting specific species (e.g., bird habitat) or providing specific ecosystem services (e.g., carbon sequestration, soil health).



Credit: Lenawee County, Charles Gould

52

52

## Dual Use SES

### Forage:

Solar sites that incorporate rotational livestock grazing and forage production as part of an overall vegetative maintenance plan.



Credit: Cassopolis MI, M. Reilly

53

53

## Dual Use SES

### Agrivoltaics:

Solar sites that combine raising crops for food, fiber, or fuel, and generating electricity within the project area to maximize land use.



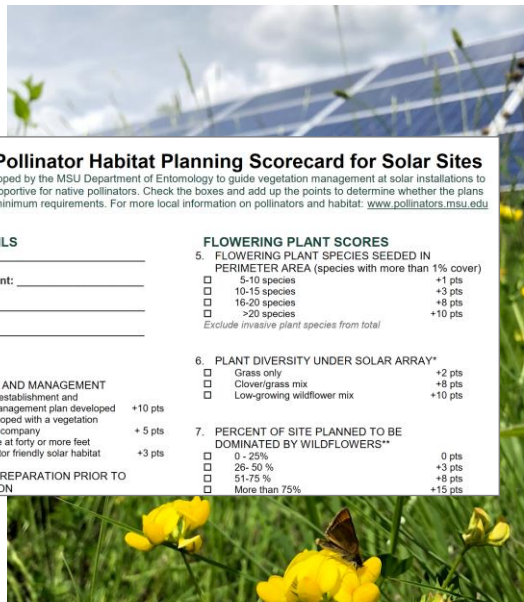
Credit: Traverse City, M. Reilly

54

54

## Dual Use SES

**Pollinator Habitat:**  
Solar sites designed to meet a score of 76 or more on the Michigan Pollinator Habitat Planning Scorecard for Solar Sites.



**Michigan Pollinator Habitat Planning Scorecard for Solar Sites**  
This form was developed by the MSU Department of Entomology to guide vegetation management at solar installations to make them more supportive for native pollinators. Check the boxes and add up the points to determine whether the plans meet or exceed the minimum requirements. For more local information on pollinators and habitat: [www.pollinators.msu.edu](http://www.pollinators.msu.edu)

**PROJECT DETAILS**  
Solar developer: \_\_\_\_\_  
Vegetation consultant: \_\_\_\_\_  
Project location: \_\_\_\_\_  
Project size (acres): \_\_\_\_\_

**SITE SCORES**

**1. SITE PLANNING AND MANAGEMENT**

- Detailed plant establishment and vegetation management plan developed +10 pts
- Site plan developed with a vegetation management company +5 pts
- Signage legible at forty or more feet stating pollinator friendly solar habitat +3 pts

**2. HABITAT SITE PREPARATION PRIOR TO IMPLEMENTATION**

**FLOWERING PLANT SCORES**

**5. FLOWERING PLANT SPECIES SEEDED IN PERIMETER AREA (species with more than 1% cover)**

- 5-10 species +1 pts
- 10-15 species +3 pts
- 16-20 species +8 pts
- >20 species +10 pts

*Exclude invasive plant species from total*

**6. PLANT DIVERSITY UNDER SOLAR ARRAY\***

- Grass only +2 pts
- Clover/grass mix +8 pts
- Low-growing wildflower mix +10 pts

**7. PERCENT OF SITE PLANNED TO BE DOMINATED BY WILDFLOWERS\*\***

- 0 - 25% 0 pts
- 26 - 50 % +3 pts
- 51-75 % +8 pts
- More than 75% +15 pts

55

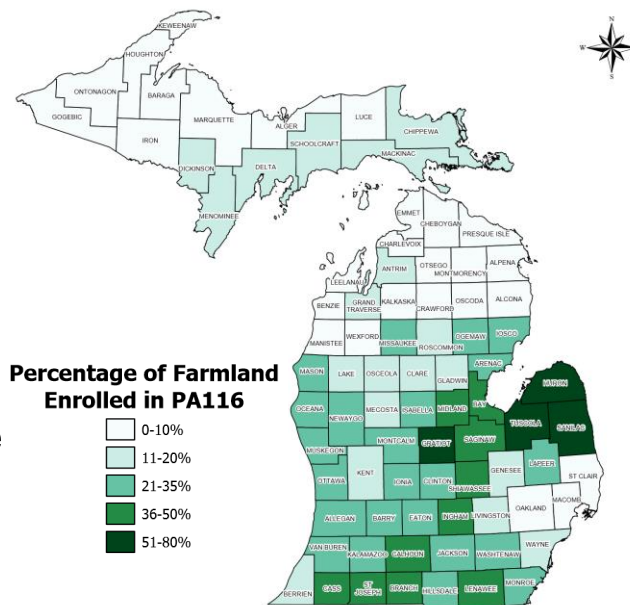
Credit: Rob Davis

55

## Solar on PA 116 Land

State allows solar if:

- Field tile is maintained,
- Cover crop is planted that includes pollinator habitat, and
- Surety bond or letter of credit with the state to ensure solar panels will be removed and the land returned to a condition in which it can be farmed.



56

56



## [Optional] Agricultural Protection

- For sites where Ag is a permitted use, a large principal-use SES may be sited to minimize impacts to production through site design and accommodations including [select those applicable]:
  - **Siting panels along field edges** and in nonproduction areas, [and/or]
  - **Maintaining all drainage infrastructure** on site [and/or]
  - Siting the SES to **avoid isolating areas of the farm operation** such that they are no longer viable or efficient for agricultural production... or
  - Voluntarily **purchasing Ag conservation easements** from an equivalent number of prime farmland acres consistent with a PDR ordinance.
  - **Or more...**

*See Commentary on p. 33 of P&Z for SES Guide*

57

57

## Decommissioning Plan

- A plan shall be submitted indicating the anticipated manner in which the project will be decommissioned for viable reuse of the property consistent with the zoning district
- An SES owner may at any time:
  - Proceed with the decommissioning plan; or
  - Amend the decommissioning plan and proceed according to the revised plan.



Decommissioning an SES must commence when the soil is dry to prevent soil compaction

58

58

MICHIGAN STATE UNIVERSITY | Extension M GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Decommissioning – Large Principal-Use SES

- Similar standards as Small Principal-Use (previous slide), **plus:**
  - Projected costs for removal and soil stabilization, less the amount of the surety bond posted with the State for decommissioning on PA 116 lands
  - The method of ensuring that funds will be available (in the form of surety bond, irrevocable letter of credit, or cash deposit)

A review of the amount of the performance guarantee based on inflation, salvage value, and current removal costs shall be completed every \_\_\_ [e.g. 3 or 5] years, for the life of the project.

59

59

MICHIGAN STATE UNIVERSITY | Extension M GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Site Plan Review – Sample Zoning

SITE PLAN REQUIREMENT (X = Required, NA = Not Applicable)	Small Principal-Use	Large Principal-Use
The location of all solar arrays, including setbacks, the width of arrays and distance between arrays plus total height and height to the lowest edge above grade, ancillary structures and electric equipment, utility connections, and dwellings on the property and within ___ [e.g. 150] feet of the property lines, participating and non-participating lots, existing and proposed structures, buried or above ground wiring, temporary and permanent access drives, fencing detail, screening/landscape detail, berm detail, and signs.	X	X
Plans for land clearing and/or grading required for the installation and operation of the system, and plans for ground cover establishment and management.	X	X
Sound modeling study including sound isolines extending from the sound source(s) to the property lines of adjoining non-participating lots.	X	X
A Decommissioning Plan as applicable: <ul style="list-style-type: none"> <li>• For a Small Principal-Use SES, a decommissioning plan including a description of which above-grade and below-grade improvements will be removed, retained, or restored for viable reuse of the property consistent with the zoning district.</li> </ul>	X	N/A

60

60

## Zoning for SES Activity

- **Of the many sample zoning regulations highlighted, what is the single most significant tool or concept for your community?**
- Share your idea and discuss with your group.
- Person with the fanciest shoes goes first and summarizes the key points shared by members of the group.

- Application across the Transect
- Accessory permitted use in all districts
- Administrative site plan for small principal-use
- Dual-Use
- Repowering
- Decommissioning / Performance Guarantee
- Other provisions

61

61

## E. Other Resources

62

62

MICHIGAN STATE UNIVERSITY | Extension


GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## Planning and Zoning Resources

- Curated repository of templates, guidance <https://www.michigan.gov/egle/about/organization/materials-management/energy/communities/planzone>
- Case Studies, FAQs
- March-April 2020 issue of *Planning & Zoning News*

PLANNING & ZONING GUIDANCE


**SOLAR RESOURCES**



Guidance on incorporating renewable energy in to community plans and ordinances for solar energy.

[LEARN MORE](#)


**ZONING FOR RENEWABLE ENERGY DATABASE**



In a unique project, EGLE and University of Michigan's Graham Sustainability Institute have developed the Michigan Zoning Database, a searchable source of information of municipal ordinances.

[LEARN MORE](#)

**WIND RESOURCES**



Guidance on incorporating renewable energy in to community plans and ordinances for wind energy.

[LEARN MORE](#)

EGLE

63

63

MICHIGAN STATE UNIVERSITY | Extension

GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN

## MSU Extension Sample Zoning

Wind Energy Systems: [October 2020](#)

Solar Energy Systems: [October 2021](#)

MICHIGAN STATE UNIVERSITY | Extension

Michigan State University Extension  
Land Use Series  
**Sample Zoning for Wind Energy Systems**  
Original version March, 2017  
Revised October 9, 2020

This document presents zoning ordinance sample amendments for utility scale wind energy systems (WES) and smaller wind electric generation systems for an individual home or home.

**Contents**

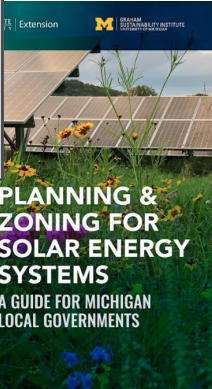
Purpose and Use of Sample Zoning	2
Use Provisions	3
Related Code Law	10
Public Acceptance Factors Related to Wind Energy Development	16
Forward to Mayor/ Council	17
Sample Zoning Amendments for Wind Energy Systems	27
Appendix A: Wind Turbine Noise	36
Appendix B: Comparison of Regulations	41
Appendix C: Shadow Flicker/ Flicker Lighting	44
Appendix D: Summary of Michigan Specific Wind Energy Research and Information	47
Appendix E: List of Revisions to this Document	48

"Thirty seven million acres is all the Michigan we'll ever have"  
William C. Sullivan

There are other versions of this document dating back to 2016. They should not be used. There are significant and important updates and changes in this version.

Extension

GRAHAM SUSTAINABILITY INSTITUTE UNIVERSITY OF MICHIGAN



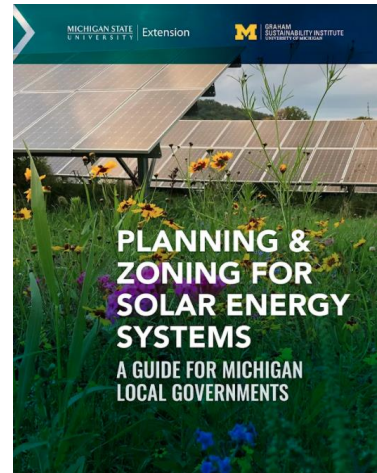
**PLANNING & ZONING FOR SOLAR ENERGY SYSTEMS**  
A GUIDE FOR MICHIGAN LOCAL GOVERNMENTS

64

64

### Upcoming Training

- **May:** Training on Planning and Zoning for SES (in-person and webinar)
- **June:** MAP webinar for attorneys, planners
- **June:** Bus tours from Clare, Lansing
- **July/August:** Deep-dive, online mini-workshops

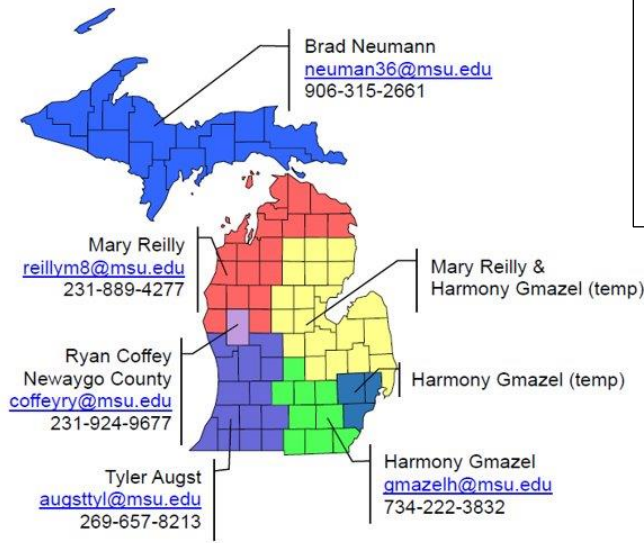


65

65

### Land Use Educators

Contact the MSU Extension land use educator closest to you with your planning and zoning questions.



**University of Michigan**  
 Sarah Mills  
[sbmills@umich.edu](mailto:sbmills@umich.edu)  
 (734) 763-0726

66

66



# PLANNING & ZONING FOR SOLAR ENERGY SYSTEMS

## A GUIDE FOR MICHIGAN LOCAL GOVERNMENTS



## TABLE OF CONTENTS

---

BACKGROUND & PURPOSE	1
SOLAR ENERGY IN MICHIGAN	3
SCALES & COMPONENTS	8
LAND-USE CONSIDERATIONS	12
SAMPLE ZONING FOR SOLAR ENERGY SYSTEMS	22
AUTHORS	40
COLLABORATORS	41

### **Michigan State University** **MSU Extension**

---

Harmony Fierke-Gmazel, *Educator*  
M. Charles Gould, *Educator*  
Bradley Neumann, *Senior Educator*  
Mary Reilly, *Educator*

### **MSU School of Planning, Design and Construction**

---

Wayne Beyea, *Senior Specialist*  
Jason Derry, *Research Assistant*  
Emma Gilbert, *Research Assistant*

### **University of Michigan** **Graham Sustainability Institute**

---

Sarah Mills, *Senior Project Manager*  
Hannah Smith, *Research Assistant*

*Cover image: Ground-mounted SES with pollinator garden. Photo by Rob Davis.*

# BACKGROUND & PURPOSE



*Lapeer Solar Park. Photo by Bradley Neumann.*

Michigan's diverse energy future is set in motion. Utility companies have bold plans to expand solar options and other forms of renewable energy over the next two decades and beyond. By 2040, DTE Energy<sup>1</sup> expects to have over 10 million solar panels generating power for its customers. Consumers Energy also announced<sup>2</sup> plans to build roughly 8,000MW of solar energy by 2040. Regional electric cooperatives and municipally owned utilities are following suit, with plans to expand solar energy production. Michigan has 65 utilities across two peninsulas.

The shift in the utility sector from centralized power generation (e.g., a large coal plant) to a higher number of accessory and principal use solar energy systems (SES<sup>3</sup>) means Michigan communities should plan for renewable energy development within their

jurisdictions. According to a 2019 study of solar ordinances in Michigan, fewer than 20% of Michigan communities have zoning regulations in place to address all scales of SES.<sup>4</sup> These scales are defined further in Section 3 of this guide.

The purpose of this guide is to help Michigan communities meet the challenge of becoming solar-ready by addressing SES within their planning policies and zoning regulations. This document illustrates how various scales and configurations of photovoltaic SES fit into landscape patterns ranging between rural, suburban, and urban.

1 Our Bold Goal for Michigan's Clean Energy Future. DTE. (2020). <https://dtecleanenergy.com/>

2 Consumers Energy. Consumers Energy Announces Plan to End Coal Use by 2025; Lead Michigan's Clean Energy Transformation. (2021). <https://www.consumersenergy.com/news-releases/news-release-details/2021/06/23/consumers-energy-announces-plan-to-end-coal-use-by-2025-lead-michigans-clean-energy-transformation>

3 Michigan Office of Climate and Energy. (2019). Michigan Zoning Database. Available at [https://www.michigan.gov/climateandenergy/0,4580,7-364-85453\\_85458-519951--,00.html](https://www.michigan.gov/climateandenergy/0,4580,7-364-85453_85458-519951--,00.html)

4 Ibid.



*Planning and Zoning for Solar Energy Systems: A Guide for Local Governments in Michigan* was developed by experts within Michigan State University Extension (MSUE) and Michigan State University's School of Planning, Design and Construction in partnership with faculty at the University of Michigan Graham Sustainability Institute. Further review of this document was completed by content experts from local units of government, legal counsel, energy-related non-profits, utility experts, and members of academia. Its intent is to help Michigan communities make public policy decisions related to solar energy development.

This guide is written for use by local planners, officials, legal counsel, and policymakers within the State of Michigan. It first presents the current context for solar in Michigan, describes the various components and configurations of SES, and provides principles for how SES might fit within various land-use patterns across the state. Then, starting on Page 22, the guide presents sample language for including SES into a community's zoning ordinance. The findings and recommendations in this document are based on

university peer-reviewed research (whenever available and conclusive) and on the parameters of Michigan law as it relates to the topic(s) in Michigan. The zoning and regulatory rules and concepts discussed here may not apply in other states. This guide will be updated as solar technology evolves and as we learn more from the deployment of existing technology.

Preparing a zoning ordinance and master plan are only two aspects of being solar-ready. More information on how communities can plan for, regulate, and reduce barriers for SES—through meaningful public engagement, clarifying building/electrical permit processes, reducing permit fees, and evaluating placement of SES on or near municipal buildings, to name a few—is available through numerous Michigan agencies, universities, and organizations, and through the SolSmart<sup>5</sup> program. Additional resources on solar energy (and renewable energy) planning and zoning in Michigan are available from MSU Extension<sup>6</sup> and the Michigan Department of Environment, Great Lakes, and Energy<sup>7</sup> in partnership with University of Michigan Graham Sustainability Institute<sup>8</sup> faculty.



*Ground-mounted SES, Grand Traverse waterfront. Photo by Mary Reilly.*

5 SolSmart. (2021). Program Guide. Available at: <https://solsmart.org/resources/solsmart-program-guide/>

6 MSU Extension Outreach. Michigan State University. <https://www.canr.msu.edu/outreach/>

7 Community Energy Management. Office of Climate and Energy. [https://www.michigan.gov/climateandenergy/0,4580,7-364-85453\\_98214---,00.html](https://www.michigan.gov/climateandenergy/0,4580,7-364-85453_98214---,00.html)

8 Graham Sustainability Institute. University of Michigan. <http://graham.umich.edu/>

# SOLAR ENERGY IN MICHIGAN



*O'Shea Solar Park, Detroit. Photo by DTE Energy.*

While the solar resources in Michigan and other Midwestern states are not as abundant as in the Southwest,<sup>9</sup> over the course of one year, a solar panel in a typical Michigan location produces approximately 70% of the energy as the same solar panel in Phoenix, Arizona.<sup>10</sup> Furthermore, technology advancements have led to rapid cost reductions at all levels of solar development, making solar an increasingly cost-competitive option, both nationally and in Michigan specifically.<sup>11</sup> As a result, utility companies in Michigan have plans to significantly increase the amount of power generated from solar energy. This shift is evidenced by the amount of utility-scale solar energy development currently under construction or in the development queue,<sup>12</sup> along with expanding installations of smaller on-site solar energy systems.<sup>13</sup>

As the demand for clean energy sources continues to grow, Michigan communities are being approached with development proposals for new SES. It is vital that communities have planning and zoning in place to address these proposals. By doing so, communities have the opportunity to proactively determine how SES can fit into their landscape through master planning and zoning ordinance development.

## MASTER PLANNING AND ZONING

Solar energy systems can serve as a method to help reach several different goals that a community may identify, including those focused on resiliency, economic development, farmland preservation, climate action, energy generation, and more.

A community's master plan sets the vision and high-level goals for the community. Local policy related to renewable energy generation is established first in the master plan, with an explanation of how SES could fit into the unique landscapes and character of the jurisdiction. In addition to the master plan, goals related to SES are established in other local plans, which could include district or sub-area plans, resiliency plans, climate action plans, or renewable energy plans. Here, specific geographical areas are designated as ideal for SES development. Including SES in local plans supports the establishment of related zoning regulations, consistent with the requirement of the Michigan Zoning Enabling Act (MZEA).<sup>14</sup> A community-supported vision, followed by the adoption of reasonable zoning standards, together establish a successful framework for SES in a community.

9 Solar Resource Data, Tools, and Maps. National Renewable Energy Laboratory. <https://www.nrel.gov/gis/solar.html>.

10 Solar Resource Data. NREL PVWatts Calculator. Available at: <https://pvwatts.nrel.gov/pvwatts.php>.

11 Lazard. (2020). Levelized Cost of Energy and Levelized Cost of Storage – 2020. Available at: <https://www.lazard.com/perspective/levelized-cost-of-energy-and-levelized-cost-of-storage-2020/>; Solar Technology Cost Analysis. NREL. <https://www.nrel.gov/solar/solar-cost-analysis.html>.

12 Midcontinent Independent System Operator, Inc. [https://www.misoenergy.org/planning/generator-interconnection/GI\\_Queue/](https://www.misoenergy.org/planning/generator-interconnection/GI_Queue/).

13 MPSC. (2020). Distributed Generation Program Report for Calendar Year 2019. [https://www.michigan.gov/documents/mpsc/DG\\_and\\_LNM\\_Report\\_Calendar\\_Year\\_2019\\_711217\\_7.pdf](https://www.michigan.gov/documents/mpsc/DG_and_LNM_Report_Calendar_Year_2019_711217_7.pdf)

14 Michigan Zoning Enabling Act, Public Act (PA) 110 of 2006, as amended. <http://legislature.mi.gov/doc.aspx?mcl-Act-110-of-2006>.

Incorporating renewable energy into the master plan is a logical place to start before drafting zoning regulations. The MZEA requires that all zoning be based on a plan. The master plan therefore establishes the community's formal policy position on solar energy development. For example, the master plan might set a goal that permits accessory SES throughout the jurisdiction. For principal-use SES, it might define what scale is appropriate as a permitted use (i.e., use by right) or determine appropriateness based on the location of marginal lands, soil types, or steep slopes. It could document community attributes or characteristics that are important to consider and/or protect when siting solar energy development. A master plan ideally includes a spatial analysis of land-use suitability and incorporates community engagement to establish formal guidance for the zoning regulations.



*Accessory ground-mounted SES powering remote meteorological and communications equipment. Photo by Bradley Neumann.*

**COMMENTARY:** A request for solar energy development may land on the doorstep of a community that has no mention of solar in the zoning ordinance or master plan. While neither ideal nor recommended, communities sometimes zone first and plan second.<sup>15</sup> Amending the zoning ordinance first without planning for solar is a relatively common course of action, especially when there is a sense of urgency to the permit request. If a community cannot avoid amending the zoning ordinance without first amending the plan, they should work closely with a qualified planner or municipal attorney to perform a master plan review in order to find elements that support or contradict a solar energy zoning amendment. Master plan elements to consider in this review:

- **Vision statement:** How do these broad community statements align with or contradict the contemplated ordinance amendment? Does the vision include renewable energy?
- **Goals and objectives:** If the solar amendment includes multiple scales of SES, then review the goals, objectives, and policies for all relevant land-use classifications on the future land-use map, such as agricultural, residential, commercial, forestry, industrial, etc.
- **Brownfields or grayfields:** Review plans, policies, and maps for recommended zoning approaches.
- **Future land-use map:** Review the map for projected areas of growth (infrastructure extension, type of growth or change in land-use) or areas with goals, objectives, and policies to preserve or maintain a unique community asset.
- **Zoning plan:** While not required as a precursor to a zoning amendment, a statement in the zoning plan<sup>16</sup> affirming the preferred scope and/or location of SES relative to other land-use classifications and zoning districts may be sufficient to show the community anticipated the solar zoning amendment but had not yet taken action to amend the ordinance. [End of commentary]

<sup>15</sup> All zoning must be based on a plan. MCL 125.3203(1). <http://legislature.mi.gov/doc.aspx?mcl-125-3203>

<sup>16</sup> Michigan Planning Enabling Act, MCL 125.3833 (2.d)

After a community has incorporated solar development into its master plan, the zoning ordinance can be amended to include regulations for the various configurations and scales of SES. The zoning regulations protect the community's health, safety, and welfare, and are based on policies outlined in the master plan. Zoning regulations define the location, scale, and form or configuration of SES allowed in the community and establish the permits and processes by which solar energy is allowed and even incentivized.

**COMMENTARY:** According to a review of Michigan zoning ordinances,<sup>17</sup> large-scale solar energy systems (see Section 3) tend to be allowed as principal land uses of property and authorized by special land-use permit in certain zoning districts within a community. Accessory structures, where the electricity generated is used by the principal land use on the property, are generally allowed in more or all zoning districts as accessory uses by right. Furthermore, roof-mounted systems are generally permitted in more zoning districts within a community than ground-mounted systems. In fact, it is quite common to see roof-mounted systems allowed in all zoning districts.

Some communities also permit ground-mounted systems in all districts, though this is less frequently the case than with roof-mounted systems. More specifically, ground-mounted systems tend to be allowed in lower-density districts where there is likely to be larger parcels with larger yards that can accommodate the accessory structure on-site. [End of commentary]

---

## PUBLIC ACT 116—FARMLAND DEVELOPMENT RIGHTS PROGRAM

---

The Michigan Department of Agriculture and Rural Development (MDARD) administers the Michigan Farmland and Open Space Preservation Program, which includes the Farmland Development Rights Program, commonly referred to as PA 116 (Public Act 116 of 1974). The PA 116 program allows a landowner to voluntarily enter into an agreement with the State to retain their land in agriculture in exchange for certain tax benefits and exemptions from various special assessments.

Prior to 2019, principal-use solar was not permitted on land enrolled in the PA 116 Farmland Preservation Program. The policy has since changed to allow landowners to put their PA 116 agreements on hold to pursue solar development if specified conditions are met.<sup>18</sup> For example, among the conditions in PA 116 are those that require the developer to maintain existing field tile, plant a cover crop that includes pollinator habitat, and post a surety bond or letter of credit with the state to ensure that solar panels will be removed, and the land will be returned to a condition that enables farming at the end of the project life. This allows farmers to take advantage of the economic opportunity presented by solar development while preserving the long-term viability of growing crops or raising livestock on that land. Under the terms of the Farmland Development Rights Agreement, it is the landowner's responsibility to work with the solar energy developer to ensure that all conditions associated with PA 116 are satisfied. Therefore, a landowner will need to address such conditions in the solar energy lease, easement, or other agreement with the developer. In some counties, as much as 80% of farmland is enrolled in PA 116.<sup>19</sup> It is important for municipalities to understand the scope of PA 116 lands within their jurisdiction.

- 
- 17 Derry, J., & Gilbert, E. (2020). Primary Research on Planning and Zoning for Solar Energy Systems in the State of Michigan. <https://www.canr.msu.edu/resources/primary-research-on-planning-zoning-for-solar-energy-systems-in-the-state-of-michigan>
- 18 The Farmland and Open Space Preservation Act, being PA 116 of 1974, now codified in Part 361 of the Natural Resources and Environmental Protection Act, PA 451 of 1994. <http://legislature.mi.gov/doc.aspx?mcl-451-1994-III-1-LAND-HABITATS-361>. Also see: [https://www.michigan.gov/mdard/0,4610,7-125-1599\\_2558---,00.html](https://www.michigan.gov/mdard/0,4610,7-125-1599_2558---,00.html)
- 19 MDARD Farmland Preservation Program (PA116) Percentage of Farmland Enrolled by County. [https://www.michigan.gov/documents/mdard/PA116\\_Enrollment\\_Map\\_531166\\_7.pdf](https://www.michigan.gov/documents/mdard/PA116_Enrollment_Map_531166_7.pdf)



*Rooftop SES, Petoskey, Michigan. Photo by Richard Neumann.*

---

## PRIVATE RESTRICTIONS

---

Private restrictions, such as homeowners' association (HOA) rules, deed restrictions, or architectural standards within a subdivision or condominium development, can limit the installation of SES regardless of local government plans and ordinances. Local governments can work with neighborhood associations, sharing sample rules that allow for SES on individual properties and attempting to align the goals of the association with existing local policy. An additional possibility would be to include a requirement in one's zoning ordinance that all new residential developments must allow rooftop solar as a permitted use in the development.

---

## ZONING FEES AND ESCROW POLICY

---

The local resolution governing permit fees and review costs should be updated to include SES upon adoption of a zoning amendment regulating the use. The Michigan Zoning Enabling Act authorizes the legislative body to adopt reasonable fees for zoning permits.<sup>20</sup> The permit fee amount must be set by the legislative body to cover anticipated actual cost of the application review and not more.

To encourage the adoption of solar energy, some communities waive or reduce zoning fees for some types of systems. Within the SolSmart certification program, for example, communities can earn points toward certification by waiving or exempting fees for residential solar permit applications.

For large utility-scale SES, though, a community might consider using escrow funds deposited by the applicant to recover the expense of hiring outside reviewers, such as an attorney, engineer, or planning consultant. An escrow policy provides a mechanism for the community to anticipate the costs associated with reviewing a complex application. Prior to requiring escrow funds for a zoning application review, the legislative body must first adopt an escrow policy by resolution.<sup>21,22</sup> Among other things, an escrow policy establishes administrative guidelines for spending, replenishing the escrow below a certain balance, and returning remaining funds.

---

20 Michigan Zoning Enabling Act, Act 110 of 2006, MCL 125.3406, <http://legislature.mi.gov/doc.aspx?mcl-125-3406>

21 *Forner v. Allendale Charter Twp.* Court: Michigan Court of Appeals, 2019 Mich. App. LEXIS 576, 2019 WL 1302094 (March 21, 2019, Decided), Unpublished Opinion No. 339072, <http://www.michbar.org/file/opinions/appeals/2019/032119/70094.pdf>

22 Charter Township Act, PA 359 of 1947. <http://legislature.mi.gov/doc.aspx?mcl-Act-359-of-1947>. Revised Statutes of 1846. <http://legislature.mi.gov/doc.aspx?mcl-R-S-1846-41-1-16>



*Langeland Farms SES. Photo by M. Charles Gould.*

## OTHER PERMIT PROCESSES

The planning commission can serve in a coordinating role to ensure additional required permits are obtained before planning commission review and approval. For example, the application may include mitigation measures to minimize potential impacts on the natural environment, including but not limited to wetlands and other fragile ecosystems, historical sites, and cultural sites. In addition to local zoning permits, solar energy developments may require permits from other agencies, including:

- **Department of Environment, Great Lakes, and Energy (EGLE)** if the project affects waters of the state, such as wetlands, streams, or rivers.<sup>23</sup>
- **U.S. Fish and Wildlife Service (USFWS)** for the Endangered Species Act or migratory flyways.<sup>24</sup>
- **Federal Aviation Administration (FAA)** for projects on or within the vicinity of an airport to determine if any safety or navigational problems are present.<sup>25</sup>
- **Municipal or County Soil Erosion Permitting Agency** if the project is one or more acres in size, or is within 500 feet of a lake or stream.<sup>26</sup>
- **Tax Assessor** or zoning administrator for land division approval if leasing less than 40 acres or the equivalent for more than one year.<sup>27</sup>
- **Building Department** for required building, electrical, and mechanical permits.<sup>28</sup>
- **Local Airport Zoning**, for projects within 10-miles of a local airport.<sup>29,30</sup>

23 Parts 301 and 303 of the Natural Resources and Environmental Protection Act, PA 451 of 1994. <http://legislature.mi.gov/doc.aspx?mcl-451-1994-III-1-INLAND-WATERS>

24 Federal laws administered by the USFWS: Endangered Species Act (ESA); Bald and Golden Eagle Protection Act (BGEPA); Fish and Wildlife Coordination Act (FWCA). See: <https://www.fws.gov/ecological-services/energy-development/laws-policies.html>

25 Part 77 (Airspace Review) of Title 14 of the Code of Federal Regulations. [https://www.faa.gov/airports/environmental/policy\\_guidance/media/FAA-Airport-Solar-Guide-2018.pdf](https://www.faa.gov/airports/environmental/policy_guidance/media/FAA-Airport-Solar-Guide-2018.pdf)

26 Soil Erosion and Sedimentation Control. [https://www.michigan.gov/egle/0,9429,7-135-3311\\_4113-8844--,00.html](https://www.michigan.gov/egle/0,9429,7-135-3311_4113-8844--,00.html)

27 Michigan Land Division Act, PA 288 of 1967, definition of 'Division' – MCL 560.102(d). <http://legislature.mi.gov/doc.aspx?mcl-560-102>

28 When a project is developed or owned by a private entity, local construction permits are required. If the project is owned by a regulated utility, then local building and electrical permits may not be required but projects are instead regulated by the Michigan Public Service Commission. See Stille-Derossett-Hale Single State Construction Code Act, PA 230 of 1972, MCL 125.1502a(1)(bb), <http://legislature.mi.gov/doc.aspx?mcl-125-1502a>; and 2015 Michigan Building Code, 1.105.2.3 Public Service Agencies, [https://www.michigan.gov/lara/0,4601,7-154-89334\\_10575\\_17550-234789--,00.html](https://www.michigan.gov/lara/0,4601,7-154-89334_10575_17550-234789--,00.html)

29 Airport Zoning Act, Act 23 of 1950. <http://www.legislature.mi.gov/documents/mcl/pdf/mcl-act-23-of-1950-ex-sess-.pdf>

30 Michigan Zoning Enabling Act, Act 110 of 2006, MCL 125.3203, <http://legislature.mi.gov/doc.aspx?mcl-125-3203>

# SCALES & COMPONENTS



*Ground-mounted monopole SES. Photo by Bradley Neumann.*

This section discusses SES across a range of sizes, scales, configurations, and related components. SES cannot be treated uniformly by local governments because the scale of installations and energy generation capacity can vary dramatically. For example, a small solar panel powering a streetlight might be exempt from regulation, while a large-scale photovoltaic SES, providing power to the grid through a system of components, likely would require rigorous local review.

---

## TYPES

---

Solar energy generation for distribution to the grid is a unique land use, at both the large and small scale. As such, these developments should be clearly defined as a separate land use within a zoning ordinance. Treating all scales of SES the same may unnecessarily restrict accessory and small scale installations. In addition, solar developments are scalable and can be sited across many zoning districts. Therefore, in zoning ordinances, SES should be expressly defined

as distinct land uses at the different system scales that the community desires (e.g. accessory use vs. principal use, small SES vs. large SES, ground-mounted SES vs. roof-mounted SES, etc.).

The first distinction to consider for SES is accessory use versus principal use.

**Accessory:** These SES are accessory to the primary use of a property, such as a residence or a commercial building, and provide electricity that is intended for use by a primary structure located on the same parcel as the SES. Accessory systems can range in size and configuration. They typically range from being small enough to power an exterior light fixture to being large enough to power electricity for multiple buildings, for instance livestock or equipment barns. On-site (or distributed-generation) systems can be affixed to the roof of a building or can be freestanding, ground-mounted structures.

**Principal:** Principal-use SES developments generate electricity distributed off-site through the grid and exported to a wholesale utility market. These projects occupy single or multiple large parcels of land and are typically the primary use on the site. These SES vary greatly in size, covering as little as an acre to thousands of acres. In addition, SES have two primary configurations: ground-mounted and roof-mounted.

**Roof-Mounted:** A roof-mounted SES has solar panels affixed to a racking system on the roof of a building, which may be a residential, agricultural, institutional, commercial, or industrial building. Roof-mounted panels can be installed parallel to the roof surface, like a solar shingle, or protrude from the roof at an angle, like an awning. A roof-mounted SES typically has fixed mounts that do not rotate throughout the day to track the sun. By definition, roof-mounted systems are accessory structures relative to the principal use of the building.

**Ground-Mounted:** A ground-mounted SES has solar panels affixed to a racking system on support posts. These posts are most commonly driven into the ground, without requiring excavation for a concrete foundation. However, in cases where the soil cannot be penetrated, such as with a brown-field or capped landfill, ground-mounted SES can also be designed with ballasted supports that sit atop the ground. A ground-mounted SES may be fixed (i.e., stationary) or have single- or double-axis trackers to follow the sun throughout the day. While nearly all principal-use SES are ground-mounted, some accessory SES may be ground-mounted, too. For example, solar parking canopies are becoming more common in Michigan and present unique characteristics as compared to a typical ground-mounted SES.

These characteristics include unique panel height, vehicle support-post collision mitigation, lighting, and site configurations. Ground-mounted SES can also be distinguished by scale, which we define in this guide to be ‘large’ or ‘small’.

## SCALES

As mentioned, even principal-use SES can vary greatly in size, covering as little as an acre to thousands of acres. Because of this variation in the size and impact on a site, many communities may choose to distinguish between small and large principal-use SES in their ordinances. To be sure, there is no established definition of “small” or “large,” and for other industry or taxation purposes, large- and small-scale distinctions may differ.

In assisting a community in making a distinction between scales of SES based on size, Table 1 (below) illustrates common SES outputs measured in megawatts (MW) of direct current (DC)<sup>31</sup> and the average acreage of land required to host an SES of that output.<sup>32</sup> Larger projects have a higher variability in land required per megawatt (5-10 acres per MW DC)<sup>33</sup>, depending on how many parcels are involved and the layout of solar panels within them.

**Table 1. Comparison Chart: Megawatt Outputs to Acreage Needed**

Megawatts (DC)	Acres
1 MW*	5-10
2 MW	10-20
20 MW	100-200
100 MW	500-1,000
200 MW	1,000-2,000

\*The current national average (through 2018) number of homes powered by 1 MW of solar is 190. Since SEIA began calculating this number in 2012 it has ranged from 150 - 210 homes/MW.<sup>34</sup>

31 Solar output can also be measured in alternating current (AC), often for taxation or regulatory policies. An SES will have a higher MW DC rating than MW AC rating since there are some losses when inverting power from DC to AC to connect to the grid.  
 32 Ong, S., Campbell, C., Denholm, P., Margolis, R., and Heath, G. 2013. Land-Use Requirements for Solar Power Plants in the United States. National Renewable Energy Laboratory, Technical Report NREL/TP-6A20-56290. Table ES-1, Page v. Source: <https://www.nrel.gov/docs/fy13osti/56290.pdf>. Retrieved August 27, 2021.  
 33 Solar Energy Industries Association (SEIA). (2021). Siting, Permitting & Land Use for Utility-Scale Solar. <https://www.seia.org/initiatives/siting-permitting-land-use-utility-scale-solar>  
 34 SEIA. (2021). What's in a Megawatt? <https://www.seia.org/initiatives/whats-megawatt>





*(Clockwise from top right) Ground-mounted SES with grazing (sheep) by Mary Reilly; park outbuilding, rooftop SES in winter, demonstration array, all by Bradley Neumann.*

In this guide, the scale threshold between small and large principal-use SES is 2MW (or approximately 20 acres). Currently, there are dozens of SES projects of 2MW and less being developed in the state.<sup>35</sup> These have largely been well-received by local communities, suggesting they fit within the character of the landscapes in which they are proposed. Small systems 2MW or under (or 20 acres) could be permitted by right after an administrative site plan review (see discussion below). Each community, though, should

determine what the right demarcation of scale is between small and large principal-use SES given the community's context. In an urban environment, where parcels are smaller, the threshold to classify as a large principal-use SES may be smaller projects of fewer megawatts. In a community abundant with rural land or experience with expansive developments, a larger MW or acreage threshold for large projects may be more appropriate.

<sup>35</sup> Most of these small projects are sized so that they can be considered "qualifying facilities" under PURPA, a federal law enacted in 1978, intended to diversify electricity generation. Specific capacity (MW) thresholds to receive the "standard offer tariff" vary from utility to utility. The current standard offer capacity threshold and more about PURPA can be found on the Michigan Public Service Commission's website: [https://www.michigan.gov/mpsc/0,9535,7-395-93309\\_93439\\_93463\\_93723\\_93730-406273--,00.html](https://www.michigan.gov/mpsc/0,9535,7-395-93309_93439_93463_93723_93730-406273--,00.html)

---

## COMMON SOLAR COMPONENTS

---

All SES require equipment to operate properly, although this equipment may differ based on the scale and configuration of the system. Besides the solar array panels/modules themselves, four common types of equipment are included with an SES: an inverter, a battery system (if in use), racking, and wiring. There are also other ‘balance of system’ components that may or may not be present: combiner boxes, disconnect switches, a weather station, performance monitoring equipment, and transformers.

**Solar Panels:** Photovoltaic solar panels convert light (photons) to electricity (voltage). The vast majority of today’s solar panels are made of silicon solar cells. An individual solar panel is typically assembled on racking to function with other panels as part of an array. Commercial solar panels are constructed with one or more anti-reflective coatings often made of magnesium fluoride (MgF<sub>2</sub>). Anti-reflective coatings have been highly improved in the last 20-30 years to ensure that panels maximize how much light reaches the photovoltaic cells. Glare from modern solar panels is insignificant and local regulation, even adjacent to airports, is not always required.

**Inverter:** Inverters convert direct current (DC) electricity generated by photovoltaic modules into alternating current (AC) electricity that is compatible with batteries and the electrical grid.<sup>36</sup> Some inverters produce sound when in operation, which can often be managed with proper placement based on the sound pressure they produce. Communities may choose to adopt sound regulations to influence the placement and design of inverters within an SES.<sup>37</sup>

**Battery:** Some homeowners or solar developers include batteries in their solar installations, allowing the solar energy to be stored and used at later times when it is needed (such as at night). These on-site batteries make solar energy more accessible and reliable as an electricity source, and are becoming increasingly common for all scales of SES as per-unit costs of batteries decline. Batteries can vary in size depending on the level of storage needed and may also vary in their location on the site. For accessory systems, the batteries may be within the residence itself.

**Racking:** As described above, SES may be ground- or roof-mounted. The frames, support posts, foundations (if required), and hardware used to secure solar panels and other SES equipment is often collectively referred to as “racking.”

**Wiring:** Solar panels are wired together to create an electrical circuit that allows current to flow through the component parts. Wiring extends beyond the panels to inverters, batteries, electronic devices, transformers, and/or distribution lines, depending on whether the SES generates electricity for use on-site or export to the electrical grid. Wiring between solar components may be underground.

Other components related to larger SES include transformers and substations for connecting to transmission lines that serve the electrical grid. Often solar developers connect to existing substations, but sometimes developers propose new or upgraded substations or transmission-line extensions as part of the SES. Transformers in substations increase voltage to higher levels for more efficient transmission over long distances. Transformers may produce low audible noise, so they may be subject to local government regulations applying to substations.

---

36 U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy. Solar Integration: Inverters and Grid Services Basics. <https://www.energy.gov/eere/solar/solar-integration-inverters-and-grid-services-basics>

37 Kaliski, K., I. Old, and E. Duncan. An overview of sound from commercial photovoltaic facilities. June 29-July 1. NOISE-CON 2020. <https://rsginc.com/wp-content/uploads/2021/04/Kaliski-et-al-2020-An-overview-of-sound-from-commercial-photovoltaic-facilities.pdf>

# LAND-USE CONSIDERATIONS



**Fig 1. Rural-to-Urban Transect.** Credit: DPZ CoDesign; MSU Extension












From left to right in **Figure 1**, above, the landscape shifts from a natural zone (T1), which can be wilderness, woodlands, wetlands, or other naturally occurring habitats, gradually transitioning in intensity-of-use to the urban core where we find our large urban centers. The remaining transect zones depicted in Figure 1 include rural farmland and open space areas (T2), suburban developments (T3) and general urban zones (T4, T5, T6), including traditional walkable neighborhoods and smaller historic downtowns. By taking a transect-based view of a community, policymakers can consider SES scales and configurations relative to the development pattern(s) in a community to determine the most appropriate regulation of SES by landscape type (vs. specific individual land use).

Solar energy systems (SES) can be of different scales and configurations within a community. As used in this document, the four basic scales of SES are roof-mounted, accessory ground-mounted, small principal-use, and large principal-use. Ultimately, the compatibility of an SES at a given site depends on its scale relative to the pattern and density of the surrounding physical and built environment. Zoning, as a local regulatory mechanism, can mitigate the impacts of SES if standards are appropriately tailored to the various development patterns of a community.

To better understand how SES can be integrated into existing development patterns in a community, it is

helpful to understand and apply the ‘transect’ to illuminate the multiple intersections of solar configurations and scales possible across a range of natural to urban landscapes. The Rural-to-Urban Transect, depicted in Figure 1, is an urban planning model that defines a series of zones that transition from natural and sparse rural farmhouses to the dense urban core of a large regional city.<sup>38</sup> In the figure, the dark gray boxes are built structures served by light gray roadways and surrounded by green natural open space or trees. There is an elevation or profile view across the top ‘horizon’ line of each transect and a plan or aerial view of the same landscape just below.

38 For more background on the Rural-to-Urban Transect, visit the Center for Applied Transect Studies website at: <https://transect.org/>.

Solar Energy System Type	Natural	Rural	Urban	General Urban
Accessory Roof Mounted				
Accessory Ground Mounted				
Principal Use (Small)				
Principal Use (Large)				

**Fig 2. Examples of Solar Energy System Types across the Transect**

**Figure 2** provides a visual depiction of the type and scale of SES that exhibit predominant factors for compatibility in a given setting. For example, while it's not generally appropriate to develop a large or small principal use SES in a natural wilderness area (T1), it may be more appropriate to allow roof-mounted SES in that transect to serve park structures and accessory equipment within this landscape. Similarly, compatible siting of SES can occur in the suburban transect zone (T3) with a full range of SES types and scales, such as a roof-mounted system on a hotel, an accessory ground-mounted SES carport, or a large or small principal use system at an office park. Regardless of whether a community uses transect-based zoning terminology in the master plan or zoning ordinance, the transect framework is helpful in developing community goals related to the logical placement and installation of SES across varying landscapes of a community.

Table 2 – SES Scale and Type as applied to Example Zoning Districts

Example Zoning District:	Resource Production / Agricultural	Low-Density Residential	Commercial / Office	Industrial	Medium-Density Residential	Mixed Use
Roof-Mounted	P	P	P	P	P	P
Accessory Ground-Mounted	P	P	P	P	P	P
Principal Use (Small)	SPR	SLU	SPR	SPR	SLU	SPR
Principal Use (Large)	SLU	X	SLU	SLU	X	X

P = Permitted Use (zoning standards apply); SPR = Site Plan Review; SLU = Special Land Use; X = Not Permitted

Understanding that various types of SES can exist (or not exist) compatibly within natural, rural, suburban, and urban land-use transects, communities with conventional, use-based zoning ordinances will need to determine the SES type and scale that best fits in each zoning district. This determination must include the approval mechanisms by which the types of SES will be allowed. See Table 2 for one approach to applying SES types and scales across a range of six common zoning districts and the zoning approval processes that might be used. Table 2 suggests permitting processes for the four main SES types. For instance, roof-mounted and accessory ground-mounted systems are likely appropriate across the transect and can be allowed as a use by right in all zoning districts. Small principal-use SES are similarly permitted across the transect, but the approval process varies depending on the context. In zoning districts where there is concern about compatibility with existing land uses, a special land-use (SLU) permit issued after planning commission review provides the most protection for existing and adjacent land uses. However, small principal-use SES might also fit within certain zoning districts without much concern and therefore can also be permitted through site plan review (SPR) performed by the zoning administrator. Lastly, large principal-use SES are permitted by SLU in many, but not all, zoning districts due to compatibility concerns with existing land uses and development patterns. For instance,

it could be counter to the master plan and intent of the zoning district for a large principal-use SES to be sited in a walkable, mixed-use district. Each community, though, should tailor the SES type and scale to its own development patterns, transect zones, or zoning districts and assign the appropriate zoning approval process to each.

Overlay zoning is an optional approach to proactively establish the potential location of small or large principal-use SES.<sup>39</sup> Overlay zoning is often used to create a standard set of regulations to address unique needs of one type of land use by placing a second regulatory zoning district on top of the existing zoning map. This approach might be useful if the majority of the land in the community is under the same zoning designation (e.g., agricultural or ag-residential), and the community finds SES are appropriate in some, but not all, areas of that district. For example, the community may determine an SES overall to be most appropriate near existing electrical transmission lines or substations, or in sections of an ag-residential district without substantial residential development. In addition to defining the regulations for the overlay district within the zoning ordinance text, communities who opt to use overlay zoning to regulate SES should also proactively apply the overlay district to their zoning map. The boundaries of the overlay should be supported by the master plan with analysis of the solar resource, location of

39 American Planning Association. Property Topics and Concepts. <https://www.planning.org/divisions/planningandlaw/propertytopics.htm>

existing energy infrastructure, slopes, unique natural features, capabilities of the land/soil, current development patterns, and more.

**COMMENTARY:** Ethics and Conflict of Interest: Because large principal-use SES may cover hundreds of acres of land, it is not unusual for local elected officials or planning commission members' properties to be included in a project. The legislative body or planning commission may have existing rules or bylaws on what constitutes a conflict of interest for its members and how a conflict of interest is handled. Planning commissions are required to have bylaws with rules on handling conflict of interest.<sup>40</sup> If no such rules or bylaws are in place, they should be established and would apply to all matters before the board or commission. Involvement of the community's attorney that is experienced in municipal (planning and zoning) law is advised when a conflict of interest issue presents itself for one or more board members or planning commissioners. [End of commentary]

## FARMLAND CONSIDERATIONS

When a large principal-use SES is proposed on agricultural land, there are sometimes concerns about whether the operation is a wise use of farmland and whether the land will be able to be farmed during or at the end of the solar project's life. While this question is rarely asked of other land uses in farming communities (for example, residential subdivisions are often allowed in agricultural districts and that land would not be readily farmed again), given the scale of solar projects on the horizon and that prime farmland and other important farmlands are a limited commodity,<sup>41</sup> it is a reasonable concern.

There is nothing inherent in solar development that would make the land unfarmable: the panels and support posts can all be removed. Driving paths between arrays or concrete pads on which the inverters sit will result in soil compaction and should be mitigated upon decommissioning, but these tend to be relatively small percentages of land area for an SES. A bigger concern for returning a solar site to crop production is site design standards, such as the choice of stormwater management practices, the extent and type of landscaping, and the use of berms as a screening mechanism. Movement of topsoil or planting of trees may jeopardize the ability to farm the land in the future. The guidelines outlined in this sample ordinance and also presented in PA 116—to maintain the field tile and plant pollinator habitat—help ensure that the land can be farmed again the future.

Some local governments have proposed going even further, prohibiting solar energy development on particular classes of farmland. The U.S. Department of Agriculture, Natural Resources Conservation Service (NRCS) uses eight categories to classify the suitability of soils to grow most kinds of field crops. In general, Class I through Class IV are suitable for cropland use while Class V through Class VIII are suitable for permanent vegetation (i.e., no tillage).<sup>42</sup> However, if land is predominantly Class III or higher, it might be considered marginal farmland, and therefore could be considered less valuable for long-term agricultural use—raising fewer concerns about the appropriateness of solar energy development. In communities where prohibitions based on soil classification extend to other land uses (e.g., residential developments, golf courses, airstrips), this may be reasonable based on a master plan that includes farmland preservation goals and recommends farmland protection zoning techniques and other farmland preservation tools, such as Michigan's farmland purchase of development rights program. However, if soil classification-based prohibitions only apply to large principal-use SES, this approach may be vulnerable to legal challenges.

40 MCL125.3815. <http://legislature.mi.gov/doc.aspx?mcl-125-3815>. Also see MSU Extension Sample Bylaws for a Planning Commission: [https://www.canr.msu.edu/resources/sample\\_1e\\_bylaws\\_for\\_a\\_planning\\_commission](https://www.canr.msu.edu/resources/sample_1e_bylaws_for_a_planning_commission)

41 Other farmland classifications to consider include: farmland of statewide importance, farmland of local importance, unique farmland, and prime farmland if drained. <https://websoilsurvey.sc.egov.usda.gov>

42 USDA NRCS. Land Capability Class, by State. 1997. [https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/?cid=nrcs143\\_014040](https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/technical/nra/?cid=nrcs143_014040)

---

## AGRICULTURE DUAL USE

---

“Dual use” is the integration of solar panels in an agricultural system in a way that enhances a productive, multifunctional landscape.<sup>43</sup> Dual use can take many forms in agricultural areas, and while there are numerous examples of successful co-located projects, it isn’t the default practice for every solar development, and may not always be possible or desired by property owners. Perhaps the most overt combination of solar and agriculture working together is through an “agrivoltaic” system that combines raising crops for food, fiber, or fuel, and generating electricity within the project area to maximize land use. Careful planning and evaluation is needed when designing the configuration of solar arrays for specialty crop production.

Grazing animals under and around solar arrays is another example of dual use. Grazing sheep is a practice that keeps land in active agricultural production and effectively manages vegetation.<sup>44</sup> A 2018 report from the David R. Atkinson Center for a Sustainable Future at Cornell University concluded that utilizing sheep for site vegetation management resulted in, “2.5 times fewer labor hours than mechanical and pesticide management on site.”<sup>45</sup> Tampa Electric reported a 75% cost savings over traditional mowing at its solar sites.<sup>46</sup> However, grazing sheep requires careful site design (to ensure that livestock is compatible with project infrastructure), as well as vegetation planning (so that the right forages are planted and the proper

rotational grazing system is implemented).<sup>47,48,49</sup> Done successfully, solar grazing can support the livelihoods of veterinarians, feed suppliers, and other parts of the rural agriculture economy.

Agrivoltaics and grazing are not the only ways that SES can support agricultural landscapes and economies.<sup>50</sup> Another dual use is planting groundcover that is compatible with solar panels and provides a variety of other ecosystem services of value. Examples include planting vegetation that provides food sources for pollinators or selecting plant species that provide ecological services, such as carbon sequestration, increased soil health, habitat preservation, or water quality improvements.<sup>51</sup> Though some existing solar projects may already provide stacked ecological services, research is just now underway to quantify some of these co-benefits. In the interim, SES systems that integrate plant species and practices compatible with conservation-cover standards should be treated as dual use, as they provide the ecological benefits of these farm management practices along with clean energy.

- 
- 43 Low-Impact Solar Development Basics. Innovative Site Preparation and Impact Reductions on the Environment. <https://openei.org/wiki/InSPIRE/Basics>
  - 44 Hartman, David. (2021). Sheep Grazing to Maintain Solar Energy Sites in Pennsylvania. Penn State Extension. <https://extension.psu.edu/sheep-grazing-to-maintain-solar-energy-sites-in-pennsylvania>
  - 45 Kochendoerfer, N., Hain, L., and Thonney, M.L. (2018). The agricultural, economic and environmental potential of co-locating utility scale solar with grazing sheep. David R. Atkinson Center for a Sustainable Future, Cornell University. [https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/f/6685/files/2015/09/Atkinson-Center-report-2018\\_Final-22l3c5n.pdf](https://cpb-us-e1.wpmucdn.com/blogs.cornell.edu/dist/f/6685/files/2015/09/Atkinson-Center-report-2018_Final-22l3c5n.pdf)
  - 46 Utility Dive Does a Deep Dive on Solar Grazing. (2020). ASGA. <https://solargrazing.org/utility-dive-does-a-deep-dive-on-solar-grazing/>
  - 47 Agricultural Integration Plan: Managed Sheep Grazing & Beekeeping. (2020). [https://www.edf-re.com/wp-content/uploads/004C\\_Appendix-04-B.-Agricultural-Integration-Plan-and-Grazing-Plan.pdf](https://www.edf-re.com/wp-content/uploads/004C_Appendix-04-B.-Agricultural-Integration-Plan-and-Grazing-Plan.pdf)
  - 48 Cassida, K. and Kaatz, P. (2019). Recommended Hay and Pasture Forages for Michigan. Extension Bulletin E-3309. Michigan State University. <https://forage.msu.edu/wp-content/uploads/2019/11/E3309-RecommendedHayPastureForagesForMichigan-2019.pdf>
  - 49 Undersander, D., Albert, B., Cosgrove, D., Johnson, D., and Peterson, P. (2002). Pastures for Profit: A Guide to Rotational Grazing. Extension bulletin A3529. University of Wisconsin-Extension and Minnesota Extension Service. [https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/stelprdb1097378.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1097378.pdf)
  - 50 A Guide to Solar Energy in Vermont’s Working Landscape. (2020). The University of Vermont Extension. [https://www.uvm.edu/sites/default/files/The-Center-for-Sustainable-Agriculture/resources/solar\\_energy\\_vt\\_working\\_landscape.pdf](https://www.uvm.edu/sites/default/files/The-Center-for-Sustainable-Agriculture/resources/solar_energy_vt_working_landscape.pdf)
  - 51 Steinberger, K. (2021). Native Plant Installation and Maintenance for Solar Sites. The Nature Conservancy. <https://www.nature.org/content/dam/tnc/nature/en/documents/Native-Plant-Management-at-Solar-Sites.pdf>



*Ground-mounted SES with grazing (sheep). Photo by M. Charles Gould.*

**COMMENTARY:** As of January 1, 2021, the sheep and lamb inventory in Michigan was 87,000 head.<sup>52</sup> Of that 87,000 head, 47,000 are ewes.<sup>53</sup> By 2024, there will be a total of 1,188 megawatt (MW) of solar online.<sup>54</sup> Assuming a principal-use SES requires eight acres per MW of generating capacity, 9,504 acres could potentially be grazed.<sup>55</sup> At a stocking rate of three mature ewes per acre, 28,512 ewes would be needed to manage the vegetation of all solar projects currently online or going online through 2024.<sup>56</sup> While there are more than enough ewes to service these solar projects, the sheep inventory in the state is at grazing equilibrium. Solar projects that are suitable for grazing could spur an increase in the sheep and lamb inventory in Michigan. Because ewes can have multiple lambs, the state's sheep industry has the capacity to expand to meet this demand. Furthermore, over half of the lamb and mutton supply is currently imported<sup>57</sup>, and with the largest livestock harvesting facility east of the Mississippi in the Detroit area, there are opportunities to replace imported meat with the increased lamb and sheep inventory. [End of commentary]

- 
- 52 U.S. Department of Agriculture. Sheep and Goat Inventory News Release [NR-21-07]. (February 2021). [https://www.nass.usda.gov/Statistics\\_by\\_State/Michigan/Publications/Current\\_News\\_Release/2021/nr2107mi.pdf](https://www.nass.usda.gov/Statistics_by_State/Michigan/Publications/Current_News_Release/2021/nr2107mi.pdf)
- 53 USDA NASS Great Lakes Region. 2021. News Release: Sheep and Goat Inventory NR-21-07. Found at [https://www.nass.usda.gov/Statistics\\_by\\_State/Michigan/Publications/Current\\_News\\_Release/2021/nr2107mi.pdf](https://www.nass.usda.gov/Statistics_by_State/Michigan/Publications/Current_News_Release/2021/nr2107mi.pdf). Retrieved July 28, 2021.
- 54 Correspondence on March 5, 2021 with Julie Baldwin, Manager, Renewable Energy Section of the Michigan Public Service Commission.
- 55 SEIA. Siting, Permitting & Land Use for Utility-Scale Solar. <https://www.seia.org/initiatives/siting-permitting-land-use-utility-scale-solar>.
- 56 U.S. Department of Agriculture. Grazer's Math, With Apologies. <https://app.box.com/s/x9zv3yvili2w0l7xbh8lcl2cgn71meh6>
- 57 USDA Economic Research Service. <https://www.ers.usda.gov/topics/animal-products/sheep-lamb-mutton/sector-at-a-glance/>. Retrieved July 28, 2021.



## SOLAR ON BROWNFIELDS AND GRAYFIELDS

A recommended practice is to use regulation to encourage the siting of SES on land that is difficult to develop or marginal for other uses. Examples of marginal land include brownfield sites, capped landfills, grayfield sites (previously developed property), and required safety buffer areas around industrial sites. On brownfields or capped landfills, solar development can allow productive use of land that might be compromised or have other development challenges. Solar arrays can be designed to avoid penetrating the ground and don't require as much remediation as other kinds of development. In a similar vein, development of solar on grayfield sites can provide an economic development opportunity for land that is otherwise disadvantaged from a redevelopment perspective.

While the use of marginal land for solar energy development is recommended, it is not a common practice, particularly among large SES, for a range of reasons.<sup>58</sup> One reason is that most of these marginal lands are smaller than the preferred 100+ acres for a more typical SES, and these smaller sites typically do not allow for achieving economies of scale. Even when solar developers are building a smaller-scale project, developing on a brownfield site may require using ballasted support structures (rather than driven posts), which can be more expensive, or may require a less-than-ideal panel layout. Communities wanting to attract solar development to marginal lands may need to reduce other costs or barriers to development, such as expediting review and permitting, providing land at low or no cost, decreasing required setbacks, or providing other incentives, including offering property tax incentives where that is allowed. While Michigan has seen modest development of solar on brownfields to date, other states (for example, Massachusetts and New York) are purposely targeting such development as a land-use and local economic development strategy.<sup>59</sup>

## CO-LOCATION WITH OTHER LAND USES

When evaluating how SES might fit into a community, one important consideration is how compatible an SES would be with the surrounding landscape and existing land use. Solar co-location is a signature concept for local regulation. The notion of co-location allows for solar energy production to be in parallel with another use.

For example, parking lots may be outfitted with solar carports as accessory structures (see extended commentary for some case studies). Other examples of co-location of SES include siting solar arrays at public school sites or other institutional grounds and in highway rights-of-way and the open space at airports. With the road network, an SES within a highway or freeway right-of-way might be deployed to power a specific piece of equipment, such as a sign, light, or meteorological station. Given their ample landholdings, airports may be ideally poised for solar installation, and have successfully installed SES as both ground-mounted and roof-mounted systems. The three primary issues regulated by the Federal Aviation Administration (FAA) are reflectivity and glare, radar interference, and the physical penetration of panels into airspace. Guidance provided by the FAA helps airport operators understand the considerations they should make in deploying solar, including when glare studies are required.<sup>60</sup>



*Coldwater Solar Field Park.  
Image courtesy of City of Coldwater, MI.*

58 Schaap, B., Dodinval, C., Husak, K., & Sertic, G. (2019). Reducing Barrier to Solar Development on Brownfields. Retrieved from: <http://graham.umich.edu/product/reducing-barriers-solar-development-brownfields>.

59 See: Solar Massachusetts Smart Target Program. <https://www.mass.gov/info-details/solar-massachusetts-renewable-target-smart-program> and NYSERDA Solar Guidebook for Local Governments.

60 Federal Aviation Administration. (2018). Technical Guidance for Evaluating Selected Solar Technologies on Airports. [https://www.faa.gov/airports/environmental/policy\\_guidance/media/FAA-Airport-Solar-Guide-2018.pdf](https://www.faa.gov/airports/environmental/policy_guidance/media/FAA-Airport-Solar-Guide-2018.pdf)

**COMMENTARY:** The use of parking lots for co-location of solar energy systems is a growing trend around the country. These dual-use situations provide unique opportunities and challenges to local governments interested in encouraging their installation.

In many situations, regulations are silent on co-location opportunities. Communities sometimes struggle to identify the land-use regulations that should apply. The following examples, which come from three different underlying land uses, show how co-location opportunities can be encouraged on surface parking infrastructure for existing uses. These summaries are based on personal interviews related to MSU research.

**Case Study—Michigan State University (MSU), East Lansing, MI** | Michigan State University (49,000 students) has the largest solar carport development project in the state (2020). Over 5,000 parking spaces across five large commuter parking lots (34 acres total) are fitted with ground-mounted solar carports. These lots provide students, faculty, and visitors with covered space to leave their cars as they walk, bike, or use public transit to traverse the campus.

The project can generate up to 10MW—nearly 20% of total campus electricity generation. It is a key part of the university’s Energy Transition Plan, a process by which MSU reduces its dependency on fossil fuels and expands its renewable energy portfolio. According to MSU director of Planning, Design, and Construction John LeFevre, preserving green space was a large selling point for the project.

The solar carports advance land-use and energy goals by increasing the utility of existing developed sites with enough structural repetition to allow for an efficient solar-panel layout. This approach to SES development applies to universities, as well as to other larger commuter parking lots and developed grayfield sites present in many communities.

**Case Study—USA Hauling & Recycling, East Windsor, CT** | East Windsor, a town in northern Connecticut with 11,375 residents, is home to USA Hauling & Recycling, a local waste management firm. In 2018, the company requested and received permission to enact a site-plan change

for their industrial property, whereby they installed two solar carports of 25,000 and 45,000 square feet. They now operate their large compressors and recycling processes through 743kW of solar energy and protect their truck fleet with carport canopies.

The company received a prompt review from the town after amending their site plan, gaining final approval in just months. East Windsor town planner and consultant Mike D’Amato, AICP, CZEO, attributes the town’s efficient approval process to how they regulate carports—as a class of accessory structures. Within this framework, solar carports are permitted in all zoning districts that allow accessory structures. A key provision of carports is that they are exempt from setbacks and lot coverage. The net result is an abundance of community locations where solar carports are now permitted.

**Case Study—Fairbanks Museum & Planetarium, St. Johnsbury, VT** | St. Johnsbury is a town of 5,685 residents in northeastern Vermont, home to the Fairbanks Museum & Planetarium. The museum undertook an energy efficiency campaign in 2015, resulting in the installation of a 27.36kW solar car-port over an auxiliary parking lot, connected to underground batteries, in December of 2020. The project marks the end of their renewable energy transformation. According to museum director Adam Kane, energy costs have decreased from around \$15,000 per year in 2010 to \$0 in 2020.

Both Kane and St. Johnsbury zoning administrator Paul Berlejung make special mention of the town’s flexible solar regulations. There are no “restricted” or specifically permitted zoning districts in the town’s section on solar collectors. Instead, solar collectors are defined as accessory uses, with a few clearly defined provisions pertaining to setbacks, build heights, and burial of utility lines. Kane and Berlejung both noted that interactions between solar suppliers and the town are remarkably smooth, concluding that municipalities looking to incentivize solar carport construction should consider reducing the barriers to entry at the local level. [End of commentary]

---

## SOLAR AND HISTORIC OR CULTURALLY SIGNIFICANT SITES

---

Solar panels can have a variety of impacts on character-defining features of historic or culturally significant structures or sites. Solar collectors can obscure character-defining features of a structure, or be incompatible with a structure's roofline, exterior color, and the texture or shape of building materials. Despite these potential impacts, many Michigan communities allow for and regulate SES in historic districts and on other significant sites. It is important to allow SES on historic sites and structures in a context-sensitive way, granting the use while preserving the integrity of site aspects deemed historic or culturally significant.

Newer photovoltaic systems, including building-integrated SES, may be appropriate on the street-facing side, even in historic districts. New technology such as solar shingles can be designed and mounted to match the shape, materials, and proportions of a structure. For ground-mounted SES at a historic or culturally significant site, placement of the SES should be context-sensitive with respect to significant areas of the property.

Communities with historic district ordinances should update their ordinance to address roof and ground-mounted SES. The cities of Grand Rapids, Ypsilanti, and Manchester are a few examples that provide for

regulations that address these issues. For state or federally designated historic structures, applicants should review the U.S. Secretary of the Interior's Standards for Rehabilitation.

---

## DECOMMISSIONING AND REPOWERING

---

A question that commonly arises when communities are considering solar as a primary land use is what happens at the end of the solar project's life. Most solar panels are designed to operate for 25-40 years, so it is not uncommon for solar developers to have a lease or easement of roughly this length with a landowner. However, many landowner agreements include the option to extend, sometimes because there is still life left in the original panels and sometimes because the developer hopes to repower the project.

It's important to note the distinction between the two primary options at the end of a solar project's life: decommissioning and repowering. Decommissioning is the process of removing the equipment and other infrastructure associated with the project. While decommissioning is commonly a provision in a landowner's agreement with a solar developer, many communities also require review of a decommissioning plan that includes a financial commitment as part of the approval process. The decommissioning plan



*Rooftop SES, Petoskey, Michigan. Photo by Richard Neumann.*

details how the project equipment will be removed and the land restored when the contract for the SES expires, and the financial commitment guarantees there will be funding to implement the plan.

Before reaching the end of its useful life, sometimes a solar project is repowered. Repowering an SES involves refurbishing or replacing system components to allow the SES to continue operation. The expectation associated with repowering is that much of the original infrastructure (e.g., racking, access roads, wiring, etc.) may still have useful life and may be reused, even if other components have reached the end of their useful life.

**COMMENTARY:** Fundamentally, zoning approvals and permits are permanent and run with the land. A solar power project could be a temporary land use decommissioned at the end of the solar project's life, or it could be repowered through maintenance and installation of new technology. Generally, maintenance of real property is allowed within the terms of a zoning permit. What constitutes system maintenance versus work that triggers a new permit might vary from community to community. Advances in technology will certainly create circumstances in which the SES owner will be compelled to replace equipment in order to continue to efficiently produce electricity relative to project costs. Therefore, the zoning ordinance should specify if repowering triggers a review. A municipal attorney with experience in planning and zoning can help define a process to repower an SES to extend the life of the project. [End of commentary]

**MICHIGAN EXAMPLE:** Gaines Charter Township requires the following of a decommissioning plan:

**"Decommissioning:** A decommissioning plan signed by the responsible party and the landowner (if different) addressing the following shall be submitted prior to approval:

1. Defined conditions upon which decommissioning will be initiated (i.e. end of land lease, no power production for 12 months, abandonment, etc.)
  2. Removal of all non-utility owned equipment, conduit, structures, fencing, roads, solar panels, and foundations.
  3. Restoration of property to condition prior to development of the system.
  4. The timeframe for completion of decommissioning activities.
  5. Description of any agreement (e.g. lease) with landowner regarding decommissioning, if applicable.
  6. The entity or individual responsible for decommissioning.
  7. Plans for updating the decommissioning plan.
  8. A performance guarantee shall be posted in the form of a bond, letter of credit, cash, or other form acceptable to the township to ensure removal upon abandonment. As a part of the decommissioning plan, the responsible party shall provide at least two (2) cost estimates from qualified contractors for full removal of the equipment, foundations, and structures associated with the facility. These amounts will assist the township when setting the performance guarantee valid throughout the lifetime of the facility. Bonds and letters of credit shall be extended on a bi-annual basis from the date of special use permit approval."
- *Gaines Charter Township Zoning Ordinance (Kent Co.), Section 4.18 [End of example]*

# SAMPLE ZONING FOR SOLAR ENERGY SYSTEMS

The proposed sample zoning language is meant to be a starting point for dialogue between officials, staff, and residents before or during a zoning amendment process related to SES. Communities can (and should) work with their municipal attorney and a knowledgeable planner to modify the proposed sample zoning language in this document to further refine and develop regulations that fit identified community goals and are tied to master plan objectives, upon which zoning must be based.<sup>61</sup>

## DEFINITIONS

*Add to the Definitions article of the ordinance the following terms and definitions, or modify existing related definitions for consistency. Not all ordinances will require all of the following terms. Municipalities should tailor definitions to terms used in their ordinance.*

**Accessory Ground-Mounted Solar Energy System:** A ground-mounted solar energy system with the purpose primarily of generating electricity for the principal use on the site.

**Building-Integrated Solar Energy System:** A solar energy system that is an integral part of a primary or accessory building or structure (rather than a separate mechanical device), replacing or substituting for an architectural or structural component of the building or structure. Building-integrated systems include, but are not limited to, photovoltaic or hot water solar energy systems that are contained within roofing materials, windows, skylights, and awnings.

**Dual Use:** A solar energy system that employs one or more of the following land management and conservation practices throughout the project site:

- **Pollinator Habitat:** Solar sites designed to meet a score of 76 or more on the Michigan Pollinator Habitat Planning Scorecard for Solar Sites.<sup>62</sup>
- **Conservation Cover:** Solar sites designed in consultation with conservation organizations that focus on restoring native plants, grasses, and prairie with the aim of protecting specific species (e.g., bird habitat) or providing specific ecosystem services (e.g., carbon sequestration, soil health).
- **Forage:** Solar sites that incorporate rotational livestock grazing and forage production as part of an overall vegetative maintenance plan.
- **Agrivoltaics:** Solar sites that combine raising crops for food, fiber, or fuel, and generating electricity within the project area to maximize land use.

**Ground-Mounted Solar Energy System:** A solar energy system mounted on support posts, like a rack or pole, that are attached to or rest on the ground.

**Invasive Plant:** Non-native (or alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.<sup>63</sup>

**Maximum Tilt:** The maximum angle of a solar array (i.e., most vertical position) for capturing solar radiation as compared to the horizon line.

61 MCL 125.3203(1) of the Michigan Zoning Enabling Act, PA 110 of 2006, as amended.

62 Michigan State University Department of Entomology. Michigan Pollinator Habitat Planning Scorecard for Solar Sites. [https://www.canr.msu.edu/home\\_gardening/uploads/files/MSU\\_Solar\\_Pollinators\\_Scorecard\\_2018\\_October.pdf](https://www.canr.msu.edu/home_gardening/uploads/files/MSU_Solar_Pollinators_Scorecard_2018_October.pdf)

63 USDA U.S. Forest Service. What is an Invasive Plant Species. <https://www.fs.fed.us/wildflowers/invasives/index.shtml>

**Minimum Tilt:** The minimal angle of a solar array (i.e., most horizontal position) for capturing solar radiation as compared to the horizon line.

**Non-Participating Lot(s):** One or more lots for which there is not a signed lease or easement for development of a principal-use SES associated with the applicant project.

**Participating Lot(s):** One or more lots under a signed lease or easement for development of a principal-use SES associated with the applicant project.

**Photovoltaic (PV) System:** A semiconductor material that generates electricity from sunlight.

**Principal-Use Solar Energy System:** A commercial, ground-mounted solar energy system that converts sunlight into electricity for the primary purpose of off-site use through the electrical grid or export to the wholesale market.

**Principal-Use (Large) Solar Energy System:** A Principal-Use SES generating more than \_\_\_ [e.g., 2] MW DC for the primary purpose of off-site use through the electrical grid or export to the wholesale market [see discussion in “Land-Use Considerations” on why this number is suggested, and why it might warrant tailoring to your community’s land-use typologies].

**Principal-Use (Small) Solar Energy System:** A Principal-Use SES generating up to and including \_\_\_ [e.g., 2] MW DC for the primary purpose of off-site use through the electrical grid or export to the wholesale market.

**Repowering:** Reconfiguring, renovating, or replacing an SES to maintain or increase the power rating of the SES within the existing project footprint.

**Roof-Mounted Solar Energy System:** A solar energy system mounted on racking that is attached to or ballasted on the roof of a building or structure.

**Solar Array:** A photovoltaic panel, solar thermal collector, or collection of panels or collectors in a solar energy system that collects solar radiation.

**Solar Carport:** A solar energy system of any size that is installed on a structure that is accessory to a parking area, and which may include electric vehicle supply equipment or energy storage facilities. Solar panels affixed on the roof of an existing carport structure are considered a Roof-Mounted SES.

**Solar Energy System (SES):** A photovoltaic system or solar thermal system for generating and/or storing electricity or heat, including all above and below ground equipment or components required for the system to operate properly and to be secured to a roof surface or the ground. This includes any necessary operations and maintenance building(s), but does not include any temporary construction offices, substation(s) or other transmission facilities between the SES and the point of interconnection to the electric grid.

**Solar Thermal System:** A system of equipment that converts sunlight into heat.

**Wildlife-Friendly Fencing:** A fencing system with openings that allow wildlife to traverse over or through a fenced area.

---

## GENERAL PROVISIONS

---

*Add to the General Provisions article of the ordinance, as a separate section, the following provisions for Roof-Mounted SES, Accessory Ground-Mounted SES, and Building-Integrated SES as permitted by right in all districts and do not require a special use permit.*

Roof-Mounted SES, Accessory Ground-Mounted SES, and Building-Integrated SES are permitted in all zoning districts where structures of any sort are allowed, and shall meet the following requirements:

### A. ROOF-MOUNTED SES

1. **Height:** Roof-Mounted SES shall not exceed \_\_ [e.g. 5-10] feet above the finished roof and are exempt from any rooftop equipment or mechanical system screening.
2. **Nonconformities:** A Roof-Mounted SES or Building-Integrated SES installed on a nonconforming building, structure, or use shall not be considered an expansion of the nonconformity.
3. **Application:** All SES applications must include \_\_ plan [e.g., plot or site, whichever is required for a zoning compliance review]. Applications for Roof-Mounted SES must include horizontal and vertical elevation drawings that show the location and height of the SES on the building and dimensions of the SES.

### MICHIGAN EXAMPLES:

**“Solar Energy System:** An aggregation of parts including any base, mounts, tower, solar collectors, and accessory equipment such as utility interconnections and solar storage batteries, etc., in such configuration as necessary to convert solar radiation into thermal, chemical or electrical energy.”

– *Royal Oak Zoning Ordinance (Oakland Co.), Section 770-8*

**“Solar Energy System (SES):** A system consisting of a device or combination of devices, structures or parts thereof, that collect, transfer or transform solar radiant energy into thermal, chemical or electrical energy. An SES may be mounted on a roof (roof-mounted SES) or be supported by posts or other support structures extending into the ground (ground-mounted SES).”

– *Greater Thompsonville Area Zoning Ordinance (Benzie Co.), Section 18.23*

**“Solar Energy System:** A passive design using natural and architectural components to collect and store solar energy without using any external mechanical power or an active mechanical assembly that may include a solar collector, storage facility, and any other components needed to transform solar energy for thermal, chemical, or electrical energy. Examples include a solar greenhouse, solar panels, solar hot water heater, photovoltaic panels, passive solar panels, and a large, clear south-facing expanse of windows.”

– *Bessemer Township Zoning Ordinance (Gogebic Co.), Section 15.22 [End of examples]*

**COMMENTARY:** Because of concerns over wind load, most roof-mounted systems are not the same dimensions as ground-mounted SES. Given current SES design considerations, 10 feet is sufficient to accommodate most roof-mounted systems.

If a zoning ordinance has height exceptions for other mechanical equipment, it might alternatively just include roof-mounted SES in this exception. In addition to listing this in the section of your ordinance with those exceptions, you could also use the following language in this section of the solar provisions:

*A Roof-Mounted SES, other than building-integrated systems, shall be given an equivalent exception to height standards as building- or roof-mounted mechanical devices, chimneys, antennae, or similar equipment, as specified in Section \_\_ [height exceptions] of the \_\_ [municipality name] Zoning Ordinance. [End of commentary]*



Ground-mounted SES feedlot. Photo by M.Charles Gould.

## B. ACCESSORY GROUND-MOUNTED SES

1. **Height:** Ground-Mounted SES shall not exceed \_\_ [e.g. 20] feet measured from the ground to the top of the system when oriented at maximum tilt.

**COMMENTARY:** Height of a Ground-Mounted SES can vary from four to 15 feet, depending on how many rows of panels are installed and the maximum tilt height, if applicable. If the SES is co-located with an active agricultural operation, such as livestock grazing and crop production, it may need as much as eight feet of clearance, which can increase the overall height to up to roughly 20 feet. Similarly, a solar carport would need additional clearance to accommodate vehicle access. The carports at Michigan State University are 14'6" to accommodate snow removal and paving trucks. A relatively straightforward way to regulate the height of SES and account for this range of applications is to apply the same height standard as other accessory buildings or structures within the zoning district. [End of commentary]

2. **Setbacks:** A Ground-Mounted SES must be a minimum of \_\_ [e.g., 5] feet from the property line or \_\_ [e.g., ½] the required setback that would apply to accessory structures in the side or rear yard in the respective zoning district, whichever is greater. Setback distance is measured from the property line to the closest point of the SES at minimum tilt.
3. **Lot Coverage:** The area of the solar array shall not exceed \_\_ [e.g., 50] % of the square footage of the primary building of the property unless it is sited over required parking (i.e. solar carport), in which case there is no maximum lot coverage for the Ground-Mounted SES. A Ground-Mounted SES shall not count towards the maximum number or square footage of accessory structures allowed on site or maximum impervious surface area limits if the ground under the array is pervious.



4. **Visibility (Residential):** A Ground-Mounted SES in residential districts [list districts here] shall be located in the side or rear yard to minimize visual impacts from the public right-of-way(s).
  - a. Ground-Mounted SES may be placed in the front yard with administrative approval, where the applicant can demonstrate that placement of the SES in the rear or side yard will:
    - i. Decrease the efficiency of the SES due to topography, accessory structures, or vegetative shading from the subject lot or adjoining lots;
    - ii. Interfere with septic system, accessory structures, or accessory uses; or
    - iii. Require the SES to be placed on the waterfront side of the building housing the primary use [where applicable].

**MICHIGAN EXAMPLES:** Some communities apply screening standards to Accessory Ground-Mounted SES. Here is an example:

Ground Mounted SES shall be reasonably screened from the view of the surrounding streets and roads to the maximum extent practicable by garden walls, fences, hedges, landscaping, earth berms, or other means, except to the extent that such screening is either impracticable or would result in ineffective solar access on the lot in question. Ground Mounted SES that are visible from a road or adjacent properties shall, to the maximum extent feasible, and without compromising the ability to effectively use solar collectors on the lot in question, use materials, textures, screening, and landscaping that will screen the Ground Mounted SES from view, and blend with the natural setting, existing environment, and neighborhood character. All Ground Mounted SES that rely on landscaping or a vegetative buffer for screening shall maintain a minimum opacity of at least eighty percent (80%), and a mature height of not less than the greater of (x) six (6) feet or (y) sixty percent (60%) of the height of the Ground Mounted Solar Energy System when oriented to maximum tilt.

– Webster Township Zoning Ordinance (Washtenaw Co.), Section 12.110 [End of example]

5. **Exemptions:** A SES used to power a single device or specific piece of equipment such as a lawn ornament, lights, weather station, thermometer, clock, well pump or other similar singular device is exempt from Section \_\_\_\_ [Ground-Mounted SES provisions].
6. **Nonconformities:** A Ground-Mounted SES installed on a nonconforming lot or use shall not be considered an expansion of the nonconformity.
7. **Application:** All SES applications must include a \_\_\_\_ plan [e.g., plot or site, whichever is required for a zoning compliance review]. Applications for Ground-Mounted SES must include drawings that show the location of the system on the property, height, tilt features (if applicable), the primary structure, accessory structures, and setbacks to property lines. Accessory use applications that meet the ordinance requirements shall be granted administrative approval.



Off-grid device power. Photo by Bradley Neumann



Dual-use ground-mounted SES and blueberry farm. Photo by Mary Reilly.

**MICHIGAN EXAMPLES:** Many Michigan communities with both small-scale and large-scale solar regulations have zoned on-site solar energy systems as accessory uses. The City of Bay City (Bay Co.), Lyon Charter Township (Oakland Co.), and Almont Township (Lapeer Co.) all permit roof-mounted systems as an accessory use in all districts. Van Buren Charter Township (Wayne Co.), Albert Township (Montmorency Co.), and Chester Township (Ottawa Co.) all expand this provision (e.g. permitting roof-mounted systems as an accessory use in all districts) by permitting both on-site roof-mounted and ground-mounted systems in all districts as an accessory use. [End of example]

### C. BUILDING-INTEGRATED SES

1. Building-Integrated SES are subject only to zoning regulations applicable to the structure or building and not subject to accessory ground or roof-mounted SES permits.

*In addition to the General Provisions (above), also add the following standards for Small Principal-Use SES to the General Provisions article of the zoning ordinance. Also add 'Small Principal-Use SES' to the list of permitted uses in all zoning districts (or where desired). A community will need to decide whether a Small Principal-Use SES application is reviewed solely by the zoning administrator, reviewed and approved by the planning commission, or a hybrid, wherein the zoning administrator has the option to review/approve or advance the application to the planning commission for review/approval.*

**D. SMALL PRINCIPAL-USE SES:** A Small Principal-Use SES is a permitted use in \_\_\_\_ [e.g., all, non-residential] zoning districts subject to site plan review and shall meet all of the following requirements:

1. **Height:** Total height shall not exceed \_\_ [e.g. 20] feet measured from the ground to the top of the system when oriented at maximum tilt.
2. **Setbacks:** Setback distance shall be measured from the property line or road right-of-way to the closest point of the solar array at minimum tilt or any SES components and as follows:
  - a. A Ground-Mounted SES shall follow the setback distance for primary buildings or structures for the district in which it is sited.
  - b. A Ground-Mounted SES is not subject to property line setbacks for common property lines of two or more participating lots, except road right-of-way setbacks shall apply.
3. **Fencing:** A Small Principal-Use SES may [shall] be secured with perimeter fencing to restrict unauthorized access. If installed, perimeter fencing shall be a maximum of \_\_ [e.g. something greater than or equal to 7] feet in height. \_\_\_\_ [Barbed wire is prohibited.] Fencing is not subject to setbacks.



*Ground-mounted SES in rural setting. Photo by Bradley Neumann.*

**COMMENTARY:** Principal-Use SES may be subject to regulations, such as those of the National Electrical Code (NEC), that require a perimeter fence. The current NEC standards call for a 6-foot fence with three lines of barbed wire, or a 7-foot fence with no barbed wire. A community could ban the use of barbed wire at an SES and still allow for compliance with the NEC, so long as the fencing is allowed to be at least 7 feet. If an SES is not subject to the NEC, wildlife-friendly fencing, commonly made of smooth wiring to prevent injury with openings that allow wildlife to move through, should be used where appropriate. A community may choose to be less prescriptive in fencing requirements so long as the requirements do not conflict with NEC requirements (e.g. by limiting fence height to 5 feet). [End of commentary]

4. **Screening/Landscaping:** A Small Principal-Use SES shall be designed to follow the screening and/or landscaping standards for the zoning district of the project site. Any required screening and landscaping shall be placed outside the perimeter fencing.
  - a. In districts that call for screening or landscaping along rear or side property lines, these shall only be required where an adjoining non-participating lot has an existing residential or public use.
  - b. When current zoning district screening and landscaping standards are determined to be inadequate based on a legitimate community purpose consistent with local government planning documents, the Zoning Administrator [or Planning Commission] may require substitute screening consisting of native deciduous trees planted \_\_ [e.g. 30] feet on center, and native evergreen trees planted \_\_ [e.g. 15] feet on center along existing non-participating residential uses.
  - c. The Zoning Administrator [or Planning Commission] may reduce or waive screening requirements provided that any such adjustment is in keeping with the intent of the Ordinance and is appropriately documented (e.g. abutting participating lots; existing vegetation).
  - d. Screening/landscaping detail shall be submitted as part of the site plan that identifies the type and extent of screening for a Small Principal-Use SES, which may include plantings, strategic use of berms, and/or fencing.
5. **Ground Cover:** A Small Principal-Use SES shall include the installation of perennial ground cover vegetation maintained for the duration of operation until the site is decommissioned. The applicant shall include a ground cover vegetation establishment and management plan as part of the site plan.

- a. An SES utilizing agrivoltaics is exempt from perennial ground cover requirements for the portion of the site employing the dual-use practice.
  - b. Project sites with majority existing impervious surface or those that are included in a brownfield plan adopted under the Brownfield Redevelopment Financing Act, PA 381 of 1996, as amended, are exempt from ground cover requirements. These sites must comply with the on-site stormwater requirements of the ordinance.
6. **Lot Coverage:** A Small Principal-Use SES shall not count towards the maximum lot coverage or impervious surface standards for the district.

**COMMENTARY:** One of the reasons to exempt large and small principle-use SES from maximum lot coverage or impervious surface standards is because there are practical challenges to measuring the overall footprint of principal-use systems, since they may include tilting panels and access drives. Communities who choose not to include this exemption must decide which elements of an SES count/do not count toward lot coverage and make clear how lot coverage should be calculated for co-located systems. If the community's intent is to minimize a development's impervious surface area, consider using the ground cover provisions within this sample language instead. They serve the same purpose and avoid unnecessary limitations and ambiguities. [End of commentary]

- 7. **Land Clearing:** Land disturbance or clearing shall be limited to what is minimally necessary for the installation and operation of the system and to ensure sufficient all-season access to the solar resource given the topography of the land. Topsoil distributed during site preparation (grading) on the property shall be retained on site.
- 8. **Access Drives:** New access drives within the SES shall be designed to minimize the extent of soil disturbance, water runoff, and soil compaction on the premises. The use of geotextile fabrics and gravel placed on the surface of the existing soil for temporary roadways during the construction of the SES is permitted, provided that the geotextile fabrics and gravel are removed once the SES is in operation.
- 9. **Wiring:** SES wiring (including communication lines) may be buried underground. Any above-ground wiring within the footprint of the SES shall not exceed the height of the solar array at maximum tilt.
- 10. **Lighting:** Lighting shall be limited to inverter and/or substation locations only. Light fixtures shall have downlit shielding and be placed to keep light on-site and glare away from adjacent properties, bodies of water, and adjacent roadways. Flashing or intermittent lights are prohibited.
- 11. **Signage:** An area up to \_\_\_ square feet [should be consistent with the district or sign type standard] may be used for signage at the project site. Any signage shall meet the setback, illumination, and materials/construction requirements of the zoning district for the project site.
- 12. **Sound:** The sound pressure level of a Small Principal-Use SES and all ancillary solar equipment shall not exceed \_\_ [e.g. 45] dBA (Leq (1-hour)) at the property line of an adjoining non-participating lot. The site plan shall include modeled sound isolines extending from the sound source to the property lines to demonstrate compliance with this standard.
- 13. **Repowering:** In addition to repairing or replacing SES components to maintain the system, a Small Principal-Use SES may at any time be repowered by reconfiguring, renovating, or replacing the SES to increase the power rating within the existing project footprint.
  - a. A proposal to change the project footprint of an existing SES shall be considered a new application, subject to the ordinance standards at the time of the request.

**COMMENTARY:** The goal of the above sample sound regulation for both small and large principal-use SES is to determine compliance with the sound standard during site plan review, as opposed to long-term monitoring or enforcement by staff. Predicting noise levels and mitigating through site design is more efficient and cost-effective than mitigating an issue after the project is complete. During the site plan phase, applicants have more options to reduce noise impacts on adjoining property owners, such as by placing inverters closer to the center of the project or covering axis motors. Sound isolines on a site plan would show predicted sound levels, typically in 5 decibel increments, starting at the sound source and extending to or beyond the property line. Sound isolines are similar to contour lines on a topographical map and provide helpful information to the approving body and adjoining property owners. [End of commentary]

14. **Decommissioning:** Upon application, a decommissioning plan shall be submitted indicating the anticipated manner in which the project will be decommissioned, including a description of which above-grade and below-grade improvements will be removed, retained (e.g. access drive, fencing), or restored for viable reuse of the property consistent with the zoning district.
  - a. An SES owner may at any time:
    - i. Proceed with the decommissioning plan approved by the Zoning Administrator [or Planning Commission] under Section \_\_\_ [of local government ordinance] and remove the system as indicated in the most recent approved plan; or
    - ii. Amend the decommissioning plan with Zoning Administrator [or Planning Commission] approval and proceed according to the revised plan.
  - b. Decommissioning an SES must commence when the soil is dry to prevent soil compaction<sup>64</sup> and must be complete within \_\_\_ [e.g., 18 months] after abandonment. An SES that has not produced electrical energy for \_\_\_ [e.g., 12] consecutive months shall prompt an abandonment hearing.

---

<sup>64</sup> The “ribbon test” is a simple in-field test that can be used to make a rough determination if the soil is too wet to work without a high risk of compaction. Conducting the ribbon test involves digging down four inches into the soil, grasping a handful of soil, and squeezing it tightly in your hand. If the soil forms a “ribbon” when squeezed between the thumb and forefinger, it is in a condition for compaction to occur. See Iowa State University Extension & Outreach article Soil compaction may be cutting into your yield (<https://crops.extension.iastate.edu/encyclopedia/soil-compaction-may-be-cutting-your-yield>) and Colorado State University Cooperative Extension Bulletin Estimating Soil Texture: Sandy, Loamy or Clayey? ([https://culter.colorado.edu/~kittel/SoilChar\(&RibbonTest\)\\_handout.pdf](https://culter.colorado.edu/~kittel/SoilChar(&RibbonTest)_handout.pdf)).



---

## SPECIAL LAND-USE STANDARDS

---

*Add to the Special Land Uses article of the ordinance, as a separate section, the following provisions for large principal-use SES. Also add 'large principal-use SES' to the list of special land uses in the zoning districts where appropriate. See discussion on the Rural-to-Urban Transect above.*

**A. LARGE PRINCIPAL-USE SES: A large principal-use SES is a special land use in the zoning districts specified and shall meet the following requirements:**

1. **Height:** Total height for a large principal-use SES shall not exceed the maximum allowed height in the district in which the system is located [or a lesser height, such as \_\_ [e.g., 20] feet].
2. **Setbacks:** Setback distance shall be measured from the property line or road right-of-way to the closest point of the solar array at minimum tilt or any SES components and as follows:
  - a. In accordance with the setbacks for principal buildings or structures for the zoning district of the project site [or \_\_ [e.g. 50] feet from the property line of a non-participating lot].
  - b. \_\_ [e.g., 100] feet from any existing dwelling unit on a non-participating lot.
  - c. A Ground-Mounted SES is not subject to property line setbacks for common property lines of two or more participating lots, except road right-of-way setbacks shall apply.
3. **Fencing:** A large principal-use SES may [shall] be secured with perimeter fencing to restrict unauthorized access. If installed, perimeter fencing shall be a maximum of \_\_ [e.g. something greater than or equal to 7] feet in height. [Barbed wire is prohibited.] Fencing is not subject to setbacks.
4. **Screening/Landscaping:** A large principal-use SES shall follow the screening and/or landscaping standards for the zoning district of the project site. Any required screening and landscaping shall be placed outside the perimeter fencing.
  - a. In districts that call for screening or landscaping along rear or side property lines, these shall only be required where an adjoining non-participating lot has an existing residential or public use.

*Lapeer Solar Park. Photo by Bradley Neumann.*



- b. When current zoning district screening and landscaping standards are determined to be inadequate based on a legitimate community purpose consistent with local government planning documents, the Planning Commission may require substitute screening consisting of native deciduous trees planted \_\_\_ [e.g. 30] feet on center, and native evergreen trees planted \_\_\_ [e.g. 15] feet on center along existing non-participating residential uses.
- c. The Planning Commission may reduce or waive screening requirements provided that any such adjustment is in keeping with the intent of the Ordinance.
- d. Screening/landscaping detail shall be submitted as part of the site plan that identifies the type and extent of screening for a large principal-use SES, which may include plantings, strategic use of berms, and/or fencing.

**COMMENTARY:** Zoning requirements may impact the ability for the land to be returned to its original use. For example, required berming, substantial vegetative screening, or on-site stormwater detention/retention (which may be regulated by the Drain Commissioner, for example) may need to be removed or altered in order to return the land to its previous use. In considering whether to reduce, waive, or expand vegetation and screening standards, communities should take landowner considerations relating to reuse into account. [End of commentary]

5. **Ground Cover:** A large principal-use SES shall include the installation of ground cover vegetation maintained for the duration of operation until the site is decommissioned. The applicant shall include a ground cover vegetation establishment and management plan as part of the site plan. Vegetation establishment must include invasive plant species [and noxious weed, if local regulation applies] control. The following standards apply:
  - a. Sites bound by a Farmland Development Rights (PA 116) Agreement must follow the Michigan Department of Agriculture and Rural Development’s Policy for Allowing Commercial Solar Panel Development on PA 116 Lands.
  - b. Ground cover at sites not enrolled in PA 116 must meet one or more of the four types of Dual Use defined in this ordinance.
    - i. Pollinator Habitat: Solar sites designed to meet a score of 76 or more on the Michigan Pollinator Habitat Planning Scorecard for Solar Sites.
    - ii. Conservation Cover: Solar sites designed in consultation with conservation organizations that focus on restoring native plants, grasses, and prairie with the aim of protecting specific species (e.g., bird habitat) or providing specific ecosystem services (e.g., carbon sequestration, soil health).
    - iii. Forage: Solar sites that incorporate rotational livestock grazing and forage production as part of an overall vegetative maintenance plan.
    - iv. Agrivoltaics: Solar sites that combine raising crops for food, fiber, or fuel, and generating electricity within the project area to maximize land use. Project sites that are included in a brownfield plan adopted under the Brownfield Redevelopment Financing Act, PA 381 of 1996, as amended, that contain impervious surface at the time of construction or soils that cannot be disturbed, are exempt from ground cover requirements
  - c. Project sites that are included in a brownfield plan adopted under the Brownfield Redevelopment Financing Act, PA 381 of 1996, as amended, that contain impervious surface at the time of construction or soils that cannot be disturbed, are exempt from ground cover requirements.

**COMMENTARY:** The Michigan Department of Agriculture and Rural Development policy for allowing commercial solar energy development on PA 116 lands requires that any portion of the site not included in pollinator plantings must maintain U.S. Department of Agriculture, Natural Resources Conservation Service Conservation Cover Standard 327. Standard 327 reduces erosion, enhances wildlife, pollinator, and beneficial organism habitat, and improves soil health. Standard 327 can be implemented to support grazing animals with the right mix of forage crops. However, if grazing is the primary forage management practice, Prescribed Grazing Standard 528 may be a more useful standard to follow. Standard 528, however, does not apply to solar projects on land enrolled in PA 116 because the policy specifically recommends using Standard 327. There is flexibility within each standard to develop site-specific seed mixes. Private consultants as well as local NRCS staff can help develop a plan to implement these standards in a solar project. [End of commentary]

**COMMENTARY:** As discussed on Page 15, if a community's existing master plan and ordinance include farmland preservation provisions, it may make sense to extend them to large principal-use SES. In that case, signal your community's desire for development that minimizes impacts to locally important soil classifications through language such as:

**Agricultural Protection:** For sites where agriculture is a permitted use in a district, a large principal-use SES may be sited to minimize impacts to agricultural production through site design and accommodations including [select those most applicable to your community]:

- a. The ground mounting of panels by screw, piling, or a similar system that does not require a footing, concrete, or other permanent mounting in order to minimize soil compaction, [and/or]
- b. Siting panels to avoid disturbance and compaction of farmland by siting panels along field edges and in nonproduction areas to the maximum extent practicable and financially feasible, [and/or]
- c. Maintaining all drainage infrastructure on site, including drain tile and ditches, during the operation of the SES, [and/or]
- d. Siting the SES to avoid isolating areas of the farm operation such that they are no longer viable or efficient for agricultural production, including, but not limited to, restricting the movement of agricultural vehicles/equipment for planting, cultivation, and harvesting of crops, and creating negative impacts on support infrastructure such as irrigation systems or drains, or
- e. Voluntarily purchasing agricultural conservation easements from an equivalent number of prime farmland acres consistent with a purchase of development rights ordinance adopted under state law in \_\_\_\_ [local unit of government].

The above list is presented as a menu of sample standards and is neither a comprehensive list nor intended to be adopted in its entirety or verbatim. A local government that wishes to protect agricultural land from future development should work with a qualified planner and attorney to develop a comprehensive approach in the master plan and zoning ordinance that addresses threats to farmland from all types of development pressure. [End of commentary]





Aerial view of Tecumseh solar farm. Photo by Harvest Solar.

**MICHIGAN EXAMPLES:** Communities in Michigan have differing approaches to the compatibility of solar energy and agriculture. Here are some examples:

“Solar energy equipment shall only be located in an area determined to be “not prime farmland” by the U.S. Department of Agriculture (USDA), per the USDA’s Farmland Classification Map as of the date of Special Use Application for a Utility-Scale Solar Energy Collector System.”

– *Chester Township Zoning Ordinance (Ottawa Co.), Section 1912*

“All solar arrays greater than ten (10) acres in area must include one or more of the following amongst the panels of the solar array: Crop cultivation; Livestock grazing, with the panels raised to allow an eight (8) foot clearance for animals to pass underneath; or Pollinator fields, including milkweed and other native plantings.”

– *Grand Haven Charter Township Zoning Ordinance 2020 (Ottawa Co.), Section 3.03*

“Solar energy systems in Oliver Township are considered a compatible use in the Agricultural Preservation District. The siting of a ground mounted solar energy system is permitted in the Agricultural Preservation District (Chapter 5) and must conform to the front, rear, and side yard setback requirements described in Section 504.”

– *Oliver Township Zoning Ordinance (Huron Co.), Section 1305 [End of example]*

**COMMENTARY:** Some communities require a performance guarantee for small and large principal-use SES for the cost of grading and on-site ground cover establishment in the form of a bond, letter of credit, or establishment of an escrow account. The rationale is that if a site is cleared of vegetation and graded, but the project is not completed, there is a financial guarantee that the site will be stabilized. Such a provision may be redundant with Soil Erosion and Sedimentation Control (SESC) bonding requirements for projects larger than one acre, or for land enrolled in the Michigan Department of Agriculture of Rural Development's (MDARD) PA 116 Farmland and Open Space Preservation Program.

Regarding decommissioning guarantees, MDARD, as mentioned above, requires a surety bond or irrevocable letter of credit for solar development on PA 116 land to cover the cost of the removal of the solar facility and the restoration of the land to agricultural use. A community may wish to tailor the sample standard below based on this requirement by MDARD or provide an exception from the local government decommissioning guarantee for land enrolled in PA 116.

A periodic review (such as every 3-5 years) of the decommissioning guarantee will ensure adequate funds are available to cover decommissioning costs 20-30 years down the road. A review might also be triggered if there is a change of ownership. The ordinance should specify which body is responsible for approving the amount of the performance guarantee; the planning commission could recommend an amount, but the legislative body should make the final decision. When considering this language, a community could review how performance guarantees are handled for other types of developments, such as landscaping guarantees, and discuss how this could be the same or different. The amount of the guarantee for an SES may prompt a different level of review. [End of commentary]

6. **Lot Coverage:** A large principal-use SES shall not count towards the maximum lot coverage or impervious surface standards for the district.
7. **Land Clearing:** Land disturbance or clearing shall be limited to what is minimally necessary for the installation and operation of the system and to ensure sufficient all-season access to the solar resource given the topography of the land. Topsoil distributed during site preparation (grading) on the property shall be retained on site.
8. **Access Drives:** New access drives within the SES shall be designed to minimize the extent of soil disturbance, water runoff, and soil compaction on the premises. The use of geotextile fabrics and gravel placed on the surface of the existing soil for the construction of temporary drives during the construction of the SES is permitted, provided that the geotextile fabrics and gravel are removed once the SES is in operation.
9. **Wiring:** SES wiring (including communication lines) may be buried underground. Any above-ground wiring within the footprint of the SES shall not exceed the height of the solar array at maximum tilt.
10. **Lighting:** Large principal-use SES lighting shall be limited to inverter and/or substation locations only. Light fixtures shall have downlit shielding and be placed to keep light on-site and glare away from adjacent properties, bodies of water, and adjacent roadways. Flashing or intermittent lights are prohibited.
11. **Signage:** An area up to \_\_\_ square feet [should be consistent with the district or sign type standard] may be used for signage at the project site. Any signage shall meet the setback, illumination, and materials/construction requirements of the zoning district for the project site.
12. **Sound:** The sound pressure level of a large principal-use SES and all ancillary solar equipment shall not exceed \_\_\_ [e.g. 45] dBA (Leq (1-hour)) at the property line of an adjoining non-participating lot. The site plan shall include modeled sound isolines extending from the sound source to the property lines to demonstrate compliance with this standard.

- 13. Repowering:** In addition to repairing or replacing SES components to maintain the system, a large principal-use SES may at any time be repowered, without the need to apply for a new special land-use permit, by reconfiguring, renovating, or replacing the SES to increase the power rating within the existing project footprint.
- a. A proposal to change the project footprint of an existing SES shall be considered a new application, subject to the ordinance standards at the time of the request. [Expenses for legal services and other studies resulting from an application to modify an SES will be reimbursed to the \_\_\_\_ [local unit of government] by the SES owner in compliance with established escrow policy.]

**COMMENTARY:** A fundamental zoning concept is that a zoning ordinance must allow for nonconformities—that is, the continuation of a land use or structure that was legally established before a change in zoning that no longer permits the use or structure location. Zoning ordinances have standards for replacement, reconstruction, and expansion of nonconformities. For example, the decision could be centered around the replacement components’ monetary value—a new investment of 50% or more of the value of the project is a typical threshold for nonconformities. The zoning board of appeals or the planning commission, whichever is charged with making decisions on nonconformities, would decide the fate of the project based on the nonconforming standards in the ordinance, rather than following the original special land-use permit review process. A proposal to expand the footprint of the system could be at odds with ordinance rules for enlarging nonconformities. In that case, the ordinance may dictate that the proposal must be scaled back to meet the rules for replacing nonconformities, otherwise decommissioning may be the only option. If decommissioning is not the intended or desired outcome, a community has the option to amend the ordinance to allow for SES again, thereby releasing the project from nonconforming status. Communities should work with a municipal attorney to explore preferred options for the SES and how SES will be treated under an application to repower the system. [End of commentary]

- 14. Decommissioning:** A decommissioning plan is required at the time of application.
- a. The decommission plan shall include:
    - i. The anticipated manner in which the project will be decommissioned, including a description of which above-grade and below-grade improvements will be removed, retained (e.g. access drive, fencing), or restored for viable reuse of the property consistent with the zoning district,
    - ii. The projected decommissioning costs for removal of the SES (net of salvage value in current dollars) and soil stabilization, less the amount of the surety bond posted with the State of Michigan for decommissioning of panels installed on PA 116 lands,
    - iii. The method of ensuring that funds will be available for site decommissioning and stabilization (in the form of surety bond, irrevocable letter of credit, or cash deposit), and
  - b. A review of the amount of the performance guarantee based on inflation, salvage value, and current removal costs shall be completed every \_\_ [e.g., 3 or 5] years, for the life of the project, and approved by the \_\_\_\_\_ [legislative body] board. An SES owner may at any time:
    - i. Proceed with the decommissioning plan approved by the Zoning Administrator [or Planning Commission] under Section \_\_\_\_ [of local government ordinance] and remove the system as indicated in the most recent approved plan; or
    - ii. Amend the decommissioning plan with Zoning Administrator [or Planning Commission] approval and proceed according to the revised plan.
  - c. Decommissioning an SES must commence when the soil is dry to prevent soil compaction and must be complete within \_\_ [e.g., 18 months] after abandonment. An SES that has not produced electrical energy for \_\_ [e.g., 12] consecutive months shall prompt an abandonment hearing.



Consumers Energy - Western Michigan University, Business Technology and Research Park solar garden. Photo by Mary Reilly.

---

## SITE PLAN REVIEW

---

*Add to the Site Plan Review article of the zoning ordinance, as a separate section (or to the section of the ordinance with site plan requirements), the following provisions for Principal-Use SES. Consider using the following checklist to determine if the application is complete. In this sample, a large principal-use SES is proposed to be reviewed as special land use. A Small Principal-Use SES is proposed to be reviewed as a permitted use with a required site plan. When reviewing a Small Principal-Use SES, a community will need to choose one of the following approaches:*

- **Administrative:** *The Zoning Administrator reviews and approves or denies a Small Principal-Use SES when following the site plan review requirements below.*
- **Administrative/Planning Commission:** *The Zoning Administrator could perform site plan review with the option to send the application to the Planning Commission for site plan review. This option could be utilized to provide greater public input and shared responsibility, such as for a high-interest or high-visibility application.*

Site Plans and supporting application materials for a Principal-Use SES shall include a detailed site plan including all applicable requirements found in Article XX, Section XX [the section of the ordinance with general site plan standards] of this ordinance, except that site plans for large principal-use SES shall be submitted at a scale of 1" = \_\_\_ [e.g., 200] feet, plus the following site plan requirements:

SITE PLAN REQUIREMENT (X = Required, NA = Not Applicable)	Small Principal-Use	Large Principal-Use
The location of all solar arrays, including setbacks, the width of arrays and distance between arrays plus total height and height to the lowest edge above grade, ancillary structures and electric equipment, utility connections, and dwellings on the property and within ___ [e.g. 150] feet of the property lines, participating and non-participating lots, existing and proposed structures, buried or above ground wiring, temporary and permanent access drives, fencing detail, screening/landscape detail, berm detail, and signs.	X	X
Plans for land clearing and/or grading required for the installation and operation of the system, and plans for ground cover establishment and management.	X	X
Sound modeling study including sound isolines extending from the sound source(s) to the property lines of adjoining non-participating lots.	X	X
<p>A Decommissioning Plan as applicable:</p> <ul style="list-style-type: none"> <li>For a Small Principal-Use SES, a decommissioning plan including a description of which above-grade and below-grade improvements will be removed, retained, or restored for viable reuse of the property consistent with the zoning district.</li> </ul>	X	N/A
<ul style="list-style-type: none"> <li>For a large principal-use SES, 1) a decommissioning plan including a description of which above-grade and below-grade improvements will be removed, retained, or restored for viable reuse of the property consistent with the zoning district, 2) the projected decommissioning costs for SES removal (net of salvage value in current dollars) and soil stabilization, less the amount of the surety bond posted with the State of Michigan for decommissioning of panels installed on PA 116 lands, and 3) the method of ensuring that funds will be available for site decommissioning and stabilization (in the form of surety bond, irrevocable letter of credit, cash deposit).</li> </ul>	N/A	X
The location of prime farmland [and/or farmland of statewide importance, farmland of local importance, unique farmland, and prime farmland if drained] as defined in the U.S. Department of Agriculture, Natural Resources Conservation Service - Web Soil Survey.	N/A	X [only if Ag Protection is part of the ordinance]
Completed copy of Michigan Pollinator Habitat Planning Scorecard for Solar Sites (when applicable).	N/A	X

SITE PLAN REQUIREMENT (X = Required, NA = Not Applicable)	Small Principal-Use	Large Principal-Use
<p>Additional studies may be required by the Planning Commission if reasonably related to the standards of this ordinance as applied to the application site, including but not limited to <i>[select those most applicable to your community; these do not directly link to standards in the sample language, but may be helpful in evaluating conformance with other ordinance standards]</i>:</p> <ul style="list-style-type: none"> <li>• <b>Visual Impact Assessment:</b> A technical analysis by a third party qualified professional of the visual impacts of the proposed project, including a description of the project, the existing visual landscape, and important scenic resources, plus visual simulations that show what the project will look like (including proposed landscape and other screening measures) a description of potential project impacts, and mitigation measures that would help to reduce the visual impacts created by the project and documented on the site plan.</li> <li>• <b>Environmental Analysis:</b> An analysis by a third-party qualified professional to identify and assess any potential impacts on the natural environment including, but not limited to wetlands and other fragile ecosystems, wildlife, endangered and threatened species, historical and cultural sites, and antiquities. If required, the analysis shall identify all appropriate measures to minimize, eliminate or mitigate adverse impacts identified and show those measures on the site plan, where applicable.</li> <li>• <b>Stormwater Study:</b> An analysis by a third-party qualified professional that takes into account the proposed layout of the SES and how the spacing, row separation, and slope affects stormwater infiltration, including calculations for a 100-year rain event (storm). Percolation tests or site-specific soil information shall be provided to demonstrate infiltration on-site without the use of engineered solutions.</li> <li>• <b>Glare Study:</b> An analysis by a third-party qualified professional to determine if glare from the SES will be visible from nearby residents and roadways. If required, the analysis shall consider the changing position of the sun throughout the day and year, and its influence on the SES.</li> </ul>	N/A	X

*Dual-use ground-mounted SES with conservation plantings. Photo by M. Charles Gould.*

# AUTHORS

## This publication was developed collaboratively by:

- **Wayne Beyea**, JD, AICP, Senior Specialist, Michigan State University School of Planning, Design and Construction (*beyea@msu.edu*)
- **Harmony Fierke-Gmazel**, AICP, Educator, Michigan State University Extension, Government and Community Vitality (*gmazelh@msu.edu*)
- **M. Charles Gould**, Educator, Michigan State University Extension, Bioenergy (*gouldm@msu.edu*)
- **Sarah Mills**, PhD, Senior Project Manager, University of Michigan, Graham Sustainability Institute (*sbmills@umich.edu*)
- **Bradley Neumann**, AICP, Senior Educator, Michigan State University Extension, Government and Community Vitality (*neuman36@msu.edu*)
- **Mary Reilly**, AICP, Educator, Michigan State University Extension, Government and Community Vitality (*reillym8@msu.edu*)

## Students:

- **Jason Derry**, Bachelor of Urban and Regional Planning, Michigan State University
- **Emma Gilbert**, Bachelor of Urban and Regional Planning, Michigan State University
- **Hannah Smith**, Master of Urban and Regional Planning, University of Michigan

## Reviewers include:

- **Doug Bessette**, Michigan State University
- **Janine Crane**, NextEra Energy
- **Rob Davis**, Fresh Energy
- **John Freeman**, Great Lakes Renewable Energy Association
- **Lexi Hain**, American Solar Grazing Association
- **Albert Jongewaard**, Apex Clean Energy
- **Matt Kapp**, Michigan Farm Bureau
- **Catherine Kaufman**, Bauckham, Sparks, Thall, Seeber & Kaufman, P.C.
- **John Kinch**, Michigan Energy Options
- **Chip Kraus**, Michigan Department of Agriculture and Rural Development
- **Samantha Ludlam**, Michigan Sheep Producers Association
- **Emily Palacios**, Miller Canfield
- **Andrea Polverento**, Watertown Charter Township
- **Brenda Reau**, Michigan Sheep Producers Association
- **Brian Ross**, Great Plains Institute
- **John Sarver**, Great Lakes Renewable Energy Association
- **Laura Sherman**, Michigan Energy Innovation Business Council
- **Jarrod Thelen**, Michigan Department of Agriculture and Rural Development
- **Claudine Williams**, Eaton County Community Development and Housing
- **Andrea Zamansky**, Webster Township

# COLLABORATORS



Michigan State University (MSU) Extension helps people improve their lives by bringing the vast knowledge resources of MSU directly to individuals, communities and businesses. For more than 100 years, MSU Extension has helped grow Michigan's economy by equipping Michigan residents with the information that they need to do their jobs better, raise healthy and safe families, build their communities and empower our children to dream of a successful future.

MSU is an affirmative-action, equal-opportunity employer. Michigan State University Extension programs and materials are open to all without regard to race, color, national origin, gender, gender identity, religion, age, height, weight, disability, political beliefs, sexual orientation, marital status, family status or veteran status.

The Graham Sustainability Institute at the University of Michigan transforms knowledge into real-world impact by catalyzing collaborations between students, researchers, practitioners, and stakeholders. These cross-disciplinary initiatives lead to positive outcomes that safeguard the planet's life support systems and enhance well-being for present and future generations. The institute's work is grounded in the belief that diversity, equity, and inclusion are key to empowerment and to the advancement of sustainability knowledge, learning, and leadership.

A Non-discriminatory, Affirmative Action Employer



## Acknowledgment

This material is based upon work supported by the Department of Energy and the Michigan Energy Office (MEO) under Award Number EE00007478. Find this document and more about the project online at [extension.msu.edu/solarzoning](http://extension.msu.edu/solarzoning).