CHIPPEWA TOWNSHIP

ORDINANCE NO. _____

AN ORDINANCE TO AMEND THE ZONING ORDINANCE TO REGULATE CAMPGROUNDS.

THIS ORDINANCE AMENDMENT WAS RECOMMENDED TO THE TOWNSHIP BOARD BY THE PLANNING COMMISSION AND ADOPTED BY THE CHIPPEWA TOWNSHIP PLANNING BOARD ON _____, 2024

PREAMBLE

It is hereby determined by the Chippewa Township Board that good and reasonable cause exists to amend the Chippewa Township Zoning Ordinance to campgrounds in order to preserve and protect the public health, safety, and welfare in the Township.

THE TOWNSHIP OF CHIPPEWA, COUNTY OF ISABELLA, STATE OF MICHIGAN, HEREBY ORDAINS:

Section 1. Addition of definitions to Section 3.01 of the Zoning Ordinance.

The following definitions are added to Section 3.01 of the Zoning Ordinance, consistent with the existing ordering of definitions in that section:

Campground: A parcel or tract of land under the control or change of a person or entity in which campsites are offered for the use of the public or members of an organization, either free of charge or for a fee, for the establishment of temporary living quarters including but not limited to two or more tents or recreational vehicles. May be considered a Recreational Vehicle Park.

Campsite: Land within a campground intended for the exclusive occupancy by a tent or recreational vehicle or other temporary living structure or vehicle under the control or charge of a camper.

Outdoor Recreational Facilities: Outdoor recreational facilities shall include campgrounds, nature centers, riding stables, wildlife sanctuaries, conservation clubs, hunting clubs and gun clubs.

Recreational Vehicles: A vehicular transportable structure mounted on wheels that is self-propelled or towed by a motor vehicle and which is designed to provide temporary living quarters for recreational camping or travel use. This definition includes, but is not limited to, portable structures commonly known as: motor homes, travel trailers, travel homes, fold down campers, trucks mounted campers, converted buses and fifth wheels.

Recreational Vehicle Park: All lands and structures which are owned and/or operated by private individuals, a business or corporation which is predominantly intended to accommodate the use of recreational vehicles and may provide for outdoor recreational activities. May be considered a Campground.

Tent: Tents as used in this Ordinance shall mean a collapsible shelter of canvas or other fabric stretched and sustained by poles or ropes and used for camping outdoors.

Section 2. Deletion of definitions to Section 3.01 of the Zoning Ordinance.

The following definitions are deleted from Section 3.01 of the Zoning Ordinance:

Campground: A tract of land where recreational units are accommodated and water flush toilets and water under pressure are available at a service building or a water outlet and sewer connections are available at each site.

Section 3. Amendment of Section 10.03 of the Zoning Ordinance.

The existing Section 10.03 of the Zoning Ordinance is amended to add the following special use, at the end of the list of special land uses:

Public and/or Private Campgrounds and Resorts.

Section 4. Addition of a new Section 10.05 to the Zoning Ordinance.

New Section 10.05 is added to the Zoning Ordinance and reads as follows:

Section 10.05 Campgrounds

Campgrounds shall comply with the provisions of Part 125 of Article 12 of Public Act 368 of 1978, as amended, and with the following additional requirements:

A. No Campground shall be permitted without direct access to a Public or Approved Private Roadway. The minimum lot frontage width shall not be less than 100 feet. No entrances or exits shall be through a Residential District.

B. The minimum lot area per campground shall be 20 acres or an aliquot part equal to a nominal 20 acres.

C. The maximum density of campsites within the campground shall not exceed 3 sites per acre.

D. Campsites in a campground may be rented by no less than a day. Rentals may be by the day, week, month or year. No campsite shall be sold.

E. No campsite shall be occupied as a permanent or principal residence. No campsite may be occupied for more that 210 days in a calendar year.

F. Front, side and rear setbacks shall be no less than 150 feet from all property lines for all campsites, accessory structures and internal traffic patterns.

G. Screening of setbacks shall be living plant materials at a density great enough to obscure the view of neighboring properties. Screening shall be of sufficient size at installation to assure immediate and effective screening. Screening may be a combination of native plants and planted materials. Density shall be considered from ground level to a minimum of 6 feet above the average level of the adjacent grade.

H. Accessory structures, typical for the operation of a campground shall be allowed and shall be internal to the campground and centrally located. Accessory structures shall not exceed 10 percent of the campground area.

I. Accessory structures and their uses are limited to those occupants of the campground and their guests.

J. Hours of operation. Although a campground may function 24 hours per day, 7 days per week, 12 months of the year, there shall be enforced quite hours. Quit hours shall be from no later than 11:00 PM to no earlier than 7:00 AM. During the remainder of the hours of operation, the campground will enforce reasonable noise limitations as not to create a nuisance to the surrounding properties.

K. External Lighting shall be directed away from neighboring properties. All lighting shall be shielded. No lighting shall be placed within the setback areas, except at entrances and exits.

L. Storage of recreational vehicle shall be permitted within screened areas. Storage of recreational vehicles is allowed on campsites.

Section 5. Validity and Severability.

If any portion of this Ordinance is found invalid for any reason, such holding will not affect the validity of the remaining portions of this Ordinance.

Section 6. Repealer.

Any and all ordinances inconsistent with the provisions of this Ordinance are repealed to the extent necessary to give this Ordinance full force and effect.

Section 7. Effective Date.

This Ordinance takes effect seven days after publication as required by the Michigan Zoning Enabling Act (PA 110 of 2006, as amended).

CHIPPEWA TOWNSHIP

ORDINANCE NO. _____

AN ORDINANCE TO AMEND THE ZONING ORDINANCE TO REGULATE SOLAR ENERGY SYSTEMS AND SOLAR FARMS.

THIS ORDINANCE AMENDMENT WAS RECOMMENDED TO THE TOWNSHIP BOARD BY THE PLANNING COMMISSION AND ADOPTED BY THE CHIPPEWA TOWNSHIP PLANNING BOARD ON _____

PREAMBLE

It is hereby determined by the Chippewa Township Board that good and reasonable cause exists to amend the Chippewa Township Zoning Ordinance to regulate solar energy systems and solar farms in order to preserve and protect the public health, safety, and welfare in the Township.

THE TOWNSHIP OF CHIPPEWA, COUNTY OF ISABELLA, STATE OF MICHIGAN, HEREBY ORDAINS:

Solar Energy Overlay District

The Solar Energy Overlay District overlays areas within the existing Agricultural District on the Chippewa Township Zoning Map. The Township Zoning Map is hereby amended to add the Solar Energy Facility Overlay district described in this section and depicted on **Map A**. The boundaries of the Solar Energy Facility Overlay District are depicted on Map A, incorporated herein by reference, and are generally described as follows:

THE SOUTHWEST ¼ OF SECTION 27 AND SECTIONS 28, 29, 30, 31, 32, 33 AND 34 IN THEIR ENTIRETY AND THE SOUTH ½ OF SECTION 35 ALL OF T.14 N.- R.03 W., CHIPPEWA TOWNSHIP, ISABELLA COUNTY, MICHIGAN.

Section 1: Addition of Definitions to Section 3.01 of the Zoning Ordinance

The following definitions are added to Section 3.01 of the Zoning Ordinance, consistent with the existing ordering of definitions in that section:

Solar Energy System:: A single residential or small business-scale solar energy conversion system consisting of building-mounted panels, ground-mounted solar arrays, or other solar energy fixtures, and associated control or conversion electronics that will be used to produce utility power primarily for on-site use.

Solar Farm: A utility-scaled commercial facility that converts sunlight into electricity, whether by photovoltaics, concentrating solar thermal devices or any other various experimental solar technologies for the primary purpose of wholesale or retail sales of generated electricity off-site.

Section 2. Amendment of Section 5.03 of the Zoning Ordinance

Section 5.03 of the Zoning Ordinance is amended to read consistent with the following:

5.03a Accessory Buildings In Residential Districts
Unless otherwise specified in this Ordinance, the total first floor area of all accessory buildings on a parcel of land may not exceed three (3) percent of the total parcel area.

5.03b Accessory Uses

A) Solar energy systems are permitted as an accessory use in all zoning districts, subject to the provisions of Section 5.27.

Section 3: Amendment of Section 10.03 of the Zoning Ordinance

The existing Section 10.03 of the Zoning Ordinance is amended to add the following special use, at the end of the current list of special land uses:

16. Solar Farms.

Section 4: Adoption of New Section 5.27 of the Zoning Ordinance

New Section 5.27 is added to the Zoning Ordinance and reads as follows:

Section 5.27 Solar Energy Systems and Solar Farms

A. *Purpose*: Chippewa Township promotes the effective and efficient use of solar energy collection systems. It is the intent of the Township to permit these systems by regulating the siting, design, and installation of such systems to protect the public health, safety, and welfare, and to ensure compatibility of land uses in the vicinity of solar energy collectors, as defined in this Ordinance, which must comply with the provisions of this Section.

B. *Definitions*: For the purposes of this Section, the following terms are defined as follows:

1. **Battery Back Up:** A battery system that stores electrical energy from a solar PV system. making the electricity available for future use. Battery Back-Up systems are common in Off-Grid Systems and Hybrid Systems.

2. **Combiner or Junction Box:** Combines the inputs (electrical flows) from multiple strings of solar panels (or micro-inverters) into one output circuit.

3. **Crystalline silicon cells:** Solar photovoltaic cells fashioned from either mono-crystalline, multi crystalline, or ribbon silicon capable of converting sunlight into electricity. Crystalline silicon solar PV panels are the most commonly used and are generally the most efficient.

4. **Distributed Solar:** For the purposes of this Ordinance, distributed solar refers to solar energy systems located on-site and designed to provide solar thermal energy or solar PY electricity to a property owner, occupant, and/or facilities.

5. **Grid-tied Solar:** A solar PY system that is interconnected with the utility grid via net metering and interconnection agreements with the utility.

6. **Electricity Generation (aka production, output):** The amount of electric energy produced by transforming other forms of energy, commonly expressed in kilowatt-hours (kWh) or megawatt-hours (MWh).

7. **Electrical Equipment:** Any device associated with a solar energy system, such as an outdoor electrical unit/control box, which transfers the energy from the solar energy system to the intended on-site structure.

8. **Grid-tied Solar Photovoltaic Systems (aka grid-tied PV, on-grid, grid-connected, utility interactive, grid-intertied, or grid-direct**): Solar photovoltaic electricity generation systems designed to serve the electricity needs of the building to which it is connected, thus offsetting a home's or business's electricity usage. Any excess electricity generated is sent to the electric utility grid, credited via a customer's net metering agreement with their local utility. Grid-tied are typically installed without battery back-up system to store electricity. As such, these systems provide no power during an outage. Typical system components: PV panels, inverter(s), and required electrical safety gear.

9. **Ground-Mount System:** A solar energy system that is directly installed on specialized solar racking systems, which are attached to an anchor in the ground and wired to connect to an adjacent home or building. Ground-mount systems may be applicable when insufficient space, structural, and shading issues or other restrictions prohibit rooftop solar.

10. **Hybrid Solar Photovoltaic Systems (aka grid-tied PV with battery back-up):** Solar photovoltaic electricity generation systems designed to serve the electricity needs of the building to which it is connected, thus offsetting a home's or business's electricity usage, while also utilizing a battery back-up in the event of a power outage. This is the only system that provides the ability to power the building when the utility grid is down. Typical system components include: PV panels, inverter(s), and required electrical safety gear, battery bank, and a charge controller.

11. **Inverter:** A device that converts the Direct Current (DC) electricity produced by a solar photovoltaic system into useable alternating current (AC).

12. **Kilowatt (kW):** Equal to 1000 Watts: a measure of the use of electrical power.

13. **Kilowatt-hour (kWh):** A unit of energy equivalent to one kilowatt (l kW) of power expended for 1 hour of time.

14. **Mounting:** The manner in which a solar PV system is affixed to the roof or ground (i.e. roof mount, ground mount, pole mount).

15. **Megawatt (MW):** Equal to 1000 Kilowatts: a measure of the use of electrical power.

16. **Megawatt-hour (MWh):** A unit of energy equivalent to one Megawatt (1 MW) of power expended for l hour of time.

17. **National Electric Code (NEC):** Sets standards and best practices for wiring and electrical systems.

18. **Net Meter:** On-grid solar PV systems connected to the utility grid use a net meter. typically provided and installed by the local utility. to measure the flow of electricity from the solar system for the purposes of net metering.

19. **Net Metering:** A billing arrangement that allows customers with grid-connected solar electricity systems to receive credit for any excess electricity generated on-site and provided to the utility grid.

20. **Off-Grid Solar Photovoltaic Systems with battery back-up:** Solar photovoltaic electricity systems designed to operate independently from the local utility grid and provide electricity to a home, building, boat, RV (or remote agricultural pumps, gates, traffic signs, etc.). These systems typically require a battery bank to store the solar electricity for use during nighttime or cloudy weather (and/or other back-up generation). Typical system components include: PV panels, battery bank, a charge controller, inverter(s), required disconnects, and associated electrical safety gear.

21. **Orientation (or Azimuth):** In the northern hemisphere, true solar south is the optimal direction for maximizing the power output of solar PV. Although, systems can be oriented east, southeast, southwest, and west, while still providing 75%-85% of maximum production depending on the tilt. Proper orientation and access to sun are critical for achieving maximum energy production potential (ideally. the orientation of the solar energy system ensures that solar access is not obstructed by other buildings, shade trees, chimneys, HVAC systems, or other equipment).

22. **Passive Solar:** Techniques, design, and materials designed to take advantage of the sun's position throughout the year (and the local climate) to heat, cool, and light a building with the sun. Passive solar incorporates the following elements strategically to maximize the solar potential of any home or building (namely, maximizing solar heat gain in winter months and minimizing solar heat gain in summer months to reduce heating/cooling demand: and maximizing the use of daylighting to reduce demand for electricity for lighting): strategic design and architecture. building materials. east-west and building lot orientation, windows, landscaping, awnings, ventilation.

23. **Photovoltaic (PV) System:** A solar energy system that produces electricity by the use of semiconductor devices called photovoltaic cells, which generate electricity when exposed to sunlight. A PV system may be roof-mounted, ground-mounted, or pole- mounted.

24. **Pole-Mount Systems:** A solar energy system that is directly installed on specialized solar racking systems, which are attached to a pole(s) that is anchored and firmly affixed to a concrete foundation in the ground and wired underground to an attachment point at the building's meter. Unlike ground-mount systems, pole-mount systems are elevated from the ground. Pole mounted systems can be designed to track the sun (with single-axis or dual-axis tracking motors) and maximize solar output throughout the year.

25. **Power:** The rate at which work is performed (the rate of producing, Transferring, or using energy). Power is measured in Watts (W), kilowatts (kW), Megawatts (MW), etc.

26. **PV-Direct Systems:** The simplest of solar photovoltaic electric systems with the fewest components (no battery back-up and not interconnected with the utility) designed to only provide electricity when the sun is shining. Typical system components include: PV panels, required electrical safety gear, and wiring.

27. **Racking:** Solar energy systems are attached securely and anchored to structural sections of the roof-mounted or pole-mounted systems. Specially designed metal plates called flashings prevent leaks and are placed under shingles and over bolts to create a water-tight seal.

28. **Roof-Mount System (aka rooftop mounted, building mounted):** A solar energy system consisting of solar panels installed directly on the roof of a home, commercial building, and/or an accessory structure, such as a garage, pergola, and/or shed. Solar panels are mounted and secured using racking systems specifically designed to minimize the impact on the roof and prevent any leaks or structural damage. Roof-mount systems can be mounted flush with the roof or tilted toward the sun at an angle.

29. **Solar Access:** The ability of one property to continue to receive sunlight across property lines without obstruction from another's property (buildings, foliage or other impediment). Solar access is calculated using a sun path diagram.

30. **Solar Array:** Multiple solar panels combined together to create one system.

31. **Solar Collector:** A solar PV cell panel, array. or solar thermal collector device that relies upon solar radiation as an energy source for the generation electricity or transfer of stored heat.

32. **Solar Energy System:** A single residential or small business-scale solar energy conversion system consisting of building-mounted panels, ground-mounted solar arrays, or other solar energy fixtures, and associated control or conversion electronics that will be used to produce utility power primarily for on-site use.

33. **Solar Glare:** The potential for solar panels to reflect sunlight, with an intensity sufficient to cause annoyance, discomfort, or loss in visual performance and visibility.

34. **Solar Panel (or module):** A device for the direct conversion of sunlight into useable solar energy (including electricity or heat).

35. **Solar Photovoltaic (Solar PV) System:** Solar systems consisting of photovoltaic cells, made with semiconducting materials that produce electricity (in the form of direct current (DC)) when they are exposed to sunlight. A typical PV system consist of PV panels (or modules) that combine to form an array; other system components may include mountain racks and hardware, wiring for electrical connections, power conditioning equipment, such as an inverter and/or batteries. For the purposes of this Ordinance, a solar PV system is defined as generating capacity of not more than 25 kilowatts for residential facilities and not more than two megawatts for non- residential facilities. *(Solar PV systems larger than this are governed by another Ordinance.)*

36. **Solar Process Heat** technologies provide industrial specific applications, including ventilation air preheating, solar process heating, and solar cooling.

37. **Solar-Ready:** The concept of planning and building with the purpose of enabling future use of solar energy generation systems. Solar-ready buildings, lots, and developments make it easier and more cost-effective to utilize passive solar techniques and adopt active solar technologies in the future. Solar-Ready Buildings are built anticipating future installation of active solar energy systems (including structural reinforcement, pre-wiring or plumbing for solar, and east-west building orientation). Solar-Ready Lots are oriented to take maximal advantage of a location's solar resource. Solar-Ready Developments expand this concept to entire subdivisions.

38. **Solar Thermal System (aka Solar Hot Water or Solar Heating Systems):** A solar energy system that directly heats water or other liquid using sunlight. Consists of a series of tubes that concentrate light to heat either water or a heat-transfer fluid (such as food-grade propylene glycol, a non-toxic substance) in one of two types of collectors (flat-plate collectors and evacuated tube collectors). The heated liquid is used for such purposes as space heating and cooling, domestic hot water, and heating pool water.

39. **Thin Film Solar PV:** Capable of generating electricity from the sun, thin film solar PV cells consist of layers of semiconductor materials (made from amorphous silicon, cadmium telluride, copper indium gallium selenide, among other materials) a few micrometers thick, which allow for greater flexibility. Thin film is made by depositing one or more thin layers of photovoltaic material on a substrate; products include rooftop shingles and tiles, building facades, the glazing for skylights, and other building integrated materials.

40. **Tilt:** The angle of the solar panels and/or solar collector relative to their latitude. The optimal tilt to maximize solar production is perpendicular, or 90 degrees, to the sun's rays at true solar noon. True solar noon is when the sun is at its highest during its daily east-west path across the sky (this is also known as 0° Azimuth). Solar energy systems can be manually or automatically adjusted throughout the year. Alternatively, fixed-tilt systems remain at a static tilt year-round.

41. **Watts (W):** A measure of the use of electrical power (power (Watts)= voltage (volts) X current (Amps).

42. **Wiring:** Specified by electrical codes, solar PV system wires are routed from the panels or micro-inverters through conduit into the inverter and buildings meter.

C. Solar Energy Systems.

A solar energy system is intended to first serve the needs of the private owner. Systems may be building-mounted or ground-mounted. Solar Energy Systems may be approved through the issuance of both a zoning compliance permit and a building permit, provided the applications and installations meet the requirements set forth in this section. If the Zoning Administrator believes that the solar energy system may have an adverse impact on the health and safety of the public, he/she may require the applicant to apply for Site Plan Approval to the Planning Commission.

1. General Requirements:

   a) Only one (1) solar energy system is permitted per lot, parcel, unit, or premises.

   b) Setbacks: All solar energy systems must maintain a minimum setback of twenty (10) feet from all property lines.

   c) Mechanical equipment must be screened from streets and neighboring residences by fencing or landscaping in accordance with the requirements of Section 5.05 and other applicable sections of the Zoning Ordinance.

   d) Glare: The applicant must provide documentation regarding the elimination of glare off the panels, insofar as possible. This may include manufacturer's specifications of the panels, proficient angling, adequate screening, or other means by which neighboring properties will not be adversely affected.

   e) A site layout, drawn to scale, must show all existing and proposed structures, driveways, adjacent structures within 100 feet, and any other information required by the Zoning Administrator.

   f) A complete site plan, in accordance with Section 5.09 of the Ordinance is not required for:

      1. Building-mounted solar panels.

      2. Ground-mounted solar panels that do not exceed 8,000 square feet.

2. Building-mounted solar panels:

   a) An Administrative Review is required of all building-mounted solar energy systems. The application must include the following:

      1. Photographs of the property's existing conditions.

2. A submittal packet that addresses a-f of the General Requirements.

b) Solar energy systems that are mounted on the roof of a building may not project more than five (5) feet above the highest point of the roof may not exceed the maximum building height limitation for the zoning district in which it is located, and may not project beyond the eaves of the roof.

c) Solar energy systems that are wall-mounted may not exceed the height of the building wall to which they are attached.

d) Solar energy systems may not be mounted on a building wall that is parallel or substantially parallel to an adjacent public right-of-way.

e) Solar energy systems, and the installation and use thereof, must comply with the County's construction, electrical, and mechanical code, and any other applicable County construction codes.

3. The following provisions apply to ground-mounted solar energy systems:

a) They may not be installed on parcels less than one (1) acre in size.

b) They may only be located in the side or rear yards.

c) They may have a maximum ground area occupied by solar panels and associated paved surfaces of twenty (20) percent of lot size.

d) If more than 4,000 square feet of impervious surface is proposed, a drainage plan must be submitted with the permit application.

e) The maximum ground-mounted panel height is eight (8) feet, measured from grade to the top of the panel.

f) Panels must be screened from residential districts and public rights-of-way by a greenbelt and/or six (6) foot privacy fence.

D. Solar Farms

1. This subsection governs solar farms with a nameplate capacity of less than 50 megawatts, as permitted by the Clean and Renewable Energy and Energy Waste Reduction Act, Public Act ??? of 2023, as amended.

2. Solar farms may be located only in the AG District.

3. Solar Farms may be approved only as a special land use in accordance with the procedures set forth in Article 5, Section 5.11, Special Land Uses. They are subject to review and approval with the procedures set forth in Article 5 Section 5.09, Site Plan Review.

4. In addition to the application procedures of Section 5.09 & 5.11, an applicant seeking approval for a solar farm must also provide the following application materials:

a) *Site Plan*: A site plan must include the proposed number, location, and spacing of solar panels; proposed height of panels; location of access road roads; planned location of underground or overhead electric lines connecting the Farm to the substation or other electric load; proposed storm water management facilities; proposed erosion and sediment control measures; and other related facilities or appurtenances.

b) *Landowner Authorization*: The applicant must provide the following information with respect to the Site:

1. A legal description of the Participating Property(ies) on which the Solar Farm will be located.

2. The name, address and phone number of the applicant, including the name of the authorized representative of the applicant, the owner of all equipment proposed to be installed, and the owner(s) of the Participating Property(ies).

3. Written authorization from the Participating Property owners to seek special land use approval for the Solar Farm.

4. A copy of the applicant's letter of intent with any Participating Property owner.

c) *Liability Insurance*: The applicant must maintain a current general liability policy covering bodily injury and property damage with limits of at least $1 million per occurrence and $2 million in the aggregate, and provide proof that it meets the insurance requirement to the Zoning Administrator prior to approval.

d) *Review Expenses*: In addition to any application fees, an escrow fee is required. An escrow account will be established. The amount of the escrow fee will be based on an estimate of the Township's expenses, and must be maintained or reestablished until all expenses have been paid in full. The applicant is entitled to a refund of any unused escrow fees and shall pay any balance due which exceeds the escrow fees.

e) *Decommissioning Plan*: The applicant must submit a decommissioning plan that adheres to the requirements set out herein.

f) *Additional Requirements*. In addition to the applicable information required by Section 5.09 the site plan application shall include:

1. Identify the type, size, rated power output, performance, safety, and noise characteristics of the proposed system including the transmission line/grid connection for the project.

2. The estimated construction timeline.

3. A graphical demonstration of the visual impact of the project using photos or renditions of the project with consideration given to setbacks and proposed landscaping.

4. Details of the access road to the solar farm including dimensions, composition, and maintenance.

5. Planned security measures to prevent unauthorized trespass and access.

6. An environmental analysis identifying any impacts on the surrounding environment. Including the identification of any solid or hazardous waste generated by the project.

7. Identify potential hazards to adjacent properties, public roadways, and to the general public that may be created. Include emergency and normal shutdown procedures.

8. Identify noise levels at the property lines of the project when completed and operational.

9. Identify any electromagnetic interference that may be generated by the project.

10. A copy of the manufacturer's installation instructions must be provided. Included as part of or as an attachment to the installation instructions must be standard drawings of the structural components of the solar farm, including base and footings, along with engineering data and calculations to demonstrate compliance with the structural design provisions of the applicable Building Code. Drawings and engineering calculations must be certified by a registered engineer licensed to practice in the State of Michigan.

11. A detailed description of the complaint resolution process developed by the applicant to resolve complaints from nearby residents concerning the construction or operation of the solar farm. The process may not preclude the Township from acting on the complaint. During construction the applicant must maintain and make available to nearby residents a telephone number where the project representative can be reached during normal business hours.

12. The solar farm application must contain a Decommissioning Plan to ensure it is properly decommissioned upon the end of project life, inoperability of the solar farm, or facility abandonment. Decommissioning must include the removal of all structures, fencing and equipment, foundations, footings and debris to a depth of four (4) feet, as well as restoration of the soil and vegetation. The decommissioning including restoration must be completed within one (1) year of the end of project life, inoperability of the solar farm or facility abandonment, at the owner's or operator's expense. Extensions may be granted upon written request to the Planning Commission prior to expiration of the one (1) year decommissioning period. The site must be restored to as natural condition within six (6) months of the removal. A site will be considered decommissioned when, after inspection and approval by the Township, all structures and equipment are removed and the site is in natural condition. The Decommissioning Plan must state (a) how the facility will be decommissioned, (b) the Professional Engineer's estimated cost of decommissioning, and (c) the financial resources to be used to accomplish decommissioning.

    i The financial resources for decommissioning shall be in the form of a surety bond or letter of credit, which shall be deposited in an escrow account with an escrow agent acceptable to the Township.

    ii The Township must have access to the escrow account funds for the express purpose of completing the decommissioning, if decommissioning is not completed by the applicant within one (1) year of the end of project life, inoperability of the solar farm, or facility abandonment, or upon expiration of any extension granted by the Planning Commission. Escrow funds may be used for administrative fees and costs associated with decommissioning.

    iii The Township is granted the right of entry onto the site, pursuant to reasonable notice, to effect or complete decommissioning as necessary.

    iv The Township is also granted the right to seek and obtain injunctive relief to effect or complete decommissioning, as well as the right to collect reimbursement from applicant or applicant's

successor for decommissioning costs in excess of the amount deposited in escrow and to file a lien against any real estate owned by applicant or applicant's successor, or in which they have an interest, for the amount of the excess costs, and to take all steps allowed by law to enforce the lien.

4. All photovoltaic panels and support structures located in a solar farm are restricted to a maximum height of twenty (20) feet when oriented at maximum tilt.

5. All photovoltaic solar panels and support structures excluding perimeter fencing and landscaping associated with a solar farm must be setback a minimum of fifty (50) feet from right-of-way and twenty-five (25) feet from adjacent property lines.

6. Solar farms are exempt from the maximum lot coverage requirements of the ordinance.

7. A security chain-link fence of eight (8) feet in height must be placed around the perimeter of the solar farm and electrical equipment. Additionally, a sign must be posted at the entrance containing the following information: emergency contact, emergency phone number, and emergency shutdown procedures.

8. Noise emanating from the solar farm may not exceed 50 dB(A) (not calculated as an average) at the property line.

9. A ten (10) foot area clear of trees, bushes, or brush is required surrounding all ground-mounted photovoltaic arrays. Vegetation in the area must be kept trimmed to less than 18 inches.

10. Solar farms must be sited so that concentrated solar glare may not be directed toward or onto nearby properties or roadways at any time of day.

11. Solar farms must include a landscaping and screening/buffering plan. The plan will be reviewed through the approval process to assure that the proposed solar farm is appropriately landscaped in relation to adjacent land uses and road right-of-ways. The use of berms and evergreen plantings along property lines adjacent to residential land uses is strongly encouraged. Exceptions to landscaping requirement may be granted by the planning commission on a case-by-case basis if there is perceived environmental or contamination issues on the land.

12. The solar farm must comply with all applicable construction and electrical codes including local building permit requirements. The

interconnection of the solar farm with the utility company must adhere to the State Electrical Code.

13. An approved special use permit for a solar farm project expires if construction of the solar farm has not commenced within twenty-four (24) months from the date of issuance. An applicant may request an extension of the approval of the special use permit by letter addressed to the Zoning Administrator. The Zoning Administrator may grant or deny an extension of up to twenty-four (24) months for the construction to commence provided the written request to extend the special use permit is submitted prior to the expiration of the special use permit and provided that the proposed use continues to satisfy the applicable standards set forth within the ordinance.

14. An approved special use permit for a solar farm constitutes approval to operate and use the solar farm twenty-four (24) hours per day.

15. The Township hereby reserves the right upon issuing any solar farm special land use permit to inspect the premises on which the solar farm is located. If a solar farm is not maintained in operational condition and poses a potential safety hazard, the owner must take expeditious action to correct the situation.

Section 5. Validity and Severability.

If any portion of this Ordinance is found invalid for any reason, such holding will not affect the validity of the remaining portions of this Ordinance.

Section 6. Repealer.

Any and all ordinances inconsistent with the provisions of this Ordinance are repealed to the extent necessary to give this Ordinance full force and effect.

Section 7. Effective Date.

This Ordinance takes effect seven days after publication as required by the Michigan Zoning Enabling Act (PA 110 of 2006, as amended).

The motion was made by_____and supported by_____

The motion carried with the following roll call vote of_____Yeas and_____Nays
_____Absent

Yea Votes: Nay Votes

_____ _____

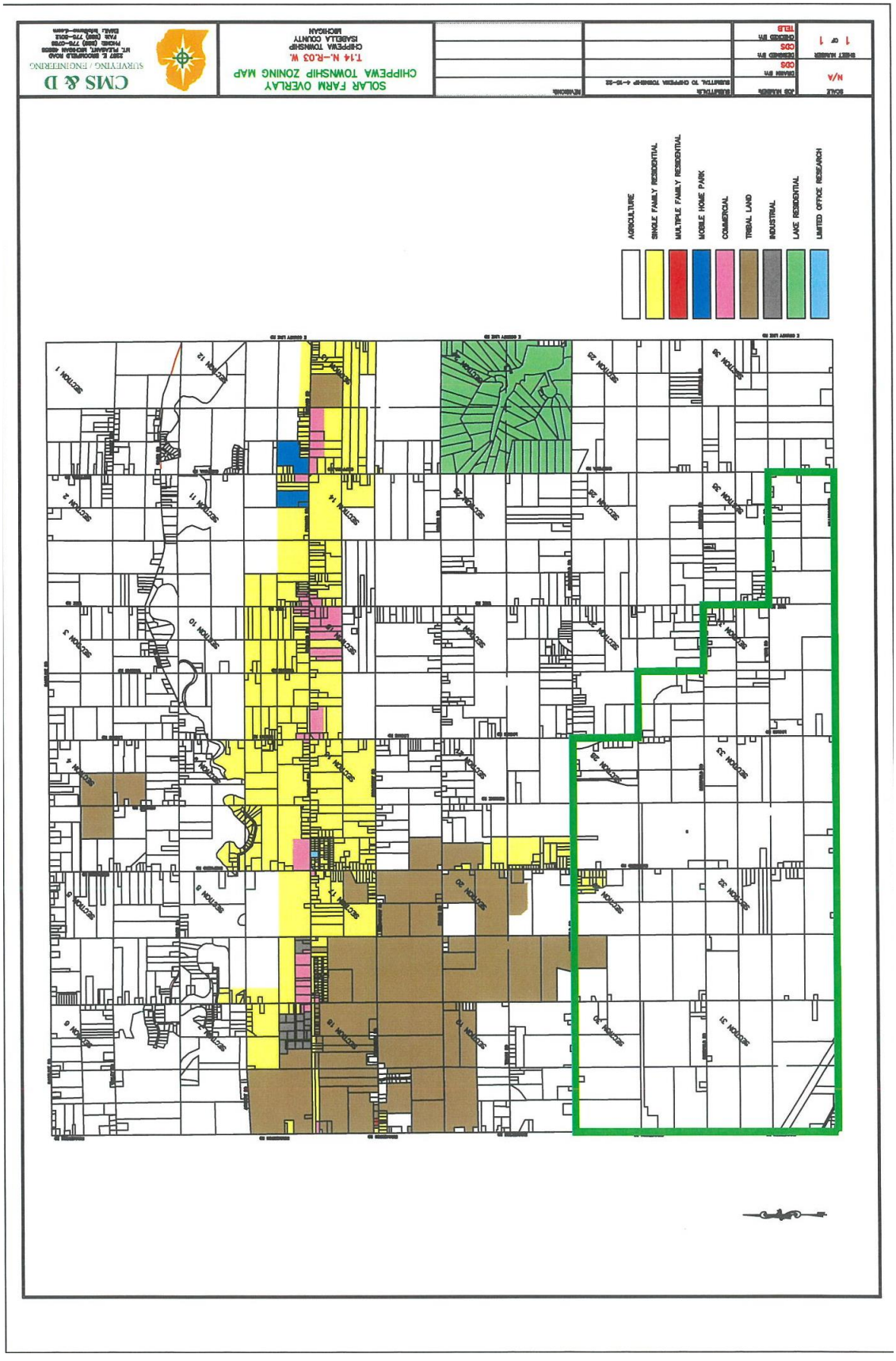
STATE OF MICHIGAN) COUNTY OF Isabella, TOWNSHIP OF Chippewa)

I do hereby certify that the above Amendment of the Chippewa Township Zoning Ordinance is a true and correct copy of the Ordinance adopted by the Chippewa Township Planning Commission present on _____.

_____

Frances B. Ash,
Chippewa Township Clerk

MAP A


SOLAR FARM OVERLAY
CHIPPEWA TOWNSHIP ZONING MAP
T.14 N.–R.03 W.
CHIPPEWA TOWNSHIP
ISABELLA COUNTY
MICHIGAN
CMS & D
SURVEYING / ENGINEERING
AGRICULTURE
SINGLE FAMILY RESIDENTIAL
MULTIPLE FAMILY RESIDENTIAL
MOBILE HOME PARK
COMMERCIAL
TRIBAL LAND
INDUSTRIAL
LAKE RESIDENTIAL
LIMITED OFFICE RESEARCH

CHIPPEWA TOWNSHIP

ORDINANCE NO. _____

AN ORDINANCE TO AMEND THE ZONING ORDINANCE TO REGULATE WIND ENERGY SYSTEMS.

THIS ORDINANCE AMENDMENT WAS RECOMMENDED TO THE TOWNSHIP BOARD BY THE PLANNING COMMISSION AND ADOPTED BY THE CHIPPEWA TOWNSHIP PLANNING BOARD ON _____

PREAMBLE

It is hereby determined by the Chippewa Township Board that good and reasonable cause exists to amend the Chippewa Township Zoning Ordinance to regulate wind energy systems in order to preserve and protect the public health, safety, and welfare in the Township.

THE TOWNSHIP OF CHIPPEWA, COUNTY OF ISABELLA, STATE OF MICHIGAN, HEREBY ORDAINS:

Section 1: Adoption of New Article 10A, Wind Energy Overlay District

New Article 10A, entitled "Wind Energy Overlay District", is added to the Zoning Ordinance and reads as follows:

Section 10A.01 Wind Energy Overlay District

The Wind Energy Overlay District overlays areas within the existing Agricultural District on the Chippewa Township Zoning Map. The Township Zoning Map is hereby amended to add the Wind Energy Facility Overlay district described in this section and depicted on **Map A**. The boundaries of the Wind Energy Facility Overlay District are depicted on Map A, incorporated herein by reference, and are generally described as follows:

THE SOUTHWEST ¼ OF SECTION 27 AND SECTIONS 28, 29, 30, 31, 32, 33 AND 34 IN THEIR ENTIRETY AND THE SOUTH ½ OF SECTION 35 ALL OF T.14 N.- R.03 W., CHIPPEWA TOWNSHIP, ISABELLA COUNTY, MICHIGAN.

Section 10A.02 Permitted Uses

There are no uses permitted by right in the Wind Energy Overlay District, other than uses permitted by right in the underlying zoning districts.

Section 10A.03 Special Land Uses

The following uses are permitted following approval by the Planning Commission under

Section 5.09 (site plan review), 5.11 (special land uses), and 5.28 (wind energy facilities):

Large-Scale Wind Energy Facilities

Section 2: Adoption of New Section 5.28 of the Zoning Ordinance

New Section 5.28 is added to the Zoning Ordinance and reads as follows:

Section 5.28 Wind Energy Systems

A. Purpose and Intent. The purpose of this ordinance is to establish regulations for wind energy systems with the intention to strike an appropriate balance for the need for clean, renewable energy resources and the necessity to protect the health, safety, and welfare of the general public. This ordinance shall set standards for both large scale wind commercial energy facilities and small wind energy systems designed to serve the needs of a home, small business, or farm. In addition, an "overlay zoning" technique is incorporated into this ordinance to encourage the development of wind energy resources in the Agricultural District as well as to preserve large tracks of land within the district for future agricultural use.

B. Definitions. For the purposes of this Section, the following terms are defined as follows:

1. **Avian Analysis**: A study of the nesting and migration patterns of birds and flyways that may affect the location of a wind energy facility.

2. **County**: The County of Isabella.

3. **Decommissioning**: The termination of use of a Wind Energy Facility or portion of a facility where the owner provides notice to the Township that the facility or individual wind turbine(s) are no longer used to produce electricity. The Decommissioning process provided in this Section must be accomplished no more than thirty (30) days after termination of the use.

4. **FAA**: The Federal Aviation Administration.

5. **Hub Height**: When referring to a wind turbine, the distance measured from the ground level to the center of the turbine hub.

6. **Inhabited Structure**: A permanent building existing prior to the installation of a wind energy conversion facility, which is used for human or animal habitation.

7. **Kilowatt**: a unit of electricity equal to 1,000 watts.

8. **Large Wind Energy Conversion Facility (WECF) or Wind Energy Facility**: Any electricity generating facility consisting of one or more wind turbines under

common ownership or operation control, and includes substations, MET Towers, cables/wires and other buildings accessory to such facility, whose main purpose is to supply electricity to off-site customer(s). It includes substations, MET Towers, cables and wires, and other buildings accessory to such facility. A single turbine may constitute as a large-scale wind energy system.

9. **Met (Anemometer) Tower**: means a tower, including any anchor, base, base plate, boom, cable, electrical or electronic equipment, guy wire, hardware, indicator, instrument, telemetry device, vane, or wiring that is used to collect or transmit meteorological data, including wind speed and wind flow information, in order to monitor or characterize wind resources for a wind site assessment for possible installation of wind energy conversion facilities or on-site wind energy systems.

10. **Michigan Tall Structure Act (Act 259 of 1959)**: Governs the height of structures in proximity to airport related uses and is included as a standard of this ordinance by reference.

11. **Net Metering**: An accounting mechanism in which electric utility customers who generate a portion or all of their own electricity needs are billed by their utility for only their net energy consumption during each billing period. Net Metering is allowed for turbines producing less than 30 kilowatts.

12. **Net Energy Consumption**: The amount of energy delivered by the utility and used by the customer, minus the amount of energy generated by the customer and delivered to the utility.

13. **Non-Participating Property**: Real property that has no wind energy system.

14. **On-Site Small Wind Energy System**: A small electricity-generating system consisting of one but not more than two wind turbine systems sized primarily to serve the needs of the on-site consumer for a home, farm, or small business, on whose property they are constructed and not intended to distribute electricity to a customer or customers, but may be inter-connected to a public utility.

15. **Owner**: The person/entity that owns a wind energy system or met tower.

16. **Receptor**: A specific location such as an inhabited structure or roadway from which a shadow flicker analysis study shall be completed to indicate duration of shadow flicker and total number of hours per year anticipated.

17. **Rotor**: An element of a wind energy system that acts as a multi-bladed airfoil assembly, thereby extracting through rotation, kinetic energy directly from the wind.

18. **Shadow Flicker and Blade Glint**: A repeating cycle of changing light intensity when shadows caused by rotating blades of a wind turbine pass over an object or across a window. Blade Glint, is defined as the intermittent reflection of the sun off the surface of the blades of a wind turbine.

19. **Sound Pressure Level**: The level of sound produced by the rotating blades of a wind energy system, the spinning generator, and the moving gears as measured in dBA from a property line or aspecific location or distance.

20. **Stray Voltage**: Any voltage or current existing between two points where none is expected and may be contacted by persons, animals, and/or equipment.

21. **Total Height**: Include the height of the tower including the rotor radius measured at the top of its blade in the vertical position.

22. **Township**: Chippewa Township, Isabella County, Michigan.

23. **Waiver Agreement**: A signed statement between the owner of a Wind Energy Facility and a Non-Participating Property Owner releasing rights of this Section relating to setbacks from internal property lines.

24. **Wind Energy Facility Site Permit**: A permit issued upon compliance with the standards of this Section.

25. **Wind Energy Facility Site Plan Review**: The process used to review a proposed wind energy facility.

26. **Wind Turbine**: A wind energy conversion system which converts wind energy into electricity through the use of a wind turbine generator and includes the turbine, blade, tower, and base and pad transformer, if any. A wind turbine, by definition, includes a Horizontal Axis Wind Turbine (HAWT) and/or a Vertical Axis Wind Turbine (VAWT).

27. **Wind Energy Overlay District**: A district created by the Chippewa Township Board, upon receiving a recommendation of the Planning Commission, by identifying specific areas within the Agricultural District best situated for development of wind energy facilities and adopting specific provisions that apply in that area in addition to other provisions of the zoning ordinance.

C. Principal or Accessory Uses. A Large-Scale Wind Energy Facility and related accessory uses may be considered either principal or accessory uses. A different existing use or an existing structure on the same parcel does not preclude the installation of a Wind Energy Facility or a part of such facility on such parcel. Wind Energy Facilities that are constructed and installed in accordance with the provisions of this Section are not be considered an expansion of a nonconforming use or structure.

An On-Site Small Scale Wind Energy System is considered an accessory use for all systems designed to serve the needs of the individual owner. On-Site Small Scale Wind Energy Systems are not be considered an expansion of a nonconforming use or structure.

D. Applicability. This Section applies to:

1. Large-Scale Wind Energy Facilities: a combination of more than one wind energy system under common ownership that share the main purpose to supply the needs of off-site customers shall be permitted in Agricultural Districts with a Wind Energy District Overlay classification, as a special use approval. A large scale wind turbine is generally limited to 400 feet (121.95 meters) in total height, but the Township Board may waive the height limitation based on recommendation by the Planning Commission where adjustment of the total height is in the best interest of the Township and the Applicant.

   This Section applies to Large-Scale Wind Energy Facilities to the extent permissible by state law.

2. On-Site Small Scale Wind Energy System: a single or combination of not more than two (2) wind turbine generators sized to serve the needs of the on-site consumer for a home, farm, or small business are a permitted use in all districts where the parcel size is one (1) acre or larger, and are not be considered a special use where the wind turbine is 10 kW or less of rated capacity and the wind tower is seventy five (75') feet (22.865 meters) or less in total height. Such approvals may be administratively given, subject to the requirements of this Section. Where a wind turbine is greater than 10 kW of rated capacity and/or greater than seventy five (75') feet (22.865 meters) in total height, the wind turbine must approved as a special use.

   A Wind Energy Facility with a total height of over 150 feet (45.73 meters) is considered a Large-Scale Wind Energy Facility for siting purposes.

E. Site Plan Review Required.

1. Wind Energy Facilities may not be located, constructed, erected, altered, or used without first obtaining a Wind Energy Facility Permit pursuant to this Section. Modification of development standards must be based on a recommendation by the Planning Commission that said modifications are in the best interest of the Township and the Applicant. Where modifications of a standard are requested, the Township Board must hold a public hearing prior for the consideration of a modified site plan. The Wind Energy Facilities Site Plan must be reviewed and approved by the Planning Commission pursuant to the standards contained herein, and as required in Section 5.09 (Site Plan Review), prior to being submitted to the Township Board for the special use approval, governed by Section 5.11.

2. On-Site Small Scale Wind Energy Systems may not be located, erected, altered, or used without first submitting a site plan for zoning approval, where such approval may be administratively given, or as may be required as a special use approval.

F. The following information, in addition to information as required and as may be applicable for site plan review under Section 5.09, must be submitted as part of the site plan review for Wind Energy Facilities and On-Site Small Scale Wind Energy Systems of rated capacities of more than 10 kW. The following, as applicable, must also be submitted for MET Towers.

1. Survey of the property showing property boundaries and existing features such as land contours, large trees, buildings, structures, roads (rights-of-way), utility easements, land use, zoning district, ownership of property, and vehicular access;

2. Plan(s) showing the proposed location and number of turbine towers, underground and overhead wiring (including depth of underground wiring), access roads (including width), substations, and accessory structures;

3. A description of the facility/system's height and design, including a cross section, elevation, and diagram of how the wind energy system will be anchored to the ground;

4. A signed statement indicating that the applicant has legal authority to construct, operate, and develop the wind energy system(s) under state, federal and local laws and regulations, including Federal Aviation Administration (FAA), the Michigan Tall Structures Act (Act 259 of 1959, MCL 259.481 *et seq*.), the Michigan Airport Zoning Act (Act 23 of 1950, MCL 259.431 *et seq*.), and state and local building codes. The FAA will issue a signed statement when the precise location(s) has been determined. Building permits will not be issued prior to receiving all signed statements, but a special use permit may be granted;

5. A description of the routes to be used by construction and delivery vehicles and any road improvements that will be necessary in the County to accommodate construction vehicles, equipment or other deliveries, and an agreement or bond which guarantees the repair of damage to public roads or other areas caused by construction of the Wind Energy Facility;

6. Engineering data concerning construction of the tower and its base or foundation, which must be engineered and constructed in such a manner that upon removal of said tower, the soil will be restored to its original condition to a depth of 3 feet;

7. A copy of the lease, or recorded document, with the landowner if the applicant does not own the land for the proposed facility/system. A statement from the landowner of the leased site that he/she will abide by all applicable terms and conditions of the use permit, if approved;

8. A copy of any applicable waiver agreements;

9. A certificate of insurance with a minimum of $1,000,000 liability coverage per incidence, per occurrence shall be required. Each renewal period will require a copy of certificate of insurance be provided to the Township. An expired insurance certificate or an unacceptable liability coverage amount is grounds for revocation of the use permit;

10. Description of operations, including anticipated regular and unscheduled maintenance;

11. Anticipated construction schedule; and

12. Photo exhibits visualizing the proposed facility/system;

G. Information required as part of an administrative site plan review for an On-Site Small Scale Wind Energy Systems with a rated capacity of 10 kW or less, and 75 feet (22.865 meters) or less in total height is as follows:

1. A site plan at an appropriate scale showing the proposed location of the wind energy system, and any structures;

2. Standard drawings of the wind turbine structure including the tower, base, footings, cross section, and connection and certification of the tower and turbine showing compliance with applicable building codes and recognized standards;

3. Plan(s) showing the proposed location of turbine tower(s), underground wiring (including depth of underground wiring), access road, if any, and accessory structures;

4. Documentation from the manufacturer, including full specifications and manufacturer recommended installation procedures; and

5. Proof of applicant's public liability insurance.

H. *Wind turbine/tower height* (total height). The total height of a wind turbine is the distance to the center of the hub of the wind turbine plus the distance to the tip of the turbine blade at its highest point. Generally, the hub height is limited to 275 feet (83.84 meters) from the existing grade unless modification of this maximum height is approved pursuant to the review of the Planning Commission. A Wind Energy Facility is generally limited to 400 feet (121.95 meters) in total height, but the Township Board may waive the height limitation based on the recommendation of the Planning Commission. The applicant must demonstrate compliance with the Michigan Tall Structure Act (Act 259 of 1959, as amended) and FAA guidelines as part of the approval process.

I. *Application materials*. The following must be included and/or be utilized as standards when preparing, submitting, and reviewing an application for a Wind Energy Facility. A site plan that differs from these standards can be approved only upon the review of the Planning Commission and approval from the Township Board that the

modification is in the best interest of the Township and the Applicant. Things that will be considered in addition to the site plan are as follows.

1. Avian Analysis. The applicant may be required to submit an avian study to identify and assess the potential impact of a proposed wind energy facility upon wildlife and endangered species. Sites requiring special scrutiny include bird refuges and other areas where birds are highly concentrated, bat hibernacula, wooded ridge tops that attract wildlife, sites that are frequented by federally listed endangered species of birds and bats, significant bird migration pathways, and areas that have landscape features known to attract large numbers of raptors. The analysis must indicate whether a post construction wildlife mortality study will be conducted and, if not, the reasons why a study does not need to be conducted.

2. Obstructions to Air Traffic. Wind turbines that exceed two hundred (200) feet in total height are considered obstructions to air traffic and are subject to the approval of the Federal Aviation Administration (FAA). The FAA requires that obstructions to air traffic be illuminated with the appropriate FAA approved flashing red, flashing white, or steady burning red light lighting as described in FAA Advisory Circular AC 70/7460-1K, titled Obstruction Lighting and Marking.

3. Visual Appearance, Lighting; Powerlines.

    a. Wind turbines shall be mounted on tubular towers. The appearance of turbines, towers, and buildings must be maintained throughout the life of the turbine pursuant to industry standards.

    b. Blade Glint is prohibited. Wind turbines and tubular towers must be painted a non-reflective, non-obtrusive color, such as grey, white, or off-white. The applicant must submit a paint sample that demonstrates the color, texture, and gloss of the proposed surface coating. The applicant must also submit a certification by the manufacturer stating that the proposed surface coating will not create a reflective surface conducive to blade glint.

    c. Wind Energy Facilities may not be artificially lighted, except to the extent required by the FAA, the Tall Structures Act, other applicable authority, or as otherwise necessary for the reasonable safety and security thereof.

    d. Wind turbines may not be used for displaying any advertising except for reasonable identification of the manufacturer or operator.

    e. The electrical connection may be placed underground within the interior of each parcel at a depth designed to accommodate the existing agricultural land use to the maximum extent practicable. The collection system may be placed overhead adjacent to County roadways, near

substations or points of interconnection to the electric grid, or in other areas as necessary.

f. All electrical components of the wind energy facility must conform to the relevant and applicable local, state, and national codes, and relevant and applicable international standards.

4. Setbacks, Separation and Security.

a. Inhabited structures: Each Wind Energy Facility must be set back from the nearest residence, or other inhabited structure, a distance no less than 1000 feet (304.878 meters). A lesser setback may be approved if the intent of this paragraph would be better served thereby, but only after a written approval from the owner of the inhabited structure and such setback may not be located closer than 2 times the hub height of the wind turbine tower.

b. Property line setbacks: Excepting locations of public roads, drain rights-of-way and parcels with inhabited structures, Wind Energy Facilities and MET Towers are not subject to an internal property line setback, except as provided below for a Non-Participating Property owner. Along the border of the Wind Energy Overlay District, there is a setback distance of no less than 1.2 times (120%) the total height of the wind turbine. Wind turbines and access roads must be located so as to minimize the disruption to agricultural activity and, therefore, the location of towers and access routes is encouraged along internal property lines.

c. Where a turbine location is proposed nearer to an internal property line than 1.2 times (120%) the total height of the wind turbine, an easement must be established on the abutting parcels. MET Towers must be set back a minimum of 1.2 times (120%) their height from any public road, any above-ground public electrical power line or telephone line, and any Non-Participating Property. Guy wires, from their base, may extend no closer than 10 feet to any property line bordering a road, or internally to any Non-Participating Property line.

d. Where a MET Tower is located near any above-ground public electrical power line or telephone line, the guy wires, at their base, the MET Tower may be no closer than fifty (50) feet from the vertical measured distance from the above-ground public electrical power line or telephone line.

e. Waiver Agreement: Where a proposed Wind Energy Facility or MET Tower would be located alongside an internal property line adjacent to a Non-Participating Property, the owner or operator of a Wind Energy Facility or MET Tower must obtain a waiver agreement with the adjacent Non-Participating Property owner for the siting location; otherwise, a

setback of no less than 1.2 times (120%) the total height of the wind turbine applies from the Non-Participating Property line.

f. Public Roads: Each wind turbine must be set back from the nearest public road a distance no less than 400 feet (121.95 meters) or 1.2 times (120%) its total height, whichever is greater, determined at the nearest boundary of the underlying right-of-way for such public road.

g. Communication and electrical lines: each wind turbine must be set back from the nearest above-ground public electrical power line or telephone line a distance no less than 400 feet (121.95 meters) or 1.2 times (120%) its total height, whichever is greater, determined from the existing power line or telephone line.

5. Tower separation: Turbine/tower separation must be based on 1) industry standards, 2) manufacturer recommendation, and 3) the characteristics [prevailing wind, topography, etc.] of the particular site. At a minimum, there must be separation between towers of not less than 3 times (300%) the turbine rotor diameter; and, the Wind Energy Facility must be designed to minimize disruption to farmland activity. Documentation must be submitted by the developer/manufacturer confirming specifications for turbine/tower separation.

6. Following the completion of construction, the applicant must certify that all construction is completed pursuant to the Wind Energy Site Permit and, in addition, that appropriate security will be in place to restrict unauthorized access to Wind Energy Facilities.

7. Where an On-Site Small-Scale Wind Energy System is installed, the minimum setback distance between the wind turbine tower and all surrounding property lines, overhead utility or transmission lines, other wind turbine towers, electrical substations, meteorological towers, public roads and dwellings (other than the owner), must be equal to no less than 1.2 times (120%) of the total wind turbine height as measured from the top of its blade in the most vertical position. No part of the wind energy system structure, including any guy wire anchors, may extend closer than ten (10) feet to the owner's property lines.

8. Sound Pressure Levels.

    a. Audible noise or the sound pressure level from the operation of a Wind Energy Facility may not exceed Fifty Five (55) dBA, or the ambient sound pressure level plus five (5) dBA, whichever is greater, for more than ten percent (10%) of any hour, measured at any residence, or other occupied structure, existing on the date of the approval of the Wind Energy Facility Site Permit. The applicant must be able to provide sound pressure level measurements from a reasonable number of sampled locations at the perimeter and in the interior of the Wind Energy Facility to demonstrate compliance with this standard.

b. The ambient noise level must be expressed in terms of the highest whole number sound pressure level in dBA, which is exceeded for more than five (5) minutes per hour. Ambient noise levels must be measured at a building's exterior of potentially affected residences or other occupied structures. Ambient noise levels must be measured when wind velocities are sufficient to allow wind turbine operations, provided that wind velocities are less than thirty (30) mph at the ambient noise level location.

c. In the event that allowable noise levels of a Wind Energy Facility are exceeded, a waiver to said levels may be approved provided that the following has been accomplished:

    i. Written statements from the affected property owner(s) has been obtained stating that they are aware of the Wind Energy Facility and the noise limitations imposed by this Section, and that they are not opposed to the Township's granting of a waiver to the maximum sound pressure level limits otherwise allowed.

    ii. A permanent noise impact statement must be recorded in the Isabella County Register of Deeds, describing the burdened properties and advising all subsequent owners of the burdened property that noise levels in excess of those otherwise permitted by this Section may exist on or at the burdened property.

d. On-Site Small Scale Wind Energy System turbine towers must be located so that the level of noise produced by wind turbine operation does not exceed fifty five (55) dB(A), measured at any site from the property line, except that the level of noise generated by a wind turbine operation may exceed 55 dB(A) during short term events such as power outages and severe wind storms. If the tower is installed in an area of already higher sound levels, the ambient sound level plus 5 dB(A) will be used.

9. Minimum Ground Clearance.

    a. The vertical distance from the ground level to the tip of a wind generator blade on a Wind Turbine Facility, when the blade is at its lowest point must be at least one hundred (100) feet (30.487 meters).

    b. The vertical distance from the ground level to the tip of a wind generator blade on a On-Site Small Scale Wind Energy System turbine, when the blade is at its lowest point must be at least twenty five (25) feet (7.62 meters).

10. Shadow Flicker. The applicant for a Large-Scale Wind Energy Facility is required to conduct an analysis on potential shadow flicker at nearby occupied structures. Any analysis shall identify the receptor locations of shadow flicker that may be caused by the project and the expected durations of the flicker at each receptor from sun-rise to sun-set over the course of a year. All existing occupied

structures, structures permitted for construction, and roadways must be identified within the model as receptors. Wind Turbines must be sited such that shadow flicker will not fall directly on a receptor or the applicant must provide written documentation describing measures to be taken to eliminate or mitigate the problem. Shadow flicker expected to fall on a roadway may be acceptable, if the following conditions are satisfied:

a. The flicker will not exceed l0 hours per year at any one receptor measured as the sum of those times during which shadow flicker occurs during any calendar year.

b. The traffic volumes are less than 500 vehicles per day on the affected roadway.

c. The flicker will not fall onto an intersection.

11. Signal Interference. No Large-Scale Wind Energy Facility turbine may be installed in any location where its proximity with existing fixed broadcast, retransmission, or reception antennas for radio, television, wireless phone, or other personal communications systems would produce electromagnetic interference with signal transmission or reception. No Large-Scale Wind Energy Facility turbine may be installed in any location along the major axis of an existing microwave communications link where its operation is likely to produce electromagnetic interference in the link's operation.

12. Safety

a. All Large-Scale Wind Energy Facility turbines must be equipped with a redundant braking system. This includes both aerodynamic overspeed controls (including variable pitch, tip, and other similar systems) and mechanical brakes. Mechanical brakes shall be operated in a failsafe mode. Stall regulation is not considered a sufficient braking system for overspeed protection.

b. All collection system wiring must comply with all applicable safety and stray voltage standards.

c. All wind energy towers must have lightning protection.

d. Large-Scale Wind Energy Facility turbine towers shall not be climbable on the exterior.

e. All access doors to wind turbine towers and electrical equipment must be lockable.

f. Appropriate warning signs must be placed on wind turbine towers, electrical equipment, and Wind Energy Facility entrances.

g. The owner/operator of a Wind Energy Facility must post and maintain at each wind turbine system a 24 hour a day manned telephone number in case of emergency.

h. All sub-stations must be fenced to prevent public access and may be installed to a height of eight (8) feet.

i. On-Site Small Scale Wind Energy Systems must have braking, governing, or a feathering system to prevent uncontrolled rotation or over speeding. All ground mounted electrical and control equipment must be labeled and secured to prevent unauthorized access. A tower may not have step bolts or a ladder within eight (8') feet of the ground that is readily accessible to the public.

J. Certification. Any approval for Wind Energy Facilities requires the applicant to provide a post-construction certification that the project complies with applicable codes and industry practices.

K. Inspections. The applicant for a Wind Turbine Facility must submit bi-annual inspection reports to the Planning Commission or its designated officer confirming compliance with applicable codes and industry practices.

The applicant(s) for all On-Site Small Wind Energy Systems, including towers, must comply with all applicable State construction and electrical codes and local building permit requirements. The owner or operator must have received the required inspections from a State licensed inspector showing that the wind energy system complies with all applicable codes before placing it into operation. Interconnected (on-grid) systems must comply with all standards set by the Michigan Public Service Commission.

L. Decommissioning. The applicant for a Large-Scale Wind Energy Facility must submit a decommissioning plan. The plan must include: 1) the anticipated life of the project, 2) the estimated decommissioning costs net of salvage value in current dollars, 3) the method of ensuring that funds will be available for decommissioning and restoration, and 4) the anticipated manner in which the project will be decommissioned and the site restored. Any foundation must be removed to a minimum depth of three (3) feet below grade, by the owner of the facility or its assigns.

Following removal, the location of any remaining wind turbine foundation must be identified on a map as such and recorded with the deed to the property with the Isabella County Register of Deeds.

Any access roads must be removed, cleared, and graded by the owner of the large wind energy facility or its assigns, unless the property owner requests in writing a

desire to maintain the access road. The Township will not be assumed to take ownership of any access road unless through official action of the Township Board.

A performance bond or equivalent financial instrument must be posted in an amount determined by the Township to be utilized in the event the decommissioning plan needs to be enforced with respect to the tower removal, site restoration, etc. The bond must be in favor of Chippewa Township and may be provided jointly as a single instrument for multiple townships within a single Large-Scale Wind Energy Facility, provided that such single instrument is in an amount of at least $1 million and contains a replenishment obligation.

M. Indemnification. The owner of a Large-Scale Wind Energy Facility must defend, indemnify, and hold harmless the Township and their officials from and against all claims, demands, losses, suits, causes of action, damages, injuries, costs, expenses, and liabilities whatsoever, including attorney fees, arising out of the acts or omissions of the operator concerning the operation of the Large-Scale Wind Energy Facility turbines, without limitation, whether said liability is premised on contract or tort.

N. Complaint Resolution. The applicant for a Large-Scale Wind Energy Facility must develop a process to resolve complaints from nearby residents concerning the construction or operation of a project. The process may use an independent mediator or arbitrator and must include a time limit for acting on a complaint. The process may not preclude the Township from acting on a complaint. During the construction process, the applicant must maintain a telephone number during business hours where nearby residents can reach a project representative.

O. Applicable Construction Codes, Standards, State and Federal Regulations. The following construction codes, standards, and State and Federal regulations are applicable to this ordinance by reference and all wind energy systems sited within the Township shall comply with these standards:

Federal Aviation Administration requirements.
Michigan Airport Zoning Act (Public Act 23 of 1950, MCL 259.431 et seq.)
Michigan Tall Structures Act (Public Act 259 of 1959, MCL 259.481 et seq.)
Michigan Public Service Commission standards for inter-connection.
Federal Energy Regulatory Commission standards.
Michigan Building Code of 2006
National Electrical Code of 2005
Michigan Residential Code of 2006

Section 3. Validity and Severability.

If any portion of this Ordinance is found invalid for any reason, such holding will not affect the validity of the remaining portions of this Ordinance.

Section 4. Repealer.

Any and all ordinances inconsistent with the provisions of this Ordinance are repealed to the extent necessary to give this Ordinance full force and effect.

Section 5. Effective Date.

This Ordinance takes effect seven days after publication as required by the Michigan Zoning Enabling Act (PA 110 of 2006, as amended).

The motion was made by_____and supported by_____

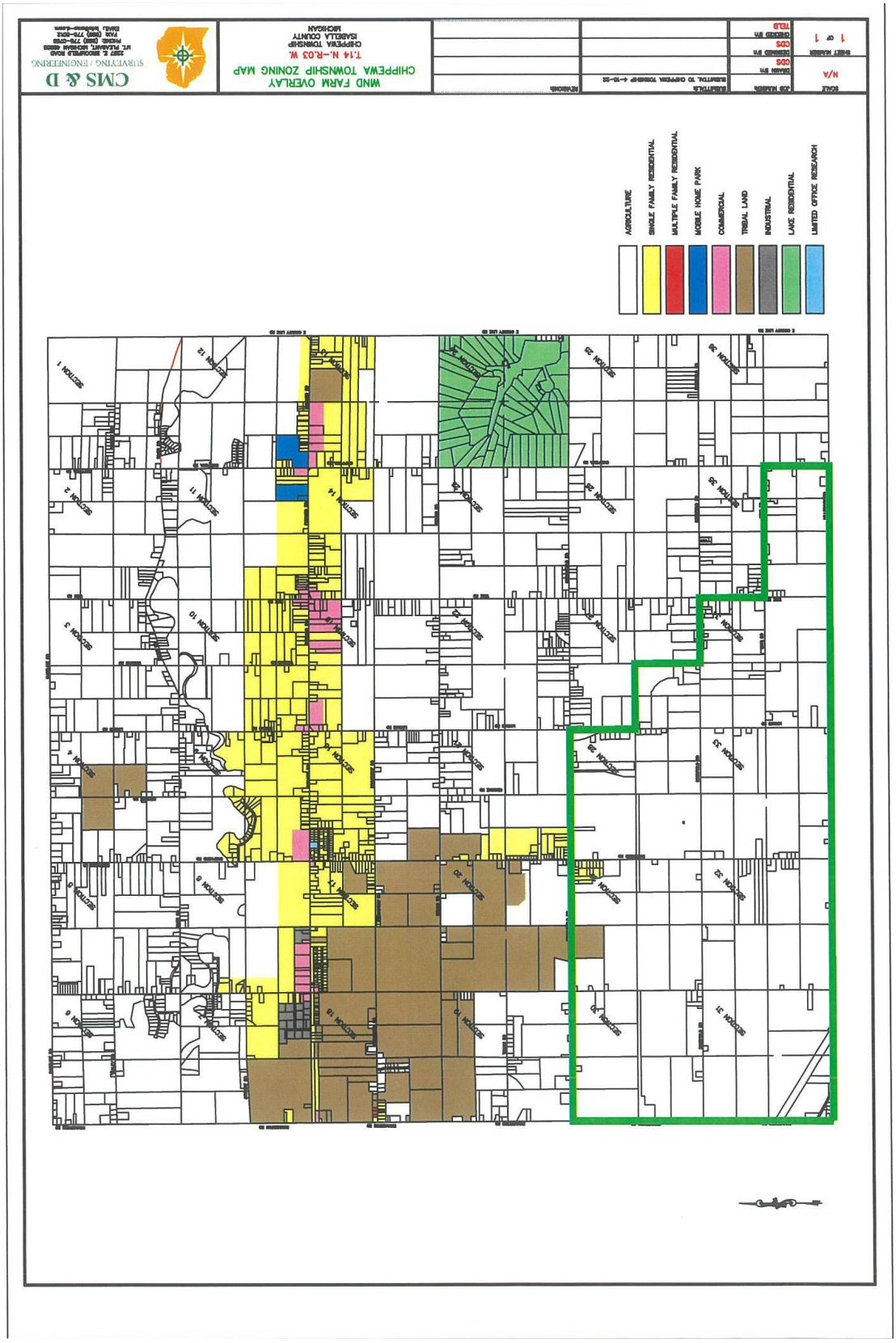
The motion carried with the following roll call vote of_____Yeas and
_____Nays
.....Absent Yea Votes: Nay Votes

STATE OF MICHIGAN, COUNTY OF Isabella, TOWNSHIP OF Chippewa

I do hereby certify that the above Amendment of the Chippewa Township Zoning Ordinance is a true and correct copy of the Ordinance adopted by the Chippewa Township Planning Commission present on _____.

Frances B. Ash,
Chippewa Township Clerk

MAP A


WIND FARM OVERLAY
CHIPPEWA TOWNSHIP ZONING MAP
T.14 N.–R.03 W.
CHIPPEWA TOWNSHIP
ISABELLA COUNTY
MICHIGAN
CMS & D
SURVEYING / ENGINEERING
AGRICULTURE
SINGLE FAMILY RESIDENTIAL
MULTIPLE FAMILY RESIDENTIAL
MOBILE HOME PARK
COMMERCIAL
TRIBAL LAND
INDUSTRIAL
LAKE RESIDENTIAL
LIMITED OFFICE RESEARCH