

TOWNSHIP OF DOUGLASS
COUNTY OF MONTCALM

Minutes of a regular meeting of the Township Board of the Township of Douglass, Montcalm County, Michigan, held in the Douglass Township Hall, located at 3521 W. McBrides Road, Stanton, Michigan, on the ___ day of _____, 2021, at 7:00 p.m., Local Time.

PRESENT: Members: _____

ABSENT: Members: _____


The following ordinance was offered by Member _____ and seconded by Member _____.

ORDINANCE NO. ____

AN ORDINANCE TO AMEND THE ZONING ORDINANCE OF THE TOWNSHIP OF DOUGLASS TO PROVIDE FOR PUBLIC UTILITY FACILITIES AND WIND ENERGY CONVERSION SYSTEMS

THE TOWNSHIP OF DOUGLASS ORDAINS:

Section 1. Purpose. The Township of Douglass (the “Township”), Montcalm County, Michigan, adopts the following revisions to the Township's Zoning Ordinance for the health, safety, and welfare of Township residents.

Section 2. Amendment of Section ***** Section ***** of the Zoning Ordinance is hereby amended to read as follows: 

Section ***** **AG Zone: Wind Energy Zone** [S JL1]

A. Intent and Purpose

1. Purpose. The most common and prevalent land use in Douglass Township is agricultural, and its preservation has been an ongoing goal within the community for many years. This Ordinance is intended to protect the health, safety and welfare of the residents of the Township and to encourage the safe, effective, efficient and orderly development and operation of wind energy resources in the Township while

preserving and protecting the character and the stability of residential, agricultural, recreational, commercial and other areas within the Township.

2. With advances in technology of “wind energy development” in general, specific locations within the Township may support the implementation of Utility Grid Wind Energy Systems. To prepare for potential “wind development projects” within the Township, this Ordinance will require such developments to obtain a Special Land Use Permit to ensure wind development sites are appropriately located so as to protect the character and stability of the Township’s residential, agricultural, recreational, commercial and/or industrial areas and character while simultaneously preserving and protecting the Township’s important and sensitive environmental and ecological assets and areas, open space, viewscales and aesthetics, wetlands, and other ecological and environmentally sensitive areas. Accordingly, regulations are necessary to further the above goals and, equally important, to minimize the potential adverse effects of this emerging land use on adjacent properties.

B. Findings

1. This Ordinance has been developed with the intention of obtaining an appropriate balance between the desire for renewable energy resources and the need to protect the public health, safety, and welfare of the community and the character and stability of the Township’s residential, agricultural, recreational, commercial and/or industrial areas and preserving and protecting the Township’s important and sensitive environmental and ecological assets and areas, open space, viewscales and aesthetics, wetlands, and other ecological and environmentally sensitive areas.
2. Based on evidence presented in this State and others concerning the adverse secondary effects of wind energy systems on communities, including, but not limited to, findings from the Wind Turbine Health Impact Study: Report of Independent Expert Panel, prepared for the Massachusetts Department of Environmental Protection (2012); Strategic Health Impact Assessment on Wind Energy Development in Oregon, prepared for the State of Oregon (2012); Guidelines for Community Noise prepared for the World Health Organization (April 1999); Potential impact on the Public’s Health from Sound Associated with Wind Turbine Facilities, prepared for the State of Vermont’s Department of Health (2010); Analysis of the Research on the Health Effects from Wind Turbines, Including Effects From Noise, prepared for the Maine Department of Health and Human Services (2012); Jeffrey et al, “Adverse Health Effects of Industrial Wind Turbines,” 59 Can Fam Physician 473-475 (2013); Salt, A., and Kaltenbach, J, Infrasound From Wind Turbines Could Affect Humans, 31(4) Bulletin Science, Technology and Society, 296-302 (2011), the following are among the potential harmful secondary effects of wind energy systems:
 - a. Falling ice or “ice throws” is physically harmful and measures should be taken to protect the public from the risk of “ice throws.”

- b. Nighttime wind turbine noise can cause sleep disturbance. Generally, sleep disturbance can adversely affect mood, cognitive functioning and one's overall sense of health and well-being. Chronic stress and sleep disturbance could increase the risk for cardiovascular disease, decreased immune function, endocrine disorders, and mental illness. In addition, possible health effects include increased heart rate, insomnia, fatigue, accidents, reduction in performance and depression.
- c. Sound from wind energy facilities could potentially impact people's health and well-being if it increases background sound levels by more than 10 dB(A) or results in long term outdoor community sound levels above 35-40 dB(A).
- d. There is evidence that wind turbine sound is more noticeable, annoying and disturbing than other community industrial sounds at the same level of loudness.
- e. People who live near wind turbines are more likely to be impacted by wind turbines than would those far away.
- f. Alternating changes in light intensity caused by the moving blades of wind turbines on the ground and stationary objects, also known as shadow flicker, can cause health issues.
- g. The Township desires to protect ecological and environmentally sensitive areas in the Township, including, but not limited to, habitats for endangered species or heavily used migration routes for species of waterfowl and other migratory birds (some of which are protected species). Thus, the Township has determined that wind development sites can adversely impact wildlife and their habitats and makes evaluation of proposed wind development sites essential. The Township finds that any wind development sites should have the lowest potential for negative impacts on wildlife resources and avoid locations with higher concentrations of migratory birds. Further, any wind development sites that would fragment sensitive habitat areas, like rivers, streams, and wetlands, should be avoided^[SJL2].
- h. The general welfare, health, and safety of the citizens of the Township will be promoted by the enactment of this ordinance.


C. Definitions^[SJL3]



1. **Adverse Sound Character:** Sound that causes building rattle, is impulsive, tonal, or has low- frequency bass rumble.
2. Aircraft Detection Lighting System – A lighting system with continuous 360-degree radar surveillance of the airspace around wind farms, communications towers, power lines and installations that require aircraft obstruction lighting from

the ground level to above aircraft flight altitudes, automatically issuing signals to activate obstruction lighting when aircraft are detected at a defined outer perimeter.

- ~~3.~~ **Ambient:** Ambient is defined as the sound pressure level exceeded 90% of the time or L90. ~~Ambient is defined as the sound pressure level exceeded 90% of the time over a 96-hour measurement period with daytime/nighttime division.~~
- ~~4.3.~~ **ANSI:** the American National Standards Institute.
- ~~5.4.~~ **Audible:** The varying degrees of sound perception as reported by affidavit, including, but not limited to, just perceptible, audible, clearly audible, and objectionable.
- ~~5.~~ **A-Weighted Sound Level:** The sound pressure level in decibels as measured on a sound level meter using the A-weighting network, a method for weighting the frequency spectrum to mimic the human ear. Expressed as dB(A) or dBA.
- ~~6.~~ **Background Sound:** The all-encompassing sound associated with a given environment without contribution from the source or sources of interest, as defined by ANSI S12.9 Part 3.
- ~~7.~~ **Continuous Background Sound:** Background sound measured during a measurement period, after excluding the contribution of transient background sounds, as defined by ANSI S12.9 Part 3.
- ~~6.8.~~ **dB(A):** The sound pressure level in decibels. Refers to the “a” weighted scale defined by ANSI. ~~The A-weighted sound level.~~
- ~~7.9.~~ **dB(C):** The C-weighted sound level.
- ~~8.~~ **Decibel (dB):** The unit of measure used to express the magnitude of sound pressure and sound intensity. ~~The practical unit of measurement for sound pressure level; the number of decibels of a measured sound is equal to 20 times the logarithm to the base 10 of the ratio of the sound pressure of the measured sound to the sound pressure of a standard sound (20 microPascals); abbreviated “dB.”~~
- ~~10.~~ **Decommissioning:** The termination of use of a Utility Grid Wind Energy System or a portion of a facility.
- ~~11.~~ **Equivalent A-weighted Continuous Sound Level:** The level of a steady sound which, in a stated time period and at a stated location, has the same A-weighted sound energy as the time varying sound, denoted as Leq A, and expressed as dBA.
- ~~9.12.~~ **Emergency work:** Any work or action necessary to deliver essential services in an emergency situation, including, but not limited to, repairing water, gas, electricity, telephone and sewer facilities and public transportation, removing fallen trees on public rights-of-way, and abating life-threatening conditions.


- ~~10.~~13. **Equivalent Sound Level (or Leq):** The sound level measured in decibels with an integrating sound level meter and averaged on an energy basis over a specific duration.
- ~~11.~~14. **Excessive noise:** Sound that is determined by ordinance to be too loud or unnecessary or creates a noise disturbance.
15. Frequency: The number of oscillations or cycles per unit of time, expressed as Hertz (Hz).
- ~~12.~~16. **GIS:** Geographic Information System and is comparable to GPS (global positioning system) coordinates.
17. Hertz: The frequency of sound expressed by cycles per second.
18. Hub Height: The distance from the ground level base of the structure to the center of the turbine hub or horizontal rotor shaft.
19. IEC: International Electrotechnical Commission. The IEC is the leading global organization that prepares and publishes international standards for all electrical, electronic and related technologies.
20. Inhabited Structure: Any existing structure useable for living or non-agricultural purposes, which includes but is not limited to, sleeping, eating, cooking, recreation, office, office storage, or any combination thereof. An area used only for storage incidental to a residential use, including agricultural barns, is not included in this definition.
21. ISO: International Organization for Standardization. ISO is a network of the national standards institutes of 156 countries
- ~~13.~~22. **L10:** Is the noise level exceeded for 10% of the time of the measurement duration. This is often used to give an indication of the upper limit of fluctuating noise, such as that from road traffic.
- ~~14.~~23. **L90:** Is the noise level exceeded for 90% of the time of the measurement duration and is commonly used to determine ambient or background noise level.
- ~~15.~~24. **Noise:** A sound, especially one that is loud or unpleasant or that causes disturbance. Any airborne sounds of such level and duration as to be or tend to be injurious to human health or welfare (well-being) or that would unreasonably interfere with activities or the enjoyment of life or property.
25. Noise Sensitive Facility: An inhabited structure, school, hospital, church, public library, or other area designated by the Planning Commission.
- ~~16.~~26. **Non-Participating ~~Landowner~~Parcel^{SJL4}:** Any parcel of land which does not meet the requirements to be a participating parcel. ~~A landowner who has not signed a contract~~ 

~~or any legal document with the WECS Applicant and has not given up rights to their owned land to the WECS Applicant.~~

27. Octave Band: The frequency interval where the upper frequency is twice the lower frequency.

28. One-Third Octave Band: The frequency interval where the upper frequency is the lower frequency times the cube root of two.

~~17.29. Participating- Parcel Landowner [SIL5]: A landowner who has leased land to the WECS Applicant, received financial remuneration from the WECS Applicant, recorded with the Montcalm County Register of Deeds said agreement, and has a contract with the WECS Applicant. A Participating Landowner may also be called a WECS contract leaseholder. A Participating Landowner may or may not have turbines or infrastructure located on their property. Any parcel of land that participates by ownership, lease or easement agreement, or other contractual agreement, with a person or entity construction, operating, or submitting a Special Land Use Permit application for a Utility Grid Wind Energy System.~~

30. Pasquill Stability Class 

~~18. [SIL6]~~

~~19.31. Quiet Rural or Residential property: Any property where there is an inherent expectation of quiet, including, but not limited to, all residential, business, or agricultural- zoned properties, single family homes, and retirement homes.~~

32. 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.

~~20.33. SCADA (supervisory control and data acquisition): A temporary or permanent freestanding tower containing instrumentation such as anemometers that is designed to provide present moment wind data for use by the supervisory control and data acquisition (SCADA) system. A computer system that monitors and controls WECS units.~~

34. Shadow Flicker: Alternating changes in light intensity caused by the moving blade of a wind energy system casting shadows on the ground and stationary objects, such as a window at an inhabited structure.

~~21.35. Sound level meter:~~ An instrument for the measurement of sound levels that meets the ANSI requirements of S1.4-1983 (or later revision) for Type 1 or 2 instruments. For frequency analysis, octave and 1/3 octave filters shall conform to ANSI S1.11-1986 (or later revision).

36. Sound Power: The rate per unit time at which sound energy is radiated, expressed as watts (W).

37. Sound Power Level: Ten times the logarithm to the base 10, of the ratio of a given sound power to the reference sound power of 1 picowatt, expressed as decibels (dB).
38. Sound Pressure The difference at a given point between the pressure produced by sound energy and the atmospheric pressure, expressed as pascals (Pa).
39. Sound Pressure Level: Twenty times the logarithm to the base 10, of the ratio of the root-mean-square sound pressure to the reference pressure of twenty micropascels, expressed as decibels (dB). Unless expressed with reference to a specific weighing network (such as dBA), the unit dB shall refer to an un-weighted measurement
- 22.40. **Survival Wind Speed:** The maximum wind speed, as designated by the WECS manufacturer, at which a WECS in unattended operation (not necessarily producing power) is designed to survive without damage to any structural equipment or loss of the ability to function normally.
- 23.41. **Tip Height:** The height of the turbine with a blade at the highest vertical point.
- 24.42. **WECS Applicant:** The person, firm, corporation, company, limited liability corporation or other entity, as well as the Applicant's successors, assigns and/or transferees, which applies for Township approval (permit) to construct a WECS and WECS Testing Facility. An Applicant must have the legal authority to represent and bind the Participating Landowner, or lessee, and -who will construct, own, and/or operate the WECS or Testing Facility. The duties and obligations regarding a zoning approval for any approved WECS or Testing Facility shall be with the WECS or Testing Facility owner/operator, and jointly and severally with the owner, operator, ~~and lessee~~ of the WECS or Testing Facility if different than the WECS owner.
25. ~~—~~ **Wind Energy Conversion System (WECS):** A wind energy conversion system which converts wind energy into electricity through the use of a wind turbine generator and includes the turbine, nacelle, blades, and tower as well as related electrical equipment.
~~Any combination of the following:~~
26. ~~—~~ ~~A mill or machine operated by wind acting on oblique vanes or sails that radiate from a horizontal shaft;~~
27. ~~—~~ ~~A surface area such as a blade, rotor, or similar device, either variable or fixed, for utilizing the wind for electrical or mechanical power;~~
28. ~~—~~ ~~A shaft, gearing, belt, or coupling utilized to convert the rotation of the surface area into a form suitable for driving a generator, alternator, or other electricity-producing device;~~
29. ~~—~~ ~~The generator, alternator, or another device to convert the mechanical energy of the surface area into electrical energy;~~

~~30. The tower, pylon, or other structure upon which any, all, or some combination of the above are mounted.~~

~~31.43. Any other components not listed above but associated with the normal construction, operation, and maintenance of a wind energy conversion system.~~

~~32.44.~~ Wind Energy Conversion System (WECS) Testing Facility: A structure and equipment such as a meteorological tower for the collection of wind data and other meteorological data and transmission to a collection source, shall not be deemed to be a communication tower.

45. Utility Grid Wind Energy System: A system of WECS and the associated ancillary facilities which is designed and built to provide electricity to the electric utility grid.

D. Public Utilities. Transmission lines, sewer lines, water mains, pumping stations, substations, poles, and related equipment owned or provided by public utility companies or by the Township shall be permitted in all zoning districts. Any equipment enclosures, substations, equipment storage buildings or similar structures shall be subject to the site plan review requirements of Article 19. Any office, manufacturing, or sales buildings must be located in the Commercial or Industrial zoning district. All ~~communication towers or~~ commercial wind energy conversion systems operated by public utility companies shall be subject to the requirements of section “Commercial Wind Energy Conversion Systems (WECS)”. Unless specifically noted, all WECS permit information and supporting documentation shall be allocated reasonable Township review time based on complexity and outside expertise review. Requirements shall be presented in written form and allow minimum thirty (30) days before Township discussion. Township may at its discretion review provided documents sooner than thirty (30) days. Providing documents without time for Planning Commission to review shall result in permit denial and require WECS applicant to reapply. [SJL7] Each ordinance section requires approval by the Planning Commission unless otherwise noted. Township shall review all documentation to assure that residents’ health, welfare, and safety are not negatively impinged.

E. Exempt Towers and Wind Energy Conversion Systems (WECS). Communication towers, antennas, wind energy conversion systems (windmills, turbines) and related facilities located on the premises of a farm, home, or business and which do not primarily involve the sale of electricity or communication services off the premises shall be exempt from the requirements of section “Commercial Wind Energy Conversion Systems (WECS)”. However, exempt towers and WECS are subject to the following noise regulations of the Douglass Township Zoning Ordinance: **Article 2, Section 2.42 and Article 3, Section 3.12.** Such units shall be allowed as a permitted accessory use in all zoning districts, providing the electricity or communication services are primarily used on site for a farm, home or business.

1. In the case of a WECS, the total height with the blade fully extended (Tip Height) shall not exceed sixty-five (65) feet, and the minimum clearance from ground level to the blade at its lowest point shall be twenty (20) feet.



2. The minimum set-back from property lines and road right of way lines shall be equal to 3 times the Tip Height of the unit (WECS blade at its highest point).
3. Construction Codes, Towers, & Interconnection Standards: On-Site Use wind energy systems including towers shall comply with all applicable state construction and electrical codes and local building permit requirements. On-Site Use wind energy systems including towers shall comply with Federal Aviation Administration requirements, the Michigan Airport Zoning Act (Public Act 23 of 1950, MCL 259.431 et seq.), the Michigan Tall Structures Act (Public Act 259 of 1959, MCL 259.481 et seq.), and local jurisdiction airport overlay zone regulations. An interconnected On-Site Use wind energy system shall comply with Michigan Public Service Commission and Federal Energy Regulatory Commission standards. Off-grid systems are exempt from this requirement.
- ~~4.~~ Safety: An On-Site Use wind energy system shall have automatic braking, governing, or a feathering system to prevent uncontrolled rotation or over speeding. All wind towers shall have lightning protection. If a tower is supported by guy wires, the wires shall be clearly visible to a height of at least six feet above the guy wire anchors. The minimum vertical blade tip clearance from grade shall be 20 feet for a wind energy system employing a horizontal axis rotor.

F. Commercial Wind Energy Conversion Systems (WECS). Wind energy conversion systems and WECS testing facilities, other than those exempted under section (e) “Exempt Towers and Wind Energy Conversion Systems (WECS)”, shall only be allowed as special land uses in the A-1 Exclusive Agricultural Zoning District. An application for a special land use permit shall be filed with the Township pursuant to Article 17 as to Special Land Use approvals. Supporting data and documentation must be submitted in their entirety at time of application. Applicant shall provide to the Township updated documents throughout the lifespan of the WECS upon request by the Township Board or Planning Commission. Applicant shall also include the following:

1. Procedure: The Planning Commission review of a Special Land Use Permit for a Utility Grid Wind Energy System is a two-step process. The first step is the public hearing and decision by the Planning Commission, per the procedures for review in Section ##. The second step, which may occur at a separate meeting, is the site plan review process as described in Section ##.

~~1.~~ Permitting Costs: An escrow account shall be set up when the Applicant applies for a Special Use Permit for a WECS and WECS Testing Facilities. The monetary amount filed by the Applicant with the Township shall be in an amount in accordance with the Township Escrow Policy to cover all reasonable costs and expenses associated with the special use zoning review and approval process, which costs can include, but are not limited to, fees of the Township Attorney, Township Planner, and Township Engineer, as well as any reports or studies which the Township anticipates it may have done related to the zoning review process for the particular application. At submission for the special use permit application, the Township Zoning Administrator to establish the initial escrow based on project

~~size. . A minimum of \$15,000 in an escrow amount shall include regularly established fees.~~ [S.J.L.8] At any point during the zoning review process, the Township may require that the Applicant place additional monies into the Township escrow should the existing escrow amount filed by the Applicant prove insufficient. If the escrow account needs replenishing and the Applicant refuses to do so within fourteen (14) days after receiving notice, the zoning review and approval process shall cease until and unless the Applicant makes the required escrow deposit. Any escrow amounts which are in excess of actual costs shall be returned to the Applicant within ninety (90) days of permitting process completion. An itemized billing of all expenses shall be provided to the Applicant. The Township shall hire qualified professionals for each and any of the technical fields associated with the Special Use Permit, such as, but not limited to, electrical, acoustics, environment, economics, wildlife, health, and land- use.

2. ~~Environmental Impact Assessments:~~ The Applicant shall fund ~~an environmental assessment or impact study and other~~ relevant report(s) or studies ~~(including, but not limited to, assessing the potential impact on endangered species, eagles, birds, and/or other wildlife)~~ [S.J.L.9] as required by the Township for review. ~~Studies shall be limited to the area within three (3) miles outside of the Township boundaries.~~ [S.J.L.10].
 - a. The Applicant shall perform pre-construction ground water testing on all wells located within the required setback distance of a proposed turbine location and located on all adjacent properties. The operation of the WECS shall not negatively impact any groundwater well or groundwater source in the vicinity of the WECS. Complaints regarding impact of the WESC on groundwater sources shall be promptly forwarded to the Township Board as part of the complaint resolution process. The Township Board will consider proof of a negative impact arising from the installation and/or operation of the WECS on a groundwater well or source in the vicinity of the WECS as a violation of the conditions of the special use approval.
 - b. The Applicant shall perform pre-construction soil testing on soil located within the required setback distance of a proposed turbine location and located on all adjacent properties. The scope and depths of all testing are to be determined by a third-party geologist acceptable to the township. The operation of the WECS shall not negatively impact any soil in the vicinity of the WECS. Complaints regarding impact of the WESC on soil shall be promptly forwarded to the Township Board as part of the complaint resolution process. The Township Board will consider proof of a negative impact arising from the installation and/or operation of the WECS on a soil in the vicinity of the WECS as a violation of the conditions of the special use approval.
 - c. A background (ambient) sound study shall be performed and a report provided which indicates Leq 1 second, L10, and L90 sound levels using A-weighting and C-weighting. Data shall be collected at midpoints along property lines of adjoining Non-Participating and Landowners

Participating. Measurement procedures are to follow the most recent versions of ANSI S12.18 and ANSI S12.9, Part 3 guideline (with an observer present). Measurements shall be taken using an ANSI or IEC Type 1 Precision Integrating Sound Level Meter. The study must include a minimum of a four-day (96 hour) testing period, include one Sunday, and divide data by daytime and nighttime. The sound background study shall report for the period of the monitoring topography, temperature, weather patterns, sources of ambient sound, and prevailing wind direction.

- d. Economic Impact: The Applicant shall fund and provide an economic impact study for the area affected by the WECS project using an agreed upon third party^[SJL11]. Such a study shall include probable financial impact regarding jobs, tax revenue, and lease payments. The Applicant shall fund and provide a separate economic impact study of property values, at a minimum setback distances of nonparticipating property values. Business and residential growth potential shall be considered.

3. Site Plan^[SJL12]: The Applicant shall submit a site plan in full compliance with Article 19 of this Ordinance. The project site plans shall also include the following:

- a. The project area boundaries, including parcel lines, dimensions, and participating and non-participating properties.
- b. Names and parcel identification numbers of each parcel within the WECS boundary, including participating and non-participating parcels.
- c. The location, height, and dimension of all proposed structures and fencing.
- d. The location, grade, dimensions, and surface material of all temporary and permanent on-site access roads. This information should include a maintenance plan. Construction of the Access Driveway that serves a WECS or Testing Facility is required to protect the public health, safety, and welfare by offering an adequate means by which governmental agencies may readily access the site in the event of an emergency. All such roads shall be constructed to allow access at all times by any emergency service vehicles, such as fire, police, and repair. Access driveways shall be no closer than 300' to adjacent property nonparticipating parcels unless Applicant provides documentation in the form of a signed approval by affected Participating and Non-Participating Landowners. Such approval shall be recorded with Montcalm County Register of Deeds using only the WECS Waiver Form Revision 1 or later.
- e. Existing topography
- f. Water bodies, wetlands, waterways, and drainage channels.
- g. All new infrastructure related to the project.
- h. A description of the routes to be used by construction and delivery vehicles and of any road improvements that will be necessary in the Township to accommodate construction vehicles, equipment, or other deliveries, and an agreement or bond which guarantees the repair of damage to public roads and other areas caused by construction of the WECS.
- i. 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 six feet.
- j. Anticipated construction schedule
- k. Description of operations, including anticipated regular and unscheduled

[maintenance.](#)

The Applicant shall also submit a written explanation of the design characteristics and the ability of the structure(s) and attendant facilities to withstand winds, ice and other naturally occurring hazards, as well as information regarding health, welfare and safety in areas including, but not limited to, noise, vibration, shadow flicker, and blade ice deposits. This information shall also address the potential for the WECS to structurally fail or collapse, and what results should be expected in such an event. [SJL13] ~~Additional requirements for a WECS site plan are as follows:~~

~~e.a. Building Siting: GIS locations and height of all proposed buildings, structures, electrical lines, towers, guy wires, guy wire anchors, security fencing, and other aboveground structures associated with the WECS.~~

~~f.b. Nearby Building Siting: GIS ~~l~~ocations and height of all adjacent buildings, structures, and above ground utilities, located within two (2) times minimum set-back distance for Non-Participating Landowners where the proposed WECS and WECS Testing Facility will be located. The location of all existing and proposed overhead and underground electrical transmission or distribution lines, shall be shown, whether to be utilized or not with the WECS or Testing Facility, located on the lot or parcel involved.~~

~~g.c. Access Driveways: GIS location of WECS and Testing Facility access driveways together with details regarding dimensions, composition, and maintenance of the proposed driveways. The site plan shall include traffic routes, time of the year use, staging areas, and any other physical sites related to WECS. [SJL14] ~~Construction of the Access Driveway that serves a WECS or Testing Facility is required to protect the public health, safety, and welfare by offering an adequate means by which governmental agencies may readily access the site in the event of an emergency. All such roads shall be constructed to allow access at all times by any emergency service vehicles, such as fire, police, and repair. Access driveways shall be no closer than 300' to adjacent property unless Applicant provides documentation in the form of a signed approval by affected Participating and Non-Participating Landowners. Such approval shall be recorded with Montcalm County Register of Deeds using only the WECS Waiver Form Revision 1 or later.~~~~

d. ~~Facility~~ Security:

(1) All WECS shall be designed to prevent unauthorized access to electrical and mechanical components and

shall have access doors that are kept securely locked at all times when service personnel are not present.

(2) All spent lubricants and cooling fluids shall be properly and safely removed in a timely manner from the site of the WECS.

~~h.e. Security measures shall be sufficient to prevent unauthorized trespass and to protect health, welfare, and safety.~~

~~i.f. Maintenance Program and Resolution Program: The Applicant shall provide to the Township a written description of the problem and failure program to be used to resolve the any WECS and WECS Testing Facility issues, including procedures and schedules for removal when determined to be obsolete or abandoned.~~

g. Site Lighting: A lighting plan for each WECS and Testing Facility. Such plan must describe all lighting that will be utilized and documentation that FAA requirements are met. ~~RADAR activated lighting shall be utilized.~~ Such a plan shall include but is not limited to, the planned number and location of lights, light color, activation methods, ~~and effect on Township residents and~~ whether any lights blink. Due to complexity in describing lighting effects for health, welfare, and safety, Applicant shall, if available, provide example locations with product descriptions, where similar, or proposed, lighting solutions are currently deployed. ~~Lighting shall be fully shielded from ground, be FAA compliant, and be of most current design, to minimize lighting blinking and brightness nuisance.~~ Lighting shall follow the following standards:

1. WECS shall comply with Federal Aviation Administration requirements, the Michigan Airport Zoning Act (Public Act 23 of 1950, MCL 259.431 et seq.), the Michigan Tall Structures Act (Public Act 259 of 1959, MCL 259.481 et seq.), and local jurisdiction airport overlay zone regulations. Utility Grid wind energy systems shall comply with applicable utility, Michigan Public Service Commission, and Federal Energy Regulatory Commission interconnection standards.

2. The minimum FAA lighting standards shall not be exceeded. All tower lighting required by the FAA shall be shielded to the maximum extent possible to reduce glare and visibility from the ground. The tower shaft shall not be illuminated unless required by the FAA.

3. All applicants shall be required to apply for Aircraft Detection Lighting System (ADLS). If approved by the FAA, the applicant shall be required to install ADLS.

1. Applicant shall provide copies to the Planning Commission of steps to implement ADLS from the FAA.

1. Applicant shall be required to provide the Township with ADLS application documentation and approval information as well as an implementation schedule.

~~j. Proof of any applicable documents recorded at the Montcalm County Register of Deeds utilizing Article 1522 WECS Waiver Form Revision 1 (or later).~~

~~k.h.~~ h. If there are any changes to any site plan for a WECS or Testing Facility, including any changes in road locations, road access, the location of accessory structure, and/or the location of any turbine, a revised site plan shall be submitted and approved prior to construction [SJL15]. Any revised site plan must provide revised calculations to address all of the items required under the original plan submission (i.e. setbacks, shadow flicker, noise, etc.).

~~h.i.~~ i. Supplemental: Additional detail(s) and information as requested by the Planning Commission.

~~3.4.~~ 4. Site Insurance: The Applicant shall provide proof of insurance for each WECS at all times for at least ~~\$10,000,000~~ \$1 - \$3 million for liability, property damage, livestock damage, and future earnings loss. Applicant shall provide yearly proof of insurance to Township that confirms active coverage for the Applicant, Township, ~~Participating Landowners, and Non-Participating Landowners. Such insurance shall include the township, all participating landowners and all bordering landowners as additional named insured.~~ All said policies shall provide notice to all such additional insured in the event that such policies are terminated or cancelled. Aggregate policies are allowed if minimum coverage per WECS is satisfied and coverage is provided for every site where Applicant's equipment is located.

5. ~~Removal Insurance (decommissioning)~~ Decommissioning:

a. The applicant shall submit a decommissioning plan. The plan shall include:

- (1) The anticipated life of the project
- (2) The estimated decommissioning costs which does not include salvage value in current dollars
- (3) The method of ensuring funds will be available for decommissioning and restoration
- (4) The anticipated manner in which the project will be decommissioned and the site restored
- (5) A provision to give notice to the Township one year in advance of decommissioning. A surety bond to

assure payment of the cost of decommissioning may be required.

(6) The standard for inactivity shall be 12 months. Inactivity means that the utility grid wind energy system has ceased to generate electric power.

(7) A clause which requires the applicant, owner, or operator to review the value of the decommissioning bond or surety on a 5-year basis based on the cost of inflation.

b. At the time of decommissioning the applicant, owner, or operator is required to do the following:

(1) The applicant shall be responsible for making repairs to any public roads damaged by the construction and/or deconstruction of the Utility Grid Wind Energy System

(2) Remove all towers and other components of the system

(3) Remove all foundations and underground components to a depth of not less than ## feet below ground level.

(4) Remove all roads and driveways not accepted for use by either the township or the property owner.

(5) Restore the site to previous condition prior to the installation of the WECS as indicated on the approved site plan. This area shall be restored so it will properly/naturally drain. It shall be filled with like soil that was removed, including top soil, and restored to a state compatible with the surrounding land. Restoration must be completed within 90 days of abandonment.

~~a-c.~~ To ensure proper removal of each WECS structure and foundation in its entirety when it is abandoned or non-operational, application shall include a proof of the financial security in effect before permit is approved. The security shall be licensed in the State of Michigan and be in the form of cash deposit, irrevocable bank letters of credit, or bond in a form approved by the Township Board and Township Attorney. It established the obligation of the applicant/owner to remove the structure in a timely manner. Additionally, sSecurity is based on a per turbine cost each WECS and is to

be backed by owner assets, operator assets, and/or parent company assets, ~~and leaseholder assets approved by the Planning Commission.~~

- (1) The amount of each WECS security guarantee ~~(surety)~~ shall be the average of at least two independent (of Applicant) ~~demolition (removal)~~ decommissioning quotes, obtained by the Planning Commission and approved by the Board, plus 10%. If the quantity of quotes obtained is two, the formula shall be (quote1 + quote2)/2 * 1.10. ~~[SJL16] Salvage value shall not be included in the cost of removal and restoration. The security guarantee shall be no less than \$1,000,000 per WECS. Quotes shall be based on individual WECS removal and shall not group multiple WECS simultaneous removals together. Quotes shall be prepared by an engineer approved by the Township Board, ordered and obtained by the Township from established demolition companies. The demolition decommissioning method shall be approved by the Township Board, based on recommendations of the chosen engineer. Quotes shall not include salvage values.~~ Security guarantee shall be updated every five (5) years at the rate of 1.5 times CPI (consumer price index) for each year.
- (2) Such financial guarantee shall be deposited or filed with the Township Clerk after a special use has been approved but before construction operations begin on the WECS project. Such financial security shall be irrevocable and non-cancelable (except by written consent of the applicant/owner and Township Board) for at least 30 years from the date of approval or for the life of the Utility Grid Wind Energy system, whichever is longer. Failure to keep such financial security in full force and effect at all times while the structure exists shall constitute a material and significant violation of a special use approval and this ordinance, and shall subject the Applicant to all available remedies to the Township, including enforcement action, fines, revocation of the special use approval and WECS removal.
- (3) The Applicant shall be responsible for the payment of all attorney fees and other costs incurred by the Township in the event that the structure is not



voluntarily removed and the Township has to enforce removal.

- (4) ~~In the event the WECS owner, operator, parent company, performance bond defaults on any or all of the previously outlined decommissioning requirements, the Participating Landowner upon which each WECS is located shall be responsible and liable for the removal of each WECS. Failure of the Participating Landowner to comply with the removal and decommissioning guidelines shall result in the Township having the WECS removed at the expense of the Participating Landowner. If funding is not available to cover the costs of removal by the Participating Landowner, legal action to pursue the seizure of Participating Landowner property(ies) will take place to cover such costs.~~

~~b. The Applicant shall be responsible for the payment of all attorney fees and other costs incurred by the Township in the event that the structure is not voluntarily removed and the Township has to enforce removal.~~

~~c. In the event the WECS owner, operator, parent company, performance bond defaults on any or all of the previously outlined decommissioning requirements, the Participating Landowner upon which each WECS is located shall be responsible and liable for the removal of each WECS. Failure of the Participating Landowner to comply with the removal and decommissioning guidelines shall result in the Township having the WECS removed at the expense of the Participating Landowner. If funding is not available to cover the costs of removal by the Participating Landowner, legal action to pursue the seizure of Participating~~

~~4.6. Safety Manual: The Applicant shall provide an unredacted copy of the manufacturer's safety manual for each model of turbine without distribution restraints to be kept at the Township Hall and other locations deemed necessary by Planning Commission or local first responders. The Manual should include standard details for an industrial site such as materials, chemicals, fire, access, safe distances during WECS failure, processes in emergencies, etc.~~

~~7. Transportation Plan: Applicant shall provide a transportation plan that clearly shows all planned construction and haul routes.~~

~~5.8. Repair Policy Documentation: Applicant shall provide a detailed policy and process book for the repair, replacement, and removal of malfunctioning, defective, worn, or non-compliant WECS. Sections of the process book should consider any ordinance requirement or WECS performance deficiency.~~

6. ~~Noise Sound Modeling Report~~^{[S]L17}: Applicant shall provide an initial sound modeling report and a 6-month post-construction report for the project with a schedule and documentation which adhere to the following:
7. ~~Chart outlining ordinance requirements and a description of compliance or non-compliance.~~
8. ~~Declaration whether submitted data is modeled or measured.~~
9. ~~Declaration of values, test methods, data sources, and similar for all modeled or measured data.~~
10. ~~Estimated timeline for project including ordinance requirements completed, construction, post-construction, and validation testing.~~
11. ~~Applicant measured data shall be accompanied by SCADA data confirming full power during testing. Unless otherwise requested, minimum SCADA data format shall be grouped in 24-hour periods and 1-second intervals including wind vector, wind speed, temperature, humidity, time of day, WECS power output, WECS amps, WECS volts, WECS nacelle vector, WECS blade RPM, WECS blade pitch.~~
12. ~~Permitting data may be submitted based on WECS manufacturer data. However, measured data from active and similar WECS facilities shall be simultaneously submitted.~~
13. ~~It is acknowledged that WECS units sustain wear over time. Applicant is to submit data from existing and similar WECS installations showing aged sound measurements (to demonstrate compliance potential over the life of WECS) in accordance with this ordinance for 5, 10, and 15-year-old units.~~
14. ~~9. Modeling factors shall be set for the worst-case environment, such as high humidity, frozen ground (non-porous), atmospheric variances (atmospheric profile Pasquill Stability Class E or F preferred), elevated noise source and no ground cover. Use of modeling methods (standards) shall have deficiencies (limitations) fully disclosed and shall include known error margins. Non-disclosure of modeling method deficiencies shall require resubmission of SLUP in its entirety with complete modeling deficiencies disclosed.~~

G. Commercial Wind Energy Conversion Systems (WECS) – Standards and Requirements. The WECS project shall meet the following standards and requirements:

1. Set-Backs:

- a. Non-participating Parcel: The distance between a WECS and the property lines of a non-participating parcel shall be at least 1,320' - 2,000'^{[S]L18}.
- b. Inhabited Structure: The distance between a WECS and an Inhabited Structure shall be at least 1,400' - 1,600'

- c. Road Right-of-Way/Railroad: The distance between a WECS and the underlying road right-of-way shall be at least 1.5x the tip height of the wind turbine, or a minimum of 1,000’.
- d. Public Utility Lines: The distance between a WECS and an active public utility corridor, such as overhead communication lines, shall be at least 1.5x the hub height/tip height, or 1,000’.
- e. Met Towers/SCADA: Shall also comply with the property setback requirements. The setback shall be 1.5x the tip height of the SCADA or Met tower.
- f. An Operations and Maintenance Office building, a sub-station, or ancillary equipment shall comply with any property setback requirement that may be applicable to that type of building or equipment.
- ~~a.g. The minimum set back from any property line of a Non Participating Landowner or any road right of way shall be no less than five (5) times Tip Height of WECS or WECS Testing Facility unless Applicant provides documentation in the form of a signed approval by affected Participating and Non Participating Landowners waiving these requirements. Documents in full shall be recorded using only the WECS Waiver Form Revision 1 or later, with the Montcalm County Register of Deeds. For WECS, use turbine pole centerline as WECS measuring point.~~

2. WECS Height: The maximum Tip Height of any WECS or WECS Testing Facility shall be less than ~~500’ - 600’~~ three hundred thirty (330) feet ~~[SJL19]~~.



3. Ground Clearance: The minimum vertical blade tip clearance from grade shall be 75 feet for a wind turbine employing a horizontal axis rotor.

~~3. The minimum clearance from ground level to the blade at its lowest point shall be minimum of thirty (30) percent of the maximum tip height.~~

~~4. Applicant Compliance: The WECS and related equipment shall comply with any and all State, Federal, County and Township requirements.~~ ~~[SJL20]~~



~~5.4. Blade Clearance: Blade arcs created by a WECS shall be a minimum clearance over and from any structure thirty (30) percent of the maximum tip height.~~



~~6.5.~~ Braking ~~[SJL21]~~: Each WECS shall be equipped with a braking, or equivalent device, capable of stopping the WECS operation in high winds with or without SCADA control. Braking system shall be effective during complete GRID power failure where WECS are unable to communicate with SCADA control or receive power.

~~7.6.~~ Signage: Each WECS and Testing Facility shall have one sign per turbine, or tower, located at the roadside and one sign attached to base of each WECS, easily visible throughout four seasons. Signs shall be at least two square feet in area. Signs

shall be the same and shall uniquely identify each WECS. ~~Signage shall comply with Article 3 Section 3.21 Signs and Billboards~~^[S JL22]. Additional signage on and around the tower is recommended. The sign shall contain at least the following:

- a. Warning high voltage.
- b. ~~Participating~~^[S JL23] ~~landowner's name~~, WECS owner's name, and operator's name.
- c. Emergency telephone numbers and web address for owner. (List more than one number).
- d. If WECS uses fencing, place signs on the perimeter fence at fence entrance door.
- e. Unique identification such as address of WECS. If more than one WECS on access drive, units shall have further identification such that first responders can positively identify. ~~An identification example is "321 Street Rd, Stanton, MI Unit A"~~^[S JL24]

7. ~~Communication~~ Electromagnetic Interference:

- a. No WECS shall be installed in any location where its proximity to existing fixed broadcast, retransmission, or reception antennae for radio, television, or wireless phone or other personal communication systems would produce electromagnetic interference with signal transmission or reception unless the applicant provides a replacement signal to the affected party that will restore reception to at least the level present before operation of the wind energy system.
- b. No Utility Grid wind energy system shall be installed in any location within the line of sight of an existing microwave communications link where operation of the wind energy system is likely to produce electromagnetic interference in the link's operation unless the interference is insignificant.
- ~~f.c. Each WECS and Testing Facilities shall be designed, constructed and operated so as not to cause radio and television or other communication interference.~~ In the event that verified interference is experienced and confirmed by a licensed engineer, the Applicant must produce confirmation that said interference had been resolved to residents' satisfaction within ninety (90) of receipt of the complaint. Any such complaints shall follow the process stated in Complaint Resolution section (g)(25).

8. ~~Infrastructure Wiring~~ Interconnection Standards:

- ~~g.a.~~ All electrical connection systems and lines from the WECS to the ~~electrical substation grid connection~~ shall be located and maintained underground. Burial depth shall be at a depth that causes no known environmental, land

use, or safety issues. Depth shall be a minimum of 6 feet below grade, be deeper than drain tile and be in compliance with [the most updated NEC standards, as amended 2014](#) or newer Code standards. All utility lines shall be staked in the field, so as to provide notice to property owners as to the location of utilities, including installing a marker at 4-feet below-grade to identify the utility line location.

[b.](#) The Planning Commission may waive the burial requirement and allow above-ground structures in limited circumstances, such as geography precludes, or a demonstrated benefit to the township. The waiver shall not be granted solely on cost savings to Applicant. Request for variation shall consider aesthetics, future use of land, and effect on nearby landowners.

[b.c.](#) [WECS including towers shall comply with all applicable state construction and electrical codes and local building permit requirements.](#)

[9. Use Agreements:](#)

[h.a.](#) ~~Road Damage: The Applicant shall post a financial security in the form of cash in an escrow account established in a financial institution licensed in the State of Michigan for the cost of repairs of Montcalm County roads within the Township, in an amount of \$2,500,000 in an escrow account established in a financial institution licensed in the State of Michigan for the cost of repairs of Montcalm County roads within the Township that were damaged during the construction or operation of the wind energy facility. This amount shall be reviewed every five (5) years and increased at two times the rate of inflation. The amount and standards for road repair work shall be determined by a third party road inspector appointed by mutual agreement of the Township, Applicant and Montcalm County Road Commission. The cash in escrow shall only be released (in whole or in part) when the Township Board, in consultation with the Montcalm County Road Commission and said third party inspector, determines that all required road work has been completed and approved by the road inspector in consultation with the Montcalm County Road Commission and/or MDOT. The Township may consult with the third party road inspector to verify the proposed cash in escrow amount of \$2,500,000. If the third party inspector determines that the amount needed for road repairs and upgrades is higher, the Applicant will post a financial security in the amount determined by the third party inspector. All road repairs must be complete within ninety (90) days of project completion, or maintenance completion, but shall not exceed 365 days from project commencement or maintenance completion.~~

[b.](#) Road Use Agreement: The Applicant shall provide and execute a Road Use Agreement with the Township [and the Montcalm County Road Commission](#) and shall file a copy of such Agreement with the Township [Zoning Administrator](#)~~Clerk~~ before construction ~~of any accessory road and/or road improvements~~. The Road Use Agreement is subject to review

and approval of the Township attorney and the Road Commission. The Applicant shall provide a written status report annually to the Township Board as to the ongoing scope of roadwork and shall also provide written notice to the Township Board when all required roadwork has been completed. The Township may require the renewal of the bond for roadwork to cover costs of roadwork to be completed in the future.

The Applicant shall post a financial security in the form cash in an escrow account established in, a financial institution licensed in the State of Michigan for the cost of repairs of Montcalm County roads within the Township. The escrow costs are for in an amount of \$2,500,000 in an escrow account established in a financial institution licensed in the State of Michigan for the cost of repairs of Montcalm County roads within the Township that were damaged during the construction or operation of the wind energy facility. This amount shall be reviewed every five (5) years and increased at two times the rate of inflation. The amount and standards for road repair work shall be determined by a third-party road inspector appointed by mutual agreement of the Township, Applicant, and Montcalm County Road Commission. The cash in escrow shall only be released (in whole or in part) when the Township Board, in consultation with the Montcalm County Road Commission, and said third party inspector, determines that all required road work has been completed and approved by the road inspector in consultation with the Montcalm County Road Commission and/or MDOT determines that all required road work has been completed and approved. The Township may consult with the third party road inspector to verify the proposed cash in escrow amount of \$2,500,000. If the third party inspector determines that the amount needed for road repairs and upgrades is higher, tThe Applicant will post a financial security in the amount determined by the third party inspectorRoad Commission, Township Board, and the third party inspector. r. All road repairs must be complete within ninety (90) days of project completion, or maintenance completion, but shall not exceed 365 days from project commencement or maintenance completion.

~~8. Liability Insurance: The current WECS owner and operator shall insure for liability for the WECS without interruption until removed and comply with section "Site Insurance" to protect the current WECS owner and operator, Township and property owner.~~

a. Drain Use Agreement: The Applicant shall provide and execute a Drain Use Agreement with the Township and the Montcalm County Drain Commission and shall file a copy of such Agreement with the Township Zoning Administrator before construction. The Drain Use Agreement is subject to review and approval of the Township attorney and the Drain Commission, in consultation with the Township Board and third party inspector. The Applicant shall provide a written status report annually to the Township Board as to the ongoing scope of work and shall also provide written notice to the Township Board when all required work has been

completed. The Township may require the renewal of the bond for work to cover costs of which may be completed in the future.


The Applicant shall post a financial security in the form cash in an escrow account established in, a financial institution licensed in the State of Michigan for the cost of repairs of Montcalm County drains within the Township. The escrow costs are for the cost of repairs of Montcalm County drains within the Township that were damaged during the construction or operation of the wind energy facility. This amount shall be reviewed every five (5) years and increased at two times the rate of inflation. The amount and standards for drain repair work shall be determined by a third-party inspector appointed by mutual agreement of the Township, Applicant, and Montcalm County Drain Commission. The cash in escrow shall only be released (in whole or in part) when the Township Board, in consultation with the Montcalm County Drain Commission, said third party inspector, and EGLE determines that all required work has been completed and approved. The amount of escrow shall be determined by the Drain Commission, Township Board, and the third party. The Applicant will post a financial security in the amount determined by these three parties. All repairs must be complete within ninety (90) days of project completion, or maintenance completion, but shall not exceed 365 days from project commencement or maintenance completion.


9.10. Coating and Color: A WECS shall be painted a non-obtrusive (light environmental color ~~such as beige, gray or off white~~) color that is non-reflective. The wind turbine base and blades shall be of a color consistent with all other turbines in the area. No striping of color or advertisement shall be visible on the blades or tower.


11. ~~Strobe Effect~~Shadow Flicker:


- a. The applicant shall conduct an analysis on potential shadow flicker at inhabited structures. The analysis shall identify the locations of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sunrise to sunset over the course of a year.
- b. Shadow flicker shall not exceed ## hours per year at a participating inhabited structure and ## hours per year at a non-participating inhabited structure.
- c. Site plans shall depict a contour around each proposed wind turbine that represents the predicted 30 hours per year of shadow flicker.
- d. The analysis shall identify areas where shadow flicker may affect the occupants of the structures and include a shadow flicker mitigation plan, which describes measures that shall be taken to eliminate or mitigate shadow flicker that occurs beyond ## hours.

a. ~~A WECS or Testing Facility shall produce zero minutes of shadow flicker, or strobe effect, on properties without a signed release from affected Participating and Non-Participating Landowners. Documents in full shall be recorded using only the WECS Waiver Form Revision 1 or later, with the Montcalm County Register of Deeds. Each wind turbine shall also use a shadow flicker mitigation system, including but not limited to the Vestas Shadow Detection System, or other similar system.~~

~~10.~~ **12. Ice Detection:** The Applicant [SJL25] shall install an ice detection system on each turbine, including but not limited to the system developed by Vestas, or other similar system, to monitor ice formation on each wind turbine (WECS) and to facilitate immediate shutdown of any wind turbine if ice is detected on the turbine. 

~~11.~~ **13. Fire Suppression:** The Applicant [SJL26] shall provide and install on an WECS a fire suppression system, including but not limited to Fire Trace or other similar system, and insure that such system is operable at all times. 

~~12.~~ **14. Voltage:** The Applicant [SJL27] shall demonstrate WECS prohibits stray voltage, surge voltage, and power from entering ground, and shall correct any voltage issued that is caused by the WECS. 

~~13.~~ **15. Protection of Adjoining Property:** In addition to the other requirements and standards contained in this section, the Planning Commission shall not approve any WECS or Testing Facility unless it finds that the WECS or Testing Facility will not pose a safety hazard or unreasonable risk of harm to the occupants of any adjoining properties or area wildlife. [SJL28] 

~~14. Removal and Site Renovation: A condition of every approval shall be adequate provision for the removal of the structure in its entirety (including the foundation in its entirety, everything below ground, and everything above ground) whenever it ceases to actively produce power for one hundred eighty (180) days or more. The Planning Commission can grant an extension of an additional one hundred eighty (180) days upon the WECS owner demonstrating that the structure will be put back into use. Removal shall include the proper receipt of a demolition permit from the Building Official and proper restoration of the site to original condition. Removal of the structure, wiring, and its accessory use facilities shall include removing the caisson and all other components in their entirety. Restoration must be completed within 365 days of non-operation. The Planning Commission can grant an extension of one hundred eighty (180) days upon the WECS owner demonstrating that an extension is necessary.~~

a. ~~Participating Landowners may waive complete underground wiring removal if they can demonstrate that any and all remaining underground wiring will not negatively affect environment, such as, but not limited to, water quality, natural water flow, or area wildlife. Participating Landowner shall execute a waiver and record same in full with Montcalm County Register of Deeds waiving these requirements.~~

16. Avian Impact Protection:

- a. The applicant shall have a third party, qualified professional conduct an analysis to identify and assess any potential impacts on wildlife and endangered species. The applicant shall take appropriate measures to minimize, eliminate or mitigate adverse impacts identified in the analysis. The applicant shall identify and evaluate the significance of any net effects or concerns that will remain after mitigation efforts.
- b. Sites requiring special scrutiny include wildlife refuges, other areas where birds are highly concentrated, bat hibernacula, wooded ridge tops that attract wildlife, sites that are frequented by federally and/or state listed endangered species of birds and bats, significant bird migration pathways, and areas that have landscape features known to attract large numbers of raptors. At a minimum, the analysis shall include a thorough review of existing information regarding species and potential habitats in the vicinity of the project area. Where appropriate, surveys for bats, raptors, and general avian use should be conducted. The analysis shall include the potential effects on species listed under the federal Endangered Species Act and Michigan's Endangered Species Protection Law.
- c. Power lines should be placed underground, when feasible, to prevent avian collisions and electrocutions. All above-ground lines, transformers, or conductors should comply with the Avian Power Line Interaction Committee (APLIC) published standards to prevent avian mortality.
- d. Each wind turbine shall have a bird/bat sensor installed and utilized upon it
- ~~b.e. The applicant shall prepare a post-construction avian and wildlife study 1-year post-construction, as well as 5-years post-construction of the completion of a WECS, which shall comply with the requirements of the U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources. A copy of the study shall be provided to the Township Board.~~

~~15.17. Post Construction Studies: The applicant shall prepare a post construction avian and wildlife study 1 year post construction, as well as 5 years post construction of the completion of a WECS, which shall comply with the requirements of the U.S. Fish and Wildlife Service and the Michigan Department of Natural Resources. A copy of the study shall be provided to the Township Board.~~

18. Environmental Impact:

- a. The applicant shall have a third party, qualified professional conduct an analysis to identify and assess any potential impacts on the natural environment including, but not limited to wetlands and other fragile ecosystems, historical and cultural sites, and antiquities. The applicant shall take appropriate measures to minimize, eliminate or mitigate adverse impacts identified in the analysis.
- b. The applicant shall identify and evaluate the significance of any net effects or concerns

that will remain after mitigation efforts. The applicant shall comply with applicable parts of the Michigan Natural Resources and Environmental Protection Act (Act 451 of 1994, MCL 324.101 et seq.) including but not limited to Part 31 Water Resources Protection (MCL 324.3101 et seq.), Part 91 Soil Erosion and Sedimentation Control (MCL 324.9101 et seq.), Part 301 Inland Lakes and Streams (MCL 324.30101 et seq.), Part 303 Wetlands (MCL 324.30301 et seq.), Part 323 Shoreland Protection and Management (MCL 324.32301 et seq.), Part 325 Great Lakes Submerged Lands (MCL 324.32501 et seq.), and Part 353 Sand Dunes Protection and Management (MCL 324.35301 et seq.).

~~16.~~ Post-Construction Documents: Within 12 months of project completion, the applicant shall submit as-built site plan drawings of the constructed Utility Grid Wind Energy System. The applicant should submit a hard copy of the drawing set and electronic file formats including Adobe PDF, GIS, and CAD files. The information in the drawings should include: location data (x,y,z coordinates) of site features, inclusive of turbines, access roads, junction boxes, underground collection lines, aboveground transmission lines, and borings underneath roads and drains. The Applicant shall provide a complete set of as built drawings for electrical structures, collection lines and surface markings to the Township Clerk within 6 months of completing work on the WECS.

~~17.~~19. Operations Training: The Applicant shall provide training for the Stanton City Fire Department and/or Day Township Fire Department(s) on behalf of Douglass Township and all fire departments that provide mutual aid to Douglass Township before beginning operations of the Utility Grid Wind Energy System and shall likewise provide regular training at least annually thereafter. The Applicant shall report annually to the Township Board as to the status of the training of the Township Fire Department, in addition to reporting annually to the Township Board of any incidents that required response by the Fire Department (or any Fire Departments responding via mutual aid) to the WECS.

~~18.~~20. Operational, Maintenance, and Issue Resolution^[SIL29]: Each WECS and Testing Facility must be kept and maintained in good repair and condition at all times. If a WECS is not maintained in operational and reasonable condition or poses a potential safety hazard, the Applicant shall take expeditious action to correct the situation, including WECS removal. The Applicant shall keep a maintenance log on each WECS and must provide complete log to the Township within thirty (30) days of request.

~~19.~~21. Complaint Resolution^[SIL30]: A complaint resolution process shall be established by the Township Board, including a “Complaint” form to be completed by residents experiencing negative effects from the wind energy facility and submitted to the Township Board. The Complaint Resolution Process shall include, but not limited to:

- a. Receiving and Forwarding of Complaints: A third party answering switchboard, website or equivalent, paid for by the Applicant or WECS or Testing Facility owner. The cost to maintain and support shall be funded in the amount of \$20,000 and be replenished at annually or at any time that

balance falls below \$5,000 by the Applicant or WECS owner. The Planning Commission shall select a complaint resolution process that is independent of the facility operator or owner and that reports to the Township first and operator second. Upon receiving a complaint, the Township shall forward said complaint to the WECS owner.

b. Investigation of Complaints: Township shall initiate an investigation into a complaint within thirty (30) days utilizing escrow funds to hire the appropriate expert(s).

~~c. Hearing of Complaints: Township Board shall set a public hearing date within sixty (60) days of completion of Investigation of Complaints where experts, residents and/or Applicant may present information before the Township Board. Notice of hearing shall be via certified mail.~~
Decision of Complaints: Township Board shall issue a decision and corrective actions within forty-five (45) days from Hearing of Complaints. Applicant shall be required as a condition of approval to fund an escrow account for investigation of complaints for, but not limited to, shadow flicker, stray voltage, noise, and signal interference to the amount of \$15,000 to be used at the discretion of the Douglass Township Board. When escrow account balance is below \$5,000, Township shall notify Applicant and Applicant shall replenish account in the amount of \$15,000 within 45 days.

~~a.~~

~~20.1. Decision of Complaints: Township Board shall issue a decision and corrective actions within forty five (45) days from Hearing of Complaints. Applicant shall be required as a condition of approval to fund an escrow account for investigation of complaints for, but not limited to, shadow flicker, stray voltage, noise, and signal interference to the amount of \$15,000 to be used at the discretion of the Douglass Township Board. When escrow account balance is below \$5,000, Township shall notify Applicant and Applicant shall replenish account in the amount of \$15,000 within 45 days.~~

~~21. Regulation of WECS Commercial and Industrial Noise: To preserve quality of life, peace, and tranquility, and protect the natural quiet of the environment. This ordinance establishes the acoustic baseline, background sound levels for project design purposes, and limits the maximum noise level emissions for commercial and industrial developments. Residents shall be protected from exposure to noise emitted from commercial and industrial development by regulating said noise.~~

22. The Township Board reserves the right to require WECS Applicant to shut down any WECS unit that does not meet ordinance requirements until such WECS unit meets ordinance requirements or is removed.

~~23. Complaints: If the Township Board confirms and issues a corrective action, SCADA data from WECS within 2 miles of issue shall be required and delivered to Township within twenty (20) days of notification. SCADA data format shall be~~

~~determined by Township, Township licensed engineers, or Township professional acousticians. Unless otherwise requested, minimum SCADA data format shall be grouped in 24 hour periods and 1 second intervals including wind vector, wind speed, temperature, humidity, time of day, WECS power output, WECS amps, WECS volts, WECS nacelle vector, WECS blade RPM, WECS blade pitch. Fees for providing SCADA data are not to exceed \$100/request. Residents shall have the right to also request SCADA data in at least the minimum format at the cost of \$200/WECS per time period requested. Common SCADA formats shall include meteorological and performance data such as, but not limited to, temperature, humidity, power output, RPM, wind velocity, wind direction, and nacelle vector. Data format shall be determined by Township, such as “csv” or “xlsx”. If WECS is found to be noncompliant, the applicant, owner or landowner will reimburse said resident for the above referenced costs incurred (if any) within thirty (30) days, as well as rectifying and taking corrective action.~~

23. **Noise:**

- a. For all parcels, the audible sound from a Utility Grid Wind Energy System at a parcel line may not exceed the Sound Level (L_{max}) levels shown in Table 1, measured in accordance with the methodology described in sub-sections d and e.

Table 1 – Maximum Sound Level L_{max} Limits		
Zone	Time	Equivalent A-weighted Continuous Sound Level (dBA)
Participating parcel	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
Non-participating parcel	7 a.m. to 10 p.m.	45
	10 p.m. to 7 a.m.	35

- b. In the event audible noise from the operation of the Utility Grid Wind Energy System contains a prominent discrete tone, the limits set forth in Table 1 shall be reduced by five (5) dBA. For a prominent discrete tone to be identified as present, the equivalent-continuous sound pressure level in the one-third octave band of interest is required to exceed the arithmetic average of the equivalent-continuous sound pressure level for the two adjacent one-third octave bands by five (5) dB for center frequencies of five hundred (500) Hz and above, by eight (8) dB for center frequencies between one hundred and sixty (160) Hz and four hundred (400) Hz, or by fifteen (15) dB for center frequencies between twenty five (25) and one hundred and twenty-five (125) Hz as specified by ANSI S12.9 Part 3, Annex B.
- c. Any noise level falling between two whole decibels shall be rounded to the nearest whole number.
- d. Sound Modeling Study – The applicant shall provide a predictive sound modeling study of all turbine noise for a Utility Grid Wind Energy System to verify that ordinance requirements can be met for the limits set in Table 1. The sound modeling must follow International Standard, ISO 9613-2 “Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation.” The sound modeling study shall use the maximum

apparent wind turbine sound power levels as determined by measurement according to IEC 61400 – Part 11, or as determined by analytical calculations according to the manufacturer, plus 2 dB to each frequency band. The sound power source shall be modeled at hub height. Modeling shall include topographical information and assume hard ground (G=0) for all large areas of pavement and water, and mixed ground (G=0.5) for all other land. The sound modeling study shall include a map with all proposed wind turbine locations, all Noise Sensitive Facilities, and all participating and non-participating parcels. The sound study map shall be overlaid with sound contour lines extending out to the 30 dBA sound contour line, at 5 dBA intervals from the center of the proposed Utility Grid Wind Energy System.

e. Post Construction Sound Survey – The applicant shall complete a post construction sound survey within 12 months of the commencement of the operation of the project. The applicant shall be able to determine compliance with the sound level limits set forth in sub-section a above. The measurements and the reporting of the data shall be conducted as described below. The survey shall address noise complaints on file with the Township and may require additional measurement locations as deemed necessary by the Planning Commission. Should the sound survey indicate a non-compliant measurement, the owner of the Utility Grid Wind Energy System will be required to obtain compliance through mitigation or other measures.

1. Methodology

- i. Measurement personnel and instrumentation shall be as required in sub-section h.
- ii. A calibration check shall be performed and recorded before and after each measurement period.
- iii. The nighttime measurement period shall be two hours minimum and shall be continuously observed by a trained attendant. For participating parcels, sound level data shall be aggregated in 10-minute measurement intervals within the nighttime compliance measurement period (nighttime: 10:00 pm to 7:00 am).
- iv. The daytime measurement period shall be two hours minimum and shall be continuously observed by a trained attendant. For participating parcels, sound level data shall be aggregated in 10-minute measurement intervals within the daytime compliance measurement period (daytime: 7:00 am to 10:00 pm). Because compliance with nighttime noise limits presumes compliance with the less stringent daytime noise limits, this requirement may be waived by the Planning Commission.
- v. Compliance will be demonstrated when the l_{max} Sound Level of each two-hour measurement interval is less than or equal to the l_{max} s sound level limits as set forth in sub-section a. Representative intervals are defined as:
 - (i) Periods complying with the general method for routine measurements of ANSI S12.18. Measurements shall be made either downwind as defined in ANSI S12.18, or if the atmospheric conditions are such that the direction of the wind vector is within an angle of ± 45 degrees of the annual prevailing wind direction.

- (ii) Periods where the concurrent turbine hub-elevation wind speeds are sufficient to generate within 1 dB of the maximum continuous rated sound power from the nearest wind turbine to the measurement location.
- (iii) Periods where ground level gusts are equal to or less than 7 m/s (15.66 mph).
- (iv) The sound level measured in each measurement interval above may be corrected for transient background sound and continuous background sound, according to ANSI S12.9 Part 3.

2. Measurement Locations

- i. The specific measurement locations shall be chosen by the applicant's Measurement Personnel and by the Planning Commission prior to the Post Construction Sound Survey.
- ii. The measurement locations shall be performed at Noise Sensitive Facilities for participating parcels and at parcel boundary lines for non-participating parcels. The locations shall be in close proximity to one or multiple wind turbines and/or locations which have modeled sound levels closest to limits identified in Table 1. A 3:1 ratio (wind turbines to measurement locations) will be used to determine the number of measurement locations, with a minimum of eight measurement locations. The measurement locations shall include, but are not limited to, the following:
 - (i) A minimum of four measurements of different non-participating parcels. The measurement location shall be at the parcel boundary line nearest the closest wind turbine of the Utility Grid Wind Energy System.
 - (ii) A minimum of two measurements of different participating parcels. The measurement location shall be at the Noise Sensitive Facility, measured 50 feet from the façade nearest the closest wind turbine of the Utility Grid Wind Energy System.
 - (iii) Any measurement location determined necessary by the applicant's Measurement Personnel and Planning Commission. If both parties agree, a measurement location deemed unnecessary may be omitted from the required locations.
- iii. The microphone shall be positioned at a height of 5 feet ± 1 foot above the ground, and oriented in accordance with the characteristics of the microphone so that the frequency response is as flat as possible.
- iv. To the greatest extent possible, measurement locations should be located away from potential contaminating sources of noise such as major highways, industrial facilities and urban areas.
- v. To the greatest extent possible, measurement locations shall be at the center of unobstructed areas that are maintained free of vegetation and other structures or material that is greater than 2 feet in height for a 50-foot radius around the sound monitoring equipment.
- vi. To the greatest extent possible, measurement locations should be at least 50 feet from any known sound source.

- vii. Meteorological measurements of the surface wind speed and direction shall be collected using anemometers at a height of 6.6 foot ± 0.7 foot above the ground, near each noise measurement location. Care should be taken to avoid noise measurement contamination from the anemometer operation.
- 3. Reporting of Measurement Data - Reports shall be submitted to the Planning Commission within 45 days of completion of the post-construction sound survey and shall include, at a minimum, the following:
 - i. A narrative description of the sound from the Utility Grid Wind Energy System for the compliance measurement period result.
 - ii. A narrative description of the sound measurements collected.
 - iii. A map showing the wind turbine locations, noise measurement locations, and all Noise Sensitive Facilities.
 - iv. The dates, days of the week and hours of the day when measurements were made.
 - v. The wind direction and speed, temperature, precipitation, and sky condition for each measurement interval. Meteorological measurements of the wind speed and direction will be reported at both the surface height, and at hub level (to be provided by the Utility Grid Wind Energy System from the closest wind turbine), based on five second integration intervals. Both the average and maximum wind speeds for each measurement interval shall be reported.
 - vi. The wind energy output for each measurement interval for the closest wind turbine.
 - vii. Identification of all measurement equipment by make, model and serial number.
 - viii. All meteorological, sound, windscreen and audio instrumentation specifications and calibrations.
 - ix. All sound levels for each measurement interval.
 - x. All 1/3 octave band linear equivalent sound levels for each measurement interval and identification of tonal periods.
 - xi. All attendant's notes and observations.
 - xii. All concurrent time stamped turbine operational data including the date, time and duration of any noise reduction operation or other interruptions in operations if present.
 - xiii. All periods removed from the data due to temperatures above or below manufacturer specifications, wind speeds above ANSI S12.18 limits.
 - xiv. All corrections for transient background and continuous background sound according to ANSI S12.9 Part 3. All methodology, data, field notes, and calculations shall be included. Audio recordings may be submitted for identification of intrusive noise events. Audio collection shall occur through the same microphone/sound meter as the measurement data. Audio recordings shall be time stamped (hh:mm:ss), at an adequate quality for identifying events, and in mp3 format.

xv. All other information determined necessary by the Planning Commission.

f. Measurement of the Sound from Routine Operation – As an ongoing condition of any special use permit for a Utility Grid Wind Energy Stem, the Zoning Enforcement Officer or Township Supervisor may require measurements of the sound from routine operation of the completed system. Such measurements may be required to determine compliance with this ordinance and the special use permit, to investigate a community complaint for validation the calculated sound levels presented to the Planning Commission in support of the special use permit. The measurements and the reporting of the data shall be conducted as described below. Should the measurements indicate a non-compliant measurement, the owner and the operator of the Utility Grid Wind Energy System shall be required to obtain compliance through mitigation or other measures.

1. Methodology - Refer to sub-section h.

2. Measurement Locations

i. Measurement locations as determined by the Zoning Enforcement officer or Supervisor beforehand. The measurement locations shall include, but are not limited to, the following representative locations:

(i) For participating parcels, a minimum of one measurement location at the Noise Sensitive Facility of the complainant, measured 50 feet from the façade nearest the closest wind turbine of the Utility Grid Wind Energy System.

(ii) For non-participating parcels, a minimum of one measurement location at the parcel boundary line of the complainant nearest the closes wind turbine of the Utility Grid Wind Energy System.

(iii) Any measurement location determined necessary by the Planning Commission.

ii. The microphone shall be positioned at a height of 5 feet ± 1 foot above the ground, and oriented in accordance with the characteristics of the microphone so that the frequency response is as flat as possible.

iii. To the greatest extent possible, measurement locations should be located away from potential contaminating sources of noise such as major highways, industrial facilities and urban areas.

iv. To the greatest extent possible, measurement locations shall be at the center of unobstructed areas that are maintained free of vegetation and other structures or material that is greater than 2 feet in height for a 50-foot radius around the sound monitoring equipment.

v. To the greatest extent possible, measurement locations should be at least 50 feet from any known sound source.

vi. Meteorological measurements of the surface wind speed and direction shall be collected using anemometers at a height of 6.6 foot ± 0.7 foot above the ground, near each noise measurement location. Care should be taken to avoid noise measurement contamination from the anemometer operation.

3. Reporting of Measurement Data Measurement Reports shall be submitted to the Planning Commission within 45 days of completion and shall include as indicated in sub-section f. 3.

g. General Sound Survey Methodology

1. All sound studies will be completed by an independent third party that is hired by the Township. Fees for such studies shall be paid for from the escrow fund described in sub-section c. 3 above, or in case of studies conducted after the post-construction sound survey, by the operator in advance.
2. Measurement Personnel. Measurements shall be supervised by personnel who are independent of the Utility Grid Wind Energy System, well qualified by training and experience in measurement and evaluation of environmental sound, and are Board Certified members of the Institute of Noise Control Engineering (INCE).
3. Measurement Instrumentation. Measurement devices shall comply with the following requirements:
 - i. A sound level meter or alternative sound level measurement system used shall meet all of the Type 1 performance requirements of American National Standard Specifications for Sound Level Meters, ANSI S1.4.
 - ii. An integrating sound level meter (or measurement system) shall also meet the Class 1 performance requirements for integrating/averaging in the International Electrotechnical Commission Sound Level Meters, IEC Publication 61672-1.
 - iii. A filter for determining the existence of tonal sounds shall meet all of the Class 1 performance requirements of American National Standard Specification for Octave- Band and Fractional Octave-Band Analog and Digital Filters, ANSI S1.11.
 - iv. An acoustical calibrator shall be used of a type recommended by the manufacturer of the sound level meter and that meets the Type 1 performance requirements of American National Standard Specification for Acoustical Calibrators, ANSI S1.40.
 - v. A microphone windscreen shall be used of a type that meets or exceeds the recommendations of manufacturer of the sound level meter.
 - vi. The sound level meter shall have been calibrated by a laboratory within 24 months of the measurement, and the microphone's response shall be traceable to the National Bureau of Standards.
 - vii. The sound level meter shall be used with the fast meter response and sampling frequency of one sample per second.
 - viii. Anemometer(s) used for surface wind speeds shall have a minimum manufacturer specified accuracy of ± 1 mph providing data in five second integrations.

- ix. Compass used for surface wind direction shall have a minimum manufacturer specified accuracy of $\pm 3^\circ$ providing data in five second integrations.
- x. Thermometer used for surface temperature shall have a minimum manufacturer specified accuracy of $\pm 2^\circ\text{C}$ providing data in five second integrations.
- xi. A digital recording device used to store the time waveform of the sound pressure levels shall comply with the requirements of ANSI/ASA S1.13.
 - ~~a. No WECS shall generate or permit to be generated audible noise from commercial or industrial permitted facilities that exceeds 35 dBA l_{max} or 45 dBC l_{max} (no averaging) (dBC to dBA ratio of 10 dB per ANSI standard S12.9 Part 4 Annex D) during the night 7 pm to 8 am for any duration, at a property line or any point within a Non Participating property, unless Applicant provides documentation in the form of a signed agreement by the Participating and Non Participating Landowner waiving these requirements. Said documents in full shall be recorded with the Montcalm County Register of Deeds waiving these requirements. Documents in full shall be recorded using only the WECS Waiver Form Revision 1, or later, with the Montcalm County Register of Deeds.~~
 - ~~b. No WECS shall ever generate or permit to be generated plainly audible noise from commercial or industrial permitted facilities that exceeds 45 dBA l_{max} (no averaging) or 55 dBC during the day 8 am to 7 pm for any duration, at a property line or at any point within a Non Participating property, unless Applicant provides documentation in the form of a signed agreement by the Participating and Non Participating Landowner waiving these requirements. Said documents in full shall be recorded with the Montcalm County Register of Deeds waiving these requirements. Documents in full shall be recorded using only the WECS Waiver Form Revision 1, or later, with the Montcalm County Register of Deeds.~~
 - ~~c. No WECS shall generate or permit to be generated from commercial or industrial permitted facilities any acoustic, vibratory, or barometric oscillations in the frequency range of 0.1 to 1 Hz that is detectable at any time and for any duration by confirmed human sensation or exceeds a sound pressure level from 0.1 to 20 Hz of 50 dB (unweighted) re 20 μPa or exceeds an RMS acceleration level of 50 dB (unweighted) re 1 micro g by instrumentation at a Non Participating Landowner's property line or at any point within a Non Participating Landowner's property.~~
 - ~~d. No WECS shall generate or permit to be generated from commercial or industrial permitted facilities any vibration in the low frequency range of 0.1 to 20 Hz, including the 1, 2, 4, 8, and 16 Hertz octave bands that is perceivable by human sensation or exceeds an rms acceleration level of 50 dB (unweighted) re 1 micro g at any time and for any duration either due~~

~~to impulsive or periodic excitation of structure or any other mechanism at a Non-Participating Landowner's property line or at any point within a Non-Participating Landowner's property.~~

- ~~e. A tonal noise condition generated from commercial or industrial permitted facilities shall be assessed an upward noise penalty of 5 dBA (example 42 increased to 47 dBA) for assessment to the nighttime and daytime noise limits.~~
- ~~f. A noise level measurement made in accordance with methods in section "NOISE MEASUREMENT AND COMPLIANCE" that is higher than 35 dBA or 45 dBC during the nighttime hours or 45 dBA or 55 dBC during the daytime hours, adjusted for the penalty assessed for a tonal noise condition, shall constitute prima facie evidence of a nuisance.~~
- ~~g. An acoustic, vibratory or barometric measurement documenting oscillations associated to commercial or industrial permitted facilities with levels exceeding the limits in 23 shall constitute prima facie evidence of a nuisance.~~
- ~~h. All commercial and industrial activity shall comply with limits and restrictions anywhere at any time on another property unless Applicant provides documentation in the form of a signed approval by affected Participating and Non-Participating Landowners. Documents in full shall be recorded with the Montcalm County Register of Deeds waiving these requirements. Documents in full shall be recorded using only the WECS Waiver Form Revision 1 or later, with the Montcalm County Register of Deeds.~~
- ~~i. Leq 1 sec shall be used for all measurements and modeling.~~

24. Douglass Township and its representatives shall have the authority to inspect the WECS (any of the wind turbines, the roads and/or accessory structures) upon reasonable notice of at least 24 hours to the Applicant. The Applicant may require that a representative of the Applicant accompany the Township and/or its representatives on any inspection.

~~25. The Applicant shall enter a Host Agreement with Douglass Township regarding taxation.~~

~~H. Noise Measurement and Compliance~~

~~1. Post construction validation and compliance testing shall include a variety of ground and hub height wind speeds, at low (between 6-9mph) medium (between 9-22mph) and high (greater than 22mph). SCADA data shall be provided in the format determined by Township, Township licensed engineers, or Township professional acousticians. Compliance noise measurements are the financial responsibility of the WECS owner of the facility and shall be independently~~

~~performed by a qualified professional acoustician approved by the Planning Commission when directed by the Douglass Charter Township Board or their designated agent. Compliance noise measurements shall not exceed the stipulated noise limits and shall assess for and apply tonal noise penalties when warranted.~~

- ~~2. Quality: Measurements shall be attended. All noise measurements shall (must) exclude contributions from wind on microphone, tree/leaf rustle, flowing water, and natural sounds such as tree frogs and insects. The latter two can be excluded by calculating the dBA noise level by excluding octave band measurements above the 1000 Hz band as in ANSIS12.100 3.11. The ANS weighted sound level is obtained by eliminating values for octave bands above 1000 Hz, or one-third octave bands above 1250 Hz, and A weighting and summing the remaining lower frequency bands. The wind velocity at the sound measurement microphone shall not exceed 3 m/s (7 mph, maximum) during measurements. A 7 inch or larger diameter windscreen shall be used. Instrumentation shall have an overall internal noise floor that is at least 5 dB lower than what is being measured. During testing of elevated sources including, but not limited to, wind turbines, the atmospheric profile shall be Pasquill Stability Class E or F preferred, Class D as alternate.~~
- ~~3. Noise Level: Noise measurements shall be conducted consistent with ANSIS12.18 Procedures for Outdoor Measurement of Sound Pressure Level and ANSI S12.9 Part 3 (Quantities and Procedures for Description and Measurement of Environmental Sound Part 3: Short term Measurements with an Observer Present), using Type 1 meter, A weighting, Fast Response.~~
- ~~4. Tonal Noise: Tonal noise shall be assessed using unweighted (linear) 1/3 octave band noise measurements with time series, level versus time data acquisition. A measurement shall constitute prima facie evidence of a tonal noise condition if at any time (single sample or time interval) the noise spectrum of the noise source under investigation shows a 1/3 octave band exceeding the average of the two adjacent bands for by 15 dB in low one-third octave bands (10-125 Hz), 8 dB in middle frequency bands (160-400 Hz), or 5 dB in high frequency bands (500-10,000 Hz). Sample Metric and Rate: Noise level measurements for essentially continuous non-time-varying noise sources shall be acquired using the Leq(Fast) metric at a sample rate of 1 per second. For fluctuating or modulating noise sources including, but not limited to, wind turbines, a 10 per second sample rate or faster shall be used. These sample rates shall apply to dBA, dBC and unweighted 1/3 octave band measurements.~~
- ~~5. Reporting: Measurements of time-varying dBA and dBC noise levels and 1/3 octave band levels shall be reported with time-series level versus time graphs and tables. Graphs shall show the sound levels graphed as level vs time over a period of time sufficient to characterize the noise signature of the noise source being measured. For 1 per second sampling, a 5 minute or longer graph shall be produced. For 10 per second sampling, a 30 second or longer graph shall be produced. Reporting shall identify, and graphs shall be clearly notated, identifying what was heard and when the noise source is dominating the measurement.~~

~~Reporting shall furnish all noise data and information on weather conditions and, Pasquill Class occurring during testing.~~

I.H. Compliance^[SJL31]



1. All applicable requirements of the Zoning Ordinance must be met in their entirety as well as all other applicable laws, ordinances, and rules of the federal, state, county, and township governments. Any subsequent development or change on the property shall comply with all requirements of the Township Zoning Ordinance or other ordinances and regulations in effect at that time. Non-compliance with ordinance requirements during SLUP process shall result in denial or revocation of the permit.
2. Non-compliance with post-construction ordinance requirements shall result in fines (minimum \$500/day), permit denial, and WECS decommissioning. The applicant, owner and/or landowner to the township shall pay fines. Non-compliance fines shall be held by the township to reimburse fees paid by residents.
3. Nuisance compliance complaints shall be resolved after section “Complaint Resolution” is completed. Applicant shall provide resolution plan within 30 days and resolve complaint within 90 days. WECS may be shut down during resolution time to extend resolution time to 180 days.
4. For non-nuisance compliance, and upon formal notice from Township or Resident to WECS permit holder, WECS permit holder shall respond within thirty (30) days with resolution plan, and up to one hundred eight (180) days to resolve compliance breach. Failure to resolve any compliance breach shall result in permit loss. Unless otherwise stated, Applicant shall provide in advance and comply with ordinance requirements prior to Township granting the permit. Conditional permits shall not be allowed.
5. In addition to any other remedies or complaint resolution procedures set forth in this Article, violations of this Article shall also constitute a municipal civil infraction in accordance with Ordinance Number *****. Each day on which any violation of this Article continues shall constitute a separate offense. The Township may bring an action for an injunction to restrain, prevent or abate any violation of this Article.
6. Upon change of ownership, operator or parent company, the Township shall receive from the new owner, operator or parent company notification and updated documents within 30 days including, but not limited to, legal proof of change, corporate legal contact, security bond updates, emergency contact, and local contact.

