ARTICLE 16
WIND ENERGY STRUCTURES AND FACILITIES

Section 16.01 Purpose.

The purpose of this Article is to establish guidelines for siting Wind Energy Turbines (WETs). The goals are as follows:

1. To promote the safe, effective and efficient use of a WET in order to reduce the consumption of fossil fuels in producing electricity.

2. Preserve and protect public health, safety, welfare, and quality of life by minimizing the potential adverse impacts of a WET.

3. To establish standards and procedures by which the siting, design, engineering, installation, operation, and maintenance of a WET shall be governed.

Section 16.02 Definitions.

A. **Ambient Sound Level** is the amount of background noise at a given location prior to the installation of a WET(s) which may include, but not be limited to, traffic, machinery, lawnmowers, human activity, and the interaction of the wind with the landscape. The ambient sound level is measured on the dB(A) weighted scale as defined by the American National Standards Institute.

B. **Anemometer** is a temporary wind speed indicator for the purposed of analyzing the potential for utilizing a wind energy turbine at a given site. This includes the tower, base plate, anchors, cables and hardware, wind direction vanes, booms to hold equipment, data logger, and wind flow characteristics over a period of time for instantaneous wind information or to characterize the wind resource at a given location.

C. **Decibel** is defined as unit of measure used to express the magnitude of sound pressure and sound intensity. Decibels shall be measured on the dB(A) weighted scale as defined by the American National Standards Institute.

D. **Decommissioning** is the process of terminating operation and completely removing a WET(s) and all related building, structures, foundations, access roads, and equipment.

E. **Large Wind Energy Turbine (L-WET)** is a tower mounted wind energy system that converts wind energy into electricity through the use of equipment which includes any base, blade, foundation, generator, nacelle, rotor, tower, transformer, vane, wire, inverter, batteries, or other components used in the system. The L-WET has a nameplate above two hundred fifty (250) kilowatts and the main purpose of the L-WET is to supply electricity to off-site customers. The total height exceeds one hundred fifty (150) feet.

F. **Medium Wind Energy Turbine (M-WET)** is a tower mounted wind energy system that converts wind energy into electricity through the use of equipment which includes any base, blade, foundation, generator, nacelle, rotor, tower, transformer, vane, wire, inverter, batteries, or other components used in the system. The M-WET has a nameplate capacity

that does not exceed two hundred fifty (250) kilowatts. The total height does not exceed one hundred fifty (150) feet.

G. **Nacelle** refers to the encasement which houses all of the generating components, gear box, drive tram, and other equipment.

H. **Net-Metering** is a special metering and billing agreement between utility companies and their customers, which facilitates the connection of renewable energy generating systems to the power grid.

I. **Occupied Building** is a residence, school, hospital, church, public library, business, or any other building used for public gatherings.

J. **Operator** is the entity responsible for the day-to-day operation and maintenance of a Wind Energy Turbine (WET).

K. **Owner** is the individual or entity including their respective successors and assigns that have an equity interest or own the Wind Energy Turbine (WET) in accordance with this ordinance.

L. **Rotor Diameter** is the cross-sectional dimension of the circle swept by the rotating blades of a WET.

M. **Shadow Flicker** is the moving shadow, created by the sun shining through the rotating blades of a Wind Energy Turbine (WET). The amount of shadow flicker created by a WET is calculated by a computer model that takes into consideration turbine location, elevation, tree cover, location of all structures, wind activity, and sunlight.

N. **Small Tower-Mounted Wind Energy Turbine (STM-WET)** is a tower mounted wind energy system that converts wind energy into electricity through the use of equipment which includes any base, blade, foundation, generator, nacelle, rotor, tower, transformer, vane, wire, inverter, batteries, or other components used in the system. The STM-WET has a nameplate capacity that does not exceed thirty (30) kilowatts. The total height does not exceed one hundred twenty (120) feet.

O. **Structure** is any building or other structure, such as a municipal water tower that is a minimum of twelve (12) feet in height at its highest point of roof and is secured to frost-footings or a concrete slab.

P. **Small Structure Mounted Wind Energy Turbine (SSM-WET)** converts wind energy into electricity through the use of equipment which includes any base, blade, foundation, generator, nacelle, rotor, tower, transformer, vane, wire, inverter, batteries, or other components used in the system. A SSM-WET is attached to a structures roof, walls, or other elevated surface. The SSM-WET has a nameplate capacity the does not exceed ten (10) kilowatts. The total height does not exceed fifteen (15) feet as measured from the highest point of the roof, excluding chimneys, antennae, and other similar protuberances.

Q. **Total Height** is the vertical distance measured from the ground level at the base of a tower to the uppermost vertical extension of any blade, or the maximum height reached by any part of the Wind Energy Turbine (WET).

R. **Tower** is a freestanding monopole that supports a Wind Energy Turbine (WET).

S. **Upwind Turbine** is a Wind Energy Turbine (WET) positioned in a manner so that the wind hits the turbine blades before it hits the tower in order to avoid the thumping noise which can occur if the wind is disrupted by hitting the tower before the blades.

T. **Wind Energy Turbine (WET)** is any structure-mounted, small, medium, or large wind energy conversion system that converts wind energy into electricity through the use of a Wind Generator and includes the nacelle, rotor, tower, and pad transformer, if any.

Section 16.03 Type of Review Required.

The purpose of this Section is to establish consistent review procedures that ensure full compliance with the standards of this Article, and to ensure that the type and intensity of review and amount of required information is in direct proportion to the scale of the project and the intensity of the use. Wind Energy Turbines shall be reviewed in accordance with the following table:

SITUATION OR USE	REQUIRED REVIEW AND APPROVAL		
	PLANNING COMMISSION	ZONING PERMIT	EXEMPT
WIND ENERGY STRUCTURES AND FACILITIES			
Temporary Uses	◆		
Installation of Small Structure Mounted Wind Energy Turbine (SSM-WET).	◆		
Installation of Small Tower Mounted Wind Energy Turbine (STM-WET).	◆		
Installation of Medium Wind Energy Turbine (M-WET)	◆		
Installation of Large Wind Energy Turbine (L-WET)	◆		

Facilities subject to Planning Commission review. Such facilities shall be subject to a public hearing, and review and approval by the Planning Commission in accordance with the applicable standards of this Article and the review procedures specified in Section 16.04 (Planning Commission Review).

Section 16.04 Planning Commission Review.

After a complete and accurate application has been submitted in accordance with the requirements of Section 15.02 (Application), wind energy structures and facilities subject to Planning Commission approval shall be reviewed in accordance with the following:

1. **Technical review.** Prior to Planning Commission consideration, the application materials shall be distributed to appropriate City officials and staff for review and comment. The City Planner may also submit the plans to applicable outside agencies and designated City consultants for review and comment.

2. **Public hearing.** A public hearing shall be scheduled and held before the Planning Commission for all wind energy structures and facilities subject to Planning Commission review, in accordance with the Michigan Zoning Enabling Act (P.A. 110 of 2006, as amended) and Section 1.12 (Public Hearing Procedures).

3. **Planning Commission action.** Subsequent to the hearing, the Planning Commission shall review the proposed wind energy structure or facility, together with any reports and recommendations from staff, consultants, other reviewing agencies, and any public comments.

   a. The Planning Commission shall determine whether the facility is in compliance with the requirements of this Article and Ordinance.

   b. The Planning Commission shall then consider its findings, shall take action to approve, approve with conditions or deny the wind energy structure and facility, and shall set forth the reasons for their action.

4. **Effect of action.** Approval of the wind energy structure and facility by the Planning Commission shall allow the City Planner and Building Official to review and issue permits for work associated with the application. No work may take place on the site except in accordance with an approved permit and the design and plans approved by the Planning Commission. If the Planning Commission denies the wind energy structure and facility, the applicant may submit a new wind energy structure and facility application that addresses any deficiencies in the denied application materials, facility design or location.

5. Expiration of approval. Approval of a wind energy structure and facility shall expire 365 days after the date of approval, unless a permit has been issued or construction has commenced. Upon written request received by the City prior to the expiration date, the Planning Commission may grant one (1) extension of up to 180 days, provided that site conditions have not changed in a way that would affect the character, design or use of the site, and that the approved wind energy structure and facility plans remains in conformance with the purpose and provisions of this Article.

Section 16.05 Application Requirements.

The following information shall be provided with any application for approval of a Wind Energy Turbine (WET):

1. **Applicant information.** The name, address and telephone numbers for the applicant, property owner, tower operator and installation contractor; and the address, parcel identification number or location of the property on which the facility is to be located.

2. **Site plan.** A site plan shall include maps (drawn to scale) showing the proposed location of all components and ancillary equipment of the SM-WET(s) or TM-WET, property lines, physical dimensions of the property, existing building(s), setback lines, right-of-way lines, public easements, overhead utility lines, sidewalks, non-motorized pathways, roads and contours. The site plan must also include adjoining properties as well as the location and use of all structures.

3. The proposed type and height of the SM-WET or TM-WET to be constructed; including the manufacturer and model, product specifications, including maximum noise output (measured in decibels), total rated generating capacity, dimensions, rotor diameter, and a description of ancillary facilities.

4. Documented compliance with the noise requirements set forth in this ordinance.

5. Documented compliance with applicable local, state and national regulations including, but not limited to, all applicable safety, construction, environmental, electrical, communications, and FAA requirements.

6. Proof of applicant's liability insurance.

7. Evidence that the utility company has been informed of the customer's intent to install an interconnected, customer-owned generator and that such connection has been approved. Off-grid systems are exempt from this requirement.

8. Other relevant information as may be reasonably requested.

9. Signature of the applicant.

10. In addition to the Permit Application Requirements previously listed, the SM-WET Application shall include the following:

    a. Total proposed number of SM-WETs

11. In addition to the Permit Application Requirements previously listed, the TM-WET Application shall include the following:

    a. A description of the methods that will be used to perform maintenance on the TM-WET and the procedures for lowering or removing the TM-WET in order to conduct maintenance.

Section 16.06 Temporary Uses.

A. **Anemometer** shall be subject to the following:

1. The construction, installation, or modification of an anemometer tower shall require a Special Use Permit through the Planning Commission, building permit and shall conform to all applicable local, state, and federal applicable safety, construction, environmental, electrical, communications, and FAA requirements.

2. An anemometer shall be subject to the minimum requirements for height, setback, separation, location, safety requirements, and decommissioning that correspond to the size of the WET that is proposed to be constructed on the site.

3. An anemometer shall be permitted for no more than thirteen (13) months for SSM-WET, STM-WET, or M-WET, and no more than three (3) years for a L-WET.

Section 16.07 Small Structure Mounted Wind Energy Turbines and Small Tower Mounted Wind Energy Turbines.

Small Structure Mounted Wind Energy Turbines (SSM-WET) and **Small Tower Mounted Wind Energy Turbines (STM-WET)** shall be subject to the following:

1. "Upwind Turbines" shall be required.

2. Visual Appearance:

   a. SSM-WETs and STM-WETs, including accessory building and related structures, shall be a non-reflective, non-obtrusive color (e.g. white, gray, black). The appearance of the turbine, tower, and any ancillary facility shall be maintained throughout the life of the SM-WET and TM-WET.

   b. A SSM-WET or STM-WET shall not be artificially lighted, except to the extent required by the FAA or other applicable authority, or otherwise necessary for the reasonable safety and security thereof.

   c. SSM-WET or STM-WET shall not be used for displaying any advertising (including flags, streamers, or decorative items), except for identification of the turbine manufacturer.

3. Ground Clearance: The lowest extension of any rotor blade or other exposed moving component of an SSM-WET or STM-WET shall be at least fifteen (15) feet above the ground (at the highest point of the natural grade within thirty [30] feet of the base of the WET) and, in addition, at least fifteen (15) feet above any outdoor areas intended for human use, such as balconies or roof gardens, that are located directly below the SM-WET or STM-WET.

4. Noise: Noise emanating from the operation of a WET shall not exceed, at any time, the lowest ambient sound level that is present between the hours of 9:00 p.m. and 9:00 a.m. at any property line of a residential use parcel or from the property lines of parks, schools, hospitals, and churches. Noise emanating from the operation of a WET shall not exceed at any time, the lowest ambient noise level plus 5 dBA that is present between the hours of 9:00 p.m. and 9:00 a.m. at any property line of a non-residential use parcel.

5. Vibration: Vibrations shall not be produced which are humanly perceptible beyond the property on which a SSM-WET or STM-WET is located.

6. Guy Wires: Guy wires shall not be permitted at part of the SSM-WET or STM-WET.

7. In addition to the Siting and Design Requirements listed previously, the SSM-WET shall also be subject to the following:

   a. Height: The height of a SSM-WET shall not exceed fifteen (15) feet as measured from the highest point of the roof, excluding chimneys, antennae, and other similar protuberances.

b. Setback: The setback of the SSM-WET shall be a minimum of fifteen (15) feet from the property line, public right-of-way, public easement, or overhead utility lines if mounted directly on a roof or other elevated surface of a structure. If the SM-WET is affixed by any extension to the side, roof, or other elevated surface, then the setback from the property line or public right-of-way shall be a minimum of fifteen (15) feet. The setback shall be measured from the furthest outward extension of all moving parts.

c. Separation: If more than on SSM-WET is installed, a distance equal to the height of the highest SSM-WET must be maintained between the base of each SSM-WET

8. In addition to the Siting and Design Requirements listed previously, the STM-WET shall be subject to the following:

a. Height: The total height of a STM-WET shall not exceed one hundred twenty (120) feet.

b. Location: The STM-WET shall only be located in the rear yard of a property that has an occupied building.

c. Occupied Building Setback: The setback from all occupied buildings on the applicant's parcel shall be a minimum of twenty (20) feet as measured from the base of the tower.

d. Other Setbacks: The setback shall be equal to the Total Height of the STM-WET as measured from the base of the tower, from the property line, public right-of-way, public easement, or overhead public utility lines. This setback may be reduced if the applicant provides a registered engineer's certification that the WET is designed to collapse, fall, curl, or bend within a distance or zone shorter than the height of the wind turbine.

e. Separation: If more than one STM-WET is installed, a distance equal to the height of the highest STM-WET must be maintained between the bases of each STM-WET.

f. Electrical System: All electrical controls, control wiring, grounding wires, power lines, and system components shall be placed underground within the boundary of each parcel at a depth designed to accommodate the existing land use to the maximum extent practicable. Wiring necessary to connect the wind generator to the tower wiring are exempt from this requirement.

9. Safety Requirements

a. If the SSM-WET or STM-WET is connected to a public utility system for net-metering purposes, it shall meet the requirements for interconnection and operation as set forth in the public utility's then-current service regulations meeting federal, state, and industry standards applicable to wind power

generation facilities, and the connection shall be inspected by the appropriate public utility.

b. The SSM-WET or STM-WET shall be equipped with an automatic braking, governing or feathering system to prevent uncontrolled rotation, over-speeding, and excessive pressure on the tower structure, rotor blades and other wind energy components unless the manufacturer verifies that a braking system is not necessary.

c. A clearly visible warning sign regarding voltage shall be placed at the base of the SSM-WET or STM-WET.

d. The structural integrity of the SSM-WET or STM-WET shall conform to the design standards of the International Electrical Commission, specifically IEC 61400-1, "Wind Turbine Safety and Design" and/or 61400-2 "Small Wind Turbine Safety," IEC 61400-22 "Wind Turbine Certification," and IEC 61400.23 "Blade Structural Testing," or any similar successor standards.

10. Signal Interference

The SSM-WET or STM-WET shall not interfere with communication systems such as, but not limited to, radio, television, satellite, or emergency communication systems.

11. Decommissioning

a. The SSM-WET or STM-WET Owner(s) or Operator(s) shall complete decommissioning within twelve (12) months after the end of the useful life. Upon request of the owner(s) or assigns of the SSM-WET or STM-WET, and for good cause, the City of Richmond Planning Commission may grant a reasonable extension of time. The SSM-WET or STM-WET will presume to be at the end of its useful life if no electricity is generated for a continuous period of twelve (12) months. All decommissioning expenses are the responsibility of the Owner(s) or Operator(s).

b. If the SSM-WET or STM-WET Owner(s) or Operator(s) fails to complete decommissioning within the period prescribed above, the City of Richmond Planning Commission may designate a contractor to complete decommission with the expense thereof to be charged to the violator and/or to become a lien against the premises. If the SSM-WET or STM-WET is not owned by the property owner(s), a bond must be provided to the City of Richmond Planning Commission for the cost of decommissioning each SSM-WET or STM-WET.

c. In addition to the Decommissioning requirements listed previously, the STM-WET shall also be subject to the following:

i. Decommissioning shall include the removal of each STM-WET, buildings, electrical components, and any other associated facilities. Any foundation shall be removed to a minimum depth of sixty (60) inches below grade, or to the level of the bedrock if less than sixty (60) inches below grade.

ii. The site and any disturbed earth shall be stabilized, graded, and cleared of any debris by the owner(s) of the facility or its assigns. If the site is not to be used for agricultural practices following removal, the site shall be seeded to prevent soil erosion, unless the property owner(s) request in writing that the land surface areas not be restored

12. Public Inquiries and Complaints

a. Should an aggrieved property owner allege that the SSM-WET or STM-WET is not in compliance with the noise requirements of this Ordinance, the procedure shall be as follows:

i. Notify the City of Richmond in writing regarding concerns about noise level.

ii. If the complaint is deemed sufficient by the City to warrant an investigation, the City will request the aggrieved property owner deposit funds in an amount sufficient to pay for a noise level test conducted by a certified acoustic technician to determine compliance with the requirements of this Ordinance.

iii. If the test indicates that the noise level is within Ordinance noise requirements, the city will use the deposit to pay for the test.

iv. If the SSM-WET or STM-WET Owner(s) is in violation of the Ordinance noise requirements, the Owner(s) shall reimburse the City for the noise level test and take immediate action to bring the SSM-WET or STM-WET into compliance which may include ceasing operation of the WET until Ordinance violations are corrected. The City will refund the deposit to the aggrieved property owner.

Section 16.08 Medium Wind Energy Turbine (M-WET) and Large Wind Energy Turbine (L-WET)

1. "Upwind Turbines" shall be required.

2. The design of a M-WET or L-WET shall conform to all applicable industry standards.

3. Visual Appearance:

   a. Each M-WET or L-WET, including accessory building and related structures, shall be mounted on a tubular tower and a non-reflective, non-obtrusive color (e.g. white, gray, and black). The appearance of turbines, towers, and buildings shall be maintained throughout the life of the M-WET or L-WET.

   b. Each M-WET or L-WET shall not be artificially lighted, except to the extent required by the FAA or other applicable authority, or otherwise necessary for the reasonable safety and security thereof.

   c. Each M-WET or L-WET shall not be used for displaying any advertising (including flags, streamers, or decorative items), except for identification of the turbine manufacturer.

4. Vibration: Vibrations shall not be produced which are humanly perceptible beyond the property on which a it is located.

5. Shadow Flicker: The M-WET or L-WET owner(s) and/or operator(s) shall conduct an analysis on potential shadow flicker at any occupied building with direct line-of-sight to the M-WET or L-WET. The analysis shall identify the location of shadow flicker that may be caused by the project and the expected durations of the flicker at these locations from sun-rise to sun-set over the course of a year. The analysis shall identify situations where shadow flicker may affect the occupants of the buildings for more than 30 hours per year, and describe measures that shall be taken to eliminate or mitigate the problems. Shadow Flicker on a building shall not exceed thirty (30) hours per year.

6. Guy Wires: Guy wires shall not be permitted at part of the M-WET or L-WET.

7. Electrical System: All electrical controls, control wiring, grounding wires, power lines, and all other electrical system components of the M-WET or L-WET shall be placed underground within the boundary of each parcel at a depth designed to accommodate the existing land use to the maximum extent practicable. Wires necessary to connect the wind generator to the tower wiring are exempt from this requirement.

8. In addition to the Siting and Design Requirements listed previously, The M-WET shall also be subject to the following:

   a. Location: The M-WET shall only be located in a General Common Element as part of a larger planned development.

   b. Height: The total height of a M-WET shall not exceed one hundred fifty (150) feet.

c. Ground Clearance: The lowest extension of any blade or other exposed moving component of a M-WET shall be at least fifteen (15) feet above the ground (at the highest point of the grade within fifty [50] feet of the base of the tower) and, in addition, at least fifteen (15) feet above any outdoor areas intended for human occupancy, such as balconies or roof gardens that area located directly below the M-WET.

d. Noise

i. Noise emanating from the operation of a M-WET or shall not exceed, at any time, the lowest ambient sound level that is present between the hours of 9:00 p.m. and 9:00 a.m. at any property line of a residential or agricultural use parcel or from the property line of parks, schools, hospitals, and churches. Noise emanating from the operation of a M-WET(s) shall not exceed, at any time, the lowest ambient noise level plus 5 dBA that is not present between the hours of 9:00 p.m. and 9:00 a.m. at any property line of a non0residential or non-agricultural use parcel.

e. Quantity: The number of M-WETs shall be determined based on setbacks and separation.

f. Setback & Separation:

i. Occupied Building Setback: The setback from all occupied building on the application's parcel shall be a minimum of twenty (20) feet measured from the base of the tower.

ii. Property Line Setbacks: With the exception of the locations of public roads (see below), drain rights-of-way and parcels with occupied buildings (see above), the internal property line setbacks shall be equal to the total height of the M-WET as measured from the base of the tower. This setback may be reduced to a distance agreed upon as part of the special use permit if the applicant provides a registered engineer's certification that the WET is designed to collapse, fall, curl, or bend within a distance or zone shorter than the heights of the WET.

iii. Public Road Setbacks: Each M-WET shall be set back from the nearest public road a distance equal to the Total Height of the M-WET, determined at the nearest boundary of the underlying right-of-way for such public road.

iv. Communication and Electrical Lines: Each M-WET shall be set back from the nearest above-ground public electric power line or telephone line a distance equal to the Total Height of the M-WET, as measured from the base of the Tower, determined from the existing power line or telephone line.

v. Tower Separation: M-WET/tower separation shall be based on industry standard and manufacturer recommendation.

9. In addition to the Siting and Design Requirements listed previously, The L-WET shall also be subject to the following:

   a. Ground Clearance: The lowest extension of any blade or other exposed moving component of an L-WET shall be at least fifty (50) feet above the ground (at the highest point of the grade level within one hundred fifty feet [150] feet of the base of the tower).

   b. Noise

      i. Noise emanating from the operation of a M-WET or shall not exceed, at any time, the lowest ambient sound level that is present between the hours of 9:00 p.m. and 9:00 a.m. at any property line of a residential or agricultural use parcel or from the property line of parks, schools, hospitals, and churches. Noise emanating from the operation of a M-WET(s) shall not exceed, at any time, the lowest ambient noise level plus 5 dBA that is not present between the hours of 9:00 p.m. and 9:00 a.m. at any property line of a nonresidential or non-agricultural use parcel.

   c. Quantity: The number of L-WETs shall be determined based on setbacks and separation.

   d. Setback & Separation:

      i. Occupied Building Setback: Each L-WET shall be set back from the nearest Occupied Building located on the same parcel as the L-WET a minimum of two (2) times its Total Height, or one thousand (1,000) feet, as measured from the base of the tower, whichever is greater.

      ii. Property Line Setbacks: With the exception of the locations of public roads (see below), drain rights-of-way and parcels with occupied buildings (see above) , the internal property line setbacks shall be equal to one and one-half (1.5) time the Total Height of the L-WET as measured from the base of the tower. This setback may be reduced to a distance agreed upon as part of the planning commission review if the applicant provides a registered engineer's certification that the WET is designed to collapse, fall, curl, or bend within a distance or zone shorter than the heights of the WET.

      iii. Wind Energy Overlay District Setbacks: Along the border of the Wind Energy Overlay District, there shall be a setback equal to two (2) times the Total Height as measured from the base of the Tower.

      iv. Public Road Setbacks: Each L-WET shall be set back from the nearest public road a distance equal of no less than four hundred (400) feet or one and one-half (1.5) times its Total Height, whichever is greater, determined at the nearest boundary of the underlying right-of-way for such public road.

v. Communication and Electrical Lines: Each M-WET shall be set back from the nearest above-ground public electric power line or telephone line a distance no less than four hundred (400) feet or one and one-half (1.5) times its Total Height, whichever is greater, determined from the existing power line or telephone line.

vi. Tower Separation: M-WET/tower separation shall be based on industry standard and manufacturer recommendation.

e. Access Driveway Each L-WET shall require the construction of a private road to offer an adequate means by which the City of Richmond may readily access the site in the event of an emergency. All private roads shall be constructed to the City's private road standards.

10. Safety Requirements:

a. If the M-WET or L-WET is connected to a public utility grid for net-metering purposes, it shall meet the requirements for interconnection and operation as set forth in the public utility's then-current service regulations applicable to wind power generation facilities, and this connection shall be inspected by the appropriate public utility.

b. The M-WET or L-WET shall be equipped with an automatic braking or governing system to prevent uncontrolled rotation, over-speeding, and excessive pressure on the tower structure, rotor blades and other wind energy components unless the manufacturer certifies that a braking system is not necessary.

c. Security measures need to be in place to prevent unauthorized trespass and access. Each M-WET or L-WET shall not be climbable up to fifteen (15) feet above ground surfaces. All access doors to M-WETs or L-WETs and electrical equipment shall be locked and/or fenced as appropriate, to prevent entry by non-authorized person(s).

d. All spent lubricants, cooling fluids, and any other hazardous materials shall be properly and safely removed in a timely manner.

e. Each M-WET or L-WET shall have one sign, not to exceed two (2) square feet in area, posted at the base of the tower and on the security fence if applicable. The sign shall contain at least the following:

i. Warning High Voltage

ii. Manufacturer's and owner/operator name

iii. Emergency contact numbers (list more than one number)

f. The Structural integrity of the M-WET or L-WET shall conform to the design standards of the International Electrical Commission, specifically IEC 61400-1, "Wind Turbine Safety and Design," IEC 61400-22 "Wind Turbine Certification," and IEC 61400-23 "Lade Structural Testing," or any similar successor standards.

11. Signal Interference

The SSM-WET or STM-WET shall not interfere with communication systems such as, but not limited to, radio, television, satellite, or emergency communication systems.

12. Decommissioning

a. The M-WET or L-WET Owner(s) or Operator(s) shall complete decommissioning within twelve (12) months after the end of the useful life. Upon request of the owner(s) or the assigned of the M-WET or L-WET, and for good cause, the City of Richmond Planning Commission may grant a reasonable extension of time. Each M-WET or L-WET will presume to be at the end of its useful life if no electricity is generated for a continuous period of twelve (12) months. All decommissioning expenses are the responsibility of the Owner(s) or Operator(s).

b. Decommissioning shall include removal of each M-WET or L-WET, buildings, electrical components, and roads to a depth of sixty (60) inches, as well as any other associated facilities. Any foundation shall be removed to a minimum depth of sixty (60) inches below grade, or to the level of the bedrock if less than sixty (60) inches below grade. Following removal, the location of any remaining wind turbine foundation shall be identified on a map as such and recorded with the deed to the property with the County Register of Deeds.

c. All access roads to the M-WET or L-WET shall be removed, cleared, and graded by the M-WET or L-WET Owner(s), unless the property owner(s) requests, in writing, a desire to maintain the access road. The City of Richmond will not be assumed to take ownership of any access road unless through official action of the Richmond City Council.

d. The site and any disturbed earth shall be stabilized, graded, and cleared of any debris by the owner(s) of the M-WET or L-WET or its assigns. If the site is not to be used for agricultural practices following removal, the site shall be seeded to prevent soil erosion, unless the property owner(s) request in writing that the land surface areas not be restored

e. In addition to the Decommissioning Requirements listed previously, the M-WET shall also be subject to the following:

i. If the M-WET Owner(s) or Operator(s) fails to complete decommissioning within the period prescribed above, the City may designate a contractor to complete decommissioning with the expense thereof to be charged to the violator and/or to become a lien against the premises. If the M-WET is not owned by the property owner(s), a bond must be provided to the City for the cost of decommissioning each M-WET.

f. In addition to the Decommissioning Requirements previously listed, the L-WET shall also be subject to the following:

i. An independent and certified professional engineer shall be retained to estimate the total cost of decommissioning ("Decommissioning Costs") with no regard to salvage value of the equipment, and the cost of decommissioning net salvage value of the equipment ("Net Decommissioning Costs"). When determining the amount, the City may also require an annual escalator or increase based on the Federal Consumer Price Index (or equivalent or its successor). Said estimates shall be submitted to the City Planner after first year of operation and every fifth year thereafter.

ii. The L-WET Owner(s) or Operator(s) shall post and maintain Decommissioning Funds in an amount equal to Net Decommissioning Costs; provided that at no point shall Decommissioning Funds be less than one hundred percent (100%) of Decommissioning Costs. The Decommissioning Funds shall be posted and maintained with a bonding company or Federal or State Chartered lending institution chosen by the Owner(s) or Operator(s) and participating landowner(s) posting the financial security. The bonding company or lending institution is authorized to conduct such business and is approve by the City.

iii. Decommissioning Funds shall be in the form of a performance bond made out to the City.

iv. A condition of the bond shall be notification by the bond company to the City Planner when the bond is about to expire or be terminated.

v. Failure to keep the bond in effect while a L-WET is in place will be a violation of the special land use permit. If a lapse in the bond occurs the City may take action up to and including requiring ceasing operation of the WET until the bond is reposted.

vi. The escrow agent shall release the Decommissioning Funds when the Owner(s) has demonstrated and the City concurs the decommissioning has been satisfactorily completed, or upon written approval of the City in order to implement the decommissioning plan.

vii. If neither the Owner(s) or Operator(s), nor the landowner(s) complete decommissioning within the periods addressed previously (Decommissioning Requirements A and B), then the City may take such measures as necessary to complete decommissioning. The entry into and submission of evidence of a Participating Landowner agreement to the City shall constitute agreement and consent of the parties to the agreement, their respective heirs, successors and assigns that the City may take such action as necessary to implement the decommissioning plan.

13. Public Inquiries and Complaints

b. Should an aggrieved property owner allege that the SSM-WET or STM-WET is not in compliance with the noise requirements of this Ordinance, the procedure shall be as follows:

v. Notify the City of Richmond in writing regarding concerns about noise level.

vi. If the complaint is deemed sufficient by the City to warrant an investigation, the City will request the aggrieved property owner deposit funds in an amount sufficient to pay for a noise level test conducted by a certified acoustic technician to determine compliance with the requirements of this Ordinance.

vii. If the test indicates that the noise level is within Ordinance noise requirements, the city will used the deposit to pay for the test.

If the SSM-WET or STM-WET Owner(s) is in violation of the Ordinance noise requirements, the Owner(s) shall reimburse the City for the noise level test and take immediate action to bring the SSM-WET or STM-WET into compliance which may include ceasing operation of the WET until Ordinance violations are corrected. The City will refund the deposit to the aggrieved property owner.