



OHIO DEPARTMENT OF TRANSPORTATION

Mike DeWine, Governor

Jack Marchbanks, Ph.D., Director

Office of Aviation

2829 West Dublin-Granville Rd. Columbus, OH 43235

614-793-5040

transportation.ohio.gov

March 10, 2020

Andrew Conway, P.E.
Public Utilities Commission of Ohio
Rates and Analysis Department
Siting, Efficiency, and Renewable Energy Division
180 East Broad Street
Columbus, Ohio 43215

Sent via electronic mail: Andrew.Conway@puco.ohio.gov

Subject: Application for certification of Emerson Creek Wind Farm Project
(Case No. 18-1607-EL-BGN)

Dear Mr. Conway,

Pursuant to Ohio Revised Code (ORC) §4561.341, the Ohio Department of Transportation, Office of Aviation (ODOT) has reviewed the application for certification submitted by Apex Clean Energy aka Firelands Wind LLC for the Emerson Creek Wind Farm to determine whether the proposed facility will constitute an obstruction to air space. On February 7, 2020, our office issued a determination to the Ohio Power Siting Board (enclosed). At this time, pursuant to a recent court decision, we are modifying this determination as described below.

The proposed 85 wind turbine structures will be obstructions under the standards established by 14 CFR Part 77 and have been determined by the FAA to have an adverse effect on the safe and efficient use of navigable airspace by aircraft. However, ODOT Office of Aviation's determination is limited by statute to include only impacts to the clear zone, horizontal, conical, primary, approach and transitional surfaces of airports that have been issued a commercial operating certificate. None of the proposed wind turbine structures impact these surfaces.

If you have any questions regarding this determination, please do not hesitate to contact our office.

Respectfully,

ODOT Office of Aviation
2829 W. Dublin Granville Road
Columbus, OH 43235

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Attach: OPSB Emerson Creek Wind Farm 02072020.pdf



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February 7, 2020

Andrew Conway, P.E.
Public Utilities Commission of Ohio
Rates and Analysis Department
Siting, Efficiency, and Renewable Energy Division
180 East Broad Street
Columbus, Ohio 43215

Sent via electronic mail: Andrew.Conway@puco.ohio.gov

Subject: Application for certification of Emerson Creek Wind Farm Project
(Case No. 18-1607-EL-BGN)

Dear Mr. Conway,

Pursuant to Ohio Revised Code (ORC) §4561.341, the Ohio Department of Transportation, Office of Aviation (ODOT) has reviewed the application for certification submitted by Apex Clean Energy for the Emmerson Creek Wind Farm to determine whether the proposed facility will constitute an obstruction to air space. Our office reviewed the eighty-five (85) aeronautical studies for the subject Case, all of which are wind turbine generators, eighty-two (82) of which were filed for a height of 659 feet above ground level (AGL) and three (3) of which were filed for a height of 607 feet above ground level (AGL). The structures have been assigned FAA aeronautical study numbers (ASNs) as detailed on the attached chart. The FAA issued a Determination of No Hazzard for all eighty-five (85) structures on October 24, 2019.

ODOT ANALYSIS OF IMPACT OF THE FIFTY WIND TURBINE GENERATORS:

The location and height of all 85 wind turbine structures would exceed the 499 feet above ground level (AGL) maximum and would constitute an obstruction to air navigation by exceeding this 14 C.F.R. Part 77.17(a)(1) height. Three (3) structures exceed this height by 108 feet and eighty-two (82) structures exceed this height by 160 feet. The specific impacts are detailed on the attached chart.

The location and height of eighteen (18) of the wind turbine structures, specifically structures T58, T60, T61, T62, T63, T64, T65, T66, T67, T68, T69, T70, T71, T79, T80, T81, T82 and T83, would constitute an obstruction to air navigation by exceeding the 14 C.F.R. Part 77.17(a)(2) height maximums of the Willard Airport (8G1) by heights between 34 feet and 299 feet. The specific impacts are detailed on the attached chart.

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The location and height of structure T83 would constitute an obstruction to air navigation by exceeding the 14 C.F.R. Part 77.17(a)(3) height within the departure area for the Willard Airport (8G1) by 1 foot.

The location and height of twenty-three (23) of the wind turbine structures would constitute an obstruction to air navigation by exceeding the 14 C.F.R. Part 77.17(a)(4) height of Federal Airway routes, specifically the Non-Directional Beacon instrument approach procedure to runway 27 Minimum Safe Altitude (NDB RWY 27 MSA) at the Erie-Ottawa International Airport (PCW) as well as the minimum vectoring altitude (MVA) for the Toledo terminal radar approach control (TOL TRACON). These impacts are identified in detail in the FAA's Determination of No Hazard and are summarized on the attached chart.

PUBLIC COMMENT:

As part of the FAA's aeronautical study process, the project was circularized to solicit public input. ODOT forwarded the FAA circularization directly to various aviation stakeholders to seek their input as well. Three (3) comments were submitted to the FAA by the general public and reviewed by ODOT, which are attached.

In addition, ODOT coordinated directly with the airport sponsors of the two (2) affected airports, Erie-Ottawa International Airport (PCW) and Willard Airport (8G1). Stan Gebhart, Airport Director for Erie-Ottawa International Airport, responded that they have no objection to the proposed project. Jim Ludban, City Manager for the City of Willard, submitted a letter objecting to allowing any Part 77 obstruction to air navigation. Both responses are attached.

ODOT DETERMINATION:

Pursuant to ORC 4561.341, "...if the office [of aviation] determines that the facility constitutes or will constitute an obstruction to air navigation, it shall provide, in writing, this determination and either the terms, conditions, and modifications that are necessary for the applicant to eliminate the obstruction or a statement that compliance with the obstruction standards may be waived."

Our office and the FAA have identified the same impacts of these structures. The difference is that the FAA makes their determination of no hazard based on a "no **substantial** adverse effect" standard whereas the ORC §4561.34 states "[T]he consideration of safety shall be paramount to considerations of economic or technical factors. In making a determination ... the department may consider findings and recommendations of other governmental entities and interested persons...". Based on our independent analysis of the project with respect to 14 CFR Part 77 airspace and the input of the aviation stakeholders, ODOT provides the following determination:

Structure T58: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1464 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, compliance with

the remaining obstruction standards may be waived provided the conditions of the FAA determination are complied with.

Structure T60: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1335 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T61: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1459 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, compliance with the remaining obstruction standards may be waived provided the conditions of the FAA determination are complied with.

Structure T62: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1308 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T63: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1423 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, compliance with the remaining obstruction standards may be waived provided the conditions of the FAA determination are complied with.

Structure T64: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1456 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, compliance with the remaining obstruction standards may be waived provided the conditions of the FAA determination are complied with.

Structure T65: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1376 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T66: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1251 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T67: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1259 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T68: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1269 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T69: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1298 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T70: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1384 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T71: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1241 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T79: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1304 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T80: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1349 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T81: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1336 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T82: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1337 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

Structure T83: The elimination of this structure from the project or the reduction of the height of this structure to the no effect height of 1319 AMSL is necessary to eliminate the obstruction and its impact to 8G1. If the height of this structure is reduced as indicated, it will be compliant with obstruction standards provided the conditions of the FAA determination are complied with.

All other Structures: Compliance with the obstruction standards may be waived provided the conditions of the FAA determination are complied with.

If you have any questions regarding this review and determination, please do not hesitate to contact our office.

Respectfully,

ODOT Office of Aviation
2829 W. Dublin Granville Road
Columbus, OH 43235

Attach: Emerson Creek Wind Farm Summary, FAA Determination, Public Comments

| Emerson Creek Wind Farm Summary (OPSB Case No. 18-1607-EL-BGN) | | | | | | | | | | | | | | | |
|--|----------------|----------------|---------|------------------------|------|--------------|--------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|
| ASN | Structure Type | Structure Name | Status | Structure Height (AGL) | AMSL | Latitude | Longitude | 77.17(a)(1) Impact (ft) | 77.17(a)(1) NEH (AMSL) | 77.17(a)(2) Impact (ft) | 77.17(a)(2) NEH (AMSL) | 77.17(a)(3) Impact (ft) | 77.17(a)(3) NEH (AMSL) | 77.17(a)(4) Impact (ft) | 77.17(a)(4) NEH (AMSL) |
| 2018-WTE-11906-OE | Wind Turbine | T1 | DET-DNH | 659 | 1375 | 41-20-13.53N | 82-47-50.44W | 160 | 1215 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11907-OE | Wind Turbine | T10 | DET-DNH | 659 | 1379 | 41-18-40.69N | 82-47-05.49W | 160 | 1219 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11908-OE | Wind Turbine | T11 | DET-DNH | 659 | 1381 | 41-18-35.12N | 82-47-59.11W | 160 | 1221 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11909-OE | Wind Turbine | T12 | DET-DNH | 659 | 1385 | 41-18-20.22N | 82-47-15.50W | 160 | 1225 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11910-OE | Wind Turbine | T13 | DET-DNH | 659 | 1383 | 41-18-18.46N | 82-46-53.64W | 160 | 1223 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11911-OE | Wind Turbine | T14 | DET-DNH | 659 | 1363 | 41-18-13.69N | 82-41-49.09W | 160 | 1203 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11912-OE | Wind Turbine | T15 | DET-DNH | 659 | 1357 | 41-18-11.01N | 82-41-18.24W | 160 | 1197 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11913-OE | Wind Turbine | T16 | DET-DNH | 659 | 1351 | 41-18-06.70N | 82-41-02.12W | 160 | 1191 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11914-OE | Wind Turbine | T17 | DET-DNH | 659 | 1375 | 41-17-51.98N | 82-44-29.72W | 160 | 1215 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11915-OE | Wind Turbine | T18 | DET-DNH | 659 | 1383 | 41-17-41.67N | 82-45-14.48W | 160 | 1223 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11916-OE | Wind Turbine | T19 | DET-DNH | 659 | 1377 | 41-17-42.06N | 82-44-16.18W | 160 | 1217 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11917-OE | Wind Turbine | T2 | DET-DNH | 659 | 1375 | 41-20-05.46N | 82-46-13.71W | 160 | 1215 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2019-WTE-1150-OE | Wind Turbine | T20 | DET-DNH | 659 | 1382 | 41-17-30.41N | 82-44-06.47W | 160 | 1222 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11919-OE | Wind Turbine | T21 | DET-DNH | 659 | 1401 | 41-17-12.38N | 82-45-19.15W | 160 | 1241 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11920-OE | Wind Turbine | T22 | DET-DNH | 659 | 1389 | 41-17-02.56N | 82-44-12.71W | 160 | 1229 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11921-OE | Wind Turbine | T23 | DET-DNH | 659 | 1413 | 41-15-49.62N | 82-45-25.29W | 160 | 1253 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11922-OE | Wind Turbine | T24 | DET-DNH | 659 | 1441 | 41-15-41.31N | 82-48-35.15W | 160 | 1281 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11923-OE | Wind Turbine | T25 | DET-DNH | 659 | 1439 | 41-15-24.83N | 82-48-41.23W | 160 | 1279 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11924-OE | Wind Turbine | T26 | DET-DNH | 659 | 1443 | 41-15-19.91N | 82-48-17.28W | 160 | 1283 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11925-OE | Wind Turbine | T27 | DET-DNH | 659 | 1435 | 41-14-51.86N | 82-46-32.11W | 160 | 1275 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11926-OE | Wind Turbine | T28 | DET-DNH | 659 | 1417 | 41-14-50.80N | 82-45-19.11W | 160 | 1257 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11927-OE | Wind Turbine | T29 | DET-DNH | 659 | 1447 | 41-14-45.63N | 82-47-48.58W | 160 | 1287 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11928-OE | Wind Turbine | T3 | DET-DNH | 659 | 1351 | 41-19-53.29N | 82-41-13.45W | 160 | 1191 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11929-OE | Wind Turbine | T30 | DET-DNH | 659 | 1435 | 41-14-40.17N | 82-46-16.48W | 160 | 1275 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11930-OE | Wind Turbine | T31 | DET-DNH | 659 | 1415 | 41-14-39.51N | 82-45-07.90W | 160 | 1255 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11931-OE | Wind Turbine | T32 | DET-DNH | 659 | 1447 | 41-14-32.40N | 82-47-52.63W | 160 | 1287 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11932-OE | Wind Turbine | T33 | DET-DNH | 659 | 1411 | 41-14-31.14N | 82-44-40.06W | 160 | 1251 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11933-OE | Wind Turbine | T34 | DET-DNH | 659 | 1445 | 41-14-25.33N | 82-49-55.61W | 160 | 1285 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11934-OE | Wind Turbine | T35 | DET-DNH | 659 | 1433 | 41-14-17.41N | 82-46-15.83W | 160 | 1273 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11935-OE | Wind Turbine | T36 | DET-DNH | 659 | 1417 | 41-14-16.85N | 82-45-03.60W | 160 | 1257 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11936-OE | Wind Turbine | T37 | DET-DNH | 659 | 1451 | 41-14-09.25N | 82-49-34.69W | 160 | 1291 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11937-OE | Wind Turbine | T38 | DET-DNH | 659 | 1461 | 41-14-05.43N | 82-50-02.03W | 160 | 1301 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11938-OE | Wind Turbine | T39 | DET-DNH | 659 | 1447 | 41-13-44.73N | 82-48-17.47W | 160 | 1287 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11939-OE | Wind Turbine | T4 | DET-DNH | 659 | 1347 | 41-19-39.09N | 82-41-03.03W | 160 | 1187 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11941-OE | Wind Turbine | T41 | DET-DNH | 659 | 1443 | 41-12-13.95N | 82-46-53.36W | 160 | 1283 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11942-OE | Wind Turbine | T42 | DET-DNH | 659 | 1441 | 41-12-01.31N | 82-46-38.15W | 160 | 1281 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11943-OE | Wind Turbine | T43 | DET-DNH | 659 | 1487 | 41-11-53.20N | 82-49-51.92W | 160 | 1327 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11944-OE | Wind Turbine | T44 | DET-DNH | 659 | 1449 | 41-11-33.33N | 82-46-28.97W | 160 | 1289 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11945-OE | Wind Turbine | T45 | DET-DNH | 659 | 1451 | 41-11-15.83N | 82-46-30.13W | 160 | 1291 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11946-OE | Wind Turbine | T46 | DET-DNH | 659 | 1455 | 41-10-54.73N | 82-46-54.79W | 160 | 1295 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11947-OE | Wind Turbine | T47 | DET-DNH | 659 | 1479 | 41-10-35.69N | 82-49-46.04W | 160 | 1319 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11948-OE | Wind Turbine | T48 | DET-DNH | 659 | 1495 | 41-09-17.21N | 82-48-41.34W | 160 | 1335 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11949-OE | Wind Turbine | T49 | DET-DNH | 659 | 1487 | 41-09-06.18N | 82-46-53.24W | 160 | 1327 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11950-OE | Wind Turbine | T5 | DET-DNH | 659 | 1345 | 41-19-38.77N | 82-40-48.16W | 160 | 1185 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11951-OE | Wind Turbine | T50 | DET-DNH | 659 | 1503 | 41-09-00.95N | 82-49-20.03W | 160 | 1343 | N/A | N/A | N/A | N/A | 3 | 1500 |
| 2018-WTE-11952-OE | Wind Turbine | T51 | DET-DNH | 659 | 1501 | 41-08-54.22N | 82-48-42.36W | 160 | 1341 | N/A | N/A | N/A | N/A | 1 | 1500 |
| 2018-WTE-11953-OE | Wind Turbine | T52 | DET-DNH | 659 | 1521 | 41-08-31.18N | 82-49-57.60W | 160 | 1361 | N/A | N/A | N/A | N/A | 21 | 1500 |
| 2018-WTE-11954-OE | Wind Turbine | T53 | DET-DNH | 659 | 1523 | 41-08-19.44N | 82-49-57.20W | 160 | 1363 | N/A | N/A | N/A | N/A | 23 | 1500 |

| | | | | | | | | | | | | | | | |
|-------------------|--------------|-----|---------|-----|------|--------------|--------------|-----|------|-----|------|-----|------|-----|------|
| 2018-WTE-11955-OE | Wind Turbine | T54 | DET-DNH | 659 | 1493 | 41-08-20.55N | 82-46-14.82W | 160 | 1333 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11956-OE | Wind Turbine | T55 | DET-DNH | 659 | 1495 | 41-08-15.32N | 82-46-36.45W | 160 | 1335 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11957-OE | Wind Turbine | T56 | DET-DNH | 659 | 1509 | 41-08-13.84N | 82-47-29.27W | 160 | 1349 | N/A | N/A | N/A | N/A | 9 | 1500 |
| 2018-WTE-11958-OE | Wind Turbine | T57 | DET-DNH | 659 | 1517 | 41-08-10.51N | 82-49-32.23W | 160 | 1357 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11959-OE | Wind Turbine | T58 | DET-DNH | 659 | 1499 | 41-07-57.73N | 82-46-08.52W | 160 | 1339 | 34 | 1464 | N/A | N/A | N/A | N/A |
| 2018-WTE-11960-OE | Wind Turbine | T59 | DET-DNH | 659 | 1519 | 41-07-50.95N | 82-49-19.41W | 160 | 1359 | N/A | N/A | N/A | N/A | 19 | 1500 |
| 2018-WTE-11961-OE | Wind Turbine | T6 | DET-DNH | 659 | 1377 | 41-19-06.64N | 82-47-51.79W | 160 | 1217 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11962-OE | Wind Turbine | T60 | DET-DNH | 659 | 1513 | 41-06-56.14N | 82-44-39.92W | 160 | 1353 | 177 | 1335 | N/A | N/A | 13 | 1500 |
| 2018-WTE-11963-OE | Wind Turbine | T61 | DET-DNH | 659 | 1539 | 41-06-49.98N | 82-48-33.74W | 160 | 1379 | 80 | 1459 | N/A | N/A | 39 | 1500 |
| 2018-WTE-11964-OE | Wind Turbine | T62 | DET-DNH | 659 | 1519 | 41-06-39.47N | 82-44-39.47W | 160 | 1359 | 211 | 1308 | N/A | N/A | 19 | 1500 |
| 2018-WTE-11965-OE | Wind Turbine | T63 | DET-DNH | 659 | 1545 | 41-06-27.36N | 82-48-25.46W | 160 | 1385 | 122 | 1423 | N/A | N/A | 45 | 1500 |
| 2018-WTE-11966-OE | Wind Turbine | T64 | DET-DNH | 659 | 1561 | 41-05-54.65N | 82-49-40.26W | 160 | 1401 | 105 | 1456 | N/A | N/A | 61 | 1500 |
| 2018-WTE-11967-OE | Wind Turbine | T65 | DET-DNH | 659 | 1553 | 41-05-47.68N | 82-48-24.50W | 160 | 1393 | 177 | 1376 | N/A | N/A | 53 | 1500 |
| 2018-WTE-11968-OE | Wind Turbine | T66 | DET-DNH | 659 | 1537 | 41-05-44.33N | 82-45-49.33W | 160 | 1377 | 286 | 1251 | N/A | N/A | 37 | 1500 |
| 2018-WTE-11969-OE | Wind Turbine | T67 | DET-DNH | 607 | 1483 | 41-05-39.35N | 82-46-14.28W | 108 | 1375 | 223 | 1259 | N/A | N/A | N/A | N/A |
| 2018-WTE-11970-OE | Wind Turbine | T68 | DET-DNH | 659 | 1541 | 41-05-33.76N | 82-46-38.70W | 160 | 1381 | 272 | 1269 | N/A | N/A | 41 | 1500 |
| 2018-WTE-11971-OE | Wind Turbine | T69 | DET-DNH | 659 | 1547 | 41-05-30.09N | 82-47-20.16W | 160 | 1387 | 249 | 1298 | N/A | N/A | 47 | 1500 |
| 2018-WTE-11972-OE | Wind Turbine | T7 | DET-DNH | 659 | 1381 | 41-19-04.98N | 82-46-59.20W | 160 | 1221 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11973-OE | Wind Turbine | T70 | DET-DNH | 607 | 1511 | 41-05-17.21N | 82-49-04.73W | 108 | 1403 | 127 | 1384 | N/A | N/A | 11 | 1500 |
| 2018-WTE-11974-OE | Wind Turbine | T71 | DET-DNH | 659 | 1541 | 41-05-13.47N | 82-46-37.25W | 160 | 1381 | 299 | 1241 | N/A | N/A | 41 | 1500 |
| 2018-WTE-11975-OE | Wind Turbine | T72 | DET-DNH | 659 | 1377 | 41-19-02.70N | 82-47-24.36W | 160 | 1217 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11976-OE | Wind Turbine | T73 | DET-DNH | 659 | 1381 | 41-18-35.43N | 82-48-57.49W | 160 | 1221 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11977-OE | Wind Turbine | T74 | DET-DNH | 659 | 1379 | 41-18-25.38N | 82-49-04.39W | 160 | 1219 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11978-OE | Wind Turbine | T75 | DET-DNH | 659 | 1439 | 41-15-37.82N | 82-48-11.21W | 160 | 1279 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11980-OE | Wind Turbine | T77 | DET-DNH | 659 | 1447 | 41-11-50.81N | 82-46-34.22W | 160 | 1287 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11981-OE | Wind Turbine | T78 | DET-DNH | 659 | 1519 | 41-08-01.35N | 82-49-23.51W | 160 | 1359 | N/A | N/A | N/A | N/A | 19 | 1500 |
| 2018-WTE-11982-OE | Wind Turbine | T79 | DET-DNH | 659 | 1517 | 41-06-39.21N | 82-44-24.98W | 160 | 1357 | 212 | 1304 | N/A | N/A | 17 | 1500 |
| 2018-WTE-11983-OE | Wind Turbine | T8 | DET-DNH | 659 | 1377 | 41-18-59.80N | 82-46-33.86W | 160 | 1217 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11984-OE | Wind Turbine | T80 | DET-DNH | 659 | 1615 | 41-03-54.95N | 82-49-29.80W | 160 | 1455 | 266 | 1349 | N/A | N/A | 115 | 1500 |
| 2018-WTE-11985-OE | Wind Turbine | T81 | DET-DNH | 659 | 1617 | 41-03-30.60N | 82-49-29.10W | 160 | 1457 | 281 | 1336 | N/A | N/A | 117 | 1500 |
| 2018-WTE-11986-OE | Wind Turbine | T82 | DET-DNH | 607 | 1539 | 41-02-58.70N | 82-49-37.70W | 108 | 1431 | 202 | 1337 | N/A | N/A | 39 | 1500 |
| 2018-WTE-11987-OE | Wind Turbine | T83 | DET-DNH | 659 | 1604 | 41-02-55.86N | 82-49-23.69W | 160 | 1444 | 285 | 1319 | 1 | 1603 | 104 | 1500 |
| 2018-WTE-11988-OE | Wind Turbine | T84 | DET-DNH | 659 | 1367 | 41-19-46.89N | 82-44-30.18W | 160 | 1207 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11989-OE | Wind Turbine | T85 | DET-DNH | 659 | 1381 | 41-19-45.02N | 82-45-11.05W | 160 | 1221 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11990-OE | Wind Turbine | T86 | DET-DNH | 659 | 1367 | 41-19-40.50N | 82-44-11.22W | 160 | 1207 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11991-OE | Wind Turbine | T87 | DET-DNH | 659 | 1441 | 41-14-31.12N | 82-49-37.55W | 160 | 1281 | N/A | N/A | N/A | N/A | N/A | N/A |
| 2018-WTE-11992-OE | Wind Turbine | T9 | DET-DNH | 659 | 1379 | 41-18-50.99N | 82-47-16.55W | 160 | 1219 | N/A | N/A | N/A | N/A | N/A | N/A |

AGL = Above Ground Level

AMSL = Above Mean Sea Level

DET - DNH = Determined - Determination of No Hazard

NEH = No Effect Height

N/A = Not Applicable



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2018-WTE-11906-OE

Issued Date: 10/24/2019

Nate Pedder
Firelands Wind, LLC
310 4th St. N.E., Suite 300
Charlottesville, VA 22902

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

| | |
|------------|--|
| Structure: | Wind Turbine T1 |
| Location: | Bellevue, OH |
| Latitude: | 41-20-13.53N NAD 83 |
| Longitude: | 82-47-50.44W |
| Heights: | 716 feet site elevation (SE) 659 feet above ground level (AGL) 1375 feet above mean sea level (AMSL) |

This aeronautical study revealed that the structure would have no substantial adverse effect on the safe and efficient utilization of the navigable airspace by aircraft or on the operation of air navigation facilities. Therefore, pursuant to the authority delegated to me, it is hereby determined that the structure would not be a hazard to air navigation provided the following condition(s) is(are) met:

As a condition to this Determination, the structure is to be marked/lighted in accordance with FAA Advisory circular 70/7460-1 L Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights - Chapters 4,12&13(Turbines).

Any failure or malfunction that lasts more than thirty (30) minutes and affects a top light or flashing obstruction light, regardless of its position, should be reported immediately to (877) 487-6867 so a Notice to Airmen (NOTAM) can be issued. As soon as the normal operation is restored, notify the same number.

It is required that FAA Form 7460-2, Notice of Actual Construction or Alteration, be e-filed any time the project is abandoned or:

____ At least 10 days prior to start of construction (7460-2, Part 1)
__X__ Within 5 days after the construction reaches its greatest height (7460-2, Part 2)

See attachment for additional condition(s) or information.

While the structure does not constitute a hazard to air navigation, it would be located within or near a military training area and/or route.

This determination expires on 04/24/2021 unless:

- (a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
- (b) extended, revised, or terminated by the issuing office.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO SIGNIFICANT AERONAUTICAL CHANGES HAVE OCCURRED, YOUR DETERMINATION MAY BE ELIGIBLE FOR ONE EXTENSION OF THE EFFECTIVE PERIOD.

This determination is subject to review if an interested party files a petition that is received by the FAA on or before November 23, 2019. In the event a petition for review is filed, it must contain a full statement of the basis upon which it is made and be submitted to the Manager of the Airspace Policy Group. Petitions can be submitted via mail to Federal Aviation Administration, 800 Independence Ave, SW, Room 423, Washington, DC 20591, via email at OEPetitions@faa.gov, or via facsimile (202) 267-9328.

This determination becomes final on December 03, 2019 unless a petition is timely filed. In which case, this determination will not become final pending disposition of the petition. Interested parties will be notified of the grant of any review. For any questions regarding your petition, please contact Airspace Policy Group via telephone – 202-267-8783.

This determination is based, in part, on the foregoing description which includes specific coordinates and heights. This determination is valid for coordinates within one (1) second latitude/longitude and up to the approved AMSL height listed above. If a certified 1A or 2C accuracy survey was required to mitigate an adverse effect, any change in coordinates or increase in height will require a new certified accuracy survey and may require a new aeronautical study.

If construction or alteration is dismantled or destroyed, you must submit notice to the FAA within 5 days after the construction or alteration is dismantled or destroyed.

Additional wind turbines or met towers proposed in the future may cause a cumulative effect on the national airspace system. All information from submission of Supplemental Notice (7460-2 Part 2) will be considered the final data (including heights) for this structure. Any future construction or alteration, including but not limited to changes in heights, requires separate notice to the FAA.

Obstruction marking and lighting recommendations for wind turbine farms are based on the scheme for the entire project. ANY change to the height, location or number of turbines within this project will require a reanalysis of the marking and lighting recommendation for the entire project. In particular, the removal of previously planned or built turbines/turbine locations from the project will often result in a change in the marking/lighting recommendation for other turbines within the project. It is the proponent's responsibility to contact the FAA to discuss the process for developing a revised obstruction marking and lighting plan should this occur.

In order to ensure proper conspicuity of turbines at night during construction, all turbines should be lit with temporary lighting once they reach a height of 200 feet or greater until such time the permanent lighting configuration is turned on. As the height of the structure continues to increase, the temporary lighting should be relocated to the uppermost part of the structure. The temporary lighting may be turned off for periods when

they would interfere with construction personnel. If practical, permanent obstruction lights should be installed and operated at each level as construction progresses. An FAA Type L-810 steady red light fixture shall be used to light the structure during the construction phase. If power is not available, turbines shall be lit with self-contained, solar powered LED steady red light fixture that meets the photometric requirements of an FAA Type L-810 lighting system. The lights should be positioned to ensure that a pilot has an unobstructed view of at least one light at each level. The use of a NOTAM (D) to not light turbines within a project until the entire project has been completed is prohibited.

This determination does include temporary construction equipment such as cranes, derricks, etc., which may be used during actual construction of the structure. However, this equipment shall not exceed the overall heights as indicated above. Equipment which has a height greater than the studied structure requires separate notice to the FAA.

This determination concerns the effect of this structure on the safe and efficient use of navigable airspace by aircraft and does not relieve the sponsor of compliance responsibilities relating to any law, ordinance, or regulation of any Federal, State, or local government body.

This aeronautical study considered and analyzed the impact on existing and proposed arrival, departure, and en route procedures for aircraft operating under both visual flight rules and instrument flight rules; the impact on all existing and planned public-use airports, military airports and aeronautical facilities; and the cumulative impact resulting from the studied structure when combined with the impact of other existing or proposed structures. The study disclosed that the described structure would have no substantial adverse effect on air navigation.

An account of the study findings, aeronautical objections received by the FAA during the study (if any), and the basis for the FAA's decision in this matter can be found on the following page(s).

If we can be of further assistance, please contact Paul Holmquist, at (206) 231-2990, or paul.holmquist@faa.gov. On any future correspondence concerning this matter, please refer to Aeronautical Study Number 2018-WTE-11906-OE.

Signature Control No: 392869057-420810786

(DNH -WT)

Mike Helvey

Manager, Obstruction Evaluation Group

Attachment(s)

Additional Information

Map(s)

Additional information for ASN 2018-WTE-11906-OE

Abbreviations

AGL - above ground level

AMSL - above mean sea level

RWY - runway

VFR - visual flight rules

IFR - instrument flight rules

NM - nautical mile

ASN- Aeronautical Study Number

CAT - category aircraft

NEH - no effect height

MDA - minimum descent altitude

DA - decision altitude

TPA - traffic pattern altitude

Part 77 - Title 14 Code of Federal Regulations (CFR) Part 77, Safe, Efficient Use and Preservation of the Navigable Airspace

For the sake of efficiency, the 85 proposed wind turbines in this project are included in this narrative. Separate determinations for each proposed structure can be found at <http://oeaaa.faa.gov>.

1. LOCATION OF PROPOSED CONSTRUCTION

The proposed Firelands Wind LLC wind turbine project lies approximately between 11.1 NM east, northeast to 17.7 NM southeast of the Airport Reference Point (ARP) for the Sandusky County Regional Airport (S24), near Fremont, OH. The S24 elevation is 665 AMSL. It can also be described as located approximately between 3.75 NM northwest to 18.2 NM north, northwest of Willard Airport (8G1), Willard, OH. The 8G1 elevation is 967 AMSL.

The proposed wind turbines' described heights and locations are expressed in AGL/AMSL and latitude/longitude.

| ASN | Structure Name | AGL/AMSL | LAT/LONG |
|-------------------|----------------|------------|-----------------------------|
| 2018-WTE-11906-OE | T1 | 659 / 1375 | 41-20-13.53N / 82-47-50.44W |
| 2018-WTE-11907-OE | T10 | 659 / 1379 | 41-18-40.69N / 82-47-05.49W |
| 2018-WTE-11908-OE | T11 | 659 / 1381 | 41-18-35.12N / 82-47-59.11W |
| 2018-WTE-11909-OE | T12 | 659 / 1385 | 41-18-20.22N / 82-47-15.50W |
| 2018-WTE-11910-OE | T13 | 659 / 1383 | 41-18-18.46N / 82-46-53.64W |
| 2018-WTE-11911-OE | T14 | 659 / 1363 | 41-18-13.69N / 82-41-49.09W |
| 2018-WTE-11912-OE | T15 | 659 / 1357 | 41-18-11.01N / 82-41-18.24W |
| 2018-WTE-11913-OE | T16 | 659 / 1351 | 41-18-06.70N / 82-41-02.12W |
| 2018-WTE-11914-OE | T17 | 659 / 1375 | 41-17-51.98N / 82-44-29.72W |
| 2018-WTE-11915-OE | T18 | 659 / 1383 | 41-17-41.67N / 82-45-14.48W |
| 2018-WTE-11916-OE | T19 | 659 / 1377 | 41-17-42.06N / 82-44-16.18W |
| 2018-WTE-11917-OE | T2 | 659 / 1375 | 41-20-05.46N / 82-46-13.71W |
| 2018-WTE-11919-OE | T21 | 659 / 1401 | 41-17-12.38N / 82-45-19.15W |
| 2018-WTE-11920-OE | T22 | 659 / 1389 | 41-17-02.56N / 82-44-12.71W |
| 2018-WTE-11921-OE | T23 | 659 / 1413 | 41-15-49.62N / 82-45-25.29W |
| 2018-WTE-11922-OE | T24 | 659 / 1441 | 41-15-41.31N / 82-48-35.15W |
| 2018-WTE-11923-OE | T25 | 659 / 1439 | 41-15-24.83N / 82-48-41.23W |
| 2018-WTE-11924-OE | T26 | 659 / 1443 | 41-15-19.91N / 82-48-17.28W |
| 2018-WTE-11925-OE | T27 | 659 / 1435 | 41-14-51.86N / 82-46-32.11W |
| 2018-WTE-11926-OE | T28 | 659 / 1417 | 41-14-50.80N / 82-45-19.11W |
| 2018-WTE-11927-OE | T29 | 659 / 1447 | 41-14-45.63N / 82-47-48.58W |

| | | | |
|-------------------|-----|------------|-----------------------------|
| 2018-WTE-11928-OE | T3 | 659 / 1351 | 41-19-53.29N / 82-41-13.45W |
| 2018-WTE-11929-OE | T30 | 659 / 1435 | 41-14-40.17N / 82-46-16.48W |
| 2018-WTE-11930-OE | T31 | 659 / 1415 | 41-14-39.51N / 82-45-07.90W |
| 2018-WTE-11931-OE | T32 | 659 / 1447 | 41-14-32.40N / 82-47-52.63W |
| 2018-WTE-11932-OE | T33 | 659 / 1411 | 41-14-31.14N / 82-44-40.06W |
| 2018-WTE-11933-OE | T34 | 659 / 1445 | 41-14-25.33N / 82-49-55.61W |
| 2018-WTE-11934-OE | T35 | 659 / 1433 | 41-14-17.41N / 82-46-15.83W |
| 2018-WTE-11935-OE | T36 | 659 / 1417 | 41-14-16.85N / 82-45-03.60W |
| 2018-WTE-11936-OE | T37 | 659 / 1451 | 41-14-09.25N / 82-49-34.69W |
| 2018-WTE-11937-OE | T38 | 659 / 1461 | 41-14-05.43N / 82-50-02.03W |
| 2018-WTE-11938-OE | T39 | 659 / 1447 | 41-13-44.73N / 82-48-17.47W |
| 2018-WTE-11939-OE | T4 | 659 / 1347 | 41-19-39.09N / 82-41-03.03W |
| 2018-WTE-11941-OE | T41 | 659 / 1443 | 41-12-13.95N / 82-46-53.36W |
| 2018-WTE-11942-OE | T42 | 659 / 1441 | 41-12-01.31N / 82-46-38.15W |
| 2018-WTE-11943-OE | T43 | 659 / 1487 | 41-11-53.20N / 82-49-51.92W |
| 2018-WTE-11944-OE | T44 | 659 / 1449 | 41-11-33.33N / 82-46-28.97W |
| 2018-WTE-11945-OE | T45 | 659 / 1451 | 41-11-15.83N / 82-46-30.13W |
| 2018-WTE-11946-OE | T46 | 659 / 1455 | 41-10-54.73N / 82-46-54.79W |
| 2018-WTE-11947-OE | T47 | 659 / 1479 | 41-10-35.69N / 82-49-46.04W |
| 2018-WTE-11948-OE | T48 | 659 / 1495 | 41-09-17.21N / 82-48-41.34W |
| 2018-WTE-11949-OE | T49 | 659 / 1487 | 41-09-06.18N / 82-46-53.24W |
| 2018-WTE-11950-OE | T5 | 659 / 1345 | 41-19-38.77N / 82-40-48.16W |
| 2018-WTE-11951-OE | T50 | 659 / 1503 | 41-09-00.95N / 82-49-20.03W |
| 2018-WTE-11952-OE | T51 | 659 / 1501 | 41-08-54.22N / 82-48-42.36W |
| 2018-WTE-11953-OE | T52 | 659 / 1521 | 41-08-31.18N / 82-49-57.60W |
| 2018-WTE-11954-OE | T53 | 659 / 1523 | 41-08-19.44N / 82-49-57.20W |
| 2018-WTE-11955-OE | T54 | 659 / 1493 | 41-08-20.55N / 82-46-14.82W |
| 2018-WTE-11956-OE | T55 | 659 / 1495 | 41-08-15.32N / 82-46-36.45W |
| 2018-WTE-11957-OE | T56 | 659 / 1509 | 41-08-13.84N / 82-47-29.27W |
| 2018-WTE-11958-OE | T57 | 659 / 1517 | 41-08-10.51N / 82-49-32.23W |
| 2018-WTE-11959-OE | T58 | 659 / 1499 | 41-07-57.73N / 82-46-08.52W |
| 2018-WTE-11960-OE | T59 | 659 / 1519 | 41-07-50.95N / 82-49-19.41W |
| 2018-WTE-11961-OE | T6 | 659 / 1377 | 41-19-06.64N / 82-47-51.79W |
| 2018-WTE-11962-OE | T60 | 659 / 1513 | 41-06-56.14N / 82-44-39.92W |
| 2018-WTE-11963-OE | T61 | 659 / 1539 | 41-06-49.98N / 82-48-33.74W |
| 2018-WTE-11964-OE | T62 | 659 / 1519 | 41-06-39.47N / 82-44-39.47W |
| 2018-WTE-11965-OE | T63 | 659 / 1545 | 41-06-27.36N / 82-48-25.46W |
| 2018-WTE-11966-OE | T64 | 659 / 1561 | 41-05-54.65N / 82-49-40.26W |
| 2018-WTE-11967-OE | T65 | 659 / 1553 | 41-05-47.68N / 82-48-24.50W |
| 2018-WTE-11968-OE | T66 | 659 / 1537 | 41-05-44.33N / 82-45-49.33W |
| 2018-WTE-11969-OE | T67 | 607 / 1483 | 41-05-39.35N / 82-46-14.28W |
| 2018-WTE-11970-OE | T68 | 659 / 1541 | 41-05-33.76N / 82-46-38.70W |
| 2018-WTE-11971-OE | T69 | 659 / 1547 | 41-05-30.09N / 82-47-20.16W |
| 2018-WTE-11972-OE | T7 | 659 / 1381 | 41-19-04.98N / 82-46-59.20W |
| 2018-WTE-11973-OE | T70 | 607 / 1511 | 41-05-17.21N / 82-49-04.73W |
| 2018-WTE-11974-OE | T71 | 659 / 1541 | 41-05-13.47N / 82-46-37.25W |
| 2018-WTE-11975-OE | T72 | 659 / 1377 | 41-19-02.70N / 82-47-24.36W |
| 2018-WTE-11976-OE | T73 | 659 / 1381 | 41-18-35.43N / 82-48-57.49W |
| 2018-WTE-11977-OE | T74 | 659 / 1379 | 41-18-25.38N / 82-49-04.39W |

| | | | |
|-------------------|-----|------------|-----------------------------|
| 2018-WTE-11978-OE | T75 | 659 / 1439 | 41-15-37.82N / 82-48-11.21W |
| 2018-WTE-11980-OE | T77 | 659 / 1447 | 41-11-50.81N / 82-46-34.22W |
| 2018-WTE-11981-OE | T78 | 659 / 1519 | 41-08-01.35N / 82-49-23.51W |
| 2018-WTE-11982-OE | T79 | 659 / 1517 | 41-06-39.21N / 82-44-24.98W |
| 2018-WTE-11983-OE | T8 | 659 / 1377 | 41-18-59.80N / 82-46-33.86W |
| 2018-WTE-11984-OE | T80 | 659 / 1615 | 41-03-54.95N / 82-49-29.80W |
| 2018-WTE-11985-OE | T81 | 659 / 1617 | 41-03-30.60N / 82-49-29.10W |
| 2018-WTE-11986-OE | T82 | 607 / 1539 | 41-02-58.70N / 82-49-37.70W |
| 2018-WTE-11987-OE | T83 | 659 / 1604 | 41-02-55.86N / 82-49-23.69W |
| 2018-WTE-11988-OE | T84 | 659 / 1367 | 41-19-46.89N / 82-44-30.18W |
| 2018-WTE-11989-OE | T85 | 659 / 1381 | 41-19-45.02N / 82-45-11.05W |
| 2018-WTE-11990-OE | T86 | 659 / 1367 | 41-19-40.50N / 82-44-11.22W |
| 2018-WTE-11991-OE | T87 | 659 / 1441 | 41-14-31.12N / 82-49-37.55W |
| 2018-WTE-11992-OE | T9 | 659 / 1379 | 41-18-50.99N / 82-47-16.55W |
| 2019-WTE-1150-OE | T20 | 659 / 1382 | 41-17-30.41N / 82-44-06.47W |

2. OBSTRUCTION STANDARDS EXCEEDED

The proposed turbines would exceed Part 77 standards as described below.

- a. Section 77.17(a)(1): The surface above 499 feet AGL, in which an object would be an obstruction to aircraft operating under VFR conditions in the en route phase of flight established under 77.17, 77.19, or 77.23.

All of the turbines listed in Section 1 of this narrative exceed the Part 77 Section 77.17(a)(1) surface by 160 feet.

- b. Section 77.17(a)(2): A height that is 200 feet above ground level or above the established airport elevation, whichever is higher, within three nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile of distance from the airport up to a maximum of 499 feet. 20 proposed structures in this project exceed this surface for the Willard Airport (8G1), Willard, OH. The 8G1 elevation is 967 AMSL.

| ASN | Exceeds Section 77.17(a)(2) for 8G1 by (feet) |
|-----|---|
|-----|---|

| | |
|-------------------|-----|
| 2018-WTE-11959-OE | 34 |
| 2018-WTE-11962-OE | 177 |
| 2018-WTE-11963-OE | 80 |
| 2018-WTE-11964-OE | 211 |
| 2018-WTE-11965-OE | 122 |
| 2018-WTE-11966-OE | 105 |
| 2018-WTE-11967-OE | 177 |
| 2018-WTE-11968-OE | 286 |
| 2018-WTE-11969-OE | 223 |
| 2018-WTE-11970-OE | 272 |
| 2018-WTE-11971-OE | 249 |
| 2018-WTE-11973-OE | 127 |
| 2018-WTE-11974-OE | 299 |
| 2018-WTE-11982-OE | 212 |

| | |
|-------------------|-----|
| 2018-WTE-11984-OE | 266 |
| 2018-WTE-11985-OE | 281 |
| 2018-WTE-11986-OE | 202 |
| 2018-WTE-11987-OE | 285 |

Five proposed structures lies within Willard Airport (8G1) Traffic Pattern Airspace (TPA) as described in FAA JO 7400.2M, 6-3-8, Evaluating Effect on Visual Flight Rules (VFR) Operations. It would exceed the TPA Section 77.17(a)(2) surface as applied to a visual approach runway as described below.

The five proposed wind turbines would lie within the lateral boundaries and penetrate the aircraft Category D VFR TPA for RWY 10/28 at 8G1. Category D aircraft are those aircraft with an approach speed of between 141-165 knots. The proposed turbines would be outside of traffic pattern airspace for all aircraft with an approach speed of less than 141 knots.

| | |
|-----|---|
| ASN | Exceeds Section 77.17(a)(2) TPA for 8G1 by (feet) |
|-----|---|

| | |
|-------------------|-----|
| 2018-WTE-11968-OE | 221 |
| 2018-WTE-11969-OE | 167 |
| 2018-WTE-11970-OE | 225 |
| 2018-WTE-11971-OE | 231 |
| 2018-WTE-11974-OE | 225 |

c. Section 77.17(a)(3) -- A structure that causes less than the required obstacle clearance within a terminal obstacle clearance area, including an initial approach segment, a departure area, and a circling approach area resulting in increases to an IFR terminal minimum altitude.

ASN 2018-WTE-11987-OE penetrates 8G1 RWY 28 Diverse A departure area 570 feet requiring Takeoff Minimums and (Obstacle) Departure Procedures RWY 28: standard weather departure minimums with a minimum climb gradient of 201 feet per NM to 1900 AMSL.

d. Section 77.17(a)(4) -- A height within an en route obstacle clearance area, including turn and termination areas, of a Federal Airway or approved off-airway route, that would increase the IFR en route minimum obstacle clearance altitude. Effects and the studies that cause them follow.

Erie-Ottawa Intl (PCW) Port Clinton OH. NDB RWY 27 Minimum Safe Altitude (MSA) 180 inbound clockwise to 090 inbound increase from 2500 to 2600 AMSL.

2018-WTE-11951-OE
2018-WTE-11952-OE
2018-WTE-11953-OE
2018-WTE-11954-OE
2018-WTE-11957-OE
2018-WTE-11960-OE
2018-WTE-11962-OE
2018-WTE-11963-OE
2018-WTE-11964-OE
2018-WTE-11965-OE
2018-WTE-11966-OE
2018-WTE-11967-OE

2018-WTE-11968-OE
2018-WTE-11970-OE
2018-WTE-11971-OE
2018-WTE-11973-OE
2018-WTE-11974-OE
2018-WTE-11981-OE
2018-WTE-11982-OE
2018-WTE-11986-OE
2018-WTE-11987-OE

Erie-Ottawa Intl (PCW) Port Clinton OH. NDB RWY 27 Minimum Safe Altitude (MSA) 180 inbound clockwise to 090 inbound increase from 2500 to 2700 AMSL.

2018-WTE-11984-OE
2018-WTE-11985-OE

Swanton OH TOL Toledo ATCT/TRACON Chart TOL_MVA_FUS3_2018 Minimum Vectoring Altitude (MVA) or Minimum IFR Altitude (MIA) increase Sector F MVA from 2500 to 2600 AMSL.

2018-WTE-11967-OE
2018-WTE-11987-OE

3. EFFECT ON AERONAUTICAL OPERATIONS

a. The impact on arrival, departure, and en route procedures for aircraft operating under VFR: no substantial adverse effects.

The proposed turbines are located outside the VFR traffic pattern airspace for all categories of aircraft that normally use 8G1.

The effects on any existing or proposed arrival, departure, or en route IFR/VFR minimum flight altitudes: All of the turbines listed in Section 1 of this narrative exceed the Part 77 Section 77.17(a)(1) surface by 160 feet. Proposed structures identified in Section 2 of this narrative exceed Part 77 Section 77.17(a)(2) as previously described no substantial adverse effect was found. Further study obtained flight trajectory data for areas over the project. All areas showed less than significant volume of VFR aeronautical operations in the vicinity of the proposed structures.

b. The impact on arrival, departure, and en route procedures for aircraft operating under IFR: : no substantial adverse effect. Affected Air Traffic facilities have determined no substantial adverse effect at this time. Affected procedures will be adjusted upon notification of construction of the proposed structures.

c. The impact on all planned public-use airports and aeronautical facilities: no substantial adverse effect.

d. The cumulative impact resulting from the proposed construction or alteration of a structure when combined with the impact of other existing or proposed structures: no substantial adverse effect.

RADAR

Analysis indicates that the proposed turbines in this project would be in the line of sight for the Mansfield, OH Airport Surveillance Radar-8 (ASR-8), the Cleveland (CLE) Airport Surveillance Radar (ASR-9) and the Brecksville, OH (QBD) Common Air Route Surveillance Radar (CARSR) and may cause clutter to the primary signal in the vicinity of the affected turbine, however, Air Traffic has determined this would not create a substantial adverse impact on their operations at this time.

DEPARTMENT OF DEFENSE

The structures will be located within the confines or near a military training route or military training area. All structures associated with the project are located in an area where affordable and feasible actions can be taken by the Air Force to mitigate the project's impacts to the Air Force mission.

5. CIRCULATION AND COMMENTS RECEIVED

The proposal was circulated for public comment on 24 July 2019 and public comment period closed on 30 August 2019. Two comments were received by 30 August 2019. Two late comments were received 17 September and 19 September 2019 and will not be considered as part of this determination.

Comments were made saying the proposed wind turbines would impact the two public use airports at each end of the project, would also impact the air ambulances operating in the area and would impact aerial applicator operations and stated the project will cause a lot of problems for air traffic in our area.

Without airport names it is difficult to address which two airports the comments refer to. It can be assumed the Willard Airport (located approximately 3.75 NM from the southeast corner of the project) may be one of these.

No VFR Part 77 airport surfaces were found to be affected by the proposed project therefore there are no substantial adverse effects to public use airports in the vicinity of the proposed project.

Part 77 Section 77.17(a)(2) was exceeded by 20 of the proposals as indicated above however our determinations are based on the completed aeronautical study and not simply whether or not they exceed obstruction standards.

Aeronautical operations reports were attained for three areas over the proposed project in the vicinity of the 20 structures. This flight trajectory data for those areas showed less than a significant volume of VFR aeronautical operations in the vicinity of the proposed structures.

Five proposed structures lies within the Willard Airport (8G1) Traffic Pattern Airspace (TPA) as described in FAA JO 7400.2M, 6-3-8, Evaluating Effect on Visual Flight Rules (VFR) Operations. The five proposed wind turbines would lie within the lateral boundaries and penetrate the Part 77 Section 77.17(a)(2) Category D VFR TPA for RWY 10/28 at 8G1. Category D aircraft are those aircraft with an approach speed of between 141-165 knots. The turbines are outside of traffic pattern airspace for all aircraft with an approach speed of less than 141 knots.

Willard Airport (8G1) reports 515 annual operations with no permanently based aircraft. The asphalt runway dimensions are 4028 x 65 feet. Traffic Flow Management System Counts (TFMSC), Aviation System Performance Metrics (ASPM) reports an annual total of 11 IFR departures and 5 IFR arrivals at 8G1, all Category A aircraft.

Approach Category D aircraft do not normally use Willard Airport. The proposed turbines are located outside the VFR traffic pattern airspace for all categories of aircraft that normally use 8G1 therefore there is no effect to the 8G1 VFR traffic pattern.

Comments were made regarding the economic effects of the project, however, economic considerations are not germane to studies conducted in accordance with Part 77.

Consideration is not given to operations such as emergencies (air ambulance flights) because they are not considered regular and continuing.

The commenter stated the aerial applicators affected had issued warning there are areas where they cannot operate if the project is built. Agricultural operations, such as crop dusting, are conducted below the minimum altitudes specified in 14 CFR Part 91 and are not considered in determining the extent of adverse effect for 14 CFR Part 77 aeronautical studies.

Other comments made stated the proposed wind turbines should not be built because they exceed obstruction standards and would impact the pleasure of flight and crop inspections.

The FAA's determination of whether a proposal would or would not be a hazard to air navigation is based on the findings of the completed aeronautical study and not simply whether or not they exceed the obstruction standards.

The commenter did not provide a number of affected flights or specific flight routes and the address provided by the commenter is over 5 NM from the nearest proposed wind turbine in the project.

Aeronautical operations reports were attained for areas over the proposed project near this commenter's address. Both areas showed less than significant volume of VFR en route aeronautical operations in the vicinity of the proposed structures.

The Willard Airport (8G1) Airport Master Record can be viewed/downloaded <https://adip.faa.gov/agis/public/#/airportData/8G1>. It states there are 0 single-engine, 0 multi-engine, 0 jet, 0 helicopter, 0 military, 0 ultra-light and 0 glider aircraft based there with 515 operations for the 12 months ending 28 September 2018 (latest information).

4. DETERMINATION - NO HAZARD TO AIR NAVIGATION

The FAA has determined the proposed construction would not have a substantial adverse effect on the safe and efficient use of the navigable airspace by aircraft or on any air navigation facility and would not be a hazard to air navigation provided the conditions set forth in this determination are met.

5. BASIS FOR DECISION

Study for possible VFR effect disclosed that the proposed structures would have no substantial effect on any existing or proposed arrival or departure VFR operations or procedures. Aeronautical study found that the proposed structures would not conflict with airspace required to conduct normal VFR traffic pattern operations at any other known public use or military airport. At 659 feet above ground level, the proposed structures would not have a substantial adverse effect on VFR en route flight operations as a significant volume of VFR operations was not found to be affected and no information was received to indicate they would be located within any known regularly and continuously used VFR routes. There will be no IFR effects as the affected airspace will be adjusted to mitigate the height of the structures and FAA Air Traffic determined this would not have a substantial adverse effect to their operations.

The proposed structures must be appropriately obstruction marked and/or lighted to make them more conspicuous to aircraft operations.

6. CONDITIONS

For the following studies as identified by their ASN, at least 56 days before the start of construction the proponent is required to file a FAA form 7460-2, Part 1, Actual Construction notification, at the OE/AAA website (<http://oeaaa.faa.gov>). This actual construction notification will be used to update published instrument flight procedures.

2018-WTE-11967-OE

2018-WTE-11987-OE

For the following studies as identified by their ASN, at least 10 days before the start of construction the proponent is required to file a FAA form 7460-2, Part 1, Actual Construction notification, at the OE/AAA website (<http://oeaaa.faa.gov>). This actual construction notification will be used to update published instrument flight procedures.

2018-WTE-11951-OE

2018-WTE-11952-OE

2018-WTE-11953-OE

2018-WTE-11954-OE

2018-WTE-11957-OE

2018-WTE-11960-OE

2018-WTE-11962-OE

2018-WTE-11963-OE

2018-WTE-11964-OE

2018-WTE-11965-OE

2018-WTE-11966-OE

2018-WTE-11967-OE

2018-WTE-11968-OE

2018-WTE-11970-OE

2018-WTE-11971-OE

2018-WTE-11973-OE

2018-WTE-11974-OE

2018-WTE-11981-OE

2018-WTE-11982-OE

2018-WTE-11984-OE

2018-WTE-11985-OE

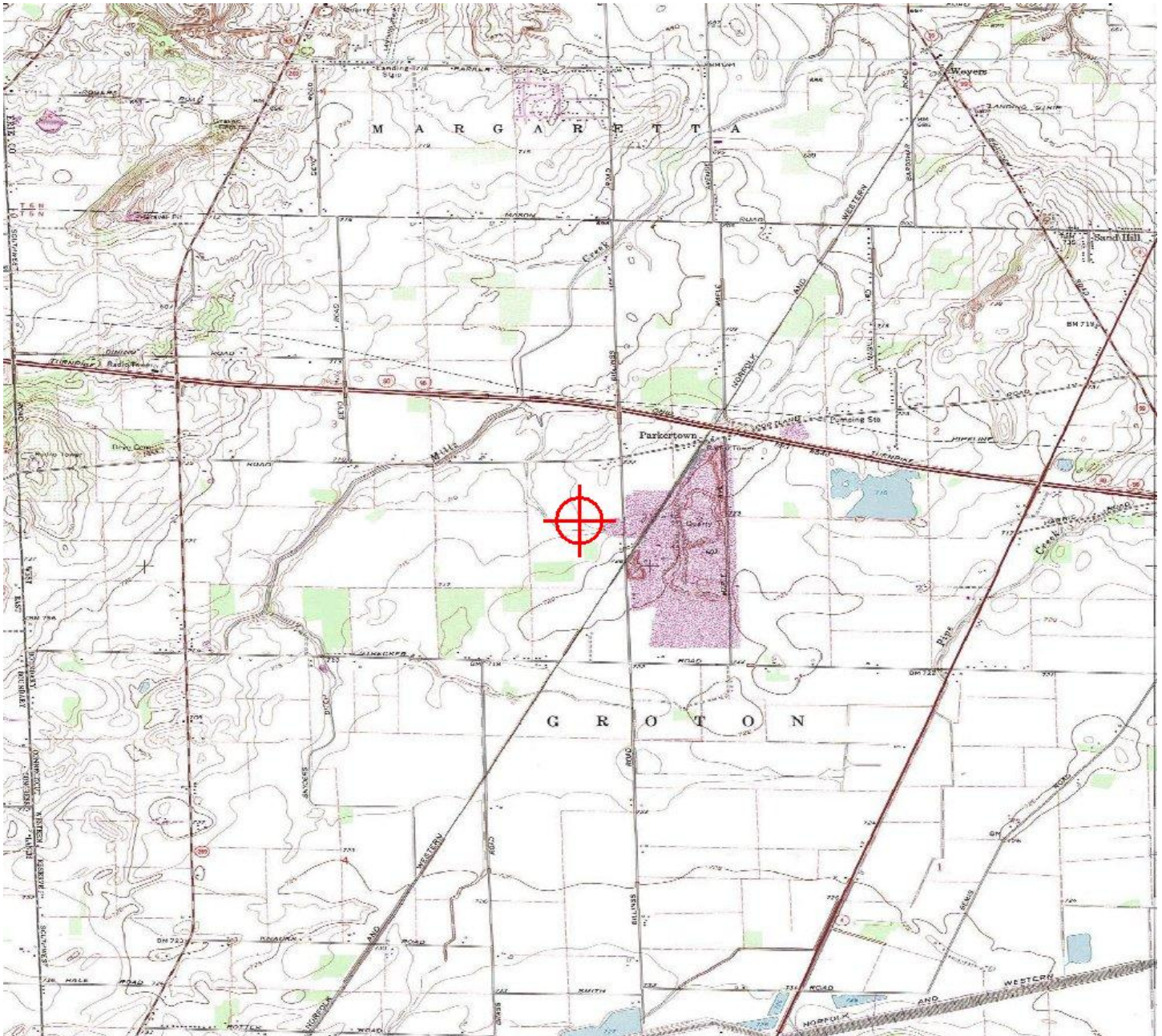
2018-WTE-11986-OE

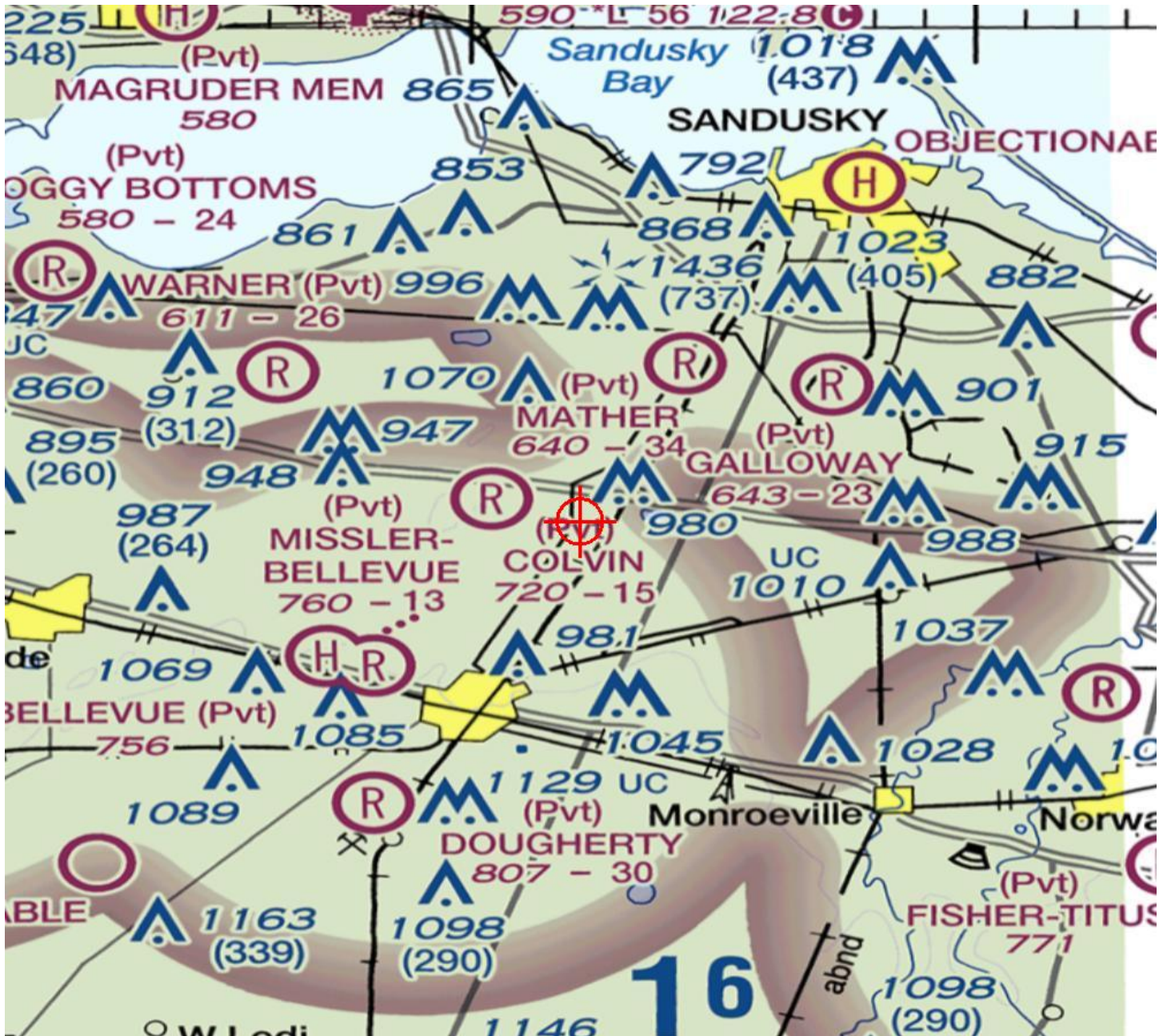
2018-WTE-11987-OE

Within five days after each structure reaches its greatest height, the proponent is required to file a FAA form 7460-2, Actual Construction notification, at the OE/AAA website (<http://oeaaa.faa.gov>). This actual construction notification will be the source document detailing the site location, site elevation, structure height, and date structure was built for the FAA to map the structure on aeronautical charts and update the national obstruction database.

OBSTRUCTION MARKING AND LIGHTING NOTE: A recommendation for white paint/synchronized red lights will be made for all turbines until such time as the proponent confirms that the layout is final (no changes, no additions, no removals) and all turbines can and will be built at their determined location and height. At that time, the proponent may contact this office and request a re-evaluation of the marking and lighting recommendations for the turbines within this project and a portion of the turbines may qualify for the removal of the lighting recommendation

TOPO Map for ASN 2018-WTE-11906-OE







Federal Aviation
Administration

OE/AAA

User: Jim Feasel

Email: jfeasel@woh.rr.com

Date: 08/23/2019

Comment: In regards to this proposed wind farm in Seneca County,

This wind farm will cause far too many air traffic concerns in the area to consider it fit for public safety reasons. Not only does it impact 2 airports (one at each end of the project), it also causes difficulty for air ambulances throughout the project area. The townships in which the project will be built is home to far more people per square than most wind projects built across the country.

The project developer (sPower) has only ever built 2 projects before this one. Both were in the western US. One of those was in a county with less than 3 people per square mile. The other was in a county with 1 person per square mile. Seneca County OH has over 100 people per sq mile and they are much more dispersed across the rural areas than in the plain states of OK, KS, IA, TX which are home to many wind projects.

The Seneca county airport in particular was built and is maintained specifically for the economic benefit of the area. According to its long time manager the usefulness of the airport will be substantially degraded by the encroaching wind project and the safety issues it will cause. As a business owner in the area I know the local airport has been a significant benefit to economic activity. Taxpayers have invested around \$15 million into its construction and improvements. For both safety and economic reasons this airport must be protected.

Despite the dispersed residences across the county, aerial applicators are widely used by local farmers. This was more evident than ever with the wet conditions this year. Applicators have already issued warnings that there will be many areas where they cannot operate if the wind project is built. And areas that are still serviceable will be at a higher cost due to the safety issues and increased turning difficulty for the planes. Only a very small percentage of landowners will receive payments for a turbine on their property but all farmers in the area will pay for the consequences of having a wind project surrounding them.

Some turbines in the proposed will cause specific problems for local air traffic and those machines should not receive approval from an agency whose assignment is to protect public safety. The cumulative effects of all the machines in the project will affect lives and public safety by interfering with air ambulance operation serving the relatively heavy yet dispersed population in our County. All things considered, this project will cause a lot of problems for air traffic in our area.

Jim Feasel

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**Federal Aviation
Administration**

OE/AAA

User: Chris AICHHOLZ

Email: caichholz@yahoo.com

Date: 09/17/2019

Comment: Please file this as a formal public comment in opposition to the construction of the Emerson Creek Wind Project's massive industrial wind turbines.

We also have MAJOR concerns to the negative impact this project and others (currently 5 other projects in some stage of development in our immediate area) will have on the ability to utilize lifeflight's emergency services. The Emerson Creek Wind Project has been poorly designed and needs a complete overhaul. The cumulative impact also needs to be a factor in whether you give your stamp of approval to the Seneca Wind project as well.

Thank You

Chris Aichholz
419-618-1741

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**Federal Aviation
Administration**

OE/AAA

User: Chris Zeman

Email: czman6868@gmail.com

Date: 09/19/2019

Comment: I oppose the approval and subsequent construction of said turbine for the following reasons:

- Will hinder and possibly inhibit the first response use of air ambulance in the area.
- Local airports in Tiffin, OH may be effected.
- Local crop dusting services may be unable to effectively provide aerial fertilizer or pest control on farmland.
- Air National Guard out of Mansfield, OH has flight training "pathways" criss-crossing our area.
- Turbine structure is too high and rotor diameter is too wide thus impeding navigable air space.
- Radio and/or radar may be effected by EMF, etc. from wind turbine generator.

For these reasons, and any other reasons not mentioned, I ask that FAA deny the application for this Industrial Wind Turbine.

Thank you,

Chris Zeman
(419) 307-5254
czman6868@gmail.com

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Stains, John

From: Stan Gebhardt <stang61056@aol.com>
Sent: Friday, January 31, 2020 11:29 AM
To: Stains, John
Subject: PCW

John

We have reviewed the Aeronautical Study 2018-WTE-11906-OE. We have no objections to the proposed project.

Respectfully,

Stan Gebhardt, Director
Erie Ottawa International Airport

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City of Willard



City Manager's Office

631 Myrtle Avenue, P.O. Box 367, Willard, OH 44890
Phone 419-933-2591 * Fax 419-933-4545
jludban@willardohio.us

January 28, 2020

Ohio Department of Transportation
Office of Aviation
John Stains, Manager – Airport Programs
2829 W. Dublin-Granville Rd.
Columbus, Ohio 43235-2786

RE: Apex Clean Energy – Emerson Creek Wind Farm aka Firelands Wind LLC
ASN 2018-WTE-11906-OE
Obstruction to air navigation
Willard Airport – 8G1

Dear Mr. Stains,

This letter is in response to the above referenced Aeronautical Study concerning the Apex Clean Energy – Emerson Creek Wind Farm aka Firelands Wind LLC. This project is located approximately between 3.75 NM northwest to 18.2 NM north, northwest of the City of Willard Airport (8G1). The 8G1 elevation is 967 AMSL.

The City of Willard considers the Willard Airport to be an asset for the Willard community and area and therefore should be protected from obstructions to air navigation. The City therefore would object to allowing any obstruction to air navigation as indicated in (CFR) Part 77. As indicated in the study the Willard Airport reported 515 annual operations and we currently have no permanently based aircraft and Category D aircraft do not normally use the airport. The City has agricultural service aircraft that will use the airport to provide crop dusting services to area farms. These obstructions could have an adverse effect to this valuable service in our community. As an asset to the community and if improvements are made to the airport in the future and Category D aircraft start using the airport more, would the city be limiting the use of the airport because of the proposed structures?

The City would like to maintain full use of the airport with no additional obstructions. The City currently maintains the current location of the airport, however back in 1986 a plan was developed to relocate the existing airport to the west (see attached drawings). The ability to develop a new and enhanced airport having excellent approach capabilities within an area comprised of penetrating obstructions would be difficult at best if not impossible. Therefore, the development of these wind turbines in this close proximity

of Willard essentially eliminates the City’s ability to serve a portion of the future air transportation needs of this area.

Part 77.17 (a) states that: “An existing object including a mobile object, is, and a future object would be an *obstruction to air navigation* if it is of greater height than:

- (1) A height of 499 feet AGL at the site of the object.
- (2) A height that is 200 feet AGL, or above the established airport elevation, whichever is higher, within 3 nautical miles of the established reference point of an airport, excluding heliports, with its longest runway more than 3,200 feet in actual length, and that height increases in the proportion of 100 feet for each additional nautical mile from the airport up to a maximum of 499 feet.

The aeronautical study indications that “All of the turbines listed in Section 1 of the narrative exceed the Part 77 Section 77.17(a)(1) surface by 160 feet.” The study also indications that 20?? (however only 18 are shown) of the proposed structures in the proposed project exceed the surface as specified in Section 77.17(a)(2) for the Willard Airport (8G1) as shown in the table below.

The structures that exceed Section 77.17 (a)(2) are listed below.

| ASN | Exceeds Section 77.17(a)(2) for 8G1 by (feet) |
|-------------------|---|
| 2018-WTE-11959-OE | 34 |
| 2018-WTE-11962-OE | 177 |
| 2018-WTE-11963-OE | 80 |
| 2018-WTE-11964-OE | 211 |
| 2018-WTE-11965-OE | 122 |
| 2018-WTE-11966-OE | 105 |
| 2018-WTE-11967-OE | 177 |
| 2018-WTE-11968-OE | 286 |
| 2018-WTE-11969-OE | 223 |
| 2018-WTE-11970-OE | 272 |
| 2018-WTE-11971-OE | 249 |
| 2018-WTE-11973-OE | 127 |
| 2018-WTE-11974-OE | 299 |
| 2018-WTE-11982-OE | 212 |
| 2018-WTE-11984-OE | 266 |
| 2018-WTE-11985-OE | 281 |
| 2018-WTE-11986-OE | 202 |
| 2018-WTE-11987-OE | 285 |

The study also states that five of the proposed structures lay within the Willard Airport (8G1) Traffic Pattern Airspace (TPA) as described in FAA JO 7400.2M, 6-3-8. It would exceed the TPA Section 77.17(a)(2) surface as applied to a visual approach runway. The five structures are listed below.

| ASN | Exceeds Section 77.17(a)(2) TPA for 8G1 by (feet) |
|-----|---|
|-----|---|

| | |
|-------------------|-----|
| 2018-WTE-11968-OE | 221 |
| 2018-WTE-11969-OE | 167 |
| 2018-WTE-11970-OE | 225 |
| 2018-WTE-11971-OE | 231 |
| 2018-WTE-11974-OE | 225 |

The study includes one structure that penetrates Section 77.17(a)(3) for 8G1 RWY 28 Diverse A departure area by 570 feet. That structure is ASN 2018-WTE-11987-OE.

The following is a list of the proposed wind turbines' described heights and locations are expressed in AGL/AMSL and latitude/longitude. (Highlighted structures are the ones described above.)

| ASN | Structure Name | AGL/AMSL | LAT/LONG |
|-------------------|----------------|------------|-----------------------------|
| 2018-WTE-11906-OE | T1 | 659 / 1375 | 41-20-13.53N / 82-47-50.44W |
| 2018-WTE-11907-OE | T10 | 659 / 1379 | 41-18-40.69N / 82-47-05.49W |
| 2018-WTE-11908-OE | T11 | 659 / 1381 | 41-18-35.12N / 82-47-59.11W |
| 2018-WTE-11909-OE | T12 | 659 / 1385 | 41-18-20.22N / 82-47-15.50W |
| 2018-WTE-11910-OE | T13 | 659 / 1383 | 41-18-18.46N / 82-46-53.64W |
| 2018-WTE-11911-OE | T14 | 659 / 1363 | 41-18-13.69N / 82-41-49.09W |
| 2018-WTE-11912-OE | T15 | 659 / 1357 | 41-18-11.01N / 82-41-18.24W |
| 2018-WTE-11913-OE | T16 | 659 / 1351 | 41-18-06.70N / 82-41-02.12W |
| 2018-WTE-11914-OE | T17 | 659 / 1375 | 41-17-51.98N / 82-44-29.72W |
| 2018-WTE-11915-OE | T18 | 659 / 1383 | 41-17-41.67N / 82-45-14.48W |
| 2018-WTE-11916-OE | T19 | 659 / 1377 | 41-17-42.06N / 82-44-16.18W |
| 2018-WTE-11917-OE | T2 | 659 / 1375 | 41-20-05.46N / 82-46-13.71W |
| 2018-WTE-11919-OE | T21 | 659 / 1401 | 41-17-12.38N / 82-45-19.15W |
| 2018-WTE-11920-OE | T22 | 659 / 1389 | 41-17-02.56N / 82-44-12.71W |
| 2018-WTE-11921-OE | T23 | 659 / 1413 | 41-15-49.62N / 82-45-25.29W |
| 2018-WTE-11922-OE | T24 | 659 / 1441 | 41-15-41.31N / 82-48-35.15W |
| 2018-WTE-11923-OE | T25 | 659 / 1439 | 41-15-24.83N / 82-48-41.23W |
| 2018-WTE-11924-OE | T26 | 659 / 1443 | 41-15-19.91N / 82-48-17.28W |
| 2018-WTE-11925-OE | T27 | 659 / 1435 | 41-14-51.86N / 82-46-32.11W |
| 2018-WTE-11926-OE | T28 | 659 / 1417 | 41-14-50.80N / 82-45-19.11W |
| 2018-WTE-11927-OE | T29 | 659 / 1447 | 41-14-45.63N / 82-47-48.58W |
| 2018-WTE-11928-OE | T3 | 659 / 1351 | 41-19-53.29N / 82-41-13.45W |
| 2018-WTE-11929-OE | T30 | 659 / 1435 | 41-14-40.17N / 82-46-16.48W |
| 2018-WTE-11930-OE | T31 | 659 / 1415 | 41-14-39.51N / 82-45-07.90W |
| 2018-WTE-11931-OE | T32 | 659 / 1447 | 41-14-32.40N / 82-47-52.63W |
| 2018-WTE-11932-OE | T33 | 659 / 1411 | 41-14-31.14N / 82-44-40.06W |
| 2018-WTE-11933-OE | T34 | 659 / 1445 | 41-14-25.33N / 82-49-55.61W |
| 2018-WTE-11934-OE | T35 | 659 / 1433 | 41-14-17.41N / 82-46-15.83W |
| 2018-WTE-11935-OE | T36 | 659 / 1417 | 41-14-16.85N / 82-45-03.60W |

Apex Clean Energy – Emerson Creek Wind Farm aka Firelands Wind LLC

ASN 2018-WTE-11906-OE

Obstruction to air navigation

Willard Airport – 8G1

Page 4

| | | | |
|-------------------|-----|------------|-----------------------------|
| 2018-WTE-11936-OE | T37 | 659 / 1451 | 41-14-09.25N / 82-49-34.69W |
| 2018-WTE-11937-OE | T38 | 659 / 1461 | 41-14-05.43N / 82-50-02.03W |
| 2018-WTE-11938-OE | T39 | 659 / 1447 | 41-13-44.73N / 82-48-17.47W |
| 2018-WTE-11939-OE | T4 | 659 / 1347 | 41-19-39.09N / 82-41-03.03W |
| 2018-WTE-11941-OE | T41 | 659 / 1443 | 41-12-13.95N / 82-46-53.36W |
| 2018-WTE-11942-OE | T42 | 659 / 1441 | 41-12-01.31N / 82-46-38.15W |
| 2018-WTE-11943-OE | T43 | 659 / 1487 | 41-11-53.20N / 82-49-51.92W |
| 2018-WTE-11944-OE | T44 | 659 / 1449 | 41-11-33.33N / 82-46-28.97W |
| 2018-WTE-11945-OE | T45 | 659 / 1451 | 41-11-15.83N / 82-46-30.13W |
| 2018-WTE-11946-OE | T46 | 659 / 1455 | 41-10-54.73N / 82-46-54.79W |
| 2018-WTE-11947-OE | T47 | 659 / 1479 | 41-10-35.69N / 82-49-46.04W |
| 2018-WTE-11948-OE | T48 | 659 / 1495 | 41-09-17.21N / 82-48-41.34W |
| 2018-WTE-11949-OE | T49 | 659 / 1487 | 41-09-06.18N / 82-46-53.24W |
| 2018-WTE-11950-OE | T5 | 659 / 1345 | 41-19-38.77N / 82-40-48.16W |
| 2018-WTE-11951-OE | T50 | 659 / 1503 | 41-09-00.95N / 82-49-20.03W |
| 2018-WTE-11952-OE | T51 | 659 / 1501 | 41-08-54.22N / 82-48-42.36W |
| 2018-WTE-11953-OE | T52 | 659 / 1521 | 41-08-31.18N / 82-49-57.60W |
| 2018-WTE-11954-OE | T53 | 659 / 1523 | 41-08-19.44N / 82-49-57.20W |
| 2018-WTE-11955-OE | T54 | 659 / 1493 | 41-08-20.55N / 82-46-14.82W |
| 2018-WTE-11956-OE | T55 | 659 / 1495 | 41-08-15.32N / 82-46-36.45W |
| 2018-WTE-11957-OE | T56 | 659 / 1509 | 41-08-13.84N / 82-47-29.27W |
| 2018-WTE-11958-OE | T57 | 659 / 1517 | 41-08-10.51N / 82-49-32.23W |
| 2018-WTE-11959-OE | T58 | 659 / 1499 | 41-07-57.73N / 82-46-08.52W |
| 2018-WTE-11960-OE | T59 | 659 / 1519 | 41-07-50.95N / 82-49-19.41W |
| 2018-WTE-11961-OE | T6 | 659 / 1377 | 41-19-06.64N / 82-47-51.79W |
| 2018-WTE-11962-OE | T60 | 659 / 1513 | 41-06-56.14N / 82-44-39.92W |
| 2018-WTE-11963-OE | T61 | 659 / 1539 | 41-06-49.98N / 82-48-33.74W |
| 2018-WTE-11964-OE | T62 | 659 / 1519 | 41-06-39.47N / 82-44-39.47W |
| 2018-WTE-11965-OE | T63 | 659 / 1545 | 41-06-27.36N / 82-48-25.46W |
| 2018-WTE-11966-OE | T64 | 659 / 1561 | 41-05-54.65N / 82-49-40.26W |
| 2018-WTE-11967-OE | T65 | 659 / 1553 | 41-05-47.68N / 82-48-24.50W |
| 2018-WTE-11968-OE | T66 | 659 / 1537 | 41-05-44.33N / 82-45-49.33W |
| 2018-WTE-11969-OE | T67 | 607 / 1483 | 41-05-39.35N / 82-46-14.28W |
| 2018-WTE-11970-OE | T68 | 659 / 1541 | 41-05-33.76N / 82-46-38.70W |
| 2018-WTE-11971-OE | T69 | 659 / 1547 | 41-05-30.09N / 82-47-20.16W |
| 2018-WTE-11972-OE | T7 | 659 / 1381 | 41-19-04.98N / 82-46-59.20W |
| 2018-WTE-11973-OE | T70 | 607 / 1511 | 41-05-17.21N / 82-49-04.73W |
| 2018-WTE-11974-OE | T71 | 659 / 1541 | 41-05-13.47N / 82-46-37.25W |
| 2018-WTE-11975-OE | T72 | 659 / 1377 | 41-19-02.70N / 82-47-24.36W |
| 2018-WTE-11976-OE | T73 | 659 / 1381 | 41-18-35.43N / 82-48-57.49W |
| 2018-WTE-11977-OE | T74 | 659 / 1379 | 41-18-25.38N / 82-49-04.39W |
| 2018-WTE-11978-OE | T75 | 659 / 1439 | 41-15-37.82N / 82-48-11.21W |

Apex Clean Energy – Emerson Creek Wind Farm aka Firelands Wind LLC

ASN 2018-WTE-11906-OE

Obstruction to air navigation

Willard Airport – 8G1

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| | | | |
|-------------------|-----|------------|-----------------------------|
| 2018-WTE-11980-OE | T77 | 659 / 1447 | 41-11-50.81N / 82-46-34.22W |
| 2018-WTE-11981-OE | T78 | 659 / 1519 | 41-08-01.35N / 82-49-23.51W |
| 2018-WTE-11982-OE | T79 | 659 / 1517 | 41-06-39.21N / 82-44-24.98W |
| 2018-WTE-11983-OE | T8 | 659 / 1377 | 41-18-59.80N / 82-46-33.86W |
| 2018-WTE-11984-OE | T80 | 659 / 1615 | 41-03-54.95N / 82-49-29.80W |
| 2018-WTE-11985-OE | T81 | 659 / 1617 | 41-03-30.60N / 82-49-29.10W |
| 2018-WTE-11986-OE | T82 | 607 / 1539 | 41-02-58.70N / 82-49-37.70W |
| 2018-WTE-11987-OE | T83 | 659 / 1604 | 41-02-55.86N / 82-49-23.69W |
| 2018-WTE-11988-OE | T84 | 659 / 1367 | 41-19-46.89N / 82-44-30.18W |
| 2018-WTE-11989-OE | T85 | 659 / 1381 | 41-19-45.02N / 82-45-11.05W |
| 2018-WTE-11990-OE | T86 | 659 / 1367 | 41-19-40.50N / 82-44-11.22W |
| 2018-WTE-11991-OE | T87 | 659 / 1441 | 41-14-31.12N / 82-49-37.55W |
| 2018-WTE-11992-OE | T9 | 659 / 1379 | 41-18-50.99N / 82-47-16.55W |
| 2019-WTE-1150-OE | T20 | 659 / 1382 | 41-17-30.41N / 82-44-06.47W |

As much as the City would like to see development in our area. We feel we have an obligation to protect our asset now and in the future.

If you have any questions, feel free to contact me anytime.

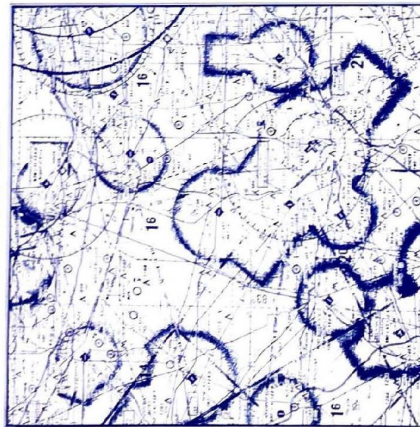
Respectfully Submitted,



Jim Ludban
City Manager
City of Willard, Ohio

Attachments

LOCATION MAP



VICINITY MAP



0 5 10 15 20 25 30 35

SCALE IN MILES

1 = 500,000

INDEX OF SHEETS

1
2
3
4
5
6
7

TITLE SHEET
PROPERTY MAP
AIRPORT LAYOUT PLAN
TERMINAL LAYOUT PLAN
APPROACH SURFACES
CONICAL SURFACES & LAND USE PLAN
TYPICAL SECTIONS

LEGEND

HIGHWAYS
 RAILROADS
 TALL TOWERS (AMSL) Δ BELOW 1
 POWER TRANSMISSION LINES
 AIRPORTS

APPROVED BY _____ CITY OF WILLARD _____ DATE _____

APPROVED BY _____ OHIO DIVISION OF AVIATION _____ DATE _____

APPROVED BY _____ FEDERAL AVIATION ADMINISTRATION _____ DATE _____

[illegible]

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AUG 26 1986
SACRAMENTO ENGINEERING LTD

[illegible][illegible]

| DESCRIPTION | INITIAL | ULTIMATE |
|--------------------------|---------|----------|
| Ground Conference | 941 | 361 |
| Airport Property | 6 | 6 |
| Facilities | | |
| Roads | | |
| Surface Drains & Ditches | | |
| Storm Inlet & Drain | —O—O— | |
| Building Construction | | |
| Airport Reference Point | | |
| Runway/ taxiway Lights | • • • | • • • |
| Runway Threshold Lights | +++ | +++ |
| REIL | ▲ | |
| Wind Re (Lighted) | *** | |
| Airport Beacon | ⋈ | |
| Wind Van (Lighted) | ⊞ ⊞ ⊞ | |
| APR | | |
| Security Fence | —x—x—x— | |

| BUILDINGS & PARKING | |
|---------------------|---|
| NO | DESCRIPTION |
| 1 | Administration & Hangar |
| 2 | Maintenance Hangar & RBO |
| 3 | Crews/Service Hangar |
| 4 | Equipment Hangar (Ultimate) |
| 5 | Flight Deck (Ultimate) |
| 6 | Parking & Staffs' Initial (30 Ultimate) |
| 7 | Apron Area |
| 8 | Apron Area (Ultimate) |
| 9 | Taxi-Down Area (Ultimate) |
| 10 | Fuel Area |

| DESCRIPTION | RUNWAY DATA | | | |
|----------------------------|---|--------------------------|--------------------------|---------------------------|
| | RUNWAY - 9 (INITIAL) | RUNWAY - 9 (ULTIMATE) | RUNWAY - 27 (INITIAL) | RUNWAY - 27 (ULTIMATE) |
| Runway Gradient | 0.5% | 0.5% | 0.5% | 0.5% |
| Pavement Type | Flexible | Flexible | Flexible | Flexible |
| Pavement Strength | I2-S | I2-S | I2-S | I2-S |
| Runway Lighting | MIRL | MIRL | MIRL | MIRL |
| Runway Marking | NPI | NPI | NPI | NPI |
| Navigation Aids | VOR | VOR | VOR | VOR |
| Approach Lighting | REIL | REIL | REIL | REIL |
| Runway Length | 4000' | 4000' | 4000' | 4000' |
| Runway Width | 75' | 75' | 75' | 75' |
| Runway Category | General Utility | General Utility | General Utility | General Utility |
| Aircraft Approach Category | A1-B | A1-B | A1-B | A1-B |
| Aircraft Design Group | 1A1-B | 1A1-B | 1A1-B | 1A1-B |
| Wing Span | <70 | <70 | <70 | <70 |
| Runway End Coordinates | LAT: 48° 52' 33.74" N LONG: 87° 54' 33.74" W | | | |

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3/11/2020 4:16:22 PM

in

Case No(s). 18-1607-EL-BGN

Summary: Correspondence electronically filed by Mr. Andrew S Conway on behalf of OPSB Staff