DICKINSON WRIGHT PLLC

150 E. GAY STREET, 24TH FLOOR
COLUMBUS, OH 43215-3192
TELEPHONE: (614) 744-2570
FACSIMILE: (844) 670-6009
http://www.dickinsonwright.com

CHRISTINE M.T. PIRIK
CPirik@dickinsonwright.com
(614) 591-5461

June 17, 2019

Ms. Tanowa Troupe, Secretary
Ohio Power Siting Board
Docketing Division
180 East Broad Street, 11th Floor
Columbus, OH 43215

Re: Case Nos. 09-479-EL-BGN, 11-3446-EL-BGA, 16-469-EL-BGA, and 16-2404-EL-BGA
In the Matter of the Application of Hardin Wind Energy LLC for a Certificate of Environmental Compatibility and Public Need for the Hardin Wind Farm.

Phase 3 – Compliance with Condition 57(b), Case No. 09-479-EL-BGN – Stream Crossing Plan

Dear Ms. Troupe:

Hardin Wind Energy LLC ("Applicant") is certified to construct a wind-powered electric generation facility in Hardin County, Ohio, in accordance with the orders issued by the Ohio Power Siting Board ("OPSB") in the above-referenced cases.

The Applicant is currently preparing to begin Phase 3 of the project, which will entail construction of the access roads and turbine foundations that were not included in Phases 1 and 2.

At this time, for purposes of complying with the certificate conditions for Phase 3, the Applicant is filing the attached Stream Crossing Plan. This document is being provided in compliance with Condition 57(b) of OPSB's March 22, 2010 Order in Case No. 09-479-EL-BGN.

We are available, at your convenience, to answer any questions you may have.

Respectfully submitted,

/s/ *Christine M.T. Pirik*
Christine M.T. Pirik (0029759)
William V. Vorys (0093479)
Dickinson Wright PLLC
150 East Gay Street, Suite 2400
Columbus, Ohio 43215
Attorneys for Hardin Wind Energy LLC

cc: Ed Steele
Derek Collins

COLUMBUS 39579-20 117504v2

Hardin County Wind Farm

Stream Crossing Plan

Prepared for
Invenergy, LLC

June 2019

4300 MarketPointe Drive, Suite 200
Minneapolis, MN 55435
952.832.2600
www.barr.com

Stream Crossing Plan

June 2019

Contents

List of Figures

1.0 Introduction

Invenergy, LLC (Invenergy) is planning to construct the Hardin County Wind Project, a proposed wind power development located in Hardin County, Ohio. Invenergy has requested a stream crossing plan for the project. The site overview can be found in Figure 1 (See Appendix A).

This document describes the plan for construction and restoration of stream crossings associated with the project transportation routes and electric collection lines.

2.0 Transportation and Collection Line Routes

The project transportation and electrical collection line routes are shown on Figure 2 (See Appendix A). This figure shows locations where the project features will cross defined streams, rivers, and drainage ditches.

2.1 Equipment and Material Delivery Routes

The turbine construction will require the delivery of large equipment and material. The project routes to access the proposed turbines during construction are shown on Figure 2. Design of the project developed routes to access the turbines without the construction of new crossings of water bodies. All access routes will cross defined water bodies at locations where existing infrastructure will be sufficient without improvements to serve the project. New access roads have been provided to the turbines without requiring any new stream crossing features or restoration.

2.2 Electrical Collection Routes

The electrical collections routes are shown on Figure 2. The electrical collection lines will be constructed as buried lines and will cross water bodies through directional drilling. Surface impacts are not anticipated at the stream crossing locations identified on Figure 2. Therefore, design or restoration of crossings associated with the electrical collection routes is not required.

2.3 Temporary Minor Crossings

The project may require temporary surface crossings of minor drainage ditches/swales not anticipated by the design. These surface crossings may be the result of field revisions, construction related issues that develop, or identification of minor waterbodies not included in Figure 2. General guidelines for the construction and restoration of unanticipated surface crossings of minor waterbodies is provided in Section 3.

3.0 Temporary Minor Crossing Design/Restoration

Temporary minor crossings include agricultural ditches, highway ditches/swales, and/or water bodies that convey drainage during infrequent precipitation events. While this project is not anticipating crossings of water bodies to result in surface disturbance, unanticipated circumstances may require it. This section describes design and restoration techniques that should be followed if construction conditions require crossing one of these minor water bodies, resulting in surface disturbance of the water body. These temporary crossings will be suitable for contributing drainage areas of less than 5 square miles. If greater than this value, detailed engineering should be used (Reference (1)). In general, the minor ditches/swales should be left undisturbed to the greatest extent practical and should be constructed in accordance with Section 5.5 of Reference (1). Before installation of any temporary crossing, verification of any required permits is necessary, including permitting associated with the U.S. Army Corps of Engineers Section 404.

3.1 Culvert Crossing

Culvert crossings should be considered for temporary crossings of waterbodies with regular flow and/or sufficient depth to provide adequate cover over the pipe (generally greater than 2-ft). Section 5.5 of Reference (1) provides specifications for design/installation of temporary stream crossings with culverts. Generally, the culvert crossing should:

1) Have a culvert diameter at least three times the depth of the normal stream flow
2) Include sufficient number of culverts to completely cross the stream channel from streambank to streambank with no more than 12-in spacing between each one
3) Use rock fill only around the culverts, no soil.

Additional design standards/considerations are summarized in the Section 5.5 of Reference (1) and should be considered for any temporary culvert crossing.

3.2 Stream Ford

Stream fords may be required to cross water bodies with shallow or intermittent flows. These crossings include the installation of stone, rock or aggregate along the access path at grades adequate to allow construction equipment to pass through the channel. ODOT No.1 shall be the smallest minimum acceptable size of aggregate for the crossing and no soil shall be imported. The crossing should be constructed as to not inhibit flow through the water body. See Section 5.5 of Reference (1) for further design standards/considerations for stream fords.

3.3 Restoration

Once construction in a given location/crossing has ceased, the stream channel and banks should be restored to their original line and grade. The restoration must not result in a narrower channel or flow restriction (Reference (1)). Install erosion control blanket and seeding on all disturbed areas within 50-ft of either streambank. Disturbed areas with high erosion potential should be stabilized using woody vegetation, such as live willow staking, or if necessary, through the use of riprap or stone. The placement of the woody

vegetation and sizing of the riprap/stone should be completed in consultation with the project design engineer.

The contractor shall use erosion control blankets consisting of Straw/Coconut and must have an open weave with natural netting. See Chapter 7 of Reference (1) and ODOT Spec Section 671 (Reference (2)) for additional information on erosion control blankets.

Permanent seeding shall use an Ohio DOT certified native seed mix (ODOT Spec Section 659, Reference (2)) that is relevant for the slope conditions and surrounding vegetation, including the use of riparian mixes in stream areas as feasible. See Chapter 7 of Reference (1) for additional information on permanent seeding and seed mixes.

4.0 Conclusion

This project is has been designed to limit impacts to local water bodies. Access to the turbine sites will use existing stream/ditch crossings and all electrical collector lines will be directionally bored below water bodies. No specific surface disturbance of stream crossings is anticipated to complete the project. In the event that an unanticipated stream crossing is required during construction, the document provides guidance on types of crossings that may be used and restoration considerations. Any required crossing should be reviewed by the project engineer prior to any disturbance to determine viability, impacts to natural environment, and permitting considerations.

5.0 References

1. **State of Ohio.** *Rainwater and Land Development, Ohio's Standards for Stormwater Management Land development and Urban Stream Protection.* s.l. : Ohio Department of Natural Resources, Division of Soil and Water Conservation, Third Edition, 2006.

2. **State of Ohio, Department of Transportation.** *Construction and Material Specifications.* Columbus, OH : s.n., January 1, 2019.

Appendix A

Figures

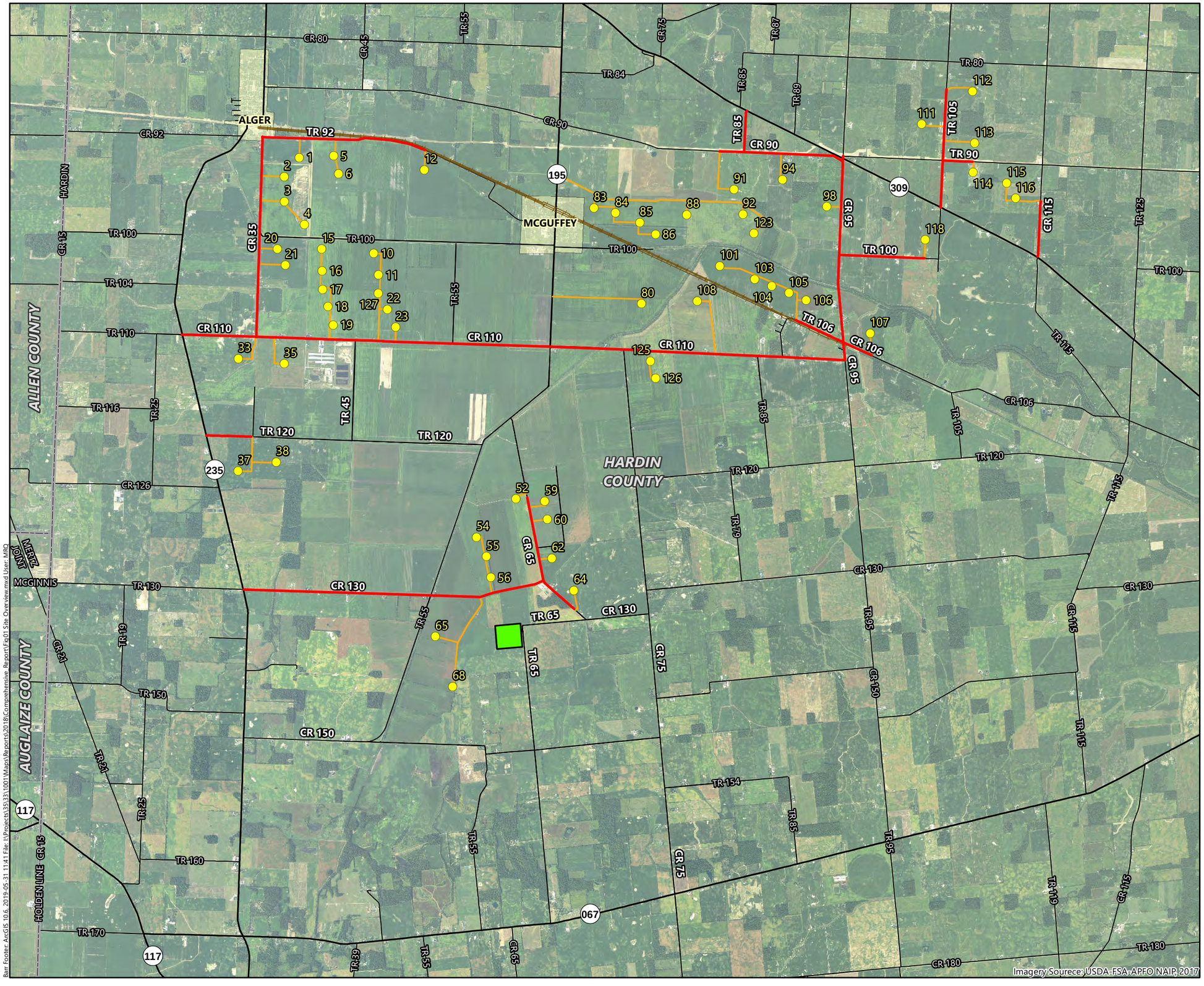
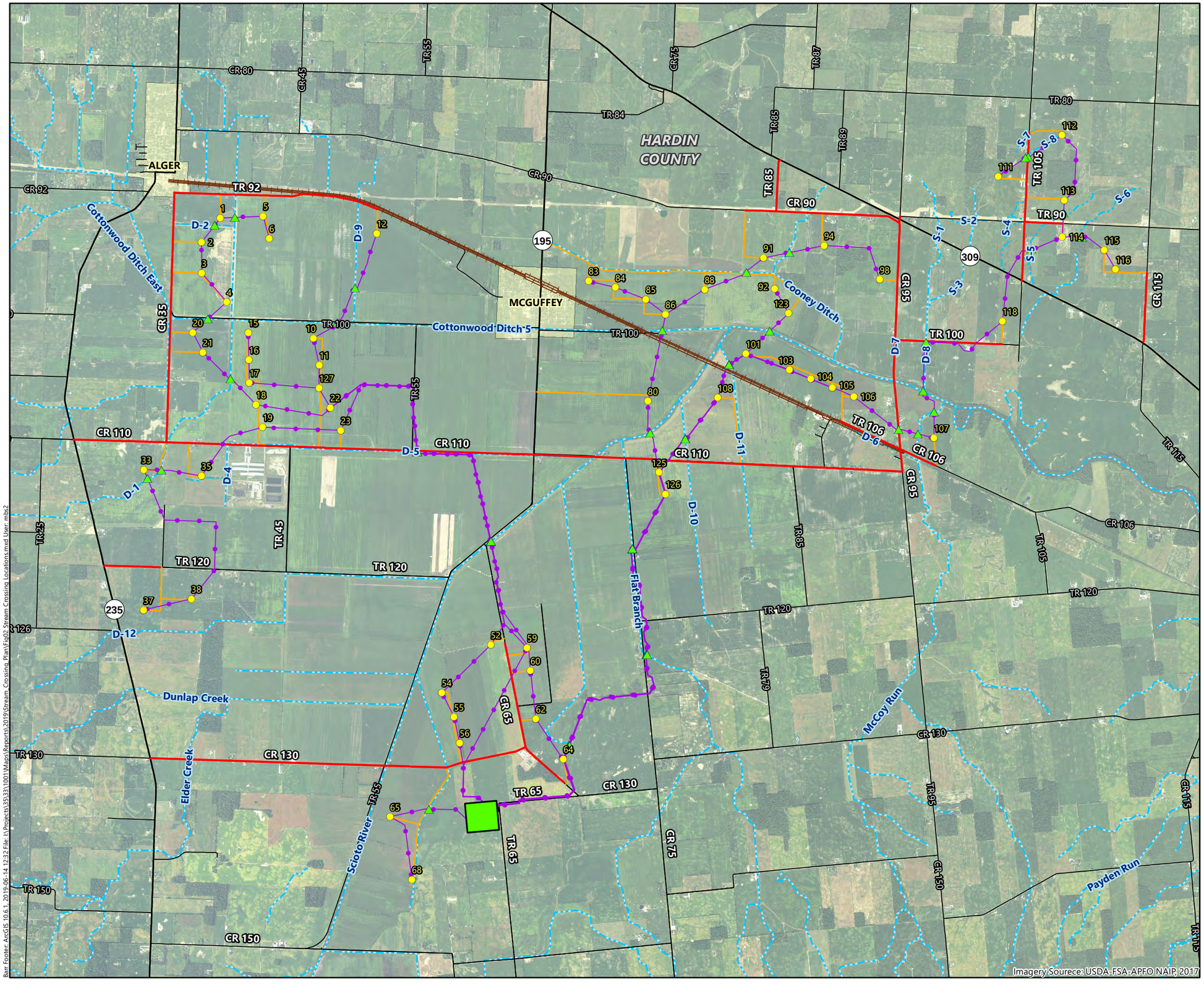


Figure 1

SITE OVERVIEW
Hardin Wind Project
Invenergy LLC
Hardin County, Ohio



Turbine Location
Stream Crossing - Directional Boring
Drainage Ditch
Stream/River (USGS NHD)
Access Road
Transportation Route
Collector Line
Substion, POI, and O&M Building Area
City Boundary
County Boundary

Feet
4,000 0 4,000

Meters
1,000 0 1,000

Figure 2

STREAM CROSSING LOCATIONS
Hardin Wind Project
Invenergy LLC
Hardin County, Ohio

Case No(s). 09-0479-EL-BGN, 11-3446-EL-BGA, 16-0469-EL-BGA, 16-2404-EL-BGA

Summary: Notification of Phase 3 – Compliance with Condition 57(b), Stream Crossing Plan electronically filed by Christine M.T. Pirik on behalf of Hardin Wind Energy LLC