



# WOODBURY COUNTY BOARD OF ADJUSTMENT

## Monday, October 2, 2023 at 6:00 PM

The Woodbury County Board of Adjustment will hold a public meeting on **Monday, October 2, 2023 at 6:00 PM** in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, IA. Please use the 7<sup>th</sup> St. entrance. Public access to the conversation of the meeting will also be made available during the meeting by telephone. Persons wanting to participate in the public meeting may attend in person or call: **(712) 454-1133** and enter the **Conference ID: 742 346 123#** during the meeting to listen or comment. It is recommended to attend in person as there is the possibility for technical difficulties with phone and computer systems.

### AGENDA

|   |  |
|---|--|
| 1 | <b>CALL TO ORDER</b>   |
| 2 | <b>ROLL CALL</b>   |
| 3 | <b>PUBLIC COMMENT ON MATTERS NOT ON THE AGENDA</b>   |
| 4 | <b>APPROVAL OF THE MINUTES: July 31, 2023 – Special Meeting</b>  |
| 5 | <b>ITEM(S) OF ACTION / BUSINESS</b>  |
| » | <b>PUBLIC HEARING: TO CONSIDER FOR APPROVAL, A CONDITIONAL USE PERMIT APPLICATION - PROPOSED TELECOMMUNICATION TOWER 120 FT MONOPOLE ON PARCEL #874316300005</b><br>Conditional Use Permit application by AMG Technology Group DBA Nextlink (Applicant) and Shelle Baldwin (Ownership) to install a 120 FT monopole telecommunication tower to supply high speed internet to surrounding areas. The property is located on Parcel #874316300005 in T87N R43W (Miller Township) in Section 16 in the SE ¼ of the SW ¼. The property is located about 2.3 miles south of Anthon and about 4.3 miles northeast of Oto. The property is located in the Agricultural Preservation (AP) Zoning District. Owner(s)/Applicant(s): Mark D. Baldwin & Shelle J. Baldwin, 3846 245th St., Anthon, IA 51004-8065 / AMG Technology Group DBA Nextlink, 95 Parker Oaks LN., Hudson Oaks, TX 76087. |
| » | <b>INFORMATION: UTILITY-SCALE SOLAR ENERGY SYSTEMS (US-SES) CONSIDERATION PROCESS</b><br>Information update concerning the Woodbury County Zoning Commission's consideration of a recommendation for the permitting of US-SES in unincorporated Woodbury County.   |
| 6 | <b>PUBLIC COMMENT ON MATTERS NOT ON THE AGENDA</b>   |
| 7 | <b>BOARD MEMBER COMMENT OR INQUIRY</b>   |
| 8 | <b>STAFF UPDATE</b>  |
| 9 | <b>ADJOURN</b>   |

## Minutes - Woodbury County Board of Adjustment – Special Meeting – July 31, 2023

The Board of Adjustment meeting convened on the 31st of July 2023 at 6:00 PM in the first-floor board room of the Woodbury County Courthouse. The meeting was also made available for public access via teleconference.

BA Members Present : Daniel Hair, Tom Thiesen, Pam Clark (Phone), Ashley Christensen  
County Staff Present: Dan Priestley, Dawn Norton  
Public Present: Dana Neal, Kim Neal, Kyle Walker

### Call to Order

Chair Daniel Hair formally called the meeting to order at 6:02 PM.

### Public Comment on Matters Not on the Agenda

None

### Approval of Minutes

The July 3, 2023 minutes were approved. Motion by Hair to approve; Second by Christensen. Motion passed 4-0.

### Public Hearing: To Consider for Approval, a Conditional Use Permit Application – Request to Setup a Portable Concrete Plant for Hwy 20 Paving for IDOT Project NHSX-020-1(179)—3H-97 on Parcel #884701200009

Priestley read the staff report and Zoning Commission recommendation into the record. Jason Meihost, Croell, Inc. (Applicant) and Midwest Auto Properties, LLC have filed a conditional use permit application to request to use the property designed as Parcel #884701200009 for a portable concrete plant in support of the Hwy 20 paving project identified as IDOT Project NHSX-020-1(179)—3H-97. The proposed location is south of Hwy 20 and west of Charles Avenue. The property is addressed at 1605 Charles Ave., Lawton, IA 51030. Appropriate landowners and stakeholders were notified. No written inquiries received. Landowners at 1774 162nd Street spoke in favor of the project but have concerns about the operation hours, dust control, traffic control and how the roads will be maintained, and length of project. Priestley noted there is a well on the parcel. Siouxland District Health department has verified it has been capped and marked. Priestley received a phone call from a neighboring landowner asking about the grading on the property. Motion to close public hearing: Christensen. Second: Thiesen. Carried; 4-0. Motion by Christensen to approve conditional use permit application to setup a portable concrete plant for Hwy 20 paving for IDOT Project NHSX-020-1(179)—3H-97 on parcel #884701200009 with conditions:

- Reasonable accommodations must be made for dust control on site and the haul routes.
- Reasonable accommodations must be made for road maintenance along the haul routes.
- Hours of operation must be between sunrise and sunset.
- Steps must be in place to return the property to the original state, or a state approved by the owner(s).

### Public Hearing: To Consider for Approval, a Conditional Use Permit Application – Request for a Private Wind Turbine Installation and Use on Parcel #864626400009

Priestley read the staff report and Zoning Commission recommendation into the record. William Kyle Walker (owner) has filed a conditional use permit application for the installation and use of a wind turbine. The said turbine along with its support tower was previously installed on this property and the owner has retroactively filed this permit request as required under Section 3.03.4 of the Zoning Ordinance. The property abuts Hwy 141 and Fayette Avenue. This proposal has been properly noticed in the Sioux City Journals legal section on July 18, 2023. The neighbors within 500 FT were duly notified via a July 14, 2023 letter about the July 31, 2023 Board of Adjustment public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been requested to comment. This property is located in the Agricultural Preservation (AP) Zoning District and is located in the Special Flood Hazard Area (SFHA). The portion where the house is located was removed from the floodplain via Letter of Map Revision Based of Fill Case No.: 15-07-1298A. Based on the information received and the requirements set forth in the Zoning Ordinance, the proposal can meet the criteria for approval of the conditional use request based on conditions. At their meeting on July 24, 2023, the Woodbury County Zoning Commission unanimously approved (5-0) the motion to recommend approval of this conditional use permit request to the Board of Adjustment with the following conditions: 1) The turbine tower installation/placement shall meet or exceed the 10 FT accessory setback requirements from the west property line as enumerated in the Woodbury County Zoning Ordinance (Section 3.04). 2) The turbine tower installation/placement shall comply with the floodplain management regulations of the Woodbury County Zoning Ordinance (Section 5.03). To consider in the decision making, the ordinance states the Board shall decide within 35 days of the hearing to approve as submitted, apply conditions, or deny. Christensen asked Mr. Walker why this wasn't considered Ag Exempt. Mr. Walker decided not to go that route. Walker stated this was private use, has a roofing business and catfish business on the property. Walker stated the fence on west side of property is placed 10' from the property line and the tower is approximately 23-25 ft. from the property line. Christensen mentioned the structure being located in a

floodplain, Walker stated the electric will be elevated 6' on the tower, 1 ' above the floodplain. Waiting for electrical inspection. Priestley stated a FPDP is on file, and the current floodplain map should be used. Priestley also stated a survey from a certified, licensed surveyor needs to be provided to show that the 10' setback is met. Motion to close public hearing: Hair. Second: Thiesen. Carried: 4-0.

Motion by Christensen to approve conditional use permit request with the following conditions:

- The turbine tower installation/placement shall meet or exceed the 10 FT accessory setback requirements from the west property line as enumerated in the Woodbury County Zoning Ordinance (Section 3.04).
- The turbine tower installation/placement shall comply with the floodplain management regulations of the Woodbury County Zoning Ordinance (Section 5.03).
- The property owner(s) will obtain and submit to Woodbury County Community and Economic Development staff a professionally lowa licensed stamped survey to ensure the 10 FT setback from the property line.
- In the event of a failure of the wind turbine tower, this is a civil matter between the said property owner and the affected abutting property owner(s).
- Must adhere to all applicable federal, state and local regulations as it pertains to the installation and use of the wind turbine and tower.

Second by Thiesen. Motion approved 4-0.

### **Consideration to Adopt Amendment to Rules of Procedure for the Meeting Day, Time, and Location of the Woodbury County Board of Adjustment**

After discussion, Board members chose to not make changes to the meeting day, time, or location. No changes will be made to Rules of Procedure. Motion by Christensen to leave the schedule as is with no recommended changes to the Rules of Procedure. Second: Thiesen Approved; 4-0.

### **Public Comment on Matters Not on the Agenda**

None

### **Board Member Comment of Inquiry**

Christensen mentioned the Woodbury County Fair is underway.

### **Staff Update**

The Board of Supervisors will conduct Public Hearings on the proposed Zoning Ordinance Text Amendment concerning solar on August 1<sup>st</sup>, 8<sup>th</sup>, and 15<sup>th</sup>. Hearings will all be at 4:45 PM.

### **Adjourn**

Motion to adjourn by Christensen. Second: Theisen Carried: 4-0.



**WOODBURY COUNTY COMMUNITY AND ECONOMIC DEVELOPMENT (PLANNING AND ZONING)**

Address: 620 Douglas Street – Sixth Floor, Sioux City, IA 51101 | Phone: 712-279-6609 | Fax: 712-279-6530 | Web: woodburycountyia.gov  
 Daniel J. Priestley, MPA – Zoning Coordinator: dpriestley@woodburycountyia.gov  
 Dawn Norton – Senior Clerk: dnorton@woodburycountyia.gov

**REPORT – SEPTEMBER 27, 2023**

**CONDITIONAL USE PERMIT REQUEST**

| Application Details                      |   | Property Details     |   | Contents |   |
|--|---|----------------------|---|----------|---|
| Applicant(s)/Owner(s):                   | AMG Technology Investment Group DBA Nextlink / Shelle Baldwin | Parcel #:            | 874316300005                                |          | Summary, Location Aerial, Site Plan Excerpt, Recommendation, & Suggested Motion |
| Application Type:                        | Conditional Use   | Township/Range:      | T87N R43W (Miller)                          |          | Legal Notification  |
| Zoning District:                         | Agricultural Preservation                                     | Section:             | 16  |          | Neighbor(s) Notification  |
| Total Acres:                             | 40  | Quarter:             | SE ¼ SW ¼                                   |          | Stakeholder(s) Comments   |
| Current Use:                             | Agriculture   | Zoning District:     | Agricultural Preservation                   |          | Review Criteria / Applicant Responses   |
| Proposed Use:                            | Telecommunication Tower                                       | Floodplain District: | Zone X (Not in Floodplain)                  |          | Application   |
| Pre-application Meeting:                 | May 4, 2023   | Address:             | 3846 245 <sup>th</sup> St., Anton, IA 51004 |          | Supporting Documentation  |
| Application Date:                        | August 29, 2023   |                      |   |          |   |
| Legal Notice Date:                       | September 14, 2023  |                      |   |          |   |
| Neighbor(s) Notice Date:                 | September 13, 2023  |                      |   |          |   |
| Stakeholder(s) Notice Date:              | September 1, 2023   |                      |   |          |   |
| Board of Adjustment Public Hearing Date: | October 2, 2023   |                      |   |          |   |

**SUMMARY**

AMG Technology Investment Group DBA Nextlink have filed a conditional use permit application to request to install a 120 FT monopole communication tower to supply high speed internet to surrounding areas on the property designated as Parcel #874316300005. The proposed location is around 2.5 miles south of Anthon and about 4.2 miles northeast of Oto. This proposal has been noticed in the Sioux City Journals legal section on September 14, 2023. The neighbors within one (1) mile were duly notified via a September 13, 2023 letter about the October 2, 2023 Board of Adjustment public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been requested to comment. This property is located in the Agricultural Preservation (AP) Zoning District. Based on the information received and the requirements set forth in the Zoning Ordinance, the proposal meets the appropriate criteria for approval of the conditional use request. It is the recommendation of staff to approve the proposal. At their meeting on September 25, 2023, the Woodbury County Zoning Commission voted 5-0 to recommend approval of this conditional use permit application.

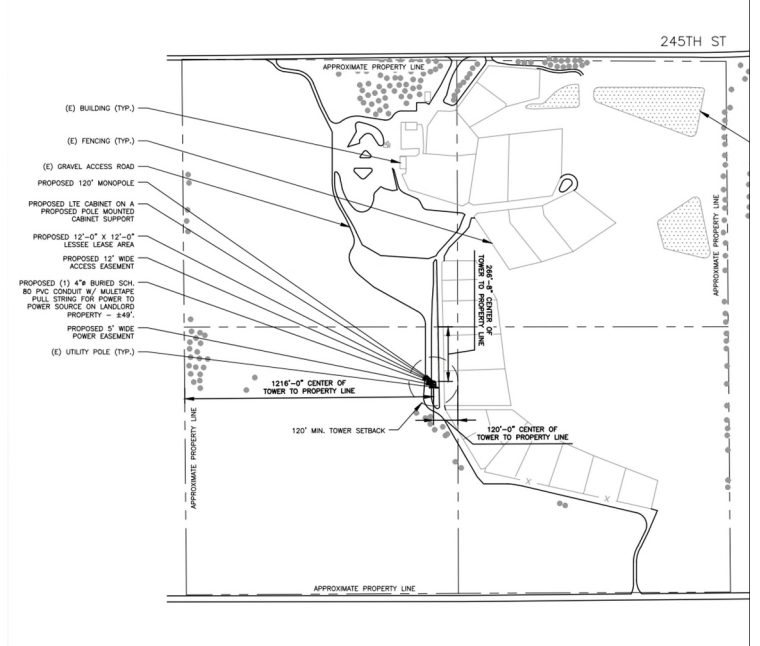
**LOCATION / AERIAL VIEW**

**SITE PLAN EXCERPT**



- Legend**
- Roads
  - Corp Boundaries
  - Townships
  - Parcels
  - FEMA Flood Map
    - A, AE, Floodway
    - AH, Floodway
    - AO, Floodway
    - X, 0.2 PCT ANNUAL CHANCE FLOOD HAZARD
    - X, AREA WITH REDUCED FLOOD RISK DUE TO LEVEE

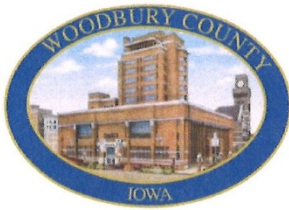
Parcel ID 874316300005 Alternate ID 722970 Owner Address BALDWIN MARK D & SHELLE J  
 Sec/Twp/Rng 16-87-43 Class A 3846 245TH ST  
 Property Address ANTHON, IA 51004-8065  
 District 0004  
 Brief Tax Description SESW 16-87-43  
 (Note: Not to be used on legal documents)



**ZONING COMMISSION RECOMMENDATION**

At their meeting on September 25, 2023, the Woodbury County Zoning Commission voted 5-0 to recommend approval of this conditional use permit application.





WOODBURY COUNTY  
**ZONING COMMISSION**  
WOODBURY COUNTY COURTHOUSE  
620 DOUGLAS STREET  
SIOUX CITY, IA 51101

Woodbury County Board of Adjustment  
620 Douglas Street  
Sioux City, Iowa 51101

RE: Zoning Commission Recommendation to the Board of Adjustment:

**Conditional Use Permit Application**

Request to install a 120 FT monopole communication tower to supply high speed internet to surrounding areas .

Parcel #: 874316300005

Township/Range: T87N R43W (Miller)

Section: 16

Quarter: SE ¼ SW ¼

Zoning District: Agricultural Preservation

Floodplain District: Zone X (Not in Floodplain)

Address: 3846 245th St., Anton, IA 51004


Dear Board of Adjustment:

This letter is to inform you that the Woodbury County Zoning Commission reviewed the conditional use permit application submitted by AMG Technology Investment Group DBA Nextlink (Applicant) and Shelle Baldwin (Owner) to request to install a 120 FT monopole communication tower to supply high speed internet to surrounding areas on the property designated as Parcel #874316300005 at the September 25, 2023 meeting of the Zoning Commission.

The Commission voted 5-0 to ( recommend / deny ) approval of the conditional use permit application.

Please refer to the draft copy of the Zoning Commission minutes for further details about the Commission's action(s).

Dated this 25 day of Sept, 2023

  
Christine Zellmer Zant, Chair  
Woodbury County Zoning Commission

**ZONING COMMISSION DRAFT MINUTES**

**Minutes - Woodbury County Zoning Commission – September 25, 2023**

The Zoning Commission (ZC) meeting convened on Monday, September 25 at 5:00 PM in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, IA. The meeting was also made available via teleconference.

**ZC Members Present:** Chris Zellmer Zant, Corey Meister, Jeff O'Tool, Tom Bride, Barb Parker  
**County Staff Present:** Dan Priestley, Dawn Norton  
**Public Present:** Greg Jochum, Gwen Brunk, Roger Brunk, Russell Petersen, Tom Jochum, Brian Jochum, Leo Jochum, Blair Utery, Jarrod Utery, Bill Jochum, Tony Ashley, Dan Blittinger, Alan Fagan, Rebekah Moerer, Elizabeth Widman, Deb Harpenau, Kevin Alons, Jenny Barber, Rex Barber, Jesus Cendejas, Peter Widman, Sophia Widman, Emily Segura, Ann Johnston  
**Telephone:** Will Dougherty

**Call to Order**  
 Chair Chris Zant formally called the meeting to order at 5:04 PM. All five (5) Commissioners were present.

**Public Comment on Matters Not on the Agenda**  
 None

**Approval of Previous Meeting Minutes – September 11, 2023**  
 Meister motioned. Second: O'Tool. Motion carried: 5-0.

**Public Hearing: Townley Addition, Minor Subdivision Proposal on Parcel #894607100007**  
 Priestley read the preliminary report into the record. Donald J Townley, in his capacity as Trustee of the Derrill J. Townley Revocable Trust has filed for a one (1) lot minor subdivision on the property identified as Parcel #894607100007. This subdivision is being completed to separate the house location from the abutting ground. This proposal has been properly noticed in the Sioux City Journal legal section on September 14, 2023. The neighbors within 1000 FT have been duly notified via a September 11, 2023 letter about the September 25, 2023 Zoning Commission public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been notified and have been requested to comment. The Woodbury County Engineer found the proposal in compliance with Iowa Code closure requirements and found that the lots have adequate access. This property is located in the Agricultural Preservation (AP) Zoning District and is located in the Special Flood Hazard Area (SFHA) – Zone A. The City of Sioux City conducted extrajurisdictional review with the acceptance and approval of the final plat with the approval of Resolution No. 2023-0696. The area of the subdivision is less than 5 acres and Base Flood Elevation (BFE) data is not required. Based on the information received and the requirements set forth in the Zoning and Subdivision Ordinance, the proposal meets the appropriate criteria for approval. The Woodbury County Engineer recommended an easement which was prepared. Motion to close public hearing: Bride. Second: O'Tool. Carried: 5-0. Motion to recommend approval to the Board of Supervisors as proposed: O'Tool. Second: Bride. Motion carried: 5-0.

**Review of Conditional Use Permit Application: Proposed Telecommunication Tower 120 FT Monopole on Parcel #87431630005**  
 Priestley read the preliminary report into the record. AGM Technology Investment Group DBA Nextlink has filed a conditional use permit application to request to install a 120-monopole communication tower to supply high speed internet to surrounding areas on the property designated as Parcel #874316300005. The proposed location is around 2.5 miles south of Anthon and about 4.2 miles northeast of Oto. This proposal has been noticed in the Sioux City Journal legal section on September 14, 2023. The neighbors within one (1) mile were duly notified via a September 13, 2023 letter about the October 2, 2023 Board of Adjustment public hearing. Appropriate stakeholders including government agencies, utilities, and organizations have been requested to comment. This property is located in the Agricultural Preservation (AP) Zoning District. Based on the information received and the requirements set forth in the Zoning Ordinance, the proposal meets the appropriate criteria for approval of the conditional use request. It is the recommendation of staff to approve the proposal. Motion to recommend the proposal to Board of Adjustment: O'Tool. Second: Parker. Motion carried 5-0.

**Public Hearing: Solar Energy – Utility-Scale Solar Systems – Consideration of Solar Ordinances for Recommendations(s) to the Board of Supervisors**  
 Priestley summarized the utility-scale solar energy system process including eight topics to be discussed at this meeting. The Woodbury County Zoning Commission has been directed by the Board of Supervisors on August 8, 2023 to establish/examine a new ordinance as it relates to utility-scale solar systems. The purpose of this public hearing is to receive comments from the public about a potential ordinance that could facilitate the permitting of utility solar in the Agricultural Preservation (AP) Zoning District in addition to the General Industrial Zoning District. The Zoning Commission held their first public hearing at the Merville Area Community Center on September 11, 2023. The Board of Supervisors have indicated, through their direction on August 8, that "if the county was to engage in utility-scale solar, at a minimum, the county should consider this only if the following is met:"

1

project area or footprint via the Zoning Ordinance Map Amendment (rezone) process. Specific standards or requirements can be directly tied to the overlay district. Thus, it is possible to create a series of requirements in which a proposed location would have to be met in order to be considered for the rezone to the overlay district. Therefore, as a hypothetical, the Zoning Commission and Board of Supervisors could consider a Zoning Ordinance Map Amendment (rezone) application to the Utility-Scale Solar Energy Systems Overlay District following the procedures set out in the Ordinance. This overlay could be applied over Agricultural Preservation (AP) zoned land while retaining its base uses. Once, the overlay district has been applied, conditional use permit application could be considered for the footprint of that area by going through a review by the Zoning Commission and consideration of the permit by the Board of Adjustment.

Priestley suggested that the Commission schedule a work study public meeting where the public and commissioners can discuss issues and form a preliminary ordinance or amendments to present to the Board of Supervisors as a recommendation.

Daniel Segura (Sioux City) addressed the Commission questioning the effectiveness of the overlay district as an added step.

Priestley indicated that specific requirements or conditions can be added to the rezone consideration process.

Bride motioned to close public hearing. Second: Parker. Carried: 5-0.

Zellmer Zant stated different applications are considered through different processes. Priestley explained that the overlay district would use the rezone process which requires a public hearing before the Zoning Commission and up to three public hearings before the Board of Supervisors. The Zoning Commission would offer a recommendation to the Board of Supervisors who ultimately would decide the appropriateness of the location. The Conditional Use Permit process would require review by the Zoning Commission and approval by the Board of Adjustment. The Board of Supervisors would be involved with special agreements such as road use and decommissioning. In terms of preparing an ordinance, both the rezone and conditional use processes will need to be defined including the approval/disapproval requirements for both.

**Public Comment on Matters not on the Agenda**  
 None

**Staff Update**  
 There will be a Board of Adjustment meeting on October 2, 2023 in the basement meeting room of the courthouse. The topic of solar will be shared with the Board only as an information item. The Board of Adjustment does not have a role as to the creation of new ordinances. The Zoning Commission formulates recommendations that are considered by the Board of Supervisors.

**Adjourn**  
 Motion by O'Tool to adjourn; Second by Meister. Carried: 5-0. Adjourned: 7:50 p.m.

3

- o A conditional use permit for AP "C" with Planning and Zoning and Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- o A slope of no more than 5% in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- o A maximum height of no more than 20' for panel structures.
- o Of all AP, no more than 49% can be in such a project. In short, 51% must be for agricultural production or no longer considered "AP".
- o Utility solar can be no more than 2% of all AP "agricultural preservation," preserving 98% of AP. This equates to approximately 8,540 acres of the 427,000 acres of ag land, ag land constituting 75% of the 570,000 total acres in Woodbury County.
- o Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- o A requirement (or at least strong consideration) that the utility-scale solar project either be on a landowner's property or that the owner of the land be a resident of Woodbury County.

Priestley also informed the Commission and the public that the Board of Supervisors have an agenda item for their September 26, 2023 meeting that may update the previous direction. The potential new direction would include the following:

- o A conditional use permit for AP "C" with Planning and Zoning and the Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- o A slope of no more than 5% ONLY for fixed arrays (most technology is now movable arrays) in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- o No more than 1% of industrial land conversion every 4 years for reclassification, roughly 5,700 acres.
- o Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- o A decommissioning plan from solar companies reviewed by P&Z/BOA subject to approval by the Woodbury County Board of Supervisors.

Matt Countyman (Renewable Energy Equity Partners) addressed the Commission regarding the importance of mitigation and ag restoration of land, and support of an overlay district.

Deb Harpenau (Salix) addressed the Commission supporting utility solar as a clean source of electrical generation.

Wally Wagner (Salix) addressed the Commission about progress, and change he has seen regarding his land, and types of land that would not be good for solar.

Jerrold Utery (Utery Energy) addressed the Commission supporting solar energy.

Kevin Alons (Salix) addressed the Commission regarding the use of solar on agricultural land as not an ag use, heavily subsidized, and questioned revenue for county.

Rebecca Moerer (Sioux City) addressed the Commission about not supporting solar in agriculture areas as it disturbs wildlife, and questions whether revenue would go.

Jesus Cendejas (Salix) addressed the Commission expressing concern for landowner stewardship, land depreciation, and impact of solar on neighbors.

Elizabeth Widman (Sergeant Bluff) addressed the Commission offering environmental concerns, impact on neighbors, glare, and noise issues.

Leo Jochum (Salix) addressed the Commission in favor of utility solar indicating that solar can co-exist with reasonable setbacks.

Ann Johnston (Salix) addressed the Commission opposing utility solar and questioning its recyclability

Will Dougherty (MidAmerican Energy) addressed the Commission indicating that there is not a one size fits all approach, plans could be put in place for decommissioning, buffers, and screening

Leo Jochum submitted information sheet to Commissioners. Motion to accept: O'Tool. Second: Parker. Carried: 5-0. See received content beginning on Page 4 of the minutes.

Priestley presented photo of the utility solar system abutting Port Neal Road. He also should example photos of agrisolar or agrivoltaics.

Priestley provided a range of topics as an overview for a potential ordinance including: appropriate locations; ordinance type(s); process type(s); information collection; permitting requirements; and definitions. Priestley also discussed the concept of an "overlay district" which could be used in conjunction with the existing underlying zoning district. In particular, an overlay district is not intended to be a free-standing zoning district. It is applied to the

2

**RECEIVED FROM LEO JOCHUM (SALIX) – 6 PAGES**

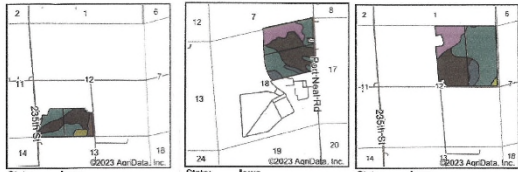
The first sheet is three farms located north of CF industries in the GI zone. Notice the CSR1 is 88 to 60, CSR 2 is around 10 to 12 points higher. This will be consistent throughout the higher quality soils in this area.

The left side of the next sheet shows where the Mid-America solar project is located with a CSR 182 of 61.9 and 71.1 respectively

The right side of the page shows over 600 acres between highway 75 and Interstate 29 with very high CSR1 and CSR2. The farms on these two sheets are within a large area which spans about six miles from east to west and are very consistent in quality. The land being discussed for solar is East of this area which has heavier soils and lower elevation.

The last three sheets represent farms located North and East of Salix that have CSR 1 ratings in the mid 40s with the exception of one. However the CSR2 increases by 30 plus points. The CSR1 rating is more relevant for land quality in that area because CSR2 has removed the rainfall factor. For this reason I don't think CSR should be considered for conditional use.

4



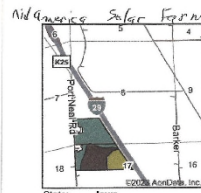
State: Iowa  
County: Woodbury  
Location: 12-87N-48W  
Township: Liberty  
Acres: 72.82  
Date: 9/18/2023

State: Iowa  
County: Woodbury  
Location: 18-87N-47W  
Township: Liberty  
Acres: 150.28  
Date: 9/18/2023

State: Iowa  
County: Woodbury  
Location: 12-87N-48W  
Township: Liberty  
Acres: 150.89  
Date: 9/18/2023



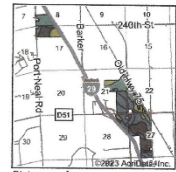
| Soil Class % | Non-Irr Class % | Irr Class % | CSR1* | CSR2** | % NCCPI Systems |
|--------------|-----------------|-------------|-------|--------|-----------------|
| 80           | 80              | 80          | 65    | 65     | 60              |
| 10           | 10              | 10          | 72    | 72     | 50              |
| 10           | 10              | 10          | 49    | 49     | 37              |
| 10           | 10              | 10          | 91    | 91     | 74              |
| 10           | 10              | 10          | 5     | 5      | 2               |
| 1.44         | 1.44            | 1.44        | 76.7  | 80     | 66.7            |



State: Iowa  
County: Woodbury  
Location: 18-87N-47W  
Township: Liberty  
Acres: 123.17  
Date: 9/18/2023



| Soil Class % | Non-Irr Class % | Irr Class % | CSR1* | CSR2** | % NCCPI Systems |
|--------------|-----------------|-------------|-------|--------|-----------------|
| 80           | 80              | 80          | 65    | 65     | 60              |
| 10           | 10              | 10          | 77    | 77     | 54              |
| 10           | 10              | 10          | 56    | 56     | 40              |
| 1.33         | 1.33            | 1.33        | 71.1  | 61.9   | 57.7            |



State: Iowa  
County: Woodbury  
Location: 21-87N-47W  
Township: Liberty  
Acres: 646.76  
Date: 9/18/2023



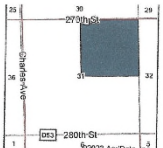
| Soil Class % | Non-Irr Class % | Irr Class % | CSR1* | CSR2** | % NCCPI Systems |
|--------------|-----------------|-------------|-------|--------|-----------------|
| 77           | 77              | 77          | 65    | 65     | 50              |
| 10           | 10              | 10          | 72    | 72     | 50              |
| 10           | 10              | 10          | 24    | 24     | 20              |
| 10           | 10              | 10          | 36    | 36     | 27              |
| 10           | 10              | 10          | 81    | 81     | 63              |
| 10           | 10              | 10          | 89    | 89     | 75              |
| 10           | 10              | 10          | 72    | 72     | 50              |
| 10           | 10              | 10          | 70    | 70     | 51              |
| 10           | 10              | 10          | 91    | 91     | 74              |
| 10           | 10              | 10          | 5     | 5      | 2               |
| 10           | 10              | 10          | 80    | 80     | 61              |
| 1.44         | 1.44            | 1.44        | 77.8  | 64.5   | 58.8            |



State: Iowa  
County: Woodbury  
Location: 36-87N-47W  
Township: Liberty  
Acres: 78.03  
Date: 5/22/2023



| Soil Class % | Non-Irr Class % | Irr Class % | CSR1* | CSR2** | % NCCPI Systems |
|--------------|-----------------|-------------|-------|--------|-----------------|
| 80           | 80              | 80          | 65    | 65     | 60              |
| 10           | 10              | 10          | 72    | 72     | 50              |
| 10           | 10              | 10          | 42    | 42     | 31              |
| 10           | 10              | 10          | 63    | 63     | 46              |
| 10           | 10              | 10          | 94    | 94     | 83              |
| 2.27         | 2.27            | 2.27        | 82.9  | 87.9   | 79.8            |



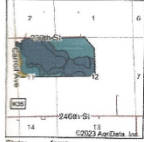
State: Iowa  
County: Woodbury  
Location: 31-87N-46W  
Township: Orange  
Acres: 153.97  
Date: 4/27/2023



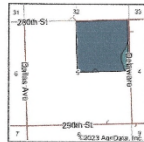
| Soil Class % | Non-Irr Class % | Irr Class % | CSR1* | CSR2** | % NCCPI Systems |
|--------------|-----------------|-------------|-------|--------|-----------------|
| 80           | 80              | 80          | 65    | 65     | 60              |
| 10           | 10              | 10          | 81    | 81     | 62              |
| 10           | 10              | 10          | 42    | 42     | 31              |
| 3.00         | 3.00            | 3.00        | 81    | 47     | 62              |

Similar to the original CSR, the CSR2 assumes an SMU is adequately managed, artificially drained where required, and there is no land leveling or terracing. A major difference between the CSR and the CSR2 is the CSR included a rainfall correction factor where the CSR2 does not.

One of the key differences between CSR and CSR2 will be the climate factor. CSR2 will have a climate factor in its calculations. In the original CSR values, soil scientists made an adjustment based on the geographic region of a soil map unit (SMU). For example, SMUs in Northern Iowa were adjusted downward more than SMUs in Southern Iowa. Without a climate adjustment, CSR2 values will have an upward bias in southern Iowa and in Northwest Iowa.



State: Iowa  
 County: Woodbury  
 Location: 12-87N-47W  
 Township: Liberty  
 Acres: 305.46  
 Date: 4/26/2023



State: Iowa  
 County: Woodbury  
 Location: 5-60N-46W  
 Township: Sloan  
 Acres: 153.5  
 Date: 4/26/2023



| Area Class %     | Gr Class % | CSR <sup>2</sup> | CSR  | % HCCN <sup>3</sup> |
|------------------|------------|------------------|------|---------------------|
| Blw              | 74         | 51               | 52   | 52                  |
| Blw              | 94         | 79               | 83   | 83                  |
| Blw              | 94         | 80               | 85   | 85                  |
| Blw              | 95         | 74               | 77   | 77                  |
| Blw              | 95         | 27               | 40   | 40                  |
| Regional Average | 85.2       | 64.2             | 64.3 | 64.3                |

| Area Class %     | Gr Class % | CSR <sup>2</sup> | CSR  | % HCCN <sup>3</sup> |
|------------------|------------|------------------|------|---------------------|
| Blw              | 81         | 43               | 50   | 50                  |
| Blw              | 74         | 51               | 52   | 52                  |
| Blw              | 80         | 74               | 77   | 77                  |
| Regional Average | 79.9       | 60.7             | 67.4 | 67.5                |



**LEGAL NOTIFICATION**

Published in the Sioux City Journal's Legal Section on **September 14, 2023**

**NOTICE OF PUBLIC HEARING BEFORE THE WOODBURY COUNTY BOARD OF ADJUSTMENT**

The Woodbury County Board of Adjustment will hold a public hearing on the following item hereafter described in detail on October 2, 2023 at 6:00 PM or as soon thereafter as the matter may be considered. Said hearing will be held in the Board of Supervisors' meeting room in the Basement of the Woodbury County Courthouse, 620 Douglas Street, Sioux City, Iowa. Copies of said item may now be viewed at the Board of Adjustment, Woodbury County Community and Economic Development, on the 6th Floor of said courthouse by any interested persons. All persons who wish to be heard in respect to the matter should appear at the aforesaid hearing in person or call 712-464-1133 and enter the Conference ID: 742 245 1234. Hearing the meeting, to listen or comment. However, it is recommended to attend in person as there is the possibility for technical difficulties with phone and computer systems.

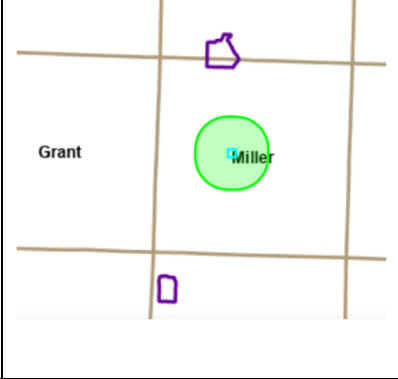
Item One (1)

Pursuant to Section 335 of the Code of Iowa, the Woodbury County Board of Adjustment will hold a public hearing to consider the Conditional Use Zoning Application by AMG Technology Group DBA Woodtek, Veridian and Shelle Baldwin (Ownership) to locate a 120 FT monopole telecommunication tower to supply high speed internet to surrounding areas. The property is located on Parcel #87431600005 in T87N R43W (Miller Township) in Section 16 in the SE ¼ of the SW ¼. The property is located about 2.3 miles south of Anthon and about 4.3 miles west of the city of Anthon. The zoning District is Conditional Use Zoning (Mark Baldwin & Shelle J. Baldwin, 3846 245th St, Anthon, IA 51004-6065 / AMG Technology Group DBA, Woodtek, 95 Parker Oaks Ln., Hudson Oaks, TX 76087.

**PROPERTY OWNER(S) NOTIFICATION**

**MAP**

|  |  |
|--|--|
| Total Property Owners within one (1) Mile via Certified Abstractor's Listing:                            | 33                                     |
| Notification Letter Date:  | September 13, 2023                     |
| Public Meeting for Review:   | September 25, 2023 (Zoning Commission) |
| Public Hearing Board:  | Board of Adjustment                    |
| Public Hearing Date:   | October 2, 2023                        |
| Phone Inquiries:   | 0                                      |
| Written Inquiries:   | 0                                      |
| The names of the property owners are listed below.   |  |
| When more comments are received after the printing of this packet, they will be provided at the meeting. |  |



| Property Owner(s)   | Mailing Address        | Comments     |        |       |              |
|---|------------------------|--------------|--------|-------|--------------|
| Alta Patterson Trust  | 36 Eastview Dr Apt 315 | Sioux City   | IA     | 51106 | No comments. |
| Amanda Marie Wodtke / Brooke Lynn Wodtke / Marcus James Wodtke Michael Aaron Wodtke / Samantha Lea Wodtke | 1106 Ridgewood Dr      | Huxley       | IA     | 50124 | No comments. |
| Andrew J. Rosauer   | 3954 250th St          | Anthon       | IA     | 51004 | No comments. |
| Baldwin Properties LLC  | 2406 Mason Ave         | Anthon       | IA     | 51004 | No comments. |
| Bernard F. Ketelsen & Barbara L. Ketelsen   | 3812 250th St          | Anthon       | IA     | 51004 | No comments. |
| Brett N. Baldwin & Jody A. Baldwin  | 2406 Mason Ave         | Anthon       | IA     | 51004 | No comments. |
| CICS Investments LLC  | 2075 NE 126th Ave      | Alleman      | IA     | 50007 | No comments. |
| David L. Bumsted & Karen K. Bumsted Trust   | 418 N Crawford Rd      | Vermillion   | SD     | 57069 | No comments. |
| Dennis J. Walling   | 407 S 3rd Ave          | Anthon       | IA     | 51004 | No comments. |
| Dennis J. Walling & Julie A. Walling  | 407 S 3rd Ave          | Anthon       | IA     | 51004 | No comments. |
| Dorothy E. Parker Le Rem  | 2 Sunrise Ave Apt C    | Mapleton     | IA     | 51034 | No comments. |
| Dorothy Parker  | 2 Sunrise Ave Apt C    | Mapleton     | IA     | 51034 | No comments. |
| Douglas E. Spies Revocable Living Trust   | 2520 Morgan Trl        | Anthon       | IA     | 51004 | No comments. |
| Frank Fundermann & Carol Fundermann Joint Revocable Trust   | 1693 260th St          | Red Oak      | IA     | 51566 | No comments. |
| Fundermann Family Farms LLC   | 604 6th St             | Battle Creek | IA     | 51006 | No comments. |
| Gary E. Bumsted & Eileen G. Bumsted Revocable Trust   | 5436 Stone Ave         | Sioux City   | IA     | 51106 | No comments. |
| Henry Patterson c/o Rose Patterson  | 36 Eastview Dr Apt 315 | Sioux City   | IA     | 51106 | No comments. |
| John Dixon & Linda Dixon  | 2417 Morgan Trl        | Anthon       | IA     | 51004 | No comments. |
| Joint Declaration of Trust  | 21024 Leesa Ln         | Kearney      | M<br>O | 64060 | No comments. |
| Lavern W. Botcher & Alice E. Botcher  | 702 North Walnut       | Avoca        | IA     | 51521 | No comments. |
| Mark Baldwin & Shelle Baldwin   | 2439 Mason Ave         | Anthon       | IA     | 51004 | No comments. |
| Mark D. Baldwin & Shelle J. Baldwin   | 3846 245th St          | Anthon       | IA     | 51004 | No comments. |

|   |                                   |                |    |       |              |
|---|-----------------------------------|----------------|----|-------|--------------|
| Mary R. Hayworth                            | N/A - Undeliverable/Mail Returned |                |    |       | No comments. |
| Meyer Family Farm LLC                       | PO Box 214                        | Anthon         | IA | 51004 | No comments. |
| Michael R. Drea & Donna C. Drea             | 139 Golden Dr                     | Sergeant Bluff | IA | 51054 | No comments. |
| Parker Land & Cattle Inc                    | 2314 Kossuth Ave                  | Anthon         | IA | 51004 | No comments. |
| Paul A. Rosauer                             | 2581 Mason Ave                    | Anthon         | IA | 51004 | No comments. |
| Paul H. Ludwig & Barbara K. Ludwig          | 301 2nd Ave S                     | Anthon         | IA | 51004 | No comments. |
| Phillip E. Hayworth & Stella M. Hayworth    | 3818 245th St                     | Anthon         | IA | 51004 | No comments. |
| Richard W. Enockson & Judith A. Enockson    | 187 Brookline Trail               | Dakota Dunes   | SD | 57049 | No comments. |
| Robert J. Fundermann & Angela J. Fundermann | 3805 245th St                     | Anthon         | IA | 51004 | No comments. |
| Susan Ristuben Asher Trust                  | 3106 E Mores Trail St             | Meridian       | ID | 83642 | No comments. |
| Wayne C. Funderman Revocable Living Trust   | 3780 245th St                     | Anthon         | IA | 51004 | No comments. |
| William A. Fleck & Judy M. Fleck            | 3798 240th St                     | Anthon         | IA | 51004 | No comments. |

#### STAKEHOLDER COMMENTS

|   |  |
|---|--|
| 911 COMMUNICATIONS CENTER:                            | No comments.   |
| FIBERCOMM:  | No comments.   |
| IOWA DEPARTMENT OF NATURAL RESOURCES (IDNR):          | No comments.   |
| IOWA DEPARTMENT OF TRANSPORTATION (IDOT):             | No comments.   |
| LOESS HILLS NATIONAL SCENIC BYWAY:                    | No comments.   |
| LOESS HILLS PROGRAM:                                  | No comments.   |
| LONGLINES:  | No comments.   |
| LUMEN:  | No comments.   No comments.  |
| MAGELLAN PIPELINE:                                    | No comments.   |
| MIDAMERICAN ENERGY COMPANY (Electrical Division):     | I have reviewed the following requested conditional use permit for MEC electric and we have no conflicts. – Casey Meinen, 9/1/23.  |
| MIDAMERICAN ENERGY COMPANY (Gas Division):            | No conflicts for MEC Gas. – Tyler Ahlquist, 9/5/23.  |
| NATURAL RESOURCES CONSERVATION SERVICES (NRCS):       | No comments.   |
| NORTHERN NATURAL GAS:                                 | No comments.   |
| NORTHWEST IOWA POWER COOPERATIVE (NIPCO):             | Have reviewed this zoning request. NIPCO has no issues with this request. – Jeff Zettel, 9/5/23.   |
| NUSTAR PIPELINE:                                      | No comments.   |
| SIUXLAND DISTRICT HEALTH DEPARTMENT:                  | No comments.   |
| WIATEL:   | No comments.   |
| WOODBURY COUNTY ASSESSOR:                             | No comments.   |
| WOODBURY COUNTY CONSERVATION:                         | No comments.   |
| WOODBURY COUNTY EMERGENCY MANAGEMENT:                 | No comments.   |
| WOODBURY COUNTY EMERGENCY SERVICES:                   | No comments.   |
| WOODBURY COUNTY ENGINEER:                             | I have no concerns with this proposed conditional use. Existing driveways are proposed for use, as best as I was able to determine. If dedicated access is needed, the owner will need to contact my department for a driveway permit. – Mark Nahra, 9/1/23. |
| WOODBURY COUNTY RECORDER:                             | No comments. – Diane Swoboda Peterson, 9/5/23.   |
| WOODBURY COUNTY RURAL ELECTRIC COOPERATIVE (REC):     | No comments.   |
| WOODBURY COUNTY SOIL AND WATER CONSERVATION DISTRICT: | The WCSWCD has no comments regarding this conditional use permit. – Neil Stockfleth, 9/6/23.   |

**REVIEW REQUIREMENTS - IOWA CODE SECTION 8C.3 (<https://www.legis.iowa.gov/docs/code/8c.pdf>)**

**LOCAL GOVERNMENTS CANNOT:**

**In order to ensure uniformity across this state with respect to the consideration of every application, and notwithstanding any other provision to the contrary, an authority shall not do any of the following:**

1. Require an applicant to submit information about, or evaluate an applicant's business decisions with respect to, the applicant's designed service, customer demand for service, or quality of the applicant's service to or from a particular area or site, but may require propagation maps solely for the purpose of identifying the location of the coverage or capacity gap or need for applications for new towers in an area zoned residential.
2. a. Evaluate an application based on the availability of other potential locations for the placement or construction of a tower or transmission equipment. b. Require the applicant to establish other options for collocation instead of the construction of a new tower or modification of an existing tower or existing base station that constitutes a substantial change to an existing tower or existing base station. c. Notwithstanding paragraph "b", an authority shall require an applicant applying for the construction of a new tower to provide an explanation regarding the reason for choosing the proposed location and the reason the applicant did not choose collocation. The explanation shall include a sworn statement from an individual who has responsibility over placement of the tower attesting that collocation within the area determined by the applicant to meet the applicant's radio frequency engineering requirements for the placement of a site would not result in the same mobile service functionality, coverage, and capacity, is technically infeasible, or is economically burdensome to the applicant.
3. Dictate the type of transmission equipment or technology to be used by the applicant or discriminate between different types of infrastructure or technology.
4. a. Require the removal of existing towers, base stations, or transmission equipment, wherever located, as a condition to approval of an application. b. Notwithstanding paragraph "a", the authority may adopt reasonable rules regarding removal of abandoned towers or transmission equipment.
5. Impose environmental testing, sampling, or monitoring requirements, or other compliance measures, for radio frequency emissions from transmission equipment that are categorically excluded under the federal communications commission's rules for radio frequency emissions pursuant to 47 C.F.R. §1.1307(b)(1).
6. Establish or enforce regulations or procedures for radio frequency signal strength or the adequacy of service quality.
7. Reject an application, in whole or in part, based on perceived or alleged environmental effects of radio frequency emissions, as provided in 47 U.S.C. §332(e)(7)(B)(iv).
8. Prohibit the placement of emergency power systems that comply with federal and state environmental requirements.
9. Charge an application fee, consulting fee, or other fee associated with the submission, review, processing, or approval of an application, unless the fee charged is in compliance with this section. Fees imposed by an authority or by a third-party entity providing review or technical consultation to the authority shall be based on actual, direct, and reasonable administrative costs incurred for the review, processing, and approval of an application. In no case shall total charges and fees exceed five hundred dollars for an eligible facilities request or three thousand dollars for an application for a new tower, for the initial placement or installation of transmission equipment on a wireless support structure, for a modification of an existing tower or existing base station that constitutes a substantial change to an existing tower or base station, or any other application to construct or place transmission equipment that does not constitute an eligible facilities request. An authority or any third-party entity shall not include within its charges any travel expenses incurred in the review of an application for more than one trip to the authority's jurisdiction, and an applicant shall not be required to pay or reimburse an authority for consultant or other third-party fees based on a contingency-based or result-based arrangement.
10. Impose surety requirements, including bonds, escrow deposits, letters of credit, or any other type of financial surety, to ensure that abandoned or unused towers or transmission equipment can be removed, unless requirements are competitively neutral, nondiscriminatory, reasonable in amount, and commensurate with the historical record for local facilities and structures that are abandoned.
11. Condition the approval of an application on the applicant's agreement to provide space on or near the tower, base station, or wireless support structure for authority or local governmental or nongovernmental services at less than the market rate for such space or to provide other services via the structure or facilities at less than the market rate for such services.
12. Limit the duration of the approval of an application, except that construction of the approved structure or facilities shall be commenced within two years of final approval, including the disposition of any appeals, and diligently pursued to completion.
13. Discriminate on the basis of the ownership, including ownership by the authority, of any property, structure, or tower when promulgating rules or procedures for siting wireless facilities or for evaluating applications.

**ZONING ORDINANCE CRITERIA FOR BOARD APPROVAL**

Conditional Use Permits are determined by a review of the following criteria by the Zoning Commission (ZC) and Board of Adjustment (BOA). The ZC makes a recommendation to the BOA which will decide following a public hearing before the Board.

**APPLICANT'S DESCRIPTION OF THE PROPOSED CONDITIONAL USE:**

Nextlink would like the approval to install a new 120' galvanized steel mono pole to provide high speed internet to surrounding areas.

PER SECTION 2.02(9) (C )(2)(e) PROVIDE A MAP DRAWN TO SCALE, SHOWING THE SUBJECT PROPERTY, ALL STRUCTURES AND OTHER IMPROVEMENTS, WITH THE PROPOSED CONDITIONAL USE IDENTIFIED PER STRUCTURE OR IMPROVEMENT . PROVIDE BY ATTACHMENT.

1. Maps
  - a. See attachment

**CRITERIA 1:**

The conditional use requested is authorized as a conditional use in the zoning district within which the property is located and that any specific conditions or standards described as part of that authorization have been or will be satisfied (Woodbury County Zoning Ordinance, Sec. 2.02-9).

**Applicant Response:**

The conditional use is for commercial/telecommunication in a AP zoned area. All standards described will be satisfied by our team and crew.

**Staff Analysis:**

This conditional use permit requested is authorized in the Agricultural Preservation (AP) Zoning District. This request will satisfy any and all requirements as per the Zoning Ordinance.



|  |
|--|
| <b>CRITERIA 2:</b>   |
| The proposed use and development will be in harmony with the general purpose and intent of this ordinance and the goals, objectives and standards of the general plan (Woodbury County Zoning Ordinance, Sec. 2.02-9). |
| <b>Applicant Response:</b>   |
| Nextlink takes pride in its process of putting towers up in a timely fashion and we hold crews to high standards to complete each process thoroughly.  |
| <b>Staff Analysis:</b>   |
| The granting of this request will assist with adding to the communication infrastructure of the surrounding area, it complies with the general purpose of the general plan.  |

|   |
|---|
| <b>CRITERIA 3:</b>  |
| The proposed use and development will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other factors affecting the public health, safety and general welfare (Woodbury County Zoning Ordinance, Sec. 2.02-9).   |
| <b>Applicant Response:</b>  |
| The location that we are looking at installing this tower at, on the property, is towards the middle of the property itself. This will not have a substantial adverse effect on adjacent properties. It will not affect the character of the neighborhood, traffic conditions, parking, utility facilities, or any other factors affecting public health, safety, and general welfare. The outcome of this project is to provide high speed internet to the surrounding areas, but to do it in a safe and efficient manner. |
| <b>Staff Analysis:</b>  |
| The plans submitted comply with the parameters of Section 5.05 of the Zoning Ordinance. This proposal does not appear to adversely impact the neighborhood, traffic, parking, utility facilities, public health, safety and general welfare. The proposed tower meets the setbacks from the property lines with either meeting or exceeding 120 feet from the property lines (see site plan).   |

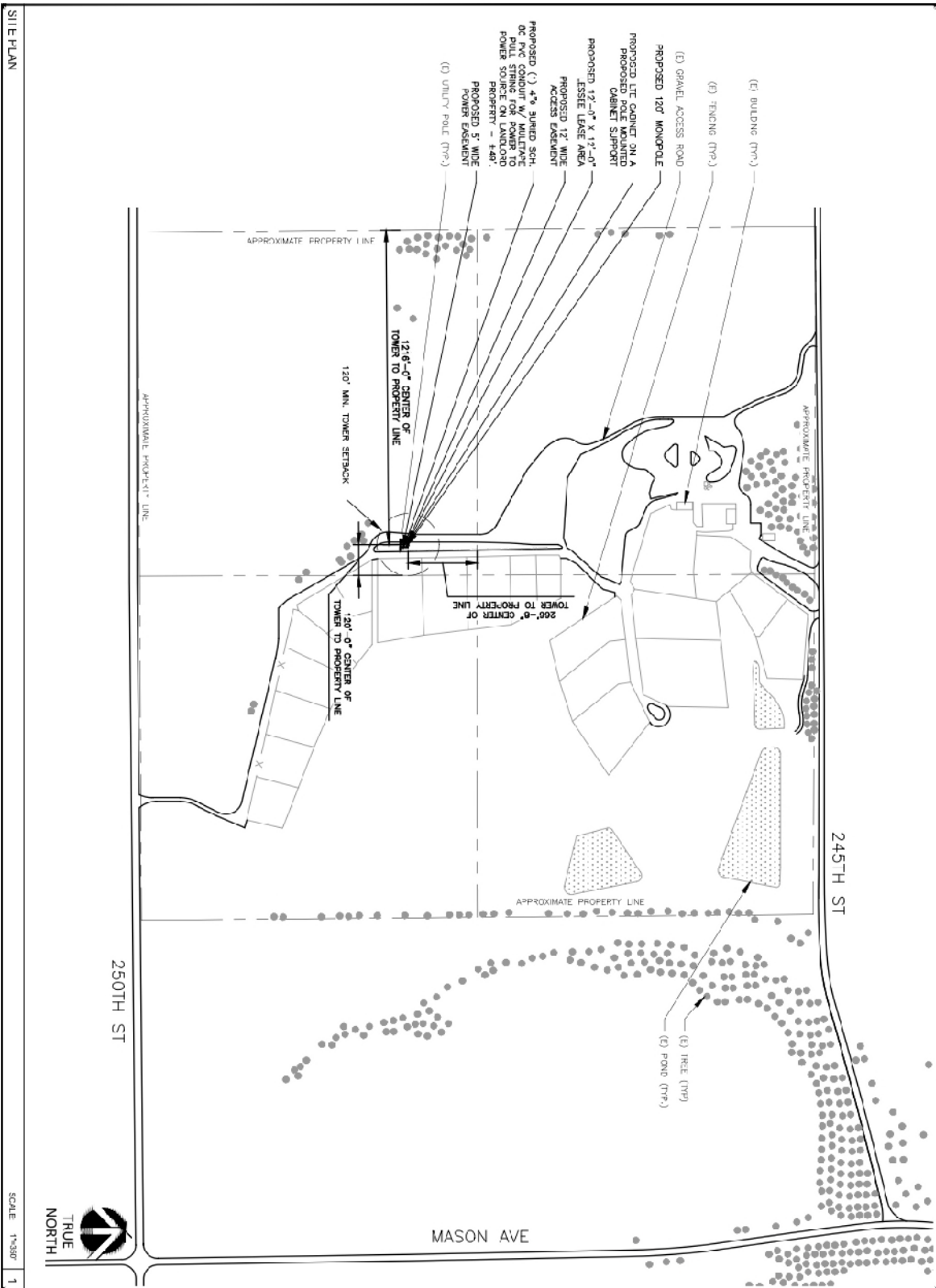
|   |
|---|
| <b>CRITERIA 4:</b>  |
| The proposed use and development will be located, designed, constructed and operated in such a manner that it will be compatible with the immediate neighborhood and will not interfere with the orderly use, development and improvement of surrounding property (Woodbury County Zoning Ordinance, Sec. 2.02-9).  |
| <b>Applicant Response:</b>  |
| The proposed development will be towards the middle of the Baldwin’s property. Our crews tend to work fast, when they obtain the green light from permitting and have obtained the permission to move forward with the project. This will be compatible with the immediate neighborhood and will not interfere with the orderly use, development and improvement of surrounding property. It adds to the surrounding area by providing internet to the individuals who live around this property. |
| <b>Staff Analysis:</b>  |
| The plans submitted comply with the parameters of Section 5.05 of the Zoning Ordinance. This proposal is compatible with the neighborhood as noted in Criteria 3.   |

|   |
|---|
| <b>CRITERIA 5:</b>  |
| Essential public facilities and services will adequately serve the proposed use or development (Woodbury County Zoning Ordinance, Sec. 2.02-9). |
| <b>Applicant Response:</b>  |
| N/A: We will not need the use of essential public facilities and services.  |
| <b>Staff Analysis:</b>  |
| The plans submitted comply with the Zoning Ordinance.   |

|  |
|--|
| <b>CRITERIA 6:</b>   |
| The proposed use or development will not result in unnecessary adverse effects upon any significant natural, scenic or historic features of the subject property or adjacent properties (Woodbury County Zoning Ordinance, Sec. 2.02-9). |
| <b>Applicant Response:</b>   |
| This location is not located in any historical district, nor will it result in unnecessary adverse effects on the natural features around it due to its location.  |
| <b>Staff Analysis:</b>   |
| The plans submitted comply with the Zoning Ordinance. There have been no concerns presented from stakeholders.   |

|   |
|---|
| <b>OTHER CONSIDERATION 1:</b>   |
| The proposed use or development, at the particular location is necessary or desirable to provide a service or facility that is in the public interest or will contribute to the general welfare of the neighborhood or community (Woodbury County Zoning Ordinance, Sec. 2.02-9). |
| <b>Staff Analysis:</b>  |
| This CUP request could be interpreted as a contribution to the local communication infrastructure.  |

|  |
|--|
| <b>OTHER CONSIDERATION 2:</b>  |
| All possible efforts, including building and site design, landscaping and screening have been undertaken to minimize any adverse effects of the proposed use or development (Woodbury County Zoning Ordinance, Sec. 2.02-9).   |
| <b>Staff Analysis:</b>   |
| The design of the tower and its proposed use clearly distinguishes itself as a communication structure. The plans submitted comply with the Zoning Ordinance. Under Iowa Code 8C, local governments cannot “dictate the type of transmission equipment or technology to be used, or discriminate between different types of infrastructure or technology.” |



SITE PLAN

SCALE: 1"=30'



**OVERALL SITE PLAN**  
SHEET NUMBER: **A-1**



| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| 1   | 07/20/23 | PRELIMINARY | JK |
| 2   | 07/20/23 | FINAL       | JK |
| 3   | 08/29/23 | FINAL       | JK |

**REVISION HISTORY**

SITE ADDRESS:  
**3846 245TH ST.,**  
**ANTHONY, IA 51004**  
**WOODBURY COUNTY**

SITE NUMBER:  
**IA-ANTHON-50-4**

PLANNED BY:  
  
**ODISCOM, LLC**  
 2600 S. SHORE BLVD.  
 LEAGUE CITY, TX 77573  
 (409) 531-1178  
 www.odiscom.com

PLANNED BY:  
  
**NEXTLINK**  
 55 PARKER OAKS LN  
 HUDSON OAKS, TEXAS 76087

PLANNED FOR:



WOODBURY COUNTY COMMUNITY AND ECONOMIC DEVELOPMENT

Zoning Ordinance Section 2.02(9)

Page 1 of 6

CONDITIONAL USE PERMIT APPLICATION

|  |  |
|--|--|
| <b>Owner Information:</b>                | <b>Applicant Information:</b>                      |
| Owner <u>Shelli Baldwin</u>              | Applicant <u>Amica Technology Investment Group</u> |
| Address <u>3846 245<sup>th</sup> St.</u> | Address <u>95 Parker Oaks Ln.</u>                  |
| <u>Arthon, IA 51004</u>                  | <u>Hudson Oaks, TX 76087</u>                       |
| Phone <u>712-870-0554</u>                | Phone <u>682-789-6680</u>                          |

We, the undersigned, hereby apply to the Woodbury County Board of Adjustment for permission to install a 120' monopole to supply high speed internet to surrounding areas.

**Property Information:**

Property Address or Address Range 3846 245<sup>th</sup> St. Arthon, IA 51004 **AP** **SESU Miller**

Quarter/Quarter SESU Sec 16 Twship/Range 87

Parcel ID # B743116300005 GIS # \_\_\_\_\_ Total Acres 40

Current Use Agriculture Proposed Use telecommunication tower

Current Zoning AP

The filing of this application is required to be accompanied with all items and information required pursuant to section 2.02(9)(C)(2) through (C)(4) of Woodbury County's zoning ordinances (see attached pages of this application for a list of those items and information).

A formal pre-application meeting is recommended prior to submitting this application. **Facile**  
Pre-app mtg. date 5/14/23 **Email** 8/10/23 Staff present D. Pringle

The undersigned is/are the owner(s) of the described property on this application, located in the unincorporated area of Woodbury County, Iowa, assuring that the information provided herein is true and correct. I hereby give my consent for the Woodbury County Community and Economic Development staff, Zoning Commission and Board of Adjustment members to conduct site visits and photograph the subject property.

This Conditional Use Permit Application is subject to and shall be required, as a condition of final approval, to comply with all applicable Woodbury County ordinances, policies, requirements and standards that are in effect at the time of final approval.

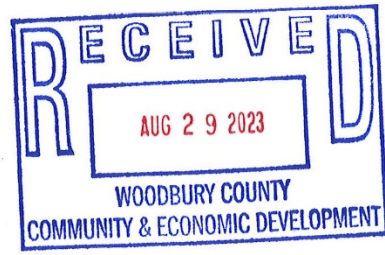
|                             |                             |
|-----------------------------|-----------------------------|
| Owner <u>Shelli Baldwin</u> | Applicant <u>Megan Coop</u> |
| Date <u>8/14/2023</u>       | Date <u>08/11/2023</u>      |

Fee: \$300 **8-22-23** Case #: 6929

Check # 40222

Receipt #: \_\_\_\_\_

Date Received



PER SECTION 2.02(9)(C )(2 (d) PROVIDE A SPECIFIC DESCRIPTION OF THE PROPOSED CONDITIONAL USE: (Tab at the end of each line to continue)

Nextlink would like the approval to install a new 120' galvanized steel mono pole to provide high speed internet to surrounding areas.

PER SECTION 2.02(9) (C )(2)(e) PROVIDE A MAP DRAWN TO SCALE, SHOWING THE SUBJECT PROPERTY, ALL STRUCTURES AND OTHER IMPROVEMENTS, WITH THE PROPOSED CONDITIONAL USE IDENTIFIED PER STRUCTURE OR IMPROVEMENT . PROVIDE BY ATTACHMENT.

Please see attached engineer plans.

PER SECTION 2.02(9) (C )(2)(e) PROVIDE A STATEMENT IN RESPONSE TO EACH OF SIX BELOW CRITEREA AND STANDARDS FOR APPROVAL OF CONDITIONAL USES AS LISTED IN SECTION 2.02(9)F OF THE ORDINANCES. (Tab at the end of each line to continue)

- (a) Provide a statement to why you feel the conditional use requested is authorized as a conditional use in the zoning district within which the property is located and that any specific conditions or standards described as part of that authorization have been or will be satisfied.

The conditional use is for commercial/telecommunication in a AP zoned area. All standards described will be satisfied by our team and crew.

- (b) Provide a statement to why the proposed use and development will be in harmony with the general purpose and intent of this ordinance and the goals, objectives and standards of the general plan. (Tab at the end of each line to continue)

Nextlink takes pride in its process of putting towers up in a timely fashion and we hold crews to high standards to complete each process thoroughly.

**(e) Provide a statement to why essential public facilities and services will adequately serve the proposed use or development. (Tab at the end of each line to continue)**

**N/A: We will not need the use of essential public facilities and services.**

**(f) Provide a statement to why the proposed use or development will not result in unnecessary adverse effects upon any significant natural, scenic or historic features of the subject property or adjacent properties. (Tab at the end of each line to continue)**

**This location is not located in any historical district, nor will it result in unnecessary adverse effects on the natural features around it due to its location.**

- 
- (c) Provide a statement to why the proposed use and development will not have a substantial or undue adverse effect upon adjacent property, the character of the neighborhood, traffic conditions, parking, utility facilities, and other factors affecting the public health, safety and general welfare. (Tab at the end of each line to continue)

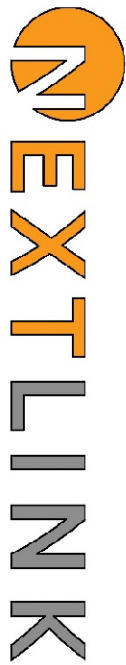
The location that we are looking at installing this tower at, on the property, is towards the middle of the property itself. This will not have a substantial adverse effect on adjacent properties. It will not affect the character of the neighborhood, traffic conditions, parking, utility facilities, or any other factors affecting public health, safety, and general welfare. The outcome of this project is to provide high speed internet to the surrounding areas, but to do it in a safe and efficient manner.

- (d) Provide a statement to why the proposed use and development will be located, designed, constructed and operated in such a manner that it will be compatible with the immediate neighborhood and will not interfere with the orderly use, development and improvement of surrounding property. (Tab at the end of each line to continue)

The proposed development will be towards the middle of the Baldwin's property. Our crews tend to work fast, when they obtain the green light from permitting and have obtained the permission to move forward with the project. This will be compatible with the immediate neighborhood and will not interfere with the orderly use, development and improvement of surrounding property. It adds to the surrounding area by providing internet to the individuals who live around this property.

---





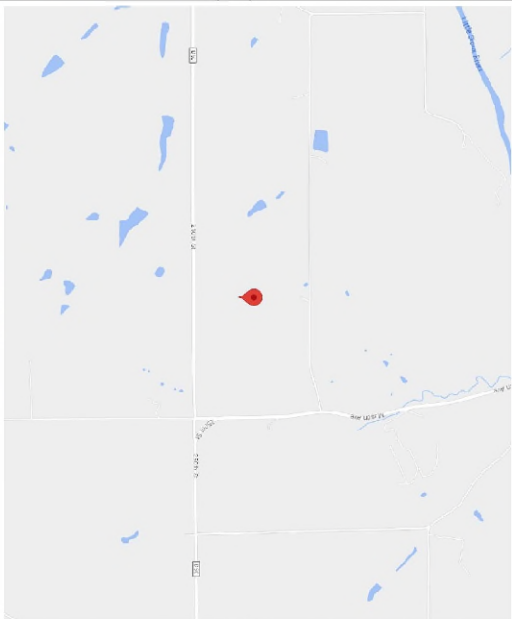
**SITE NAME:** IA-ANTHON-SO-4  
**SITE NUMBER:** IA-ANTHON-SO-4  
**SITE ADDRESS:** 3846 245TH ST., ANTHON, IA 51004  
**SITE TYPE:** MONOPOLE

**PROJECT INFORMATION**

**SITE NAME:** IA-ANTHON-SO-4  
**SITE NUMBER:** IA-ANTHON-SO-4  
**SITE ADDRESS:** 3846 245TH ST., ANTHON, IA 51004  
**SITE TYPE:** MONOPOLE  
**JURISDICTION:** WOODBURY COUNTY  
**APPLICANT:** NEXTLINK  
**ADDRESS:** 95 PARKER OAKS LN HUDSON OAKS, TEXAS 76067  
**CONTACT:** SHAUN MCINTIRE (712) 535-1466 SMCINTIRE@TEAMHXLINK.COM EMAIL: SMCINTIRE@TEAMHXLINK.COM  
**SITE COORDINATES:** NAD 83 UTM  
**EASTING:** 42,344E  
**NORTHING:** -86,6551  
**GROUND ELEV. (AMSL):** 1360

**MAP AND DIRECTIONS**

DIRECTIONS FROM SIOUX CRESTWAY AIRPORT (2403 AVIATION BLVD, SIOUX CITY, IA 51111):  
 HEAD WEST ON HUDSON AVE TOWARD PRESHING ST (1.5 MI), CONTINUE SUIO PRESHING S (0.2 MI), CONTINUE ONTC COHEN AVE (453 FT), SLIGHT LEFT ONTO MITCHELL ST (289 FT), TURN RIGHT ONTO AVATION BLVD (0.4 MI), CONTINUE ONTC 1ST ST (1.4 MI), CONTINUE OYTO 210TH ST (4.9 MI), TURN RIGHT ONTO OLD HWY 41 (0.5 MI), TURN LEFT ONTO BRONSON BLVD (1.3 MI), TURN RIGHT ONTO 210TH ST (0.2 MI), TURN RIGHT ONTO MONTELEONE BLVD (1.9 MI), TURN LEFT AT THE 1ST CROSSING OF 210TH ST (0.2 MI), CONTINUE W BRONSON ST (0.1 MI), CONTINUE ONTO W DIVISION ST (3.2 MI), TURN LEFT ONTC 280TH ST (1.8 MI)



**APPLICABLE BUILDING CODES**

ALL WORK AND MATERIALS SHALL BE PERFORMED AND INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES:  
**BUILDING CODE:** 2015 INTERNATIONAL BUILDING CODE  
**ELECTRICAL CODE:** 2020 NATIONAL ELECTRICAL CODE  
 • FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION.  
 • ALL ACCESS REQUIREMENTS ARE NOT REQUIRED.  
 • THIS FACILITY DOES NOT REQUIRE PORTABLE WATER AND WILL NOT PROVIDE ANY SERVICES.

**SCOPE OF WORK**

THE SCOPE OF WORK CONSISTS OF:  
 NEW EQUIPMENT TO BE INSTALLED  
 (1) 4'-0" X 4'-0" CONCRETE PAD  
 (1) 6E CABINET  
 (1) 6E CABINET  
 (1) MONOPOLE  
 (6) PANEL ANTENNAS  
 (2) J-BOX ANTENNAS, (4) OVALS  
 (10) CP SE CABLES  
 20'X20' CHAINLINK FENCE

- CONTRACTOR SHALL FURNISH ALL MATERIAL WITH THE EXCEPTION OF NEXTLINK
- ALL MATERIAL SHALL BE INSTALLED BY THE CONTRACTOR, UNLESS STATED OTHERWISE.

**PROJECT TEAM**

**PROJECT MANAGER**  
 NEXTLINK  
 95 PARKER OAKS LN  
 HUDSON OAKS, TEXAS 76067  
 PHONE: (850)-686-5466  
 EMAIL: RES@TEAMHXLINK.COM

**ENGINEER**  
 JACOB GORALSKI, PE  
 OGDSCOM, LLC  
 (817)-596-1261

**DRAWING INDEX**

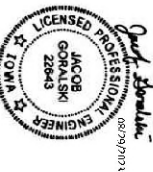
|     |                               |
|-----|-------------------------------|
| T-1 | TITLE SHEET                   |
| A-1 | OVERALL SITE PLAN             |
| A-2 | ENLARGED SITE PLAN            |
| A-3 | SITE ELEVATION                |
| A-4 | ANTENNA MOUNT DETAILS         |
| A-5 | ANTENNA AND EQUIPMENT SUMMARY |
| D-1 | GENERAL DETAILS               |
| D-2 | GENERAL DETAILS               |
| D-3 | ANTENNA SPECIFICATIONS        |
| D-4 | ANTENNA SPECIFICATIONS        |
| D-5 | EQUIPMENT SPECIFICATIONS      |
| E-1 | ELECTRICAL PLAN               |
| E-2 | ELECTRICAL NOTES AND DETAILS  |
| G-1 | PANEL SCHEDULE & ONELINE      |
| G-2 | GROUNDING PLAN                |
| G-3 | GROUNDING DETAILS             |

Jacob Goraliski  
 Digitally signed  
 by Jacob Goraliski  
 Date: 2023.08.29 16:32:04 -05'00'

DESIGNED BY:  
 OGDSCOM, LLC  
 2600 S. SHORE BLVD  
 SUITE 300  
 LEAQUE CITY, TX 77573  
 (409) 531-1176  
 www.odgcom.com

SITE ADDRESS:  
 3846 245TH ST.,  
 ANTHON, IA 51004  
 WOODBURY COUNTY

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/20/23 | PRE DESIGN  | DL |
| 1   | 08/29/23 | FINAL       | JG |



TITLE SHEET

SHEET NUMBER: T-1



PLAN NUMBER: 03

**EXTLINK**  
95 PARKER OAKS LN  
HUDSON OAKS, TEXAS 75087

PLANNED BY  
**ODISCOM, LLC**  
2600 S. SHORE BLVD.  
SUITE 400  
LEAGUE CITY, TX 77573  
(409) 931-1170  
www.odiscom.com

SITE NUMBER:  
**IA-ANTHON-SO-4**

SITE ADDRESS:  
**3846 245TH ST.,  
ANTHON, IA 51004  
WOODBURY COUNTY**

| REV. | DATE     | REVISION DESCRIPTION | BY |
|------|----------|----------------------|----|
| A    | 07/20/21 | BEHINDBAR            | DL |
| C    | 07/20/21 | FINAL                | DL |
| T    | 08/29/21 | FINAL                | IR |



**OVERALL SITE PLAN**

SHEET NUMBER: **A-1**

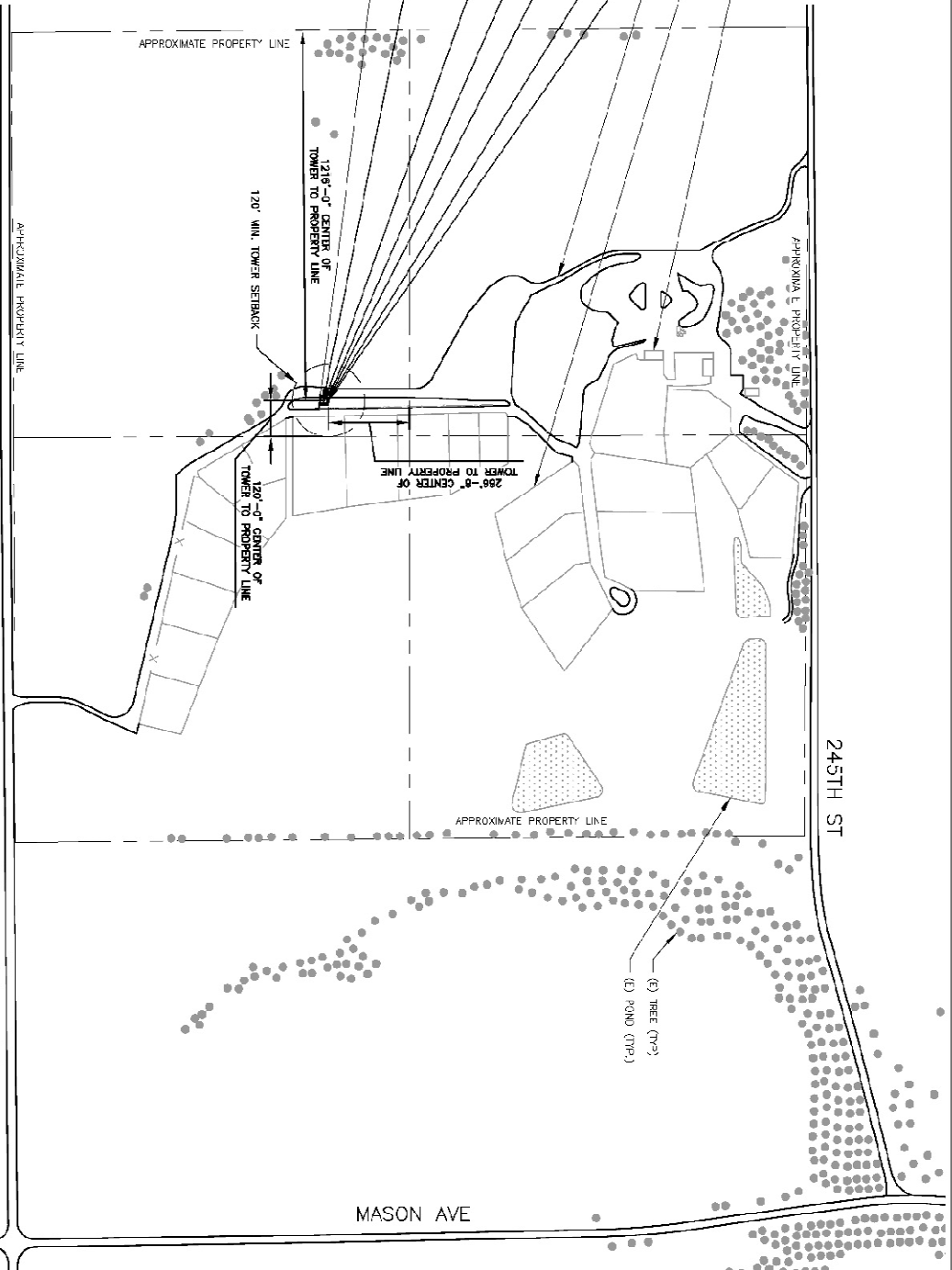


SCALE: 1"=30'-1

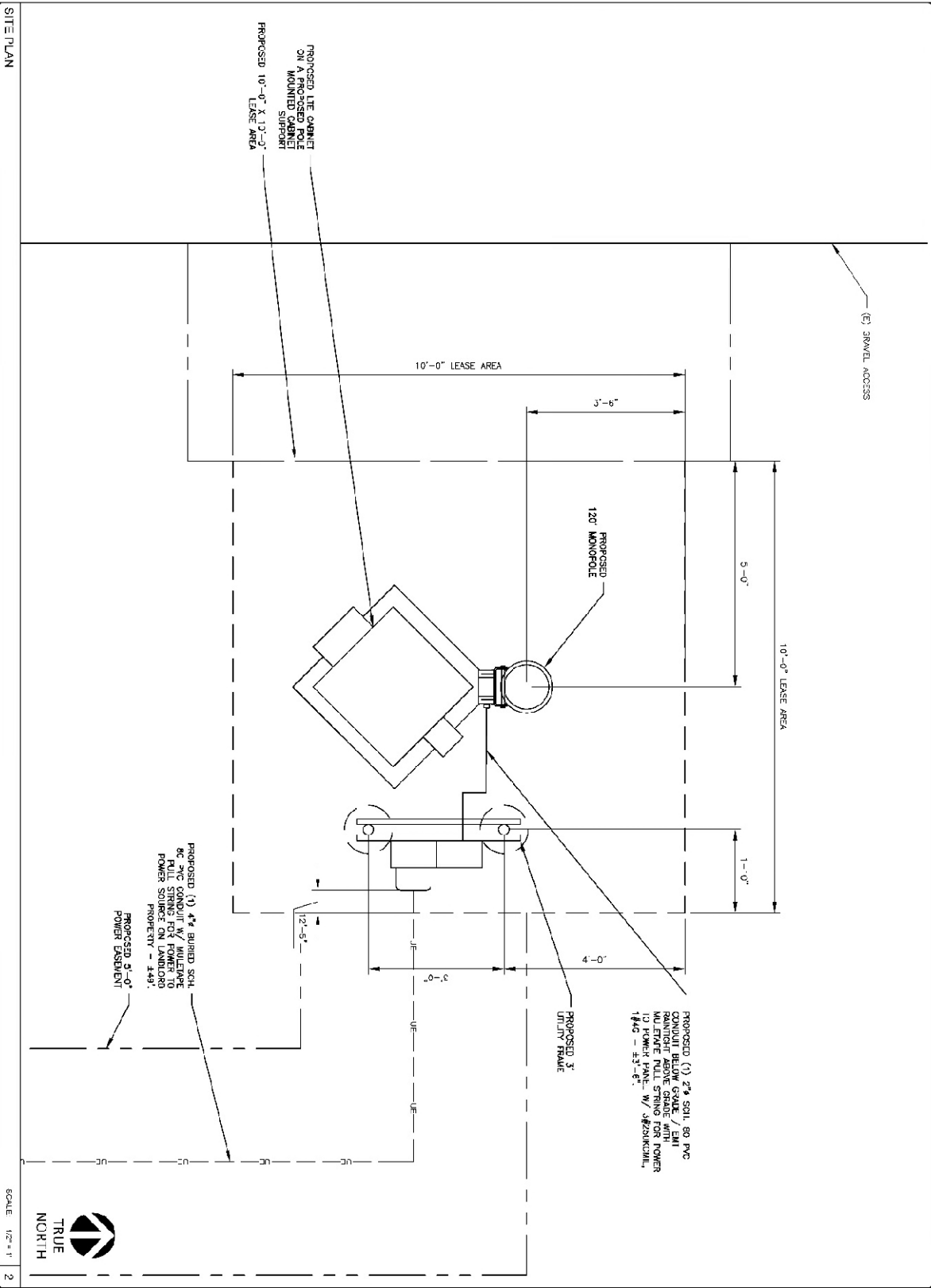
250TH ST

245TH ST

MASON AVE



SITE PLAN



SITE PLAN

SCALE 1/2" = 1'

**ODDISCOM, L.L.C.**  
2806 S. SHORE BLVD.  
SUITE 300  
LEAGUE CITY, TX 77573  
(409) 533-1376  
WWW.ODDISCOM.COM

**PROJ. NO. 190203181**

**ODDISCOM**

**PROJ. ADDRESS:**  
3846 245TH ST.,  
ANTHONY, LA 51004  
WOODBURY COUNTY

**SITE NUMBER:**  
1A-ANTHON-SO-4

**REVISION HISTORY**

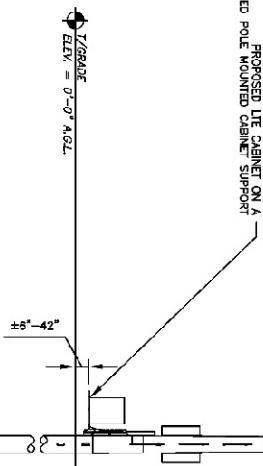
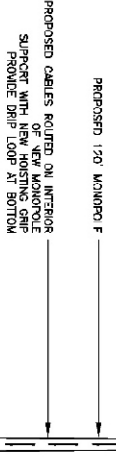
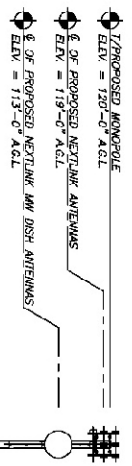
| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/20/23 | PRELIMINARY | DL |
| 0   | 07/20/23 | FINAL       | LR |
| 1   | 08/29/23 | FINAL       | LR |

**PROJ. TITLE:**  
ENLARGED SITE PLAN

**SHEET NUMBER:**  
A-2

**PROJ. ENGINEER:**  
JACOB OAKS  
2884  
LOUISIANA  
LICENSED PROFESSIONAL ENGINEER  
08/29/2023

- NOTES:**
1. CALCULATIONS FOR THE STRUCTURE AND ANTENNA MOUNTS WERE PREPARED BY OTHERS AND THOSE CALCULATIONS VERIFY THE CAPACITY OF THE STRUCTURE TO SUPPORT THE NEW EQUIPMENT
  2. CABLES NOT SHOWN FOR CLARITY



SITE ELEVATION

SCALE: N=1"=60' 1

PLANS PREPARED BY:

**NEXTLINK**  
 95 PARKER OAKS LN  
 HUDSON OAKS, TEXAS 76087

DESIGNED BY:

**DDJ&CM, LLC**  
 2600 S. SHORE BLVD.  
 SUITE 300  
 LEAGUE CITY, TX 77573  
 (469) 531-1175  
 WWW.DDJ&CM.COM

SITE NUMBER:  
**IA-ANTHON-SO-4**

SITE ADDRESS:  
 3846 245TH ST.,  
 ANTHON, IA 51004  
 WOODBURY COUNTY

| REV. | DATE     | DESCRIPTION | BY |
|------|----------|-------------|----|
| 1    | 07/20/23 | FINAL       | DL |
| 2    | 07/20/23 | FINAL       | JR |



DATE: 08/29/2023

PROJECT: 3846 245TH ST., ANTHON, IA 51004

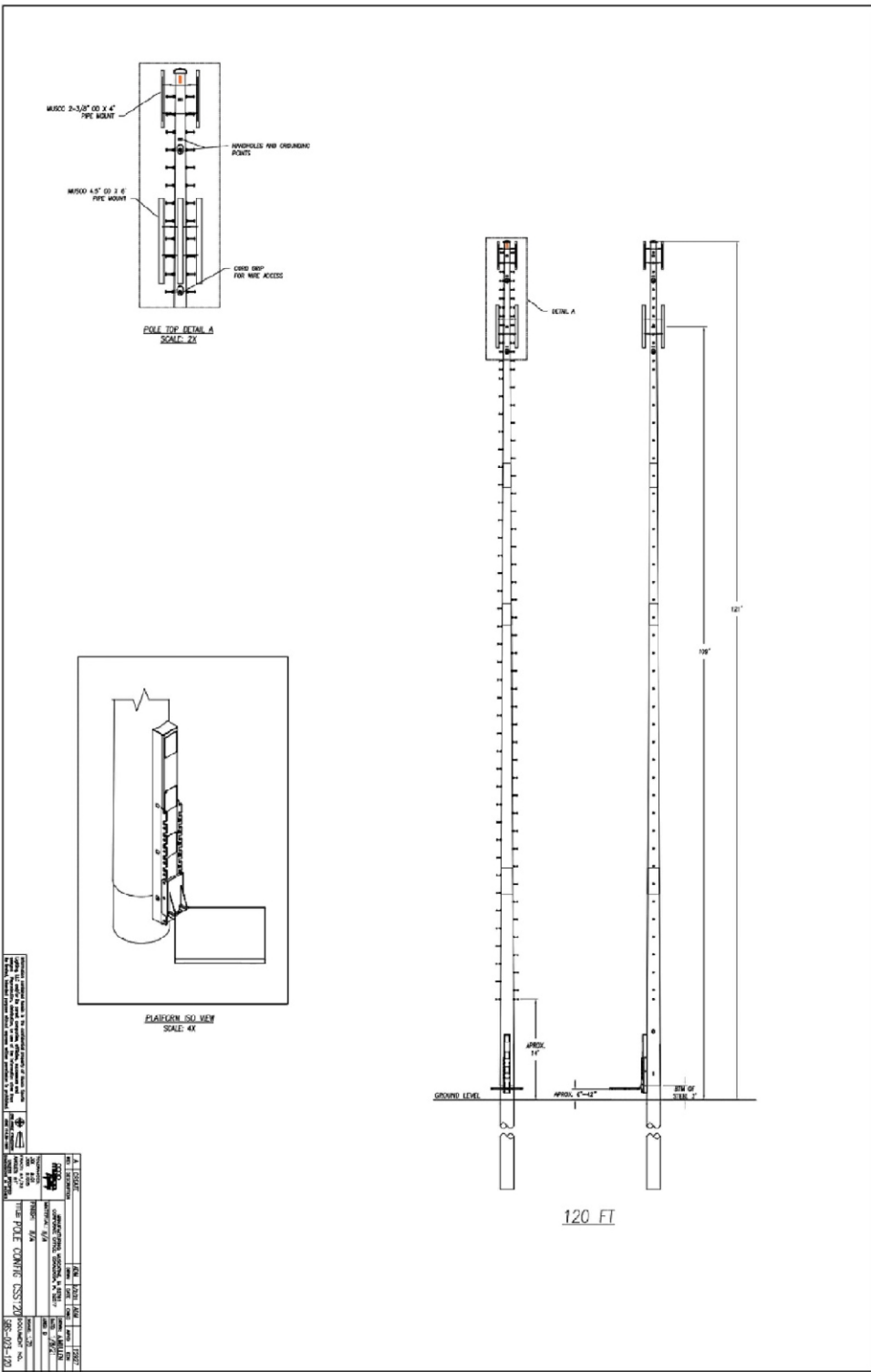
PROJECT NO.: 23-0001

PROJECT TITLE: SITE ELEVATION

SHEET TITLE:  
**SITE ELEVATION**

SHEET NUMBER:  
**A-3**

ANTENNA MOUNT DETAIL



|          |             |
|----------|-------------|
| DATE     | DESCRIPTION |
| 07/20/23 | PRELIMINARY |
| 08/22/23 | FINAL       |

|     |          |    |       |
|-----|----------|----|-------|
| NO. | DATE     | BY | CHKD. |
| 1   | 07/20/23 | JG | JG    |
| 2   | 08/22/23 | JG | JG    |

SCALE: N.T.S. 1

SHEET TITLE: ANTENNA MOUNT DETAILS  
SHEET NUMBER: A-4

PROJECT: ANTENNA MOUNT DETAILS

**JACOB GORALSKI**  
22843  
LICENSED PROFESSIONAL ENGINEER  
IOWA

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/20/23 | PRELIMINARY | JG |
| 1   | 08/22/23 | FINAL       | JG |

SITE ADDRESS:  
3846 245TH ST.,  
ANTHON, IA 51004  
WOODBURY COUNTY

SITE NUMBER:  
IA-ANTHON-SQ-4

ODISCOM, LLC  
2600 S. SHORE BLVD.  
S. JITE 300  
LEAGUE CITY, TX 77573  
(409) 531-1176  
www.odiscom.com

**NEXLINK**  
95 PARKER OAKS LN  
HUDSON OAKS, TEXAS 76087

PLANS BY DATE: 08/22/23

PLANS PREPARED FOR:

**NEXTLINK**  
 95 PARKER OAKS LN  
 HUDSON OAKS, TEXAS 76087

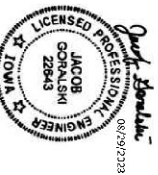
PLANS PREPARED BY:

**ODISCOM, L.L.C.**  
 2802 S. SHORE BLVD.  
 SUITE 300  
 LEAGUE CITY, TX 77573  
 (409) 933-1176  
 WWW.ODISCOM.LL.COM

SITE NUMBER:  
**IA-ANTHON-SO-4**

SITE ADDRESS:  
 3846 245TH ST,  
 ANTHON, IA 51004  
 WOODBURY COUNTY

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/20/23 | PRELIMINARY | DL |
| 0   | 07/20/23 | FINAL       | DL |
| 1   | 08/20/23 | FINAL       | RL |



SHEET TITLE:  
**ANTENNA &  
 EQUIPMENT SUMMARY**

SHEET NUMBER:  
**A-5**

| ELEVATION (AGL, FT) | CARRIER                | MOUNT            | EQUIPMENT                                   | FEEDLINES       | LOCATION |
|---------------------|------------------------|------------------|---|-----------------|----------|
| 118                 | NEXTLINK<br>(PROPOSED) | MUSCO TOWER RING | (0) CAMBIUM PMP-3000                        | (0) 0.20" CAT5E | INSIDE   |
| 113                 |                        | MUSCO TOWER RING | (2) RADIOMATE RP2-11<br>(2) CAMBIUM PTP600S | (4) 0.20" CAT5E |          |

ANTENNA AND EQUIPMENT SUMMARY

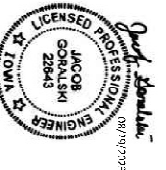
SCALE: N.T.S. 1

**EXTLINK**  
 95 PARKER OAKS LN  
 HUDSON OAKS, TEXAS 76087

**ODISCON, LLC**  
 280C S. SHORE BLVD.  
 SUITE 300  
 LENOUE CITY, TX 77573  
 (469) 533-1766  
 www.odiscon.com

ST. NUMBER:  
**IA-ANTHON-SO-4**  
 ST. ADDRESS:  
**3846 245TH ST.,  
 ANTHON, IA 51001  
 WOODBURY COUNTY**

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/2/22  | PRELIMINARY | DL |
| B   | 07/25/22 | FINAL       | DL |
| 1   | 08/25/22 | FINAL       | JR |



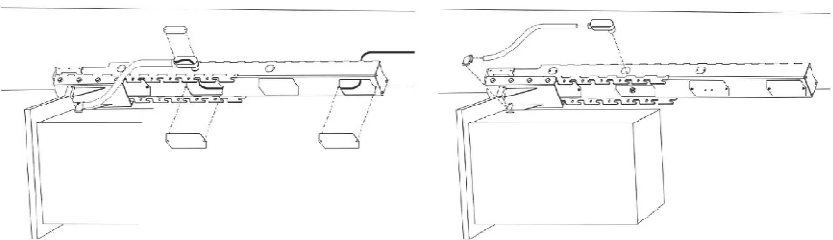
**GENERAL NOTES**

SHEET NUMBER: **D-1**

**Installation Instructions: Communication-Structure System™ Monopole**

**Pole Mounted Cabinet Support**

- 4** Choose desired entryway on airway. Using 3/16 in wrench, remove airway hardware cover closest to entryway. Use handle to access wingnut and remove entryway cover.
- 5** Determine desired conduit location on equipment cabinet. Using hydraulic knockout, cut 2 in (51 mm) entryway in cabinet.
- 6** Remove compression nut, inner sealing ring, and ferrules from 3/4 degree fitting and seal ends. Remove ferrules from cabinet of wireway entry tray. Use ring adjuster plate, install back nut on fitting.
- 7** Install conduit body on remaining entryway. Using adjustable pliers, secure with chase nipple.
- 8** Remove compression nut, inner sealing ring, and ferrules from straight fitting. Install remaining portion of straight fitting in conduit body.
- 9** Test fit flexible conduit between fittings. If required, use hacksaw or utility knife to cut conduit to length. Install compression nut on each end of the conduit. Adjust to end of 3/4 degree fitting and remaining end to straight fitting at conduit body.
- 10** Using standard screwdriver, remove cover on conduit body. Route cabling from wireway to cabinet through conduit. Replace cover on handles and conduit body when complete.
- 11** Connect equipment grounding conductor as required to grounding lug on pole at cabinet location.



**Installation Instructions: Communication-Structure System™ Monopole**

**Pole Mounted Cabinet Support**

**Overview**

The pole mounted cabinet support includes built-in hardware that allows for easy attachment to the pole and wireway channel.

**Tools/Materials Needed**

- Musco Supplied
  - 3/16 in wrench
  - 3/8 in. hex key
  - 1 1/2 in wrench
  - Nonmagnetic liquid tight flexible conduit
- Contractor Supplied**
- Phillips-head screwdriver
  - Standard screwdriver
  - Electrical flat tape electrician's tape
  - 10 ft (3 m) step ladder or small line truck
  - Utility knif/hacksaw
  - 2 Adjustable groove-joint pliers with 4.25 in (108 mm) jaw capacity
  - Utility knif/hacksaw
  - 2 in (51 mm) hydraulic knockout punch driver

**Installation Procedure**

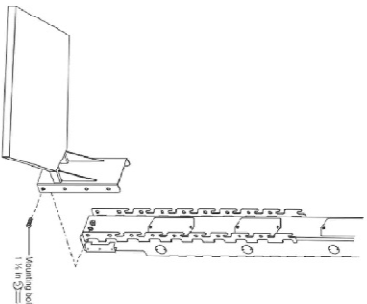
**Warning**

**Cabinet support shell is heavy**  
 Cabinet support shell weighs 180 lb (72.5 kg). Lift carefully with two people to avoid injury.

- 1** Identify desired height of pole mounted cabinet support above ground level. Determine appropriate rafter position.
- 2** Lift pole mounted cabinet support into predetermined rafter location on the wireway.
- 3** Install mounting bolts on each side of shell bracket. Tighten using 1 1/2 in wrench.

**Warning**

**Crush hazard**  
 Do not exceed cabinet support weight rating of 1,500 lb (680 kg). Overloading may cause cabinet to fall causing serious injury or death.



**Cabinet Support**

**Overview**

The pole mounted cabinet support itself provides a mounting location for communication cabinets off of the ground with access to the cable management system.

**Features**

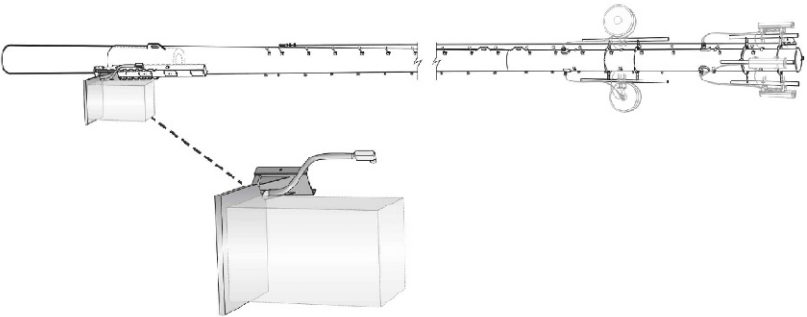
- Adjustable from approximately 0 in (152 mm) to 42 in (1067 mm) above ground level
- Diamond configuration for easy access to all four cabinet sides
- Separate cabinet ground location positioned for ease of installation

**Technical Specifications**

Weight ..... 14' lb (6.4 kg)  
 Size ..... 38 in x 38 in (965 mm x 965 mm)

**Construction**

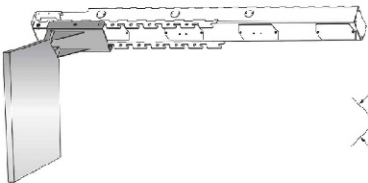
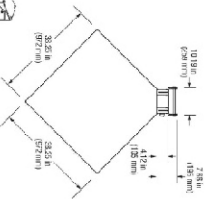
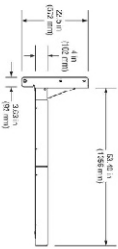
- High strength, low alloy steel construction
- Supports up to 1500 lb (680 kg)
- Attaches to structure via welded 0.75 in (19 mm) solid hanging rod and two 3/2 in stainless steel bolts
- Grounding Lug tapped for one 0.25 in and one 0.375 in bolt



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 www.musco.com COMMUNICATIONSYSTEMS

1

**Cabinet Support**



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 www.musco.com COMMUNICATIONSYSTEMS

2

SCALE: AS SHOWN

**NEXTLINK**  
 95 PARKER OAKS LN  
 HUDSON OAKS, TEXAS 76087

**ODISCOM, LLC**  
 2603 S. SHORE BLVD.,  
 SUITE 300  
 LEAGUE CITY, TX 77573  
 (469) 531-1176  
 www.odiscom.com

SITE NUMBER:  
**IA-ANTHON-SO-4**  
 SITE ADDRESS:  
**3846 245TH ST.,  
 ANTHON, IA 51004  
 WOODBURY COUNTY**

| REVISION HISTORY |          | BY          |
|------------------|----------|-------------|
| REV              | DATE     | DESCRIPTION |
| A                | 07/29/23 | PRELIMINARY |
| 0                | 07/29/23 | FINAL       |
| 1                | 08/29/23 | FINAL       |
|                  |          | JIR         |



SHEET TITLE:  
**GENERAL NOTES**

SHEET NUMBER:  
**D-2**





# ePMP™ 3000 Sector Antenna

Carlinum Networks has developed more than 100 different antennas and the world's leading array of antennas for 4G LTE cellular antennas. ePMP 3000 offers key differentiators of Carlinum Networks including: User PMP3000, 3000 MHz and offers for PMP3000 operation.

### KEY DEVELOPMENT ADVANTAGES

- Frequency Reconfigurable: ePMP 3000 can be reconfigured to operate in any of the following frequency bands: 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1900 MHz, 2100 MHz, 2300 MHz, 2400 MHz, 2600 MHz, 2700 MHz, 3500 MHz, 3600 MHz, 3700 MHz, 3800 MHz, 3900 MHz, 4000 MHz, 4100 MHz, 4200 MHz, 4300 MHz, 4400 MHz, 4500 MHz, 4600 MHz, 4700 MHz, 4800 MHz, 4900 MHz, 5000 MHz, 5100 MHz, 5200 MHz, 5300 MHz, 5400 MHz, 5500 MHz, 5600 MHz, 5700 MHz, 5800 MHz, 5900 MHz, 6000 MHz, 6100 MHz, 6200 MHz, 6300 MHz, 6400 MHz, 6500 MHz, 6600 MHz, 6700 MHz, 6800 MHz, 6900 MHz, 7000 MHz, 7100 MHz, 7200 MHz, 7300 MHz, 7400 MHz, 7500 MHz, 7600 MHz, 7700 MHz, 7800 MHz, 7900 MHz, 8000 MHz, 8100 MHz, 8200 MHz, 8300 MHz, 8400 MHz, 8500 MHz, 8600 MHz, 8700 MHz, 8800 MHz, 8900 MHz, 9000 MHz, 9100 MHz, 9200 MHz, 9300 MHz, 9400 MHz, 9500 MHz, 9600 MHz, 9700 MHz, 9800 MHz, 9900 MHz, 10000 MHz.
- Carrier Frequency: Carlinum Networks' ePMP 3000 is a 4G LTE antenna. It is designed to operate in the 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1900 MHz, 2100 MHz, 2300 MHz, 2400 MHz, 2600 MHz, 2700 MHz, 3500 MHz, 3600 MHz, 3700 MHz, 3800 MHz, 3900 MHz, 4000 MHz, 4100 MHz, 4200 MHz, 4300 MHz, 4400 MHz, 4500 MHz, 4600 MHz, 4700 MHz, 4800 MHz, 4900 MHz, 5000 MHz, 5100 MHz, 5200 MHz, 5300 MHz, 5400 MHz, 5500 MHz, 5600 MHz, 5700 MHz, 5800 MHz, 5900 MHz, 6000 MHz, 6100 MHz, 6200 MHz, 6300 MHz, 6400 MHz, 6500 MHz, 6600 MHz, 6700 MHz, 6800 MHz, 6900 MHz, 7000 MHz, 7100 MHz, 7200 MHz, 7300 MHz, 7400 MHz, 7500 MHz, 7600 MHz, 7700 MHz, 7800 MHz, 7900 MHz, 8000 MHz, 8100 MHz, 8200 MHz, 8300 MHz, 8400 MHz, 8500 MHz, 8600 MHz, 8700 MHz, 8800 MHz, 8900 MHz, 9000 MHz, 9100 MHz, 9200 MHz, 9300 MHz, 9400 MHz, 9500 MHz, 9600 MHz, 9700 MHz, 9800 MHz, 9900 MHz, 10000 MHz.
- Designed for the 4G LTE network: ePMP 3000 is designed for the 4G LTE network. It is designed to operate in the 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1900 MHz, 2100 MHz, 2300 MHz, 2400 MHz, 2600 MHz, 2700 MHz, 3500 MHz, 3600 MHz, 3700 MHz, 3800 MHz, 3900 MHz, 4000 MHz, 4100 MHz, 4200 MHz, 4300 MHz, 4400 MHz, 4500 MHz, 4600 MHz, 4700 MHz, 4800 MHz, 4900 MHz, 5000 MHz, 5100 MHz, 5200 MHz, 5300 MHz, 5400 MHz, 5500 MHz, 5600 MHz, 5700 MHz, 5800 MHz, 5900 MHz, 6000 MHz, 6100 MHz, 6200 MHz, 6300 MHz, 6400 MHz, 6500 MHz, 6600 MHz, 6700 MHz, 6800 MHz, 6900 MHz, 7000 MHz, 7100 MHz, 7200 MHz, 7300 MHz, 7400 MHz, 7500 MHz, 7600 MHz, 7700 MHz, 7800 MHz, 7900 MHz, 8000 MHz, 8100 MHz, 8200 MHz, 8300 MHz, 8400 MHz, 8500 MHz, 8600 MHz, 8700 MHz, 8800 MHz, 8900 MHz, 9000 MHz, 9100 MHz, 9200 MHz, 9300 MHz, 9400 MHz, 9500 MHz, 9600 MHz, 9700 MHz, 9800 MHz, 9900 MHz, 10000 MHz.
- Excellent performance: The sector antenna is designed for excellent performance. It is designed to operate in the 700 MHz, 800 MHz, 850 MHz, 900 MHz, 1900 MHz, 2100 MHz, 2300 MHz, 2400 MHz, 2600 MHz, 2700 MHz, 3500 MHz, 3600 MHz, 3700 MHz, 3800 MHz, 3900 MHz, 4000 MHz, 4100 MHz, 4200 MHz, 4300 MHz, 4400 MHz, 4500 MHz, 4600 MHz, 4700 MHz, 4800 MHz, 4900 MHz, 5000 MHz, 5100 MHz, 5200 MHz, 5300 MHz, 5400 MHz, 5500 MHz, 5600 MHz, 5700 MHz, 5800 MHz, 5900 MHz, 6000 MHz, 6100 MHz, 6200 MHz, 6300 MHz, 6400 MHz, 6500 MHz, 6600 MHz, 6700 MHz, 6800 MHz, 6900 MHz, 7000 MHz, 7100 MHz, 7200 MHz, 7300 MHz, 7400 MHz, 7500 MHz, 7600 MHz, 7700 MHz, 7800 MHz, 7900 MHz, 8000 MHz, 8100 MHz, 8200 MHz, 8300 MHz, 8400 MHz, 8500 MHz, 8600 MHz, 8700 MHz, 8800 MHz, 8900 MHz, 9000 MHz, 9100 MHz, 9200 MHz, 9300 MHz, 9400 MHz, 9500 MHz, 9600 MHz, 9700 MHz, 9800 MHz, 9900 MHz, 10000 MHz.

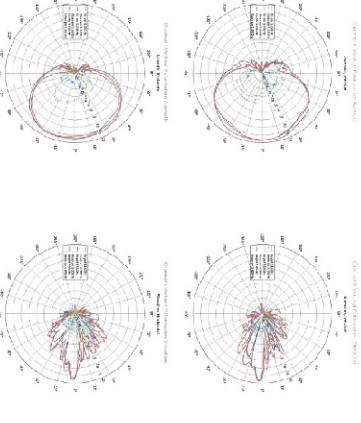
### KEY DESIGN FEATURES

- 1/8" gap
- 30dB front-to-back ratio
- 30dB front-to-side ratio
- IP67 rating

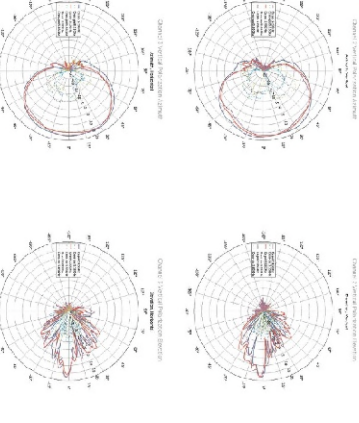
### SPECIFICATIONS

| Parameter       | Value               |
|-----------------|---------------------|
| Model           | CPM3000             |
| Frequency Range | 700 MHz - 10000 MHz |
| Gain            | 18 dBi              |
| Beamwidth       | 90°                 |
| Dimensions      | 10" x 10" x 10"     |
| Weight          | 10 lbs              |
| Material        | Aluminum            |
| Finish          | Black               |
| Mounting        | Wall Mount          |
| Power           | 30W                 |
| Temperature     | -40°C to 70°C       |
| Humidity        | 5% to 95%           |
| Shock           | 10g                 |
| Vibration       | 10g                 |
| EMC             | CE                  |
| RoHS            | Yes                 |
| REACH           | Yes                 |
| Warranty        | 3 Years             |

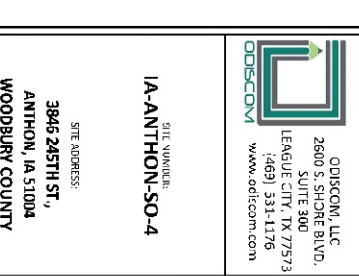
### ANTENNA PATTERNS



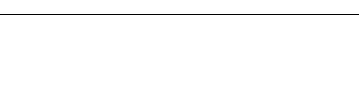
### ANTENNA PATTERNS



### ANTENNA PATTERNS



### ANTENNA PATTERNS



**NEXTLINK**  
95 PARKER OAKS LN  
HUDSON OAKS, TEXAS 76087

**ODISCOM, LLC**  
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SUITE 300  
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(409) 331-1176  
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**301L VENDOR**  
**IA-ANTHON-SO-4**  
  
SITE ADDRESS:  
**3846 245TH ST,  
ANTHON, IA 51004  
WOODBURY COUNTY**

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/20/23 | PRELIMINARY | 31 |
| 0   | 07/20/23 | FINAL       | 31 |
| 1   | 08/29/23 | FINAL       | 31 |



**ANTENNA SPECIFICATIONS**  
SHEET NUMBER: **D-3**



## HP2-11

0.6 M 12 FT HIGH PERFORMANCE PARABOLIC REFLECTOR ANTENNA, SINGLE-POLARIZED, 10.7-11.7GHz

The HP High Performance Series by RadioWaves offers a full line of high-performance parabolic antennas engineered to provide ETSI class Z3 radiation pattern performance as well as excellent gain. RadioWaves feed-proven pre-assembled antennas and robust bolt-mounts ensure set and forget installation with minimal post-installation maintenance. The include factory-ensured and reliable performance under the most challenging conditions. If it's rugged, it must be RadioWaves!

### FEATURES AND BENEFITS

- High Performance ETSI Class Z3\* Parabolic Antennas – Excellent performance for a wide range of applications
- Fully Pre-assembled at the Factory – Simplifies installation on site and guarantees factory-fresh quality
- Warranty – Factory leading 7-year warranty

\*ETSI Class depends on frequency band

### SPECIFICATIONS

#### General

|              |  |
|--------------|--|
| Antenna Type | High Performance Parabolic Reflector Antenna |
| Site Height  | 2 ft / 0.6 m                                 |
| Polarization | Single                                       |

|                             |                                    |
|-----------------------------|------------------------------------|
| Standard RF Connector Type  | CRF830                             |
| Standard RF Connector Style | HS (repeat suffix or model number) |

#### Electrical

|                                   |                 |
|-----------------------------------|-----------------|
| Operating Frequency Band          | 10.7 - 11.7 GHz |
| Half-Power Beamwidth, Horizontal  | 3.4 degrees     |
| Half-Power Beamwidth, Vertical    | 3.4 degrees     |
| Cross-Polarization Discrimination | 30 dB           |
| Front to Back Ratio (F/B)         | 60 dB           |

|                      |          |
|----------------------|----------|
| Gain, Low Frequency  | 34.2 dBi |
| Gain, Mid Frequency  | 34.0 dBi |
| Gain, High Frequency | 34.8 dBi |
| VSWR                 | 1.37:1   |
| Return Loss          | -16.1 dB |



#### Mechanical

|                                |                    |
|--------------------------------|--------------------|
| Fin Adjustment                 | +/- 10 degrees     |
| Fin Elevation Adjustment       | +/- 30 degrees     |
| Mounting Pipe Diameter, Min    | 2 inch / 5.08 cm   |
| Mounting Pipe Outer Dia, Max   | 4.9 inch / 12.4 cm |
| Net Weight                     | 27 lbs / 12.3 kg   |
| Wind Velocity, Operational     | 90 mph / 143 km/h  |
| Wind Velocity, Survival Rating | 128 mph / 203 km/h |

|   |                     |
|---|---------------------|
| Mechanical Configuration                    | HP2                 |
| Asail Force (F5)                            | 242 lbs / 108 N     |
| Side Force (F5)                             | 110 lbs / 48 N      |
| Tweeling Moment (M1)                        | 144 ft-lbs / 209 Nm |
| Operating Temperature Range                 | -43 to +40 C        |
| Max Pressure, PSIG (if waveguide interface) | 5                   |

#### Regulatory Compliance

|                            |                |
|----------------------------|----------------|
| FCC                        | Part 101 Ch1.3 |
| Industry Canada Compliance | undefined      |

|                |              |
|----------------|--------------|
| ETSI           | 322317 31 C2 |
| RoHS-Compliant | Yes          |

#### Shipping Information

|              |                  |
|--------------|------------------|
| Package Type | Cardboard        |
| Gross Weight | 48 lbs / 21.7 kg |

|                       |                                  |
|-----------------------|----------------------------------|
| Dimensions, L x W x H | 31 x 31 x 25in / 79 x 79 x 64 cm |
| Shipping Volume       | 13.8 cu ft / 0.39 cu m           |

\*Additional CEV Interfaces and adapters may be available. Contact RadioWaves for a complete and current list of available adapters.

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#### Mechanical

|                                |                    |
|--------------------------------|--------------------|
| Fin Adjustment                 | +/- 10 degrees     |
| Fin Elevation Adjustment       | +/- 30 degrees     |
| Mounting Pipe Diameter, Min    | 2 inch / 5.08 cm   |
| Mounting Pipe Outer Dia, Max   | 4.9 inch / 12.4 cm |
| Net Weight                     | 27 lbs / 12.3 kg   |
| Wind Velocity, Operational     | 90 mph / 143 km/h  |
| Wind Velocity, Survival Rating | 128 mph / 203 km/h |

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\*Additional CEV Interfaces and adapters may be available. Contact RadioWaves for a complete and current list of available adapters.

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FORM REVISED 10/11

**EXSTLINK**  
95 PARKER OAKS LN  
HUDSON OAKS, TEXAS 76087

FORM REVISED BY:  
ODISCOM, LLC  
2600 S. SHORE BLVD.  
SUITE 300  
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(469) 331-1176  
www.odiscom.com

SITE NUMBER:  
**IA-ANTHON-SO-4**  
3845 245TH ST,  
ANTHON, IA 51004  
WOODBURY COUNTY

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/20/23 | PRELIMINARY | JL |
| 1   | 08/29/23 | FINAL       | JR |



SHEET TITLE:  
**ANTENNA SPECIFICATIONS**

SHEET NUMBER:  
**D-4**

# PTP 820C Licensed Microwave Radio

QUICK LOOK:

- PTP 820C, an all Outdoor dual-core radio capable of 1024 QAM with ACM
- Support 6-38 GHz
- Support 1+0 to 4+0, 4+1/2+2, 2 x 1+0 EastWest configuration
- Support Multi Band(With PTP 850E or PTP 820E)



## Radio

|                       |  |
|-----------------------|--|
| 6-38 GHz              | 1+0 to 4+0, 1+1/2+2, 2 x 1+0 EastWest Multi Band(With PTP 850E or PTP 820E)  |
| <b>Radio Features</b> | Multi-Carrier Adaptive Bandwidth Control (up to 2+0)<br>Protection: 1+1/2+2-HB, 1+1-HS3 SD<br>CPEK to 2048 QAM w/ACM<br>2x4 / 4x4 MIMO<br>Advanced Space Diversity (ASD)<br>Advanced Frequency Reuse (AFR) |

## Ethernet

|                            |  |
|----------------------------|--|
| <b>Ethernet Interfaces</b> | Traffic processor – 1 x 10/100/1000Base-T (RJ-45) and 1x10/100base-X (SFP) or 1x10/100/1000Base-T (external SFP)   |
|                            | Management interface – 1x 10/100 Base-T (RJ-45)  |
|                            | Optical SFP Types - Optional 100GBase-LX (130 nm) or SX (80nm)   |
|                            | Note: SFP devices must be of industrial grade (40°C to 85°C)   |
| <b>Ethernet Features</b>   | MTU – 9600 Bytes<br>Quality of Service<br>Multiple Classification criteria (VLAN ID, IP-sets, IPv4 DSCP, IPv6 TC, MPLS EXP)<br>8 priority queues<br>Drop scheduling (configurable up to 64 MBd per queue)<br>WRED<br>PBit marking/policing<br>4K VLANs<br>VLAN acceleration/parallelism<br>Frame Cut Through – controlled latency and PoV for delay sensitive applications<br>Header De-Duplication – Checksum bypass by eliminating redundancy in all layers (L2, MPLS, L3, L4, Tunneling – GTP for LTE e3/E) |
|                            | V75i Ethernet QAM/256i Ethernet Bandwidth Multiplier (ETH-3M)  |
|                            | Adaptive Bandwidth Notification (ABN)  |

# PTP 820C Licensed Microwave Radio

## Management Protocols

SNMP  
NET  
SON Support NETCONF/YANG

## Synchronization

Synchronization List Based  
Sync Distribution over any interface (G/PPS)  
Sync E (ITU G.818), (G.826)  
SSA/ESMC Support for ringmesh applications (ITU-T G.826), SyncE Regenerator mode, providing RFC grade (ITU-T 8.81) performance for small pipe applications.  
IEEE-1588  
Optimized Transport for reduced PoV

## Security

ACS 256-bit Encryption  
Secure protocols (HTTPS, S/MIME, SSI, SFTP)  
RADIUS authentication and authorization (session-based)  
TACACS+ authentication and authorization (session-based)  
Standard  
NET

## MEF

Carrier Ethernet 2.0 (CE 2.0)  
Supports Ethernet Standards  
10/100/1000base-TX (IEEE 802.3)  
Ethernet VLANs (IEEE 802.3ac)  
Virtual LAN (VLAN) (IEEE 802.1Q)  
Class of Service (IEEE 802.1p)  
Priority Scheduling (PQ-C) – IEEE 802.3ad  
Link Aggregation (IEEE 802.3ad)  
Auto MDI/MDIX for “crossover”  
RFC 1346, IPv4 TOS  
RFC 2474, IPv4 DSCP  
RFC 2440, IPv6 Traffic Classes

## Standards Compliance

EMC: EN 301-489-1, EN 301-489-2, Class B (Europe), FCC 47 CFR, Part 15, class B (US), ICES 003, Class B (Canada), TELEC/ATEL 00P01, class B (India)  
Surge: EN61000-4-5, Class 4 (for PTP) and EMI/RFI (part)  
Safety: EN 60950-1, IEC 60950-1, UL 60950-1, CSA C22.2 No.60950-1, EN 60950-22, UL 60950-22, CSA C22.2 950-0-22 ingress protection: IP66-compliant  
Storage: ETSI EN 300 019-11 Class 1.2  
Transportation: ETSI EN 300 019-1.2 Class 2.3

## Mechanical Specifications

Dimensions: 230mm(H), 233mm(W), 88mm(D), 5kg  
9.05”H, 9.17”W, 3.85”D, 12.1lbs  
Pole Diameter: Range (for Remote Mount Installation): 8.89” CT – 11.43” CT, 3.5” – 4.5”  
Environmental Specifications  
-37°C to 155°C (45°C to 60°C extended), -27°F to 131°F (-49°F to 140°F extended)  
Power Input Specifications  
Standard Input: -48 VDC  
IDU DC input range: -40 to 60 VDC  
Power Consumption Specifications  
Maximum Power Consumption 2+0 Operations 6 GHz: 65W, 7/8 GHz: 75W, 11 GHz: 85W, 13.45 GHz: 95W, 18-24 GHz: 48W, 28-38 GHz: 55W  
Maximum Power Consumption 1+0 Operation -5/7.5 GHz: 40W, 7-8 GHz: 50W, 11 GHz: 55W, 13-18 GHz: 41W, 18-24 GHz: 39W, 26-38 GHz: 41W

## PoE Injector Mechanical Specifications

Dimensions – 154mm(L), 30mm(W), 62mm(O), 1kg, 5.28”L, 7.48”W, 2.44”D, 2.2 lbs.  
PoE Injector Environmental Specifications  
33°C to -55°C (45°C to -69°C extended), -27°F to 131°F (-49°F to 140°F extended)  
PoE Injector Power Input Specifications  
Standard Input: -48 or 124 VDC (Optional)  
DC Input range: 18/40/5 to 60 VDC (-18VDC extended range is supported as part of the normal +24VDC support)  
PoE Injector Interfaces  
QDE Data Port (supporting 1/100/1000Base-T)  
Tower-Carrier Remote PoE Port  
DC Power Port -40V to 60V for PoE supporting two redundant DC feeds (self supporting 48V 60V is available)

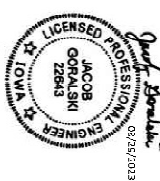
**EXTLINK**  
95 PARKER OAKS LN  
HUDSON OAKS, TEXAS 75087

ODISCOM, LLC  
2630 S. SHORE BLVD.  
SANTA FE, NM 87505  
-ENGAGE CTR, TX 77573  
(469) 513-1176  
www.odiscom.com

SITE NUMBER:  
**IA-ANTHON-50-4**

SITE ADDRESS:  
**3846 245TH ST,  
ANTHON, IA 51004  
WOODBURY COUNTRY**

| REV | DATE     | REVISION HISTORY | BY |
|-----|----------|------------------|----|
| A   | 3/2/2023 | RELEASE NARS     | DL |
| 0   | 3/2/2023 | INITIAL          | DL |
| 1   | 3/2/2023 | INITIAL          | IR |



SHEET TITLE:  
**EQUIPMENT SPECIFICATIONS**

SHEET NUMBER:  
**D-5**

PLANS REFERRED TO:

**NEXLINK**  
 57 PARKER OAKS LN  
 HUDSON OAKS, TEXAS 76087

ODISCOM, LLC  
 2600 S. SHORE BLVD., SUITE 300  
 LEAGUE CITY, TX 77573  
 (469) 531-1176  
 www.odiscom.com

STEVE DARR  
**IA-ANTHON-SO-4**  
 3846 245TH ST.,  
 ANTHON, IA 51004  
 WOODBURY COUNTY

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| 1   | 07/2023  | FIELD VISIT | LD |
| 2   | 08/29/23 | FINAL       | JR |

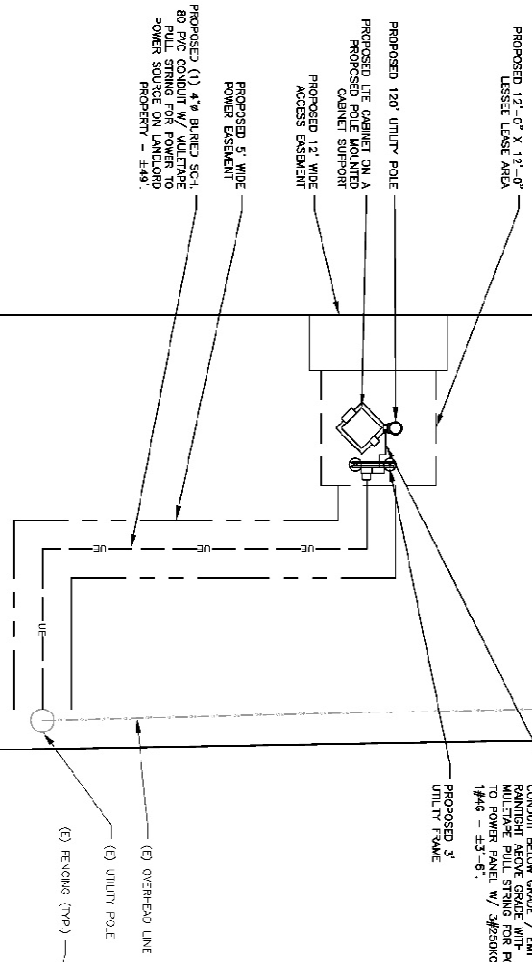


**ELECTRICAL PLAN**

E-1

**ELECTRICAL NOTES**

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL WORK SHALL BE UL APPROVED OR LISTED AND PROVIDED PER SPECIFICATIONS IN PERMITS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL, DESIGNED BY THE CONTRACTOR, AND SHALL BE INSTALLED IN ACCORDANCE WITH THE COMPLETE OPERATING AND MAINTENANCE ELECTRICAL SPECIFICATIONS (OMES).
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND COORDINATION OF THE SAME.
5. ELECTRICAL AND TIE-OUT WORK AT EXISTING BUILDING LOCATIONS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
6. ELECTRICAL AND TIE-OUT WORK AT EXISTING BUILDING LOCATIONS SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
7. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
8. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
9. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
10. ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
11. NON-ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
12. NON-ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
13. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3B ENCLOSURE.
14. PVC SUPPORT BY PROJECT OWNER.
15. GROUNDING SHALL COMPLY WITH NEC ART. 250 AND ADDITIONALLY, GROUNDING SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
16. GROUNDING SHALL COMPLY WITH NEC ART. 250 AND ADDITIONALLY, GROUNDING SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
17. USE #12 COPPER STRAP WITH MIN. GFTEN TO OR NEAR ANCHOR FOR ANCHORING GROUNDING BUS TO STRUCTURE. GROUNDING BUS SHALL BE INSTALLED ON THE EXTERIOR WALL OF THE BUILDING.
18. ALL POWER AND GROUNDING CONNECTIONS TO BE CONDUCTED THROUGH THE WALLS AND VENT HOLES OF EXISTING BUILDINGS SHALL BE MADE THROUGH OVERHEAD COOPER WIRE TO BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
19. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
20. CONNECTION TO SERVICE SHALL BE MADE WITH THE USE OF CONDUIT THROUGH THE WALLS AND VENT HOLES OF EXISTING BUILDINGS SHALL BE MADE THROUGH OVERHEAD COOPER WIRE TO BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND LOCAL ORDINANCES (AS PERMITTED BY CODE).
21. CONTRACTOR SHALL TEST CHARACTER OF GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MAXIMUM RESISTANCE REQUIRED.
22. CONTRACTOR SHALL TEST CHARACTER OF GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT.
23. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND RECORD RESULTS FOR PROJECT CLOSE-OUT.
24. THE WORKING ELECTRICAL SYSTEMS SHALL BE IDENTIFIED AND DISCONNECTED TO BE LABELED WITH DANGER TAGS AND DISCONNECTED TO BE LABELED WITH DANGER TAGS.



ELECTRICAL SITE PLAN



SCALE: N.T.S.

**NEXTLINK**  
95 PARKER OAKS LN  
HUDSON OAKS, TEXAS 76087

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2600 S. SHORE BLVD.  
SUITE 300  
LEAGUE CITY, TX 77573  
(469) 531-1176  
www.odiscom.com

SITE NUMBER:  
**IA-ANTHON-SO-4**

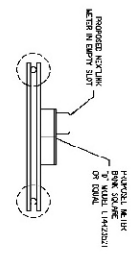
SITE ADDRESS:  
3846 245TH ST.,  
ANTHON, IA 51004  
WOODBURY COUNTY

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/29/23 | PRELIMINARY | DL |
| 0   | 07/29/23 | FINAL       | DL |
| 1   | 08/29/23 | FINAL       | JR |

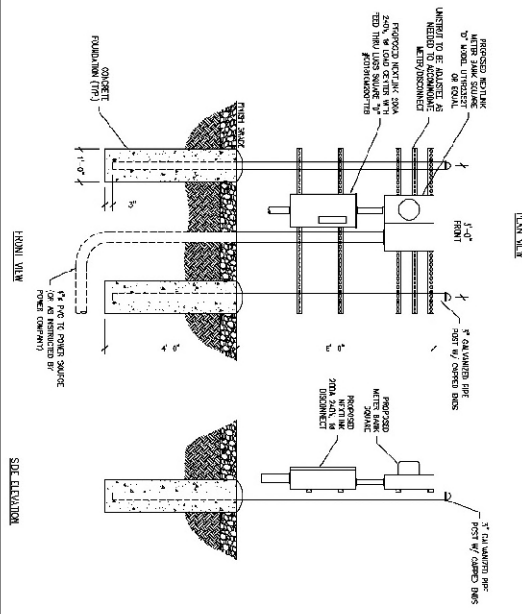


SHEET TITLE:  
**ELECTRICAL NOTES  
AND DETAILS**

SHEET NUMBER:  
**E-2**

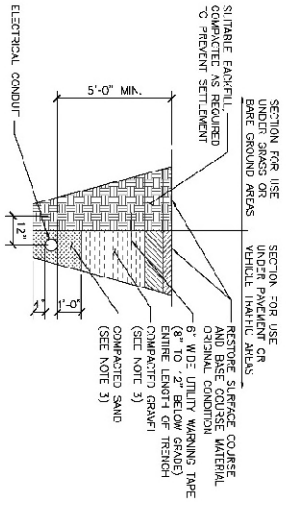


- NOTE:
- ALL UNDERGROUND PIPES OR CABLES TO BE INSTALLED IN THIS AREA SHALL BE INSTALLED IN THE CENTER OF THE TRENCH AND SHALL BE PROTECTED BY A 2" WIDE UTILITY WARNING TAPE (SEE NOTE 3).
  - ALL UNDERGROUND PIPES OR CABLES SHALL BE INSTALLED IN A TRENCH WITH A MINIMUM COVER OF 18" OVER THE TOP OF THE PIPE OR CABLE.



3 HFRAME DETAIL

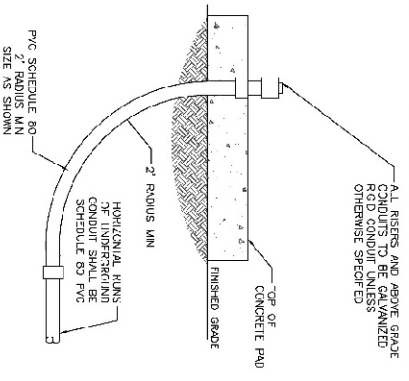
SCALE: N.T.S.



- NOTES:
- CONTRACTOR TO VERIFY LOCAL UTILITY REQUIREMENTS FOR DEPTH, SIZE & SEPARATION OF CONDUITS PRIOR TO INSTALLATION. NOTIFY CONSTRUCTION MANAGERS IMMEDIATELY OF ANY DISCREPANCIES.
  - CONTRACTOR TO CALL 811, 48 HRS PRIOR TO EXCAVATING FOR UNDERGROUND UTILITY LOCATIONS. LOCATION SURROUNDINGS EXCAVATED AREA MUST BE PERMANENTLY LOCATED FOR NON-P-BL/C UTILITIES.
  - ALL UTILITY PIPES, WIRE, AND CABLES SHALL BE INSTALLED IN HORIZONTAL LAYERS NOT EXCEEDING A LOOSE DEPTH OF 9 INCHES AND SHALL BE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY PER THE MODIFIED PROCTOR TEST, ASTM D1557.

UTILITY TRENCH DETAIL

SCALE: N.T.S.



2 TYPICAL UNDERGROUND CONDUIT STUB-UP

SCALE: N.T.S.

NOT USED

SCALE: N.T.S.

1 HFRAME DETAIL

SCALE: N.T.S.

3

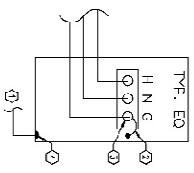
4

| PANEL: "A"               |                    | EQUIPMENT GROUND |      |    | SURFACE     |        |
|--------------------------|--------------------|------------------|------|----|-------------|--------|
| VOL-TAGE                 | 120/240V 1P 3W 30A | 100KAC           |      | VA | DESCRIPTION | C-TYPE |
| 3KT#                     | DESCRIPTION        | BRK/P            | VA   | VA | DESCRIPTION | C-TYPE |
| 1                        | 3 SPARE            | 20/1             | 1650 | 0  | 20/1 SPARE  | 2      |
| 3                        | 3 SPARE            | 20/1             | -    | -  | 20/1 SPARE  | 4      |
| 5                        | 5 SPARE            | 20/1             | -    | -  | 20/1 SPARE  | 6      |
| 7                        | 7 SPARE            | 20/1             | -    | -  | 20/1 SPARE  | 8      |
| 9                        | 9 SPARE            | 20/1             | -    | -  | 20/1 SPARE  | C      |
| 11                       | 11 SPARE           | 20/1             | -    | -  | 20/1 SPARE  | 2      |
| TOTAL VOL-AMPS           |                    |                  | 1650 | 0  |             |        |
| TOTAL VOL-AMPS PER PHASE |                    |                  | 1050 | 0  |             |        |
| TOTAL TER PHASE:         |                    |                  | 1650 | 0  |             |        |
| PLUS 50% PER NEG:        |                    |                  | 413  | 0  |             |        |
| TOTAL VA CAPACITY:       |                    |                  | 2063 | 0  |             |        |
| TOTAL AMPACITY:          |                    |                  | 172  | 0  |             |        |

**PANEL P SCHEDULE**

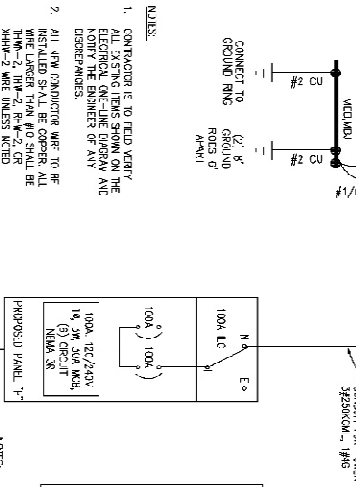
| LOAD ANALYSIS   | QTY | VA/ST OR VA/UNIT | TOTAL VA | NEC DEMAND | TOTAL IEC VA | AMPERES/PHASE |
|-----------------|-----|------------------|----------|------------|--------------|---------------|
| NEW LEAD:       |     |                  |          |            |              |               |
| RADIO           | 1   | 1650             | 1650     | 285        | 2033         | 17.2          |
| TOTAL NEW LOAD: |     |                  | 1650     |            | 2033         | 17.2          |

**LOAD ANALYSIS**



NOTE: THIS DETAIL PERTAINS TO ALL METALLIC EQUIPMENT AND TO ALL METALLIC ELECTRICAL PANELS AND TO ALL METALLIC ELECTRICAL EQUIPMENT. REFER TO THE GENERAL NOTES FOR FURTHER INFORMATION.

**EQUIPMENT GROUNDING DETAIL**



**ONE-LINE DIAGRAM**

1. CONTRACTOR IS TO FIELD VERIFY ALL TESTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND REPORT THE RESULTS OF ANY TESTING TO THE ENGINEER.
2. ALL NEW CONDUITING WIRE TO BE INSTALLED SHALL BE COPPER ALL WIRE SHALL BE TYPE THHN-2, THW-2, RHW-2, OR XHHW-2 WIRE UNLESS NOTED OTHERWISE.
3. ALL BONDING AND BONDING TO BE PER THE APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC).

1. ALL EQUIPMENT SHALL BE NEMA 3R RATED.
2. ALL EQUIPMENT SHALL BE LIGHTNING PROTECTED IN ACCORDANCE WITH NA 222 G AND NECA 110.
3. ALL EQUIPMENT SHALL BE LIGHTNING PROTECTED IN ACCORDANCE WITH NA 222 G AND NECA 110.
4. CONDUIT SHALL BE INSTALLED IN ACCORDANCE WITH NA 222 G AND NECA 110.

ELECTRICAL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNALING ASSOCIATION (NFPA) 70B. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE INSTALLED UNDER THE PROVISIONS OF THIS CODE AND SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNALING ASSOCIATION (NFPA) 70B.

ELECTRICAL RISER

SCALE: N.T.S. 1

PLANS PREPARED BY:

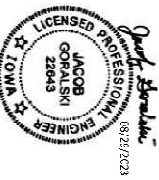


ODPCOM LLC  
2603 S. SHORE BLVD  
SUITE 300  
LEAGUE CITY, TX 77573  
(409) 531-1175  
www.odpcom.com

SITE NUMBER:  
**IA-ANTHON-50-4**

SITE ADDRESS:  
**3846 245TH ST,  
ANTHON, IA 51004  
WOODBURY COUNTY**

| REV | DATE     | REVISION HISTORY | BY |
|-----|----------|------------------|----|
| 1   | 07/01/23 | FINAL            | IB |
| 2   | 07/01/23 | FINAL            | IB |
| 1   | 06/29/23 | FINAL            | IB |

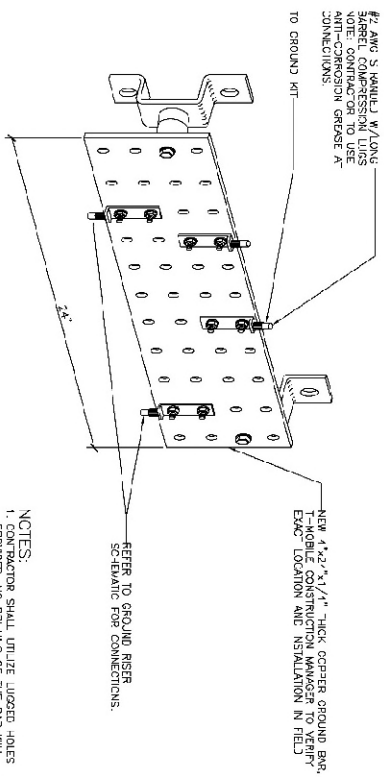


SHEET TITLE:  
**PANEL SCHEDULE  
& ONE-LINE**

SHEET NUMBER:  
**E-3**

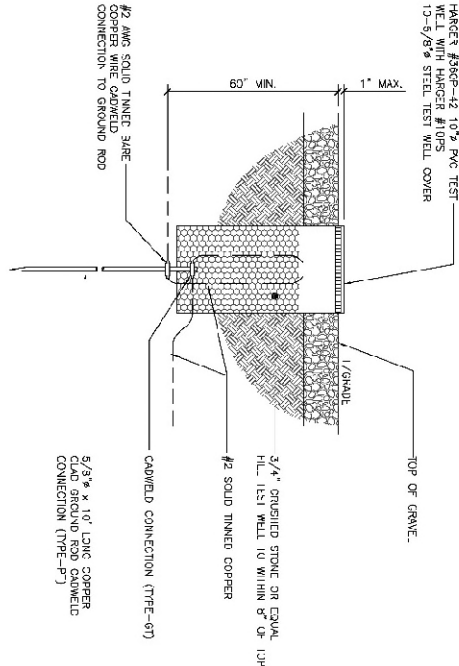






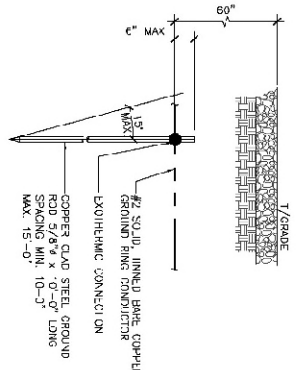
TYPICAL GROUNDING DETAIL

SCALE: N.T.S. 1



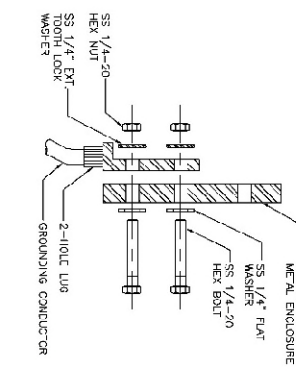
TEST WELL DETAIL

SCALE: N.T.S.



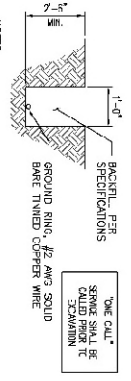
GROUND ROD DETAIL

SCALE: N.T.S. 3



LUG BOLT CONNECTION

SCALE: N.T.S. 4



GROUND RING TRENCH DETAIL

SCALE: N.T.S. 5

SCALE: N.T.S. 6

NOT USED

SCALE: N.T.S.

NOT USED

SCALE: N.T.S. 8

FOUND MEMBER OF:

95 PARKER OAKS LN  
HUDSON OAKS, TEXAS 76087

ODISCOM, L.L.C.  
2606 S. SHORE BLVD.  
SUITE 300  
LEAGUE CITY, TX 77573  
(409) 533-1370  
WWW.ODISCOM.COM

SITE NUMBER:  
**IA-ANTHON-SO-4**

SITE ADDRESS:  
**3846 245TH ST.,  
ANTHON, IA 51004  
WOODBURY COUNTY**

| REV | DATE     | DESCRIPTION | BY |
|-----|----------|-------------|----|
| A   | 07/20/23 | PRELIMINARY | DL |
| 0   | 07/20/23 | FINAL       | DL |
| 1   | 08/29/23 | FINAL       | DL |

*David Hamilton*  
PROFESSIONAL ENGINEER  
JACOB  
OAKS  
2884  
LOWIA

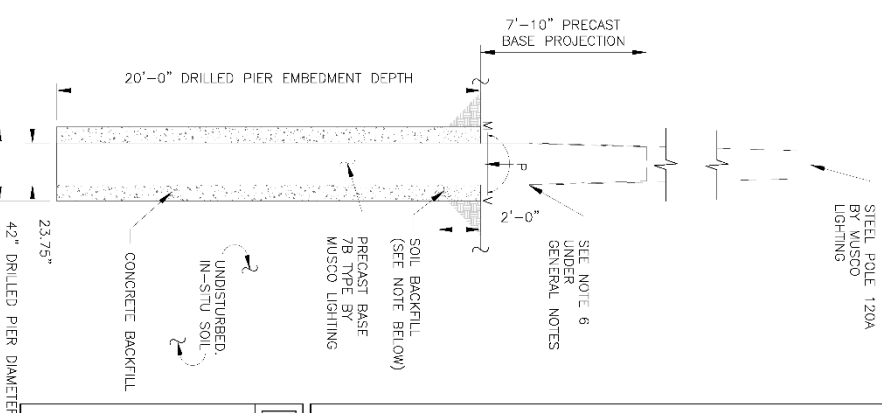
SHEET NUMBER:  
**G-2**

GROUNDING DETAILS

# POLE ELEVATION

C-1 SCALE: 3/16" = 1'-0"

**SOIL BACKFILL NOTE:**  
THE TOP TWO FEET OF ANNULUS SHALL BE BACKFILLED WITH SOIL WITH A CLASSIFICATION OF CLASS 5 (TABLE 1806.2) OR BETTER. COMPACTION, 95% FOR COHESIVE SOIL AND 98% FOR A COHESIONLESS SOIL BASED UPON STANDARD PROCTOR TESTING (ASTM D699).



### GENERAL NOTES

- CONCRETE BACKFILL IS CALCULATED TO 2 FT (0.6M) BELOW GRADE (NO OVERLAP INCULDED). TOP 2 FT (0.6M) TO BE CLASS 5, SOIL COMPACTED TO 95% DENSITY OF SURROUNDING UNDISTURBED SOIL UNLESS OTHERWISE SPECIFIED IN STANDARD STRUCTURAL DESIGN.
- FOUNDATION DESIGN REQUIRED 3000 LB/IN<sup>2</sup> (20 MPa) MINIMUM.
- FOUNDATION DESIGN BASED ON PRESUMPTIVE SOIL PARAMETERS AS PER ANNEX F IN ACCORDANCE WITH ANS/11A-222-H, "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES AND ANTENNAS AND SMALL WIND TURBINE SUPPORT STRUCTURE AND IBC 2018, CONSTRUCTION SPECIFICATIONS FOR STEEL DECK FABRICATOR.
- CONCRETE ENCASED ELECTRODE AND CONNECTOR FOR LIGHTING PROTECTION. GROUND CONNECTION IS MADE WHEN CONCRETE BASE IS INSTALLED AND FOOTING IS POURED. NO ADDITIONAL STEPS REQUIRED.
- CONCRETE SHALL BE AIR-ENTRAINED AND HAVE A COMPRESSIVE STRENGTH OF NOT LESS THAN 4000 PSI (27.6 MPa) AND 3000 PSI (20.7 MPa) CONCRETE SPECIFIED FOR EARLY CONCRETE STRENGTH IS 1,000 PSI. ALL PIERS AND CONCRETE BACKFILL MUST BEAR ON AND AGAINST FIRM UNDISTURBED SOIL. SUPPLEMENTAL LIGHTNING PROTECTION IS REQUIRED.
- STEEL POLE SHOULD OVERLAP CONCRETE BASE AND BE SEATED TIGHT WITH 1/2 TON COME-ALONGS (CONTRACTOR PROVIDED).
- ALIGN WELDWORKS ON STEEL SECTIONS BEFORE ASSEMBLING.
- SECTION OVERLAP MUST BE PULLED TOGETHER UNTIL TIGHT OVERLAP MUST BE PULLED TOGETHER UNTIL TIGHT. OVERLAP MUST BE PULLED TOGETHER UNTIL TIGHT. FIXTURES MUST BE INSTALLED TO MAINTAIN 1'-0" MINIMUM HORIZONTAL CLEARANCE FROM ANY FOUNDATIONS ARE NEAR ANY RETAINING WALLS OR WITHIN NEAR ANY SLOPES STEEPER THAN 3H : 1V. INSTALLATION PER MUSCO LIGHTING.

### TOWER STRUCTURE DATA

TOWER MANUFACTURER: MUSCO LIGHTING  
 TOWER HEIGHT = 120'  
 FOUNDATION DESIGN LOADS:  
 SHEAR = 4 K  
 MOMENT = 250 K-FT  
 CONCRETE BACKFILL = 4.4 CUBIC YARD

REFER TO THE TOWER ANALYSIS REPORT FOR DETAILED CALCULATIONS. PREPARED BY TECHNICAL WOP# 11247.NE-ALBION, DATED 06/07/2023

### DESIGN NOTES

- DESIGN CRITERIA:  
WIND: 2018 INTERNATIONAL BUILDING CODE AND ASCE 7-16.  
BASIC WIND SPEED, V: 112 MPH (ULTIMATE 3-SECOND GUST WIND SPEED)  
EXPOSURE CATEGORY: C  
RISK CATEGORY: II
- GEOTECHNICAL PARAMETERS:  
PRESUMPTIVE SOIL PARAMETERS

| SOIL TYPE | N (BLOWS/FT) (DEC.) | ϕ (LB/FT <sup>2</sup> ) (KPa) | γ (LB/FT <sup>3</sup> ) (KPa) | c (PSF) (KPa) | NOMINAL ULTIMATE NET BEARING STRENGTH |                  |                  | S <sub>r</sub> (PSF) (KPa) | k (TON/IN <sup>3</sup> ) (kN/m <sup>3</sup> ) | ϕ50  |
|-----------|---------------------|-------------------------------|-------------------------------|---------------|---------------------------------------|------------------|------------------|----------------------------|---|------|
|           |                     |                               |                               |               | SHALLOW FOUNDATIONS                   | DEEP FOUNDATIONS | DEEP FOUNDATIONS |                            |   |      |
| CLAY      | 8 [26]              | 0                             | 110 [17]                      | 1000 [48]     | 5000 [240]                            | 9000 [430]       | 9000 [430]       | 500 [24]                   | 150 [41,000]                                  | 0.01 |
| SAND      | 10 [33]             | 30                            | 110 [17]                      | 0             | 4000 [190]                            | 9000 [430]       | 9000 [430]       | 500 [24]                   | 35 [9,500]                                    | N/A  |

WHERE:  
 N = STANDARD PENETRATION VALUE  
 ϕ = ANGLE OF INTERNAL FRICTION  
 γ = EFFECTIVE UNIT WEIGHT OF SOIL  
 c = COHESION  
 k = LATERAL MODULUS OF SOIL REACTION  
 ϕ50 = STRAIN AT 50% OF ULTIMATE COMPRESSION

- ALLOWABLE LATERAL SOIL BEARING PRESSURE (SOIL MATERIAL CLASS 5, IBC 2018, TABLE 1806.2 AND SECTION 1806.3.4): 100PSF/FT (GRADE TO 2'-0") TO 20'-0") 200PSF/FT (2'-0" TO 20'-0")
- FOUNDATION DESIGN IS BASED ON THE PRESUMPTIVE SOIL PARAMETERS PER ABOVE. WE RECOMMEND THAT THE ENGINEER OBTAIN GEOTECHNICAL DATA FOR THE FOUNDATION. THE FOUNDATION FOR SITE SPECIFIC SOIL PARAMETERS SHOULD BE PERFORMED TO EVALUATE TO BE AVAILABLE AT THE TIME OF THE FOUNDATION INSTALLATION TO VERIFY THE SOIL DESIGN PARAMETERS AND TO PROVIDE ASSISTANCE IF ANY PROBLEMS ARISE IN FOUNDATION INSTALLATION.
- FOUNDATIONS THAT WILL REQUIRE SPECIAL DESIGN CONSIDERATIONS INCLUDING BUT NOT LIMITED TO: FOUNDATIONS ON SLOPES, FOUNDATIONS ON SOILS OF UNUSUAL CHARACTERISTICS, FOUNDATIONS ON SOILS WITH UNUSUAL WATER CONTENTS, FOUNDATIONS ON SOILS WITH UNUSUAL STRENGTH CHARACTERISTICS, FOUNDATIONS ON SOILS WITH UNUSUAL COMPACTION CHARACTERISTICS, FOUNDATIONS ON SOILS WITH UNUSUAL PERMEABILITY CHARACTERISTICS, FOUNDATIONS ON SOILS WITH UNUSUAL SETTLEMENT CHARACTERISTICS, FOUNDATIONS ON SOILS WITH UNUSUAL EXPANSION CHARACTERISTICS, FOUNDATIONS ON SOILS WITH UNUSUAL CONTRACTION CHARACTERISTICS, FOUNDATIONS ON SOILS WITH UNUSUAL STABILIZATION CHARACTERISTICS, FOUNDATIONS ON SOILS WITH UNUSUAL STABILIZATION CHARACTERISTICS.
- ALL EXCAVATIONS MUST BE FREE OF LOOSE SOIL AND DEBRIS PRIOR TO FOUNDATION INSTALLATION AND CONCRETE BACKFILL PLACEMENT. TEMPORARY CASINGS OR DRILLERS MUST BE REMOVED DURING CONCRETE BACKFILL PLACEMENT. CONCRETE BACKFILL MUST BE PLACED WITH A TREMIE WHEN SLURRY OR WATER IS PRESENT WITHIN THE EXCAVATION OR MUST BE FAMILIAR WITH THE COMPLETE SOIL INVESTIGATION REPORT AND BORINGS AND CONTACT THE GEOTECHNICAL FIRM (IF NECESSARY) TO UNDERSTAND THE SOIL CONDITIONS AND THE POSSIBILITY OF GROUND WATER PUMPING AND EXCAVATION STABILIZATION OR SHORING DURING PRECAST BASE INSTALLATION AND PLACEMENT OF CONCRETE BACKFILL.



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 GEOTECHNICAL ENGINEERING  
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 DENVER, CO 80202  
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**MUSCO**  
 LIGHTING  
 CORPORATION, 100 1st AVE WEST  
 OSKALOUSA, IA 52577  
 (562) 529-6020  
 PRECAST STRUCTURES

LANDLORD: \_\_\_\_\_  
 LEASING: \_\_\_\_\_  
 RE: \_\_\_\_\_  
 CONTRIBUTION: \_\_\_\_\_

WORK ORDER NUMBER: \_\_\_\_\_  
 DRAWING NO.: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 BY: \_\_\_\_\_



**SITE ADDRESS:**  
 NEXT LINK  
 NE-ALBION-EA-1

**SHEET TITLE:**  
 7B PRECAST  
 FOUNDATION  
 FOR 120A POLE  
 SHEET NUMBER

**SITE ADDRESS:**  
 LAT: 41.6939460  
 LONG: -97.9327110  
 BOONE COUNTY, NE

C-1



**Structural Analysis Report**

Date: June 07, 2023

**TABLE OF CONTENTS**

**Tower Manufacturer:** Musco – Wireless Structures  
**Tower Owner:** Nextlink  
**Tower Type:** 120A Type  
**Foundation Type:** 7B Precast Base  
**Location:** Latitude 41° 41' 54.528", Longitude -97° 55' 55.596"  
 Boone County, Nebraska  
 120 ft Monopole Tower  
**Tectonic Project Number:** 11247.NE-ALBION

Tectonic Engineering & Surveying Consultants P.C. is pleased to submit this "Structural Analysis Report" to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation to be:

Structure: **Sufficient**  
 Foundation: **Sufficient**

This analysis has been performed in accordance with the 2018 International Building Code and the ANSI/TIA-222-H-1-2019 based upon an ultimate 3-second gust wind speed of 112 mph. Exposure Category C with a maximum topographic factor, Kzt, of 1.0 and Risk Category II were used in this analysis.

All equipment proposed in this report shall be installed in accordance with this analysis for the determined available structural capacity to be effective.

We at Tectonic appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or any other projects, please give us a call.

Structural analysis prepared by: Mahesh Chillarge / Vinod Ramesh

Respectfully submitted by:  
 Tectonic Engineering & Surveying Consultants P.C.



Manojkumar Patel, P.E.  
 Managing Director

**1) INTRODUCTION**  
**2) ANALYSIS CRITERIA**  
 Table 1 - Proposed Antenna and Cable Information  
**3) ANALYSIS PROCEDURE**  
 Table 2 - Documents Provided  
 3.1) Analysis Method  
 3.2) Assumptions  
**4) ANALYSIS RESULTS**  
 Table 3 - Section Capacity (Summary)  
 Table 4 - Tower Component Stresses vs. Capacity  
 Table 5 - Tower Service Load Deflections  
 4.1) Recommendations  
**5) APPENDIX A**  
 trnTower Output  
**6) APPENDIX B**  
 Additional Calculations

**Project Contact Info**

1279 Route 500 | Newburgh, NY 12550  
 845.567.8598 fax | 845.567.8539 fax  
 tectonicengineering.com  
 Equal Opportunity Employer

120 Ft Monopole Tower Structural Analysis  
 Project Number 11247.NE-ALBION

June 07, 2023  
 Albion, NE  
 Page 3

**1) INTRODUCTION**

This tower is a 120 ft Monopole, Type 120A designed and manufactured by Musco – Wireless Structures. The tower is proposed to be installed to support Nextlink equipments at the location referenced above.

**2) ANALYSIS CRITERIA**

**Building Code:** 2018 IBC  
**TIA-222 Revision:** TIA-222-H  
**Risk Category:** II  
**Wind Speed:** 112 mph  
**Exposure Category:** C  
**Topographic Factor:** 1.0  
**Ice Thickness:** 1.0 in  
**Wind Speed with Ice:** 50 mph  
**Seismic Ss:** 0.122  
**Seismic S1:** 0.042  
**Service Wind Speed:** 60 mph

**Table 1 - Proposed Equipment Configuration**

| Mounting Level (ft) | Carrier Designation | Number of Antennas | Antenna Manufacturer | Antenna Model              | Number of Feed Lines | Feed Line Size (in) | Note |
|---------------------|---------------------|--------------------|----------------------|----------------------------|----------------------|---------------------|------|
| 118.0               | Nextlink            | 3                  | Alpha Wireless       | AW3802-T2-H                | 3                    | 7/8                 | -    |
|                     |                     | 6                  | Cambium Networks     | ePMP 3000                  |                      |                     |      |
|                     |                     | 3                  | Musco                | 2.375" OD x 4' Mount Pipes |                      |                     |      |
| 110.0               | Nextlink            | 3                  | Radiowaves           | HP2-11                     | 3                    | 7/8                 | -    |
|                     |                     | 3                  | Musco                | 2.375" OD x 4' Mount Pipes |                      |                     |      |
| 5.0                 |                     | 1                  | -                    | Equipment Cabinet          | -                    | -                   | -    |

**3) ANALYSIS PROCEDURE**

**Table 2 - Documents Provided**

| Document                            | Remarks                | Dated    |
|-------------------------------------|------------------------|----------|
| 7B CONCRETE BASE DETAILS – REV R    | MUSCO                  | 12/30/16 |
| ICC-ES EVALUATION REPORT (ESR-3765) | ICC EVALUATION SERVICE | May 2022 |
| TOWER ELEVATION DRAWING             | MUSCO                  | -        |

**3.1) Analysis Method**

trnTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

**3.2) Assumptions**

- Tower structure shall be fabricated in accordance with the manufacturer's specifications.
- The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1.
- The material grade for the pole shaft is assumed to be A572 Gr. 55 steel.

trnTower Report - version 8.1.1.0

120 Ft Monopole Tower Structural Analysis  
 Project Number 11247.NE-ALBION

June 07, 2023  
 Albion, NE  
 Page 4

**4) ANALYSIS RESULTS**

4) Precast foundation has been evaluated based on presumptive soil parameters per Annex F in accordance with the ANSI/TIA-222-H-1-2019 and per 2018 IBC, section 1806 for soil material class 5.

This analysis is solely for the supporting tower structure, and it may be affected if any assumptions are not valid or have been made in error. Tectonic should be notified to determine the effect on the structural integrity of the tower.

**4) ANALYSIS RESULTS**

**Table 3 - Section Capacity (Summary)**

| Section No. | Elevation (ft)   | Component Type | Size                 | Critical Element | P (K)  | SPP Allow (K) | % Capacity | Pass / Fail |      |
|-------------|------------------|----------------|----------------------|------------------|--------|---------------|------------|-------------|------|
| L1          | 121.107 - 86.393 | Pole           | TP13.1x8.5/4x0.179   | 1                | -1.193 | 336.267       | 29.3       | Pass        |      |
| L2          | 86.393 - 66.93   | Pole           | TP15.75x12.576x0.179 | 2                | -2.026 | 380.776       | 44.9       | Pass        |      |
| L3          | 66.93 - 28.997   | Pole           | TP20.7x14.974x0.239  | 3                | -4.354 | 672.132       | 45.5       | Pass        |      |
| L4          | 28.997 - 2       | Pole           | TP24x19.709x0.313    | 4                | -7.519 | 1070.900      | 39.7       | Pass        |      |
| Summary     |                  |                |                      |                  |        |               |            |             |      |
| Pole (L3)   |                  |                |                      |                  |        |               |            | 45.5        | Pass |
| Rating =    |                  |                |                      |                  |        |               |            | 45.5        | Pass |

**Table 4 - Tower Component Stresses vs. Capacity**

| Notes | Component                          | Elevation (ft) | % Capacity | Pass / Fail |
|-------|------------------------------------|----------------|------------|-------------|
| 1     | Base Foundation (Structure)        | 0              | 50.0       | Pass        |
| 1     | Base Foundation (Soil Interaction) | 0              | 16.2       | Pass        |

**Structure Rating (max from all components) = 50.0%**

Note:  
 1) See additional documentation in "Appendix B – Additional Calculations" for calculations supporting the % capacity consumed.

**Table 5 - Tower Service Load Deflections**

| Component                    | At Top | Allowable | Percentage Ratio | Pass / Fail |
|------------------------------|--------|-----------|------------------|-------------|
| Horizontal Deflection (inch) | 22.195 | 36.0 inch | 61.16%           | Pass        |
| Twist & Sway (deg)           | 1.657  | 4.000 deg | 41.42%           | Pass        |

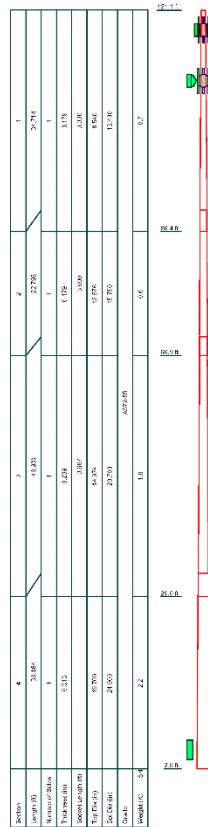
**4.1) Recommendations**

The proposed tower and foundation have sufficient capacity to support the load configurations as shown in Table 1. The tower shall be installed in accordance with the approved construction drawings and manufacturer recommendations.

We recommend a site-specific geotechnical investigation be performed and verify the presumptive soil parameters noted in this report and foundation design drawings prior to construction.

trnTower Report - version 8.1.1.0

APPENDIX A  
TNTXTOWER OUTPUT



DESIGNED APPURTENANCE LOADING table with columns for TYPE, ELEVATION, and a second set of TYPE, ELEVATION. It lists various hardware like nuts, washers, and bolts at different heights.

MATERIAL STRENGTH table with columns for GRADE, Fy, Fu, GRADE, Fy, Fu. It specifies material grades like A572-50 and their respective yield and tensile strengths.

InxTower Report - version 8.1.1.0

Tectonic logo and project information: 1279 Route 300, Newburgh, NY 12550. Includes project name 120A Pole - Nextlink - NE-ALBION-EA-1 and design date 06/06/23.

June 07, 2023  
Albion, NE  
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MATERIAL STRENGTH table with columns for GRADE, Fy, Fu, GRADE, Fy, Fu. It lists material grades and their mechanical properties.

- TOWER DESIGN NOTES list: 1. Tower is located in Boone County, Nebraska. 2. Tower designed for Exposure C to the TIA-222-H Standard. 3. Tower designed for a 112 mph basic wind in accordance with the TIA-222-H Standard. 4. Tower is also designed for a 50 mph basic wind with 1.000 in ice. Ice is considered to increase in thickness with height. 5. Deflections are based upon a 60 mph wind. 6. Tower Risk Category II. 7. Topographic Category 1 with Crest Height of 0.000 ft. 8. Musco - Wireless Structures - 120A Type Pole. 9. Seismic calculations are in accordance with TIA-222-H-1. 10. TOWER RATING: 45.0%

ALL REACTIONS ARE FACTORED  
AXIAL 8 K, MOMENT 17 kip-ft  
SHEAR 0 K, TORQUE 0 kip-ft  
SERVIC  
AXIAL 13 K, MOMENT 113 kip-ft  
SHEAR 2 K, TORQUE 0 kip-ft  
50 mph WIND - 1.000 in ICE  
AXIAL 8 K, MOMENT 750 kip-ft  
SHEAR 4 K, TORQUE 0 kip-ft  
REACTIONS - 112 mph WIND

120 Ft Monopole Tower Structural Analysis  
Project Number 11247.NE-ALBION

Tower Input Data

- The tower is a monopole. This tower is designed using the TIA-222-H standard. The following design criteria apply: 1) Tower is located in Boone County, Nebraska. 2) Tower base elevation above sea level: 1844.000 ft. 3) Basic wind speed of 112 mph. 4) Risk Category II. 5) Exposure Category C. 6) Simplified Topographic Factor Procedure for wind speed-up calculations is used. 7) Topographic Category: 1. 8) Crest Height: 0.000 ft. 9) Nominal ice thickness of 1.000 in. 10) Ice thickness is considered to increase with height. 11) Ice density of 56.000 pcf. 12) A wind speed of 50 mph is used in combination with ice. 13) Temperature drop of 50.000 °F. 14) Deflections calculated using a wind speed of 60 mph. 15) Musco - Wireless Structures - 120A Type Pole. 16) Seismic calculations are in accordance with TIA-222-H-1. 17) A non-linear (P-delta) analysis was used. 18) Pressures are calculated at each section. 19) Stress ratio used in pole design is 1. 20) Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- Consider Moments - Legs
- Consider Moments - Horizontal
- Consider Moments - Diagonals
- Use Moment Magnification
- Use Cyclic Stress Ratio
- Use Coda Safety Factors - Guys
- Exclude Ice
- Always Use Max Kz
- Use Special Wind Profile
- Include Bolts in Member Capacity
- Log Bolts Are At Top Of Section
- Secondary Horizontal Braces Lag
- Use Diamond Inner Bracing (4 Sides)
- SR Members Have Cut Ends
- SR Members Are Concentric
- Distribute Leg Loads As Uniform
- Assume Logs Pinned
- Assume Rigid Index Plate
- Use Clear Spans For Wind Area
- Use Clear Spans For KLT
- Retension Guys To Initial Tension
- Bypass Mast Stability Checks
- Use Azimuth Dish Coefficients
- Project Wind Area of Appurt.
- Autoclave Torque Arm Areas
- Add BC 60+W Combination
- Spot Capacity Reports By Component
- Triangular Diamond Inner Bracing
- Treat Feed Line Bundles As Cylinder
- Ignore KLTry For 60 Deg. Angle Legs
- Use ASCE 10 X-Brace Ly Rules
- Calculate Redundant Bracing Forces
- Ignore Redundant Members in FEA
- SR Log Bolts Resist Compression
- All Leg Panels Have Same Allowable
- Offset GHT At Foundation
- Consider Feed Line Torque
- Include Angle Block Shear Check
- Use TIA-222-H Bracing Resist.
- Exemption
- Use TIA-222-H Tension Splice Exemption
- Poles
- Include Shear-Tension Interaction
- Always Use Sub-Critical Flow
- Use Top Mounted Sockets
- Pole Without Linear Attachments
- Pole With Shroud Or No Appurtenances
- Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Table with columns: Section, Elevation, Section Length, Splice Length, Number of Sides, Top Diameter, Bottom Diameter, Wall Thickness, Bond Radius, Pole Grade. It lists data for sections L1 and L2.

tnxTower Report - version 8.1.1.0

Tectonic logo and project information: 1279 Route 300, Newburgh, NY 12550. Includes project name 120A Pole - Nextlink - NE-ALBION-EA-1 and design date 06/06/23.





| Description   | Elevation | Offset From Centroid | Azimuth Angle | E <sub>x</sub> | E <sub>y</sub> | E <sub>z</sub> | E <sub>r</sub> |
|---|-----------|----------------------|---------------|----------------|----------------|----------------|----------------|
| ft  | ft        | ft                   | °             | K              | K              | K              | K              |
| to29.107ft)   |           |                      |               |                |                |                |                |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (109.10/ft to 116)      | 114.554   | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (99.10/ft to 109.107ft) | 106.107   | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (89.10/ft to 89.107ft)  | 96.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (79.10/ft to 79.107ft)  | 86.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (69.10/ft to 69.107ft)  | 76.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (59.10/ft to 59.107ft)  | 66.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (49.10/ft to 49.107ft)  | 56.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (39.10/ft to 39.107ft)  | 46.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (29.10/ft to 29.107ft)  | 36.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (19.10/ft to 19.107ft)  | 26.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (9.10/ft to 9.107ft)    | 16.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 116 (0ft to 0ft)            | 6.554     | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (99.10/ft to 108)       | 105.554   | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (89.10/ft to 89.107ft)  | 96.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (79.10/ft to 79.107ft)  | 86.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (69.10/ft to 69.107ft)  | 76.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.001          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (59.10/ft to 59.107ft)  | 66.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (49.10/ft to 49.107ft)  | 56.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (39.10/ft to 39.107ft)  | 46.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (29.10/ft to 29.107ft)  | 36.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (19.10/ft to 19.107ft)  | 26.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (9.10/ft to 9.107ft)    | 16.107    | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |
| Seismic (3) androw LDF5-50A(7/8") From 0 to 108 (0ft to 0ft)            | 6.554     | 0.000                | 0.000         | 0.000          | 0.000          | 0.000          | 0.000          |

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| Description | Face or Leg | Offset Type | Offsets: Horiz Lateral Vert ft ft ft | Azimuth Adjustment t | Placement ft | C.A. Front ft | C.A. Side ft | Weight K |
|-------------|-------------|-------------|--------------------------------------|----------------------|--------------|---------------|--------------|----------|
| ...         |             |             |                                      |                      |              |               |              |          |

| Dishes      |             |                          |             |                                      |                      |                    |              |                     |                   |          |
|-------------|-------------|--------------------------|-------------|--------------------------------------|----------------------|--------------------|--------------|---------------------|-------------------|----------|
| Description | Face or Leg | Dish Type                | Offset Type | Offsets: Horiz Lateral Vert ft ft ft | Azimuth Adjustment t | 3 dB Beam Width ft | Elevation ft | Outside Diameter ft | Aperture Area ft² | Weight K |
| HP2-11      | A           | Paraboloid w/Stroud (HP) | Leg         | 1.000 0.000 0.000                    | Worst                | 110.000            | 2.042        | No Ice 3.270        | 0.027             | 0.027    |
| HP2-11      | B           | Paraboloid w/Stroud (HP) | Leg         | 1.000 0.000 0.000                    | Worst                | 110.000            | 2.042        | No Ice 3.270        | 0.027             | 0.027    |
| HP2-11      | C           | Paraboloid w/Stroud (HP) | Leg         | 1.000 0.000 0.000                    | Worst                | 110.000            | 2.042        | No Ice 3.270        | 0.027             | 0.027    |
| ...         |             |                          |             |                                      |                      |                    |              |                     |                   |          |

**Load Combinations**

| Comb. No. | Description                                |
|-----------|--|
| 1         | Dead Only                                  |
| 2         | 1.2 Dead+1.0 Wind 0 deg - No Ice           |
| 3         | 0.9 Dead+1.0 Wind 30 deg - No Ice          |
| 4         | 1.2 Dead+1.0 Wind 60 deg - No Ice          |
| 5         | 0.9 Dead+1.0 Wind 90 deg - No Ice          |
| 6         | 1.2 Dead+1.0 Wind 120 deg - No Ice         |
| 7         | 0.9 Dead+1.0 Wind 150 deg - No Ice         |
| 8         | 1.2 Dead+1.0 Wind 180 deg - No Ice         |
| 9         | 0.9 Dead+1.0 Wind 210 deg - No Ice         |
| 10        | 1.2 Dead+1.0 Wind 240 deg - No Ice         |
| 11        | 0.9 Dead+1.0 Wind 270 deg - No Ice         |
| 12        | 1.2 Dead+1.0 Wind 300 deg - No Ice         |
| 13        | 0.9 Dead+1.0 Wind 330 deg - No Ice         |
| 14        | 1.2 Dead+1.0 Wind 360 deg - No Ice         |
| 15        | 0.9 Dead+1.0 Wind 0 deg - No Ice           |
| 16        | 1.2 Dead+1.0 Wind 30 deg - No Ice          |
| 17        | 0.9 Dead+1.0 Wind 60 deg - No Ice          |
| 18        | 1.2 Dead+1.0 Wind 90 deg - No Ice          |
| 19        | 0.9 Dead+1.0 Wind 120 deg - No Ice         |
| 20        | 1.2 Dead+1.0 Wind 150 deg - No Ice         |
| 21        | 0.9 Dead+1.0 Wind 180 deg - No Ice         |
| 22        | 1.2 Dead+1.0 Wind 210 deg - No Ice         |
| 23        | 0.9 Dead+1.0 Wind 240 deg - No Ice         |
| 24        | 1.2 Dead+1.0 Wind 270 deg - No Ice         |
| 25        | 0.9 Dead+1.0 Wind 300 deg - No Ice         |
| 26        | 1.2 Dead+1.0 Wind 330 deg - No Ice         |
| 27        | 1.2 Dead+1.0 Ice+1.0 Temp                  |
| 28        | 1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp  |
| 29        | 1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp  |
| 30        | 1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp  |
| 31        | 1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp |
| 32        | 1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp |
| 33        | 1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp |

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| Description | Elevation | Offset From Centroid | Azimuth Angle | E <sub>x</sub> | E <sub>y</sub> | E <sub>z</sub> | E <sub>r</sub> |
|-------------|-----------|----------------------|---------------|----------------|----------------|----------------|----------------|
| ft          | ft        | ft                   | °             | K              | K              | K              | K              |
| to9.107ft)  |           |                      |               |                |                |                |                |

**Discrete Tower Loads**

| Description            | Face or Leg | Offset Type | Offsets: Horiz Lateral Vert ft ft ft | Azimuth Adjustment t | Placement ft | C.A. Front ft | C.A. Side ft | Weight K |
|------------------------|-------------|-------------|--------------------------------------|----------------------|--------------|---------------|--------------|----------|
| AW3802-T2-H            | A           | From Leg    | 1.000 0.000 0.000                    | 0.000                | 118.000      | No Ice 2.625  | 1.034        | 0.027    |
| AW3802-T2-H            | B           | From Leg    | 1.000 0.000 0.000                    | 0.000                | 118.000      | No Ice 2.625  | 1.034        | 0.027    |
| AW3802-T2-H            | C           | From Leg    | 1.000 0.000 0.000                    | 0.000                | 118.000      | No Ice 2.625  | 1.034        | 0.027    |
| (2) EPMP 3000          | A           | From Leg    | 1.000 0.000 0.000                    | 0.000                | 118.000      | No Ice 0.357  | 0.139        | 0.002    |
| (2) EPMP 3000          | B           | From Leg    | 1.000 0.000 0.000                    | 0.000                | 118.000      | No Ice 0.357  | 0.139        | 0.002    |
| (2) EPMP 3000          | C           | From Leg    | 1.000 0.000 0.000                    | 0.000                | 118.000      | No Ice 0.357  | 0.139        | 0.002    |
| 4" x 2" STD Pipe       | A           | From Leg    | 0.500 0.000 0.000                    | 0.000                | 118.000      | No Ice 0.866  | 0.866        | 0.015    |
| 4" x 2" STD Pipe       | B           | From Leg    | 0.500 0.000 0.000                    | 0.000                | 118.000      | No Ice 0.866  | 0.866        | 0.015    |
| 4" x 2" STD Pipe       | C           | From Leg    | 0.500 0.000 0.000                    | 0.000                | 118.000      | No Ice 0.866  | 0.866        | 0.015    |
| 4" x 4" STD Pipe       | A           | From Leg    | 0.500 0.000 0.000                    | 0.000                | 110.000      | No Ice 1.202  | 1.202        | 0.043    |
| 4" x 4" STD Pipe       | B           | From Leg    | 0.500 0.000 0.000                    | 0.000                | 110.000      | No Ice 1.202  | 1.202        | 0.043    |
| 4" x 4" STD Pipe       | C           | From Leg    | 0.500 0.000 0.000                    | 0.000                | 110.000      | No Ice 1.202  | 1.202        | 0.043    |
| Telzba's 36" Enclosure | C           | From Leg    | 1.500 0.000 0.000                    | 0.000                | 6.000        | No Ice 6.420  | 6.120        | 0.090    |

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| Comb. No. | Description                                |
|-----------|--|
| 34        | 1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp |
| 35        | 1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp |
| 36        | 1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp |
| 37        | 1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp |
| 38        | 1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp |
| 39        | Dead+Wind 0 deg - Service                  |
| 40        | Dead+Wind 30 deg - Service                 |
| 41        | Dead+Wind 60 deg - Service                 |
| 42        | Dead+Wind 90 deg - Service                 |
| 43        | Dead+Wind 120 deg - Service                |
| 44        | Dead+Wind 150 deg - Service                |
| 45        | Dead+Wind 180 deg - Service                |
| 46        | Dead+Wind 210 deg - Service                |
| 47        | Dead+Wind 240 deg - Service                |
| 48        | Dead+Wind 270 deg - Service                |
| 49        | Dead+Wind 300 deg - Service                |
| 50        | Dead+Wind 330 deg - Service                |
| 51        | 1.2 Dead+1.0 Ev+1.0 Eh 0 deg               |
| 52        | 0.9 Dead+1.0 Ev+1.0 Eh 30 deg              |
| 53        | 1.2 Dead+1.0 Ev+1.0 Eh 60 deg              |
| 54        | 0.9 Dead+1.0 Ev+1.0 Eh 90 deg              |
| 55        | 1.2 Dead+1.0 Ev+1.0 Eh 120 deg             |
| 56        | 0.9 Dead+1.0 Ev+1.0 Eh 150 deg             |
| 57        | 1.2 Dead+1.0 Ev+1.0 Eh 180 deg             |
| 58        | 0.9 Dead+1.0 Ev+1.0 Eh 210 deg             |
| 59        | 1.2 Dead+1.0 Ev+1.0 Eh 240 deg             |
| 60        | 0.9 Dead+1.0 Ev+1.0 Eh 270 deg             |
| 61        | 1.2 Dead+1.0 Ev+1.0 Eh 300 deg             |
| 62        | 0.9 Dead+1.0 Ev+1.0 Eh 330 deg             |
| 63        | 1.2 Dead+1.0 Ev+1.0 Eh 360 deg             |
| 64        | 0.9 Dead+1.0 Ev+1.0 Eh 0 deg               |
| 65        | 1.2 Dead+1.0 Ev+1.0 Eh 30 deg              |
| 66        | 0.9 Dead+1.0 Ev+1.0 Eh 60 deg              |
| 67        | 1.2 Dead+1.0 Ev+1.0 Eh 90 deg              |
| 68        | 0.9 Dead+1.0 Ev+1.0 Eh 120 deg             |
| 69        | 1.2 Dead+1.0 Ev+1.0 Eh 150 deg             |
| 70        | 0.9 Dead+1.0 Ev+1.0 Eh 180 deg             |
| 71        | 1.2 Dead+1.0 Ev+1.0 Eh 210 deg             |
| 72        | 0.9 Dead+1.0 Ev+1.0 Eh 240 deg             |
| 73        | 1.2 Dead+1.0 Ev+1.0 Eh 270 deg             |
| 74        | 0.9 Dead+1.0 Ev+1.0 Eh 300 deg             |

**Maximum Member Forces**

| Section No. | Elevation ft     | Component Type | Condition        | Gov. Load Comb. | Actual K | Major Axis Moment ft-k | Minor Axis Moment ft-k |
|-------------|------------------|----------------|------------------|-----------------|----------|------------------------|------------------------|
| L1          | 121.107 - 86.393 | Pole           | Max Tension      | 3               | 0.000    | -0.000                 | -0.000                 |
|             |                  |                | Max. Compression | 26              | -2.427   | 0.000                  | -0.113                 |
|             |                  |                | Max. Mx          | 20              | -1.193   | 30.955                 | -0.042                 |
|             |                  |                | Max. My          | 14              | -1.193   | 0.000                  | -30.987                |
|             |                  |                | Max. Vx          | 20              | -1.547   | 30.955                 | -0.042                 |
|             |                  |                | Max. Vy          | 14              | 1.547    | 0.000                  | -30.987                |
|             |                  |                | Max. Torque      | 20              | 0.000    | 0.000                  | -0.000                 |
|             |                  |                | Max. Tension     | 1               | 0.000    | 0.000                  | 0.000                  |
| L2          | 86.393 - 66.93   | Pole           | Max Tension      | 1               | 0.000    | 0.000                  | 0.000                  |
|             |                  |                | Max. Compression | 26              | -3.193   | 0.001                  | -0.205                 |
|             |                  |                | Max. Mx          | 20              | -2.026   | 65.721                 | -0.076                 |
|             |                  |                | Max. My          | 14              | -2.026   | 0.000                  | -65.196                |
|             |                  |                | Max. Vx          | 20              | -1.963   | 65.721                 | -0.076                 |
|             |                  |                | Max. Vy          | 14              | 1.963    | 0.000                  | -65.796                |
|             |                  |                | Max. Torque      | 22              | 0.000    | 0.000                  | -0.000                 |
|             |                  |                | Max. Tension     | 1               | 0.000    | 0.000                  | 0.000                  |
| L3          | 66.93 - 29.99/   | Pole           | Max Tension      | 1               | 0.000    | 0.000                  | 0.000                  |
|             |                  |                | Max. Compression | 26              | -7.177   | 0.001                  | -0.403                 |
|             |                  |                | Max. Mx          | 20              | -4.361   | 151.216                | -0.156                 |
|             |                  |                | Max. My          | 14              | -4.354   | 0.001                  | -154.401               |

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| Sec'd<br>n<br>No. | Elevation<br>ft | Component<br>Type | Condition    | Gov.<br>Load<br>Comb. | Axial<br>K | Major Axis<br>Moment<br>kip-ft | Minor Axis<br>Moment<br>kip-ft |
|-------------------|-----------------|-------------------|--------------|-----------------------|------------|--------------------------------|--------------------------------|
| L4                | 28.987 - 2      | Pole              | Max. Vy      | 20                    | -2.782     | 154.266                        | -0.156                         |
|                   |                 |                   | Max. Vx      | 14                    | 2.782      | 0.001                          | -154.401                       |
|                   |                 |                   | Max. Torque  | 12                    |            |                                | 0.000                          |
|                   |                 |                   | Min. Vy      | 1                     | 0.000      | 0.000                          | 0.000                          |
|                   |                 |                   | Max. Tension | 26                    | -11.337    | 0.414                          | -0.768                         |
|                   |                 |                   | Max. Mx      | 20                    | -7.519     | 249.480                        | -0.340                         |
|                   |                 |                   | Max. My      | 14                    | -7.519     | 0.243                          | -249.564                       |
|                   |                 |                   | Max. Vy      | 20                    | -3.532     | 249.480                        | -0.340                         |
|                   |                 |                   | Max. Vx      | 14                    | 3.532      | 0.243                          | -249.564                       |
|                   |                 |                   | Max. Torque  | 24                    |            |                                | 0.406                          |

**Maximum Reactions**

| Location    | Condition   | Gov.<br>Load<br>Comb. | Vertical<br>K | Horizontal, X<br>K | Horizontal, Z<br>K |
|-------------|-------------|-----------------------|---------------|--------------------|--------------------|
| Pole        | Max. Vert   | 33                    | 11.337        | 0.001              | -1.623             |
|             | Max. Hx     | 21                    | 5.641         | 3.532              | -0.003             |
|             | Max. Hy     | 3                     | 5.641         | -0.003             | 3.528              |
|             | Max. Mx     | 2                     | 249.505       | -0.003             | 3.528              |
|             | Max. My     | 8                     | 249.514       | -3.532             | 0.003              |
|             | Max. Torque | 24                    | 0.406         | 1.763              | 3.054              |
|             | Min. Vert   | 69                    | 5.482         | 0.001              | -0.157             |
|             | Min. Hx     | 9                     | 5.641         | -3.532             | 0.003              |
|             | Min. Hy     | 15                    | 5.641         | 0.003              | -3.528             |
|             | Min. Mx     | 14                    | -249.564      | 0.003              | -3.528             |
| Min. My     | 20          | -249.480              | 3.532         | -0.003             |                    |
| Min. Torque | 12          | -0.406                | -1.763        | -3.054             |                    |

**Tower Mast Reaction Summary**

| Load<br>Combination                | Vertical<br>K | Shear,<br>K | Shear,<br>K | Overturning<br>Moment, M <sub>x</sub><br>kip-ft | Overturning<br>Moment, M <sub>y</sub><br>kip-ft | Torque<br>kip-ft |
|------------------------------------|---------------|-------------|-------------|---|---|------------------|
| Dead Only                          | 6.268         | 0.000       | 0.000       | 0.265   | 0.183   | 0.000            |
| 1.2 Dead+1.0 Wind 0 deg - No Ice   | 7.521         | 0.003       | -3.528      | -249.805  | 0.222   | -0.351           |
| 0.9 Dead+1.0 Wind 0 deg - No Ice   | 5.641         | 0.003       | -3.528      | -245.921  | 0.164   | -0.351           |
| 1.2 Dead+1.0 Wind 30 deg - No Ice  | 7.521         | 1.769       | -3.057      | -215.519  | -124.400  | -0.203           |
| 0.9 Dead+1.0 Wind 30 deg - No Ice  | 5.641         | 1.769       | -3.057      | -212.947  | -122.924  | -0.203           |
| 1.2 Dead+1.0 Wind 60 deg - No Ice  | 7.521         | 3.061       | -1.767      | -124.297  | -215.627  | -0.000           |
| 0.9 Dead+1.0 Wind 60 deg - No Ice  | 5.641         | 3.061       | -1.767      | -122.874  | -213.077  | -0.000           |
| 1.2 Dead+1.0 Wind 90 deg - No Ice  | 7.521         | 3.532       | -0.003      | 0.320   | -249.014  | 0.203            |
| 0.9 Dead+1.0 Wind 90 deg - No Ice  | 5.641         | 3.532       | -0.003      | 0.226   | -246.003  | 0.203            |
| 1.2 Dead+1.0 Wind 120 deg - No Ice | 7.521         | 3.057       | 1.761       | 124.938   | -215.616  | 0.351            |
| 0.9 Dead+1.0 Wind 120 deg - No Ice | 5.641         | 3.057       | 1.761       | 123.319   | -213.017  | 0.351            |
| 1.2 Dead+1.0 Wind 150 deg - No Ice | 7.521         | 1.763       | 3.054       | 216.168   | -124.361  | 0.406            |
| 0.9 Dead+1.0 Wind 150 deg - No Ice | 5.641         | 1.763       | 3.054       | 213.426   | -122.905  | 0.406            |
| 1.2 Dead+1.0 Wind 180 deg - No Ice | 7.521         | -0.003      | 3.528       | 249.564   | 0.243   | 0.351            |
| 0.9 Dead+1.0 Wind 180 deg - No Ice | 5.641         | -0.003      | 3.528       | 246.410   | 0.185   | 0.351            |

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| Load<br>Combination                        | Vertical<br>K | Shear,<br>K | Shear,<br>K | Overturning<br>Moment, M <sub>x</sub><br>kip-ft | Overturning<br>Moment, M <sub>y</sub><br>kip-ft | Torque<br>kip-ft |
|--|---------------|-------------|-------------|---|---|------------------|
| 1.2 Dead+1.0 Wind 210 deg - No Ice         | 7.521         | -1.769      | 3.057       | -216.178  | 124.865   | 0.203            |
| 0.9 Dead+1.0 Wind 210 deg - No Ice         | 5.641         | -1.769      | 3.057       | -213.436  | 123.272   | 0.203            |
| 1.2 Dead+1.0 Wind 240 deg - No Ice         | 7.521         | -3.061      | 1.767       | 124.966   | 216.092   | 0.000            |
| 0.9 Dead+1.0 Wind 240 deg - No Ice         | 5.641         | -3.061      | 1.767       | 123.337   | 213.376   | 0.000            |
| 1.2 Dead+1.0 Wind 270 deg - No Ice         | 7.521         | -3.532      | 0.003       | 0.340   | 249.480   | -0.203           |
| 0.9 Dead+1.0 Wind 270 deg - No Ice         | 5.641         | -3.532      | 0.003       | 0.256   | 246.352   | -0.203           |
| 1.2 Dead+1.0 Wind 300 deg - No Ice         | 7.521         | -3.057      | -1.761      | -124.279  | 216.082   | -0.351           |
| 0.9 Dead+1.0 Wind 300 deg - No Ice         | 5.641         | -3.057      | -1.761      | -122.829  | 213.366   | -0.351           |
| 1.2 Dead+1.0 Wind 330 deg - No Ice         | 7.521         | -1.763      | -3.054      | -215.509  | 124.848   | -0.406           |
| 0.9 Dead+1.0 Wind 330 deg - No Ice         | 5.641         | -1.763      | -3.054      | -212.936  | 123.255   | -0.406           |
| 1.2 Dead+1.0 Ice+1.0 Temp                  | 11.337        | -0.000      | 0.000       | 0.768   | 0.471   | 0.000            |
| 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp   | 11.337        | 0.001       | -1.623      | -110.939  | 0.473   | -0.076           |
| 1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp  | 11.337        | 0.813       | -1.406      | -95.972   | -58.389   | -0.044           |
| 1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp  | 11.337        | 1.407       | -0.812      | -55.080   | -96.282   | -0.000           |
| 1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp  | 11.337        | 1.624       | -0.001      | 0.781   | -111.249  | 0.074            |
| 1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp | 11.337        | 1.406       | 0.811       | 96.643  | -96.281   | 0.044            |
| 1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp | 11.337        | 0.811       | 1.405       | 97.537  | -55.386   | 0.088            |
| 1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp | 11.337        | -0.001      | 1.623       | 112.805   | 0.478   | 0.076            |
| 1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp | 11.337        | -0.813      | 1.406       | 97.510  | 56.340  | 0.044            |
| 1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp | 11.337        | -1.407      | 0.812       | 56.617  | 97.231  | 0.000            |
| 1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp | 11.337        | -1.624      | 0.001       | 0.786   | 112.200   | -0.044           |
| 1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp | 11.337        | -1.406      | -0.811      | -55.076   | 97.231  | -0.076           |
| 1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp | 11.337        | -0.811      | -1.405      | -95.970   | 56.336  | -0.088           |
| Dead+Wind 0 deg - Service                  | 6.268         | 0.001       | -0.971      | -70.096   | 0.191   | -0.090           |
| Dead+Wind 30 deg - Service                 | 6.268         | 0.001       | -0.912      | -69.669   | -31.984   | -0.052           |
| Dead+Wind 60 deg - Service                 | 6.268         | 0.945       | -0.486      | -54.913   | -60.752   | -0.000           |
| Dead+Wind 90 deg - Service                 | 6.268         | 0.972       | -0.001      | 0.271   | -70.178   | 0.052            |
| Dead+Wind 120 deg - Service                | 6.268         | 0.842       | 0.485       | 35.456  | -60.749   | 0.090            |
| Dead+Wind 150 deg - Service                | 6.268         | 0.485       | 0.841       | 61.214  | -34.990   | 0.104            |
| Dead+Wind 180 deg - Service                | 6.268         | -0.001      | 0.971       | 70.643  | 0.197   | 0.090            |
| Dead+Wind 210 deg - Service                | 6.268         | -0.487      | 0.842       | 61.216  | 35.382  | 0.052            |
| Dead+Wind 240 deg - Service                | 6.268         | -0.842      | 0.486       | 35.460  | 61.140  | 0.000            |
| Dead+Wind 270 deg - Service                | 6.268         | -0.812      | -0.486      | -34.909   | 61.137  | -0.090           |
| Dead+Wind 300 deg - Service                | 6.268         | -0.485      | -0.841      | -60.667   | 35.376  | -0.104           |
| Dead+Wind 330 deg - Service                | 6.268         | -0.001      | -0.972      | -70.178   | 0.052   | -0.090           |
| 1.2 Dead+1.0 Ev+1.0 Eh 0 deg               | 7.680         | 0.000       | -0.182      | -16.264   | 0.233   | -0.000           |
| 0.9 Dead+1.0 Ev+1.0 Eh 0 deg               | 5.482         | 0.000       | -0.181      | -16.099   | 0.175   | -0.000           |
| 1.2 Dead+1.0 Ev+1.0 Eh 30 deg              | 7.680         | 0.091       | -0.157      | -14.040   | -8.064  | -0.000           |

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| Load<br>Combination            | Vertical<br>K | Shear,<br>K | Shear,<br>K | Overturning<br>Moment, M <sub>x</sub><br>kip-ft | Overturning<br>Moment, M <sub>y</sub><br>kip-ft | Torque<br>kip-ft |
|--------------------------------|---------------|-------------|-------------|---|---|------------------|
| deg                            | 5.482         | 0.001       | -0.157      | -13.909   | -1.567  | -0.000           |
| 0.9 Dead+1.0 Ev+1.0 Eh 30 deg  | 7.680         | 0.157       | -0.091      | -7.966  | -14.138   | -0.000           |
| 1.2 Dead+1.0 Ev+1.0 Eh 60 deg  | 5.482         | 0.157       | -0.091      | -7.927  | -13.980   | -0.000           |
| 0.9 Dead+1.0 Ev+1.0 Eh 90 deg  | 7.680         | 0.182       | 0.000       | 0.331   | -16.361   | 0.000            |
| 1.2 Dead+1.0 Ev+1.0 Eh 90 deg  | 5.482         | 0.181       | 0.000       | 0.245   | -16.169   | 0.000            |
| 1.2 Dead+1.0 Ev+1.0 Eh 120 deg | 7.680         | 0.157       | 0.091       | 8.628   | -14.138   | 0.000            |
| 0.9 Dead+1.0 Ev+1.0 Eh 120 deg | 5.482         | 0.157       | 0.091       | 8.417   | -13.980   | 0.000            |
| 1.2 Dead+1.0 Ev+1.0 Eh 150 deg | 7.680         | 0.091       | 0.157       | 14.702  | -8.064  | 0.000            |
| 0.9 Dead+1.0 Ev+1.0 Eh 150 deg | 5.482         | 0.091       | 0.157       | 14.399  | -7.967  | 0.000            |
| 1.2 Dead+1.0 Ev+1.0 Eh 180 deg | 7.680         | 0.000       | 0.182       | 16.925  | 0.233   | 0.000            |
| 0.9 Dead+1.0 Ev+1.0 Eh 180 deg | 5.482         | 0.000       | 0.181       | 16.589  | 0.175   | 0.000            |
| 1.2 Dead+1.0 Ev+1.0 Eh 210 deg | 7.680         | -0.091      | 0.157       | 14.702  | 8.530   | 0.000            |
| 0.9 Dead+1.0 Ev+1.0 Eh 210 deg | 5.482         | -0.091      | 0.157       | 14.399  | 8.347   | 0.000            |
| 1.2 Dead+1.0 Ev+1.0 Eh 240 deg | 7.680         | -0.157      | 0.091       | 8.628   | 14.604  | 0.000            |
| 0.9 Dead+1.0 Ev+1.0 Eh 240 deg | 5.482         | -0.157      | 0.091       | 8.417   | 14.329  | 0.000            |
| 1.2 Dead+1.0 Ev+1.0 Eh 270 deg | 7.680         | -0.182      | 0.000       | 0.331   | 16.827  | -0.000           |
| 0.9 Dead+1.0 Ev+1.0 Eh 270 deg | 5.482         | -0.181      | 0.000       | 0.245   | 16.519  | -0.000           |
| 1.2 Dead+1.0 Ev+1.0 Eh 300 deg | 7.680         | -0.157      | -0.091      | -7.966  | 14.604  | -0.000           |
| 0.9 Dead+1.0 Ev+1.0 Eh 300 deg | 5.482         | -0.157      | -0.091      | -7.927  | 14.329  | -0.000           |
| 1.2 Dead+1.0 Ev+1.0 Eh 330 deg | 7.680         | -0.091      | -0.157      | -14.040   | 8.530   | -0.000           |
| 0.9 Dead+1.0 Ev+1.0 Eh 330 deg | 5.482         | -0.091      | -0.157      | -13.909   | 8.347   | -0.000           |

**Solution Summary**

| Load<br>Comb. | Sum of Applied Forces<br>FY<br>K | PZ<br>K | Sum of Reactions<br>FY<br>K | PZ<br>K | % Error |
|---------------|----------------------------------|---------|-----------------------------|---------|---------|
| 1             | 0.000                            | -6.268  | 0.000                       | 0.000   | 0.000%  |
| 2             | 0.003                            | -7.521  | -9.328                      | 7.521   | 0.000%  |
| 3             | 0.003                            | -5.641  | -3.528                      | 5.641   | 0.000%  |
| 4             | 1.769                            | -7.521  | -1.769                      | 7.521   | 0.000%  |
| 5             | 1.769                            | -5.641  | -3.057                      | 5.641   | 0.000%  |
| 6             | 3.061                            | -7.521  | -1.767                      | 7.521   | 0.000%  |
| 7             | 3.061                            | -5.641  | -1.767                      | 5.641   | 0.000%  |
| 8             | 3.532                            | -7.521  | -0.003                      | 7.521   | 0.000%  |
| 9             | 3.532                            | -5.641  | -3.532                      | 5.641   | 0.000%  |
| 10            | 3.057                            | -7.521  | -1.761                      | 7.521   | 0.000%  |
| 11            | 3.057                            | -5.641  | -1.761                      | 5.641   | 0.000%  |
| 12            | 1.763                            | -7.521  | 3.054                       | 7.521   | 0.000%  |
| 13            | 1.763                            | -5.641  | 1.763                       | 5.641   | 0.000%  |
| 14            | -0.003                           | -7.521  | 3.528                       | 7.521   | 0.000%  |
| 15            | -0.003                           | -5.641  | 3.528                       | 5.641   | 0.000%  |
| 16            | -1.769                           | -7.521  | 3.057                       | 7.521   | 0.000%  |
| 17            | -1.769                           | -5.641  | 3.057                       | 5.641   | 0.000%  |
| 18            | -3.061                           | -7.521  | 1.767                       | 7.521   | 0.000%  |

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| Load<br>Comb. | FY<br>K | FZ<br>K | Sum of Applied Forces<br>FY<br>K | PZ<br>K | Sum of Reactions<br>FY<br>K | PZ<br>K | % Error |
|---------------|---------|---------|----------------------------------|---------|-----------------------------|---------|---------|
| 19            | -3.061  | -5.641  | 1.767                            | 3.061   | 5.641                       | -1.767  | 0.000%  |
| 20            | -3.532  | -5.641  | 0.003                            | 3.532   | 5.641                       | -0.003  | 0.000%  |
| 21            | -5.32   | -7.521  | -1.761                           | 3.057   | 7.521                       | 1.761   | 0.000%  |
| 22            | -3.057  | -5.641  | -3.057                           | 5.641   | 7.521                       | 3.057   | 0.000%  |
| 23            | -1.763  | -7.521  | -3.054                           | 1.763   | 7.521                       | 3.054   | 0.000%  |
| 24            | -1.763  | -5.641  | -3.061                           | 1.763   | 5.641                       | 3.061   | 0.000%  |
| 25            | 0.001   | -11.337 | 1.623                            | 0.001   | 11.337                      | 1.623   | 0.000%  |
| 26            | 0.001   | -11.337 | -1.623                           | -0.001  | 11.337                      | 1.623   |         |

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt       | Twist |
|-------------|--------------|---------------------|-----------------|------------|-------|
| 6           | Yes          | 6                   | 0.00000001      | 0.00009169 |       |
| 7           | Yes          | 5                   | 0.00000001      | 0.00074814 |       |
| 8           | Yes          | 5                   | 0.00000001      | 0.00000001 |       |
| 9           | Yes          | 4                   | 0.00000001      | 0.00005120 |       |
| 10          | Yes          | 6                   | 0.00000001      | 0.00009215 |       |
| 11          | Yes          | 5                   | 0.00000001      | 0.00075124 |       |
| 12          | Yes          | 6                   | 0.00000001      | 0.00009190 |       |
| 13          | Yes          | 5                   | 0.00000001      | 0.00074921 |       |
| 14          | Yes          | 5                   | 0.00000001      | 0.00000001 |       |
| 15          | Yes          | 4                   | 0.00000001      | 0.00005073 |       |
| 16          | Yes          | 6                   | 0.00000001      | 0.00009209 |       |
| 17          | Yes          | 5                   | 0.00000001      | 0.00075076 |       |
| 18          | Yes          | 6                   | 0.00000001      | 0.00009209 |       |
| 19          | Yes          | 5                   | 0.00000001      | 0.00075040 |       |
| 20          | Yes          | 5                   | 0.00000001      | 0.00000001 |       |
| 21          | Yes          | 6                   | 0.00000001      | 0.00005127 |       |
| 22          | Yes          | 6                   | 0.00000001      | 0.00009160 |       |
| 23          | Yes          | 5                   | 0.00000001      | 0.00074798 |       |
| 24          | Yes          | 6                   | 0.00000001      | 0.00009186 |       |
| 25          | Yes          | 5                   | 0.00000001      | 0.00074914 |       |
| 26          | Yes          | 4                   | 0.00000001      | 0.00003135 |       |
| 27          | Yes          | 6                   | 0.00000001      | 0.00049288 |       |
| 28          | Yes          | 5                   | 0.00000001      | 0.00009553 |       |
| 29          | Yes          | 5                   | 0.00000001      | 0.00009924 |       |
| 30          | Yes          | 5                   | 0.00000001      | 0.00049959 |       |
| 31          | Yes          | 6                   | 0.00000001      | 0.00011626 |       |
| 32          | Yes          | 6                   | 0.00000001      | 0.00011585 |       |
| 33          | Yes          | 5                   | 0.00000001      | 0.00049959 |       |
| 34          | Yes          | 6                   | 0.00000001      | 0.00011600 |       |
| 35          | Yes          | 6                   | 0.00000001      | 0.00011627 |       |
| 36          | Yes          | 5                   | 0.00000001      | 0.00049617 |       |
| 37          | Yes          | 5                   | 0.00000001      | 0.00009932 |       |
| 38          | Yes          | 5                   | 0.00000001      | 0.00009986 |       |
| 39          | Yes          | 4                   | 0.00000001      | 0.00009995 |       |
| 40          | Yes          | 4                   | 0.00000001      | 0.00071539 |       |
| 41          | Yes          | 4                   | 0.00000001      | 0.00071375 |       |
| 42          | Yes          | 4                   | 0.00000001      | 0.00070967 |       |
| 43          | Yes          | 4                   | 0.00000001      | 0.00072500 |       |
| 44          | Yes          | 4                   | 0.00000001      | 0.00072109 |       |
| 45          | Yes          | 4                   | 0.00000001      | 0.00071015 |       |
| 46          | Yes          | 4                   | 0.00000001      | 0.00072498 |       |
| 47          | Yes          | 4                   | 0.00000001      | 0.00072446 |       |
| 48          | Yes          | 4                   | 0.00000001      | 0.00070072 |       |
| 49          | Yes          | 4                   | 0.00000001      | 0.00071189 |       |
| 50          | Yes          | 4                   | 0.00000001      | 0.00071720 |       |
| 51          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 52          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 53          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 54          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 55          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 56          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 57          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 58          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 59          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 60          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 61          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 62          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 63          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 64          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 65          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 66          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 67          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 68          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 69          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 70          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 71          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 72          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 73          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |
| 74          | Yes          | 4                   | 0.00000001      | 0.00000001 |       |

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| Elevation ft | Appurtenance  | Gov. Load Comb. | Deflection in | Tilt  | Twist | Radius of Curvature ft |
|--------------|---|-----------------|---------------|-------|-------|------------------------|
| 17.000       | 14 to 119.107 (14ft to 19.107ft)                                      | 46              | 0.402         | 0.117 | 0.000 | 6181                   |
| 16.107       | Seismic Tower Section 4 - 3   | 46              | 0.372         | 0.196 | 0.000 | 7178                   |
|              | Seismic (3) andrew LDFs-50A(7.8") From 0 to 116 (9.107ft to 19.107ft) |                 |               |       |       |                        |
| 7.000        | Seismic Tower Section 4 - 4   | 46              | 0.115         | 0.058 | 0.000 | 20252                  |
| 6.504        | Seismic (3) andrew LDFs-50A(7.8") From 0 to 116 (0ft to 9.107ft)      | 46              | 0.101         | 0.053 | 0.000 | 20252                  |
| 5.000        | Te25xh 36" Enclosure  | 46              | 0.068         | 0.035 | 0.000 | 20252                  |

**Maximum Tower Deflections - Design Wind**

| Section No. | Elevation ft     | Horz. Deflection in | Gov. Load Comb. | Tilt  | Twist |
|-------------|------------------|---------------------|-----------------|-------|-------|
| L1          | 121.107 - 86.393 | 77.566              | 14              | 5.820 | 0.000 |
| L2          | 86.393 - 66.93   | 41.350              | 14              | 4.862 | 0.000 |
| L3          | 66.93 - 28.997   | 23.677              | 14              | 3.541 | 0.000 |
| L4          | 32.664 - 2       | 4.432               | 14              | 1.337 | 0.000 |

**Critical Deflections and Radius of Curvature - Design Wind**

| Elevation ft | Appurtenance   | Gov. Load Comb. | Deflection in | Tilt  | Twist | Radius of Curvature ft |
|--------------|--|-----------------|---------------|-------|-------|------------------------|
| 118.750      | Seismic Tower Section 1 - 1  | 14              | 71.681        | 5.767 | 0.000 | 6029                   |
| 118.000      | AW3802-T2-H  | 14              | 73.768        | 5.744 | 0.000 | 6029                   |
| 116.107      | Seismic miscd Step Bolts From 14 to 119.107 (109.107ft to 119.107ft) | 14              | 71.464        | 5.758 | 0.000 | 6029                   |
| 114.554      | Seismic (3) andrew LDFs-50A(7.8") From 0 to 116 (109.107ft to 116ft) | 14              | 69.580        | 5.679 | 0.000 | 4599                   |
| 111.393      | Seismic Tower Section 1 - 2  | 14              | 65.767        | 5.614 | 0.000 | 3102                   |
| 110.000      | HP2-11   | 14              | 61.098        | 5.584 | 0.000 | 2713                   |
| 106.107      | Seismic miscd Step Bolts From 14 to 119.107 (99.107ft to 109.107ft)  | 14              | 59.483        | 5.490 | 0.000 | 2008                   |
| 105.554      | Seismic (3) andrew LDFs-50A(7.8") From 0 to 108 (99.107ft to 108ft)  | 14              | 58.834        | 5.475 | 0.000 | 1936                   |
| 101.393      | Seismic Tower Section 1 - 3  | 14              | 51.021        | 5.353 | 0.000 | 1626                   |
| 96.107       | Seismic miscd Step Bolts From 14 to 119.107 (89.107ft to 99.107ft)   | 14              | 48.109        | 5.162 | 0.000 | 1202                   |
| 91.393       | Seismic Tower Section 1 - 4  | 14              | 43.073        | 4.948 | 0.000 | 1018                   |
| 88.327       | Seismic Tower Section 2 - 1  | 14              | 39.597        | 4.785 | 0.000 | 961                    |
| 86.107       | Seismic miscd Step Bolts From 14 to 119.107 (79.107ft to 89.107ft)   | 14              | 37.742        | 4.654 | 0.000 | 946                    |
| 81.930       | Seismic Tower Section 2 - 2  | 14              | 33.782        | 4.385 | 0.000 | 933                    |
| 76.107       | Seismic miscd Step Bolts From 14 to 119.107 (69.107ft to 79.107ft)   | 14              | 28.611        | 3.980 | 0.000 | 916                    |
| 71.930       | Seismic Tower Section 2 - 3  | 14              | 25.228        | 3.682 | 0.000 | 905                    |
| 69.464       | Seismic Tower Section 3 - 1  | 14              | 23.223        | 3.506 | 0.000 | 901                    |
| 66.107       | Seismic miscd Step Bolts From 14 to 119.107 (59.107ft to 69.107ft)   | 14              | 20.860        | 3.278 | 0.000 | 903                    |
| 63.997       | Seismic Tower Section 3 - 2  | 14              | 19.389        | 3.136 | 0.000 | 905                    |
| 56.107       | Seismic miscd Step Bolts From 14 to 119.107 (49.107ft to 59.107ft)   | 14              | 14.413        | 2.630 | 0.000 | 914                    |

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**Maximum Tower Deflections - Service Wind**

| Section No. | Elevation ft     | Horz. Deflection in | Gov. Load Comb. | Tilt  | Twist |
|-------------|------------------|---------------------|-----------------|-------|-------|
| L1          | 121.107 - 86.393 | 22.195              | 46              | 1.657 | 0.000 |
| L2          | 86.393 - 66.93   | 11.825              | 46              | 1.393 | 0.000 |
| L3          | 66.93 - 28.997   | 6.755               | 46              | 1.014 | 0.000 |
| L4          | 32.664 - 2       | 1.298               | 46              | 0.390 | 0.000 |

**Critical Deflections and Radius of Curvature - Service Wind**

| Elevation ft | Appurtenance   | Gov. Load Comb. | Deflection in | Tilt  | Twist | Radius of Curvature ft |
|--------------|--|-----------------|---------------|-------|-------|------------------------|
| 118.750      | Seismic Tower Section 1 - 1  | 45              | 21.372        | 1.646 | 0.000 | 20933                  |
| 118.000      | AW3802-T2-H  | 45              | 21.110        | 1.642 | 0.000 | 20933                  |
| 116.107      | Seismic miscd Step Bolts From 14 to 119.107 (109.107ft to 119.107ft) | 45              | 20.451        | 1.632 | 0.000 | 20933                  |
| 114.554      | Seismic (3) andrew LDFs-50A(7.8") From 0 to 116 (109.107ft to 116ft) | 45              | 19.911        | 1.624 | 0.000 | 15970                  |
| 111.393      | Seismic Tower Section 1 - 2  | 45              | 18.819        | 1.606 | 0.000 | 10774                  |
| 110.000      | HP2-11   | 45              | 18.341        | 1.598 | 0.000 | 9423                   |
| 106.107      | Seismic miscd Step Bolts From 14 to 119.107 (99.107ft to 109.107ft)  | 45              | 17.020        | 1.571 | 0.000 | 6977                   |
| 105.554      | Seismic (3) andrew LDFs-50A(7.8") From 0 to 108 (99.107ft to 108ft)  | 45              | 16.834        | 1.567 | 0.000 | 6729                   |
| 101.393      | Seismic Tower Section 1 - 3  | 45              | 15.458        | 1.533 | 0.000 | 5308                   |
| 96.107       | Seismic miscd Step Bolts From 14 to 119.107 (89.107ft to 99.107ft)   | 45              | 13.762        | 1.479 | 0.000 | 4186                   |
| 91.393       | Seismic Tower Section 1 - 4  | 45              | 12.318        | 1.418 | 0.000 | 3547                   |
| 88.327       | Seismic Tower Section 2 - 1  | 45              | 11.410        | 1.371 | 0.000 | 3343                   |
| 86.107       | Seismic miscd Step Bolts From 14 to 119.107 (79.107ft to 89.107ft)   | 45              | 10.790        | 1.334 | 0.000 | 3286                   |
| 81.930       | Seismic Tower Section 2 - 2  | 45              | 9.654         | 1.267 | 0.000 | 3229                   |
| 76.107       | Seismic miscd Step Bolts From 14 to 119.107 (69.107ft to 79.107ft)   | 45              | 8.179         | 1.140 | 0.000 | 3155                   |
| 71.930       | Seismic Tower Section 2 - 3  | 45              | 7.200         | 1.054 | 0.000 | 3107                   |
| 69.464       | Seismic Tower Section 3 - 1  | 45              | 6.654         | 1.004 | 0.000 | 3094                   |
| 66.107       | Seismic miscd Step Bolts From 14 to 119.107 (59.107ft to 69.107ft)   | 45              | 5.948         | 0.938 | 0.000 | 3102                   |
| 63.997       | Seismic Tower Section 3 - 2  | 45              | 5.527         | 0.897 | 0.000 | 3114                   |
| 56.107       | Seismic miscd Step Bolts From 14 to 119.107 (49.107ft to 59.107ft)   | 45              | 4.104         | 0.752 | 0.000 | 3159                   |
| 53.997       | Seismic Tower Section 3 - 3  | 45              | 3.464         | 0.714 | 0.000 | 3171                   |
| 46.107       | Seismic miscd Step Bolts From 14 to 119.107 (39.107ft to 49.107ft)   | 45              | 2.640         | 0.582 | 0.000 | 3219                   |
| 43.997       | Seismic Tower Section 3 - 4  | 45              | 2.379         | 0.549 | 0.000 | 3231                   |
| 36.107       | Seismic miscd Step Bolts From 14 to 119.107 (29.107ft to 39.107ft)   | 45              | 1.549         | 0.429 | 0.000 | 3283                   |
| 33.997       | Seismic Tower Section 3 - 5  | 45              | 1.365         | 0.399 | 0.000 | 3327                   |
| 32.332       | Seismic Tower Section 4 - 1  | 45              | 1.232         | 0.375 | 0.000 | 3410                   |
| 27.000       | Seismic Tower Section 4 - 2  | 45              | 0.870         | 0.303 | 0.000 | 4051                   |
| 26.107       | Seismic miscd Step Bolts From 14 to 119.107 (19.107ft to 29.107ft)   | 45              | 0.818         | 0.292 | 0.000 | 4201                   |
| 18.554       | Seismic miscd Step Bolts From 14 to 119.107 (9.107ft to 19.107ft)    | 46              | 0.461         | 0.196 | 0.000 | 6117                   |

InxTower Report - version 8.1.1.0

| Elevation ft | Appurtenance  | Gov. Load Comb. | Deflection in | Tilt  | Twist | Radius of Curvature ft |
|--------------|---|-----------------|---------------|-------|-------|------------------------|
| 53.997       | 14 to 119.107 (49.107ft to 59.107ft)                                  | 14              | 13.222        | 2.501 | 0.000 | 916                    |
| 46.107       | Seismic Tower Section 3 - 3   | 14              | 9.284         | 2.042 | 0.000 | 926                    |
|              | Seismic miscd Step Bolts From 14 to 119.107 (39.107ft to 49.107ft)    |                 |               |       |       |                        |
| 43.997       | Seismic Tower Section 3 - 4   | 14              | 8.368         | 1.925 | 0.000 | 928                    |
| 36.107       | Seismic miscd Step Bolts From 14 to 119.107 (29.107ft to 39.107ft)    | 14              | 5.454         | 1.508 | 0.000 | 938                    |
| 33.997       | Seismic Tower Section 3 - 5   | 14              | 4.810         | 1.403 | 0.000 | 961                    |
| 32.332       | Seismic Tower Section 4 - 1   | 14              | 4.341         | 1.321 | 0.000 | 974                    |
| 27.000       | Seismic Tower Section 4 - 2   | 14              | 3.068         | 1.088 | 0.000 | 1156                   |
| 26.107       | Seismic miscd Step Bolts From 14 to 119.107 (19.107ft to 29.107ft)    | 14              | 2.885         | 1.027 | 0.000 | 1199                   |
| 18.554       | Seismic miscd Step Bolts From 14 to 119.107 (9.107ft to 19.107ft)     | 14              | 1.629         | 0.691 | 0.000 | 1745                   |
| 17.000       | Seismic Tower Section 4 - 3   | 14              | 1.425         | 0.624 | 0.000 | 1926                   |
| 16.107       | Seismic (5) andrew LDFs-50A(7.8") From 0 to 116 (9.107ft to 19.107ft) | 16              | 1.315         | 0.586 | 0.000 | 2048                   |
| 7.000        | Seismic Tower Section 4 - 4   | 16              | 0.406         | 0.205 | 0.000 | 5778                   |
| 6.504        | Seismic (5) andrew LDFs-50A(7.8") From 0 to 116 (0ft to 9.107ft)      | 16              | 0.388         | 0.167 | 0.000 | 5778                   |
| 5.000        | Te25xh 36" Enclosure  | 16              | 0.240         | 0.123 |       |                        |

**Pole Shear Design Data**

| Section No. | Elevation ft         | Size                 | Actual $V_c$ K | $\phi V_c$ K | Ratio $V_c$ $\phi V_c$ | Actual $T_c$ kip-ft | $\phi T_c$ kip-ft | Ratio $T_c$ $\phi T_c$ |
|-------------|----------------------|----------------------|----------------|--------------|------------------------|---------------------|-------------------|------------------------|
| L1          | 121.107 - 86.393 (1) | TP13.1x8.51x0.179    | 1.547          | 108.513      | 0.015                  | 0.000               | 102.637           | 0.000                  |
| L2          | 86.393 - 66.93 (2)   | TP15.17x12.576x0.179 | 1.963          | 109.417      | 0.018                  | 0.000               | 112.131           | 0.000                  |
| L3          | 66.93 - 28.997 (3)   | TP20.17x14.974x0.239 | 2.782          | 196.604      | 0.014                  | 0.000               | 265.233           | 0.000                  |
| L4          | 28.997 - 2 (4)       | TP24x19.109x0.313    | 3.536          | 345.339      | 0.010                  | 0.203               | 563.428           | 0.000                  |

**Pole Interaction Design Data**

| Section No. | Elevation ft         | Ratio $P_c$ | Ratio $M_c$ | Ratio $V_c$ | Ratio $T_c$ | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|----------------------|-------------|-------------|-------------|-------------|--------------------|---------------------|----------|
| L1          | 121.107 - 86.393 (1) | 0.004       | 0.289       | 0.000       | 0.015       | 0.000              | 0.283               | 1.000    |
| L2          | 86.393 - 66.93 (2)   | 0.005       | 0.443       | 0.000       | 0.018       | 0.000              | 0.449               | 1.000    |
| L3          | 66.93 - 28.997 (3)   | 0.006       | 0.449       | 0.000       | 0.014       | 0.000              | 0.455               | 1.000    |
| L4          | 28.997 - 2 (4)       | 0.007       | 0.390       | 0.000       | 0.010       | 0.000              | 0.397               | 1.000    |

**Section Capacity Table**

| Section No. | Elevation ft     | Component Type | Size                 | Critical Element | P K             | $\phi P_{nom}$ K | % Capacity  | Pass/Fail   |
|-------------|------------------|----------------|----------------------|------------------|-----------------|------------------|-------------|-------------|
| L1          | 121.107 - 86.393 | Pole           | TP13.4x8.54x0.179    | 1                | -1.193          | 336.267          | 29.3        | Pass        |
| L2          | 86.393 - 66.93   | Pole           | TP15.75x12.576x0.179 | 2                | -2.026          | 280.776          | 44.9        | Pass        |
| L3          | 66.93 - 28.997   | Pole           | TP20.17x14.974x0.239 | 3                | -4.354          | 672.132          | 45.5        | Pass        |
| L4          | 28.997 - 2       | Pole           | TP24x19.109x0.313    | 4                | -7.519          | 1070.900         | 39.7        | Pass        |
|             |                  |                |                      |                  | Summary         |                  |             |             |
|             |                  |                |                      |                  | Pole (L3)       |                  | 45.5        | Pass        |
|             |                  |                |                      |                  | <b>RATING =</b> |                  | <b>45.5</b> | <b>Pass</b> |

**APPENDIX B  
ADDITIONAL CALCULATIONS**

InxTower Report - version 8.1.1.0

InxTower Report - version 8.1.1.0

Tectonic

Job No: 11247.NE-ALBION

Sheet No. 1 of 1

Calculated By: MC Date: 06/06/23

Checked By: VR Date: 06/05/23

FOUNDATION CHECK FOR DEPTH OF EMBEDMENT FOR NONCONSTRAINED CONDITION  
(IBC 2018 - SECTION 1807)

Precast Base Type: **7B**

Diameter: **1.98** ft

Base Diameter: **3.5** ft

Design Embedment Depth: **2.0** ft

Ultimate Foundation Reactions

Shear (V): **4** kips

Moment (M): **250** kip-ft

Allowable Foundation Reactions

Shear (V): **2.4** kips

Moment (M): **150.0** kip-ft

Embedment Depth Check

Nonconstrained Depth of Embedment Calculations:

Applied Lateral Force, P = **2400** lbs

Equivalent Moment Arm, h = **62.50** ft

1/3 of embedment = **4.00** ft

Allowable Lateral soil Bearing pressure,  $S_u$  = **200** psf/ft (For Class 5 Soil)

Allowable Lateral soil Bearing pressure @ 1/3 embedment,  $S_u$  = **800** psf

Diameter of footing, b = **3.5** ft

A = **2.0** ft

Depth of embedment required, d = **12.74** ft <--- GOOD

Design embedment depth is sufficient

Please review embedment capacity based on the CCEES Evaluation Report, ESR-9765, dated May 2022

| Analysis Results             | Units  |
|------------------------------|--------|
| Soil Lateral Capacity        | kip/ft |
| Soil Cohesion                | kip/ft |
| Soil Safety Factor           | -      |
| Max. Moment (kip-ft)         | 272.77 |
| Soil Vertical Capacity       | kip/ft |
| Skirt Tension (kip)          | 24.22  |
| Weight of Concrete (kip)     | 11.40  |
| Total Lateral Load (kip)     | 154.97 |
| Allow. Lateral Load (kip)    | 12.85  |
| Reinforced Concrete Capacity | kip/ft |
| CRSI (ACI 308) (kip/ft)      | 272.78 |
| Critical Moment (kip-ft)     | 457.00 |
| Critical Moment (kip-ft)     | 457.00 |
| Soil Interaction Rating      | 18.2%  |
| Structural Foundation Rating | 30.6%  |

**Drilled Pier Foundation**

| BU # | Order | Notes               | Depth (ft) |
|------|-------|---------------------|------------|
| 1    | 1     | 12" Dia. x 20' Deep | 20         |
| 2    | 2     | 12" Dia. x 20' Deep | 20         |
| 3    | 3     | 12" Dia. x 20' Deep | 20         |
| 4    | 4     | 12" Dia. x 20' Deep | 20         |
| 5    | 5     | 12" Dia. x 20' Deep | 20         |
| 6    | 6     | 12" Dia. x 20' Deep | 20         |
| 7    | 7     | 12" Dia. x 20' Deep | 20         |
| 8    | 8     | 12" Dia. x 20' Deep | 20         |
| 9    | 9     | 12" Dia. x 20' Deep | 20         |
| 10   | 10    | 12" Dia. x 20' Deep | 20         |
| 11   | 11    | 12" Dia. x 20' Deep | 20         |
| 12   | 12    | 12" Dia. x 20' Deep | 20         |
| 13   | 13    | 12" Dia. x 20' Deep | 20         |
| 14   | 14    | 12" Dia. x 20' Deep | 20         |
| 15   | 15    | 12" Dia. x 20' Deep | 20         |
| 16   | 16    | 12" Dia. x 20' Deep | 20         |
| 17   | 17    | 12" Dia. x 20' Deep | 20         |
| 18   | 18    | 12" Dia. x 20' Deep | 20         |
| 19   | 19    | 12" Dia. x 20' Deep | 20         |
| 20   | 20    | 12" Dia. x 20' Deep | 20         |
| 21   | 21    | 12" Dia. x 20' Deep | 20         |
| 22   | 22    | 12" Dia. x 20' Deep | 20         |
| 23   | 23    | 12" Dia. x 20' Deep | 20         |
| 24   | 24    | 12" Dia. x 20' Deep | 20         |
| 25   | 25    | 12" Dia. x 20' Deep | 20         |
| 26   | 26    | 12" Dia. x 20' Deep | 20         |
| 27   | 27    | 12" Dia. x 20' Deep | 20         |
| 28   | 28    | 12" Dia. x 20' Deep | 20         |
| 29   | 29    | 12" Dia. x 20' Deep | 20         |
| 30   | 30    | 12" Dia. x 20' Deep | 20         |
| 31   | 31    | 12" Dia. x 20' Deep | 20         |
| 32   | 32    | 12" Dia. x 20' Deep | 20         |
| 33   | 33    | 12" Dia. x 20' Deep | 20         |
| 34   | 34    | 12" Dia. x 20' Deep | 20         |
| 35   | 35    | 12" Dia. x 20' Deep | 20         |
| 36   | 36    | 12" Dia. x 20' Deep | 20         |
| 37   | 37    | 12" Dia. x 20' Deep | 20         |
| 38   | 38    | 12" Dia. x 20' Deep | 20         |
| 39   | 39    | 12" Dia. x 20' Deep | 20         |
| 40   | 40    | 12" Dia. x 20' Deep | 20         |
| 41   | 41    | 12" Dia. x 20' Deep | 20         |
| 42   | 42    | 12" Dia. x 20' Deep | 20         |
| 43   | 43    | 12" Dia. x 20' Deep | 20         |
| 44   | 44    | 12" Dia. x 20' Deep | 20         |
| 45   | 45    | 12" Dia. x 20' Deep | 20         |
| 46   | 46    | 12" Dia. x 20' Deep | 20         |
| 47   | 47    | 12" Dia. x 20' Deep | 20         |
| 48   | 48    | 12" Dia. x 20' Deep | 20         |
| 49   | 49    | 12" Dia. x 20' Deep | 20         |
| 50   | 50    | 12" Dia. x 20' Deep | 20         |

| Layer | Top (ft) | Bottom (ft) | Thickness (ft) | Y <sub>max</sub> (ft) | Y <sub>min</sub> (ft) | Angle of Friction (degrees) | Calculated Ultimate Skin Friction (kip/ft) | Calculated Ultimate Skin Friction Comp. (kip/ft) | Ultimate Skin Friction Comp. Override (kip/ft) | Ultimate Skin Friction (kip/ft) | Ultimate Skin Friction (kip/ft) | Ult. Gross Bearing Capacity (kip/ft) | SPT Blow Count | Soil Type |
|-------|----------|-------------|----------------|-----------------------|-----------------------|-----------------------------|--|--|--|---------------------------------|---------------------------------|--------------------------------------|----------------|-----------|
| 1     | 0        | 2           | 2              | 105                   | 10                    | 10                          | 0.000                                      | 0.000  | 0.000  | 0.000                           | 0.000                           | 11.13                                | 11.13          | SP-1      |
| 2     | 2        | 20          | 18             | 110                   | 10                    | 10                          | 0.000                                      | 0.000  | 0.000  | 0.000                           | 0.000                           | 11.13                                | 11.13          | SP-2      |

SEISMIC ANALYSIS

WG: 11247-NE-ALBION  
 Tower Type: 120A  
 Foundation Type: 7B

**Location**

| Decimal Degrees  | Deg | Min | Sec   |
|------------------|-----|-----|-------|
| Lat: 41.658480   | 41  | 41  | 4.53  |
| Long: -87.932110 | 87  | 55  | 55.60 |

**Code and Site Parameters**

Seismic Design Code: TIA-222-II-1  
 Site Soil: D (Default) Default  
 Risk Category: II

**USGS Seismic Reference**

|                |        |   |
|----------------|--------|---|
| S <sub>1</sub> | 0.1220 | B |
| S <sub>s</sub> | 0.0720 | B |
| T <sub>s</sub> | 12     | B |

**Seismic Design Category Determination**

Importance Factor, I<sub>e</sub>: 1  
 Acceleration-based site coefficient, F<sub>a</sub>: 1.6000  
 Velocity-based site coefficient, F<sub>v</sub>: 2.4000

Design spectral response acceleration short period, S<sub>DS</sub>: 0.3301 B  
 Design spectral response acceleration 1 s period, S<sub>D1</sub>: 0.0672 B  
 T<sub>s</sub>: 0.5164 B

Seismic Design Category Based on S<sub>DS</sub>: A  
 Seismic Design Category Based on S<sub>D1</sub>: B  
 Seismic Design Category Based on T<sub>s</sub>: N/A

Controlling Seismic Design Category: B

Modified

Version 2.1.1

Drilled Pier Foundation

Please Use (owner) capability R  
 Report: ESH-3765, dated May  
 2022

BU #: 11247-NE-ALBION  
 Site: 11247-NE-ALBION  
 Order Number: 7B  
 TIA 222 Division: 7B  
 Tower Type: Monopole

| Analysis Results                    |        |
|-------------------------------------|--------|
| Soil Ultimate Capacity (kips)       | 4700   |
| Soil Safety Factor                  | 7.27   |
| Min Moment (k-ft)                   | 97.96  |
| Max Moment (k-ft)                   | 47.96  |
| Soil Vertical Capacity (kips)       | 0.008  |
| Ultimate Soil Friction (kips)       | 81.95  |
| Design Soil Friction (kips)         | 11.45  |
| Weight of Concrete (kips)           | 162.80 |
| Final Capacity (kips)               | 467.15 |
| Design Capacity (kips)              | 17.95  |
| Reinforced Concrete Capacity (kips) | 0.008  |
| Ultimate Moment (k-ft)              | 268.94 |
| Design Moment (k-ft)                | 45.93  |
| Soil Interaction Ratio              | 17.8%  |
| Structural Foundation Rating        | 45.9%  |

2 of Layers: 2 Soil Profile

| Layer | Top (ft) | Bottom (ft) | Thickness (ft) | γ <sub>sat</sub> (pcf) | γ <sub>sub</sub> (pcf) | γ <sub>imm</sub> (pcf) | Concession (pcf) | Angle of Friction (degree) | Calculated Ultimate Skin Friction (kips) | Calculated Ultimate Skin Friction Limit (kips) | Ultimate Skin Friction Comp. Ratio (pcf) | Ult. Gross Bearing Capacity (kips) | SPT Blows/foot | Soil Type  |
|-------|----------|-------------|----------------|------------------------|------------------------|------------------------|------------------|----------------------------|--|--|--|------------------------------------|----------------|------------|
| 1     | 0        | 2           | 2              | 158                    | 158                    | 158                    | 158              | 1                          | 0.008                                    | 0.008  | 0.008                                    | 11.18                              |                | Compaction |
| 2     | 2        | 20          | 18             | 110                    | 110                    | 110                    | 110              | 1                          | 0.550                                    | 0.550  | 0.550                                    |                                    |                | Compaction |

WG: 11247-NE-ALBION  
 Tower Type: 120A  
 Foundation Type: 7B

**Tower Details**

Tower Type: Tapered Monopole  
 Height, h: 119.107 ft  
 Effective Seismic Weight, W<sub>e</sub>: 6.05 kips  
 Amplification Factor, A<sub>e</sub>: 1.0

**Seismic Base Shear**

Response Modification Factor, R: 3.5  
 Discrete Appearance Weight in Top 1/3 of Structure, W<sub>1</sub>: 0.348 kips  
 W<sub>1</sub>: 5.706990454 kips  
 E: 29000.0 ksi  
 I: 386.088 in<sup>4</sup>  
 Average Moment of Inertia, I<sub>avg</sub>: 521.6721531 in<sup>4</sup>  
 F<sub>v</sub>: 0.29948725  
 Approximate Fundamental Period Monopole, T<sub>1</sub>: 3.3390 s

Seismic Response Coefficient, C: 0.0868  
 Seismic Response Coefficient Max 1, C<sub>u1</sub>: 0.0734  
 Seismic Response Coefficient Max 2, C<sub>u2</sub>: N/A  
 Seismic Response Coefficient Min 1, C<sub>m1</sub>: 0.0500  
 Seismic Response Coefficient Min 2, C<sub>m2</sub>: N/A  
 Controlling Seismic Response Coefficient, C<sub>c</sub>: 0.0500

Seismic Base Shear, V: 0.313 kips

**Vertical Distribution Factors**

Period Related Exponent, k: 2.000  
 Sum of w<sub>i</sub>h<sub>i</sub><sup>k</sup>: 21399.13

**Tower Section Loads**

| Section Number | Length | Top Height | Mid Height, h <sub>i</sub> | Section Weight, w <sub>i</sub> | w <sub>i</sub> h <sub>i</sub> | C <sub>u</sub> | F <sub>u</sub> | F <sub>v</sub> |
|----------------|--------|------------|----------------------------|--------------------------------|-------------------------------|----------------|----------------|----------------|
| 1-1            | 2.0    | 117.1      | 116.7                      | 0.034                          | 152.8                         | 0.087          | 0.508          | 0.500          |
| 1-2            | 18.0   | 114.1      | 112.2                      | 0.172                          | 1265.2                        | 0.095          | 0.219          | 0.550          |
| 1-3            | 18.0   | 111.1      | 109.1                      | 0.160                          | 1094.0                        | 0.091          | 0.167          | 0.552          |
| 1-4            | 18.0   | 108.1      | 106.1                      | 0.292                          | 1807.6                        | 0.084          | 0.113          | 0.556          |
| 1-5            | 18.0   | 105.1      | 103.1                      | 0.269                          | 1676.2                        | 0.083          | 0.092          | 0.559          |
| 1-6            | 18.0   | 102.1      | 101.1                      | 0.244                          | 1564.0                        | 0.076          | 0.114          | 0.556          |
| 1-7            | 18.0   | 99.1       | 99.1                       | 0.219                          | 1438.0                        | 0.070          | 0.136          | 0.554          |
| 1-8            | 18.0   | 96.1       | 96.1                       | 0.194                          | 1298.0                        | 0.065          | 0.158          | 0.552          |
| 1-9            | 18.0   | 93.1       | 93.1                       | 0.169                          | 1148.0                        | 0.060          | 0.180          | 0.550          |
| 1-10           | 18.0   | 90.1       | 90.1                       | 0.144                          | 998.0                         | 0.055          | 0.202          | 0.548          |
| 1-11           | 18.0   | 87.1       | 87.1                       | 0.119                          | 848.0                         | 0.050          | 0.224          | 0.546          |
| 1-12           | 18.0   | 84.1       | 84.1                       | 0.094                          | 698.0                         | 0.045          | 0.246          | 0.544          |
| 1-13           | 18.0   | 81.1       | 81.1                       | 0.069                          | 548.0                         | 0.040          | 0.268          | 0.542          |
| 1-14           | 18.0   | 78.1       | 78.1                       | 0.044                          | 398.0                         | 0.035          | 0.290          | 0.540          |
| 1-15           | 18.0   | 75.1       | 75.1                       | 0.019                          | 248.0                         | 0.030          | 0.312          | 0.538          |
| 1-16           | 18.0   | 72.1       | 72.1                       | 0.014                          | 98.0                          | 0.025          | 0.334          | 0.536          |
| 1-17           | 18.0   | 69.1       | 69.1                       | 0.009                          | 48.0                          | 0.020          | 0.356          | 0.534          |
| 1-18           | 18.0   | 66.1       | 66.1                       | 0.004                          | 18.0                          | 0.015          | 0.378          | 0.532          |





Ice

Results:

|                         |          |
|-------------------------|----------|
| Ice Thickness:          | 1.00 in. |
| Concurrent Temperature: | -5 F     |
| Gust Speed              | 50 mph   |

**Data Source:** Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8

**Date Accessed:** Mon Jun 05 2023

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided "as is" and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers, or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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AFFIDAVIT

The State of Texas )

) S.S.

County of Parker )

I, Megan Croop, of Hudson Oaks in Parker County Texas, being duly sworn state under oath that:

On or about August 2023, Nextlink attempted to collocate on other aerial assets within 1 mile of our current proposed location located at the address: 3846 245<sup>th</sup> St. Anthon, IA 51004. This process was unsuccessful due to one of the following reasons: Rent amount too substantial, no space for further equipment, or declined by asset owner.

Megan Croop

(Signature)

Megan Croop

STATE OF TEXAS

COUNTY OF PARKER

SUBSCRIBED TO AND SWORN BEFORE ME, this 11<sup>th</sup>

Day of August, 2023

Signature [Signature]  
NOTARY PUBLIC

My Commission Expires: 9/13/2026





SITE NAME: IA-ANTHON-SO-4  
SITE NUMBER: IA-ANTHON-SO-4  
SITE ADDRESS: 3846 245TH ST., ANTHON, IA 51004



**VICINITY AREA**

These depictions are for demonstrative purposes only. They are to be used in addition to the engineering drawings for an accurate presentation of the site.



SITE NAME: IA-ANTHON-SO-4  
SITE NUMBER: IA-ANTHON-SO-4  
SITE ADDRESS: 3846 245TH ST., ANTHON, IA 51004



*Before*



Proposed 120' Tall Monopole with Proposed Antennas and Equipment

**VIEW - 1**

*After*

These depictions are for demonstrative purposes only. They are to be used in addition to the engineering drawings for an accurate presentation of the site.





*Before*



*After*

**VIEW - 2**

These depictions are for demonstrative purposes only. They are to be used in addition to the engineering drawings for an accurate representation of the site.



*Before*



*After*

**VIEW - 3**

These depictions are for demonstrative purposes only. They are to be used in addition to the engineering drawings for an accurate representation of the site.

## TOWAIR Determination Results

**\*\*\* NOTICE \*\*\***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

### DETERMINATION Results

**Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.**

### Your Specifications

#### NAD83 Coordinates

|           |                  |
|-----------|------------------|
| Latitude  | 42-20-41.1 north |
| Longitude | 095-51-18.4 west |

#### Measurements (Meters)

|                                |       |
|--------------------------------|-------|
| Overall Structure Height (AGL) | 36.6  |
| Support Structure Height (AGL) | 36.6  |
| Site Elevation (AMSL)          | 420.6 |

#### Structure Type

MTOWER - Monopole

### Tower Construction Notifications

Notify Tribes and Historic Preservation Officers of your plans to build a tower.

CLOSE WINDOW



Federal Aviation Administration

« OE/AAA

Notice Criteria Tool

Notice Criteria Tool - Desk Reference Guide V\_2018.2.0

The requirements for filing with the Federal Aviation Administration for proposed structures vary based on a number of factors: height, proximity to an airport, location, and frequencies emitted from the structure, etc. For more details, please reference [CFR Title 14 Part 77.9](#).

You must file with the FAA at least 45 days prior to construction if:

- your structure will exceed 200ft above ground level
- your structure will be in proximity to an airport and will exceed the slope ratio
- your structure involves construction of a traverseway (i.e. highway, railroad, waterway etc...) and once adjusted upward with the appropriate vertical distance would exceed a standard of 77.9(a) or (b)
- your structure will emit frequencies, and does not meet the conditions of the [FAA Co-location Policy](#)
- your structure will be in an instrument approach area and might exceed part 77 Subpart C
- your proposed structure will be in proximity to a navigation facility and may impact the assurance of navigation signal reception
- your structure will be on an airport or heliport
- filing has been requested by the FAA

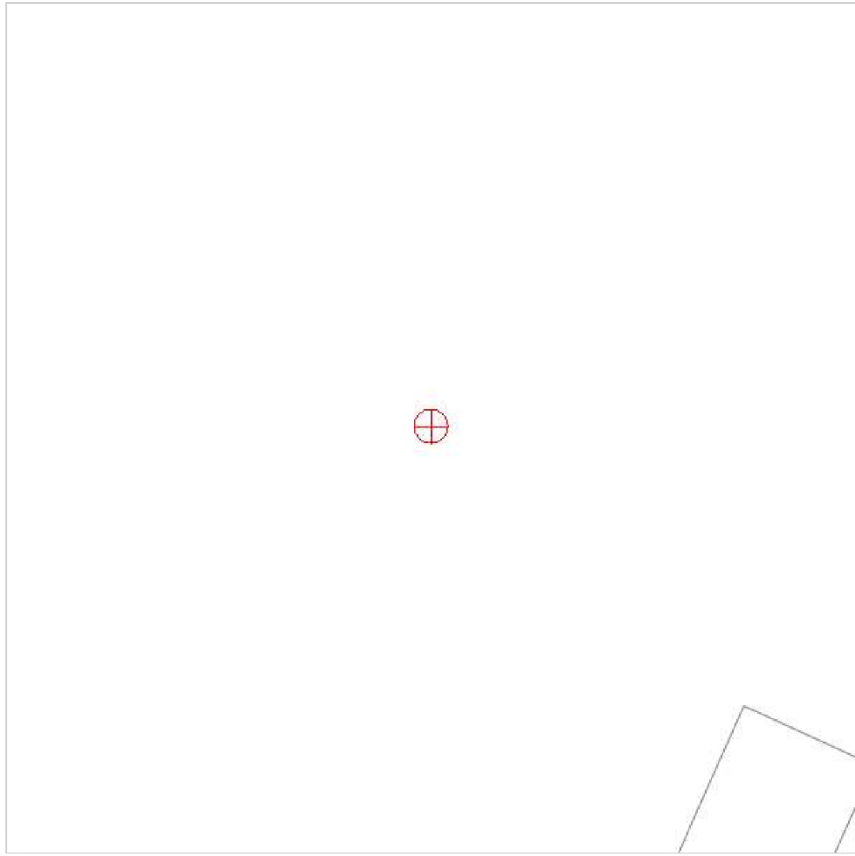
If you require additional information regarding the filing requirements for your structure, please identify and contact the appropriate FAA representative using the [Air Traffic Areas of Responsibility map](#) for Off Airport construction, or contact the [FAA Airports Region / District Office](#) for On Airport construction.

The tool below will assist in applying Part 77 Notice Criteria.

|                                 |   |
|---------------------------------|---|
| <b>* Structure Type:</b>        | POLE   Monopole <span style="float: right;">▼</span>                  |
|                                 | Please select structure type and complete location point information. |
| <b>Latitude:</b>                | 42 Deg 20 M 41.1 S N <span style="float: right;">▼</span>             |
| <b>Longitude:</b>               | 95 Deg 51 M 18.4 S W <span style="float: right;">▼</span>             |
| <b>Horizontal Datum:</b>        | NAD83 <span style="float: right;">▼</span>                            |
| <b>Site Elevation (SE):</b>     | 1380 (nearest foot)   |
| <b>Structure Height :</b>       | 120 (nearest foot)  |
| <b>Is structure on airport:</b> | <input checked="" type="radio"/> No<br><input type="radio"/> Yes      |

Results

You do not exceed Notice Criteria.





**PARCEL REPORT**

**Summary**

Parcel ID 874316300005  
 Alternate ID 722970  
 Property Address N/A  
 Sec/Twp/Rng 16-87-43  
 Brief Tax Description SESW 16-87-43  
 (Note: Not to be used on legal documents)  
 Deed Book/Page 574-646 (1/28/2003)  
 Gross Acres 40.00  
 Net Acres 40.00  
 Adjusted CSR Pts 1572.22  
 Zoning AP - AGRICULTURAL PRESERVATION  
 District 0004 MILLER/MAPLE VALLEY ANTHON OTO SCH  
 School District MAPLE VALLEY ANTHON OTO  
 Neighborhood N/A

**Owner**

Deed Holder  
 BALDWIN MARK D & SHELLE J  
 3846 245TH ST  
 ANTHON IA 51004-8065  
 Contract Holder  
 Mailing Address  
 BALDWIN MARK D & SHELLE J  
 3846 245TH ST  
 ANTHON IA 51004-8065

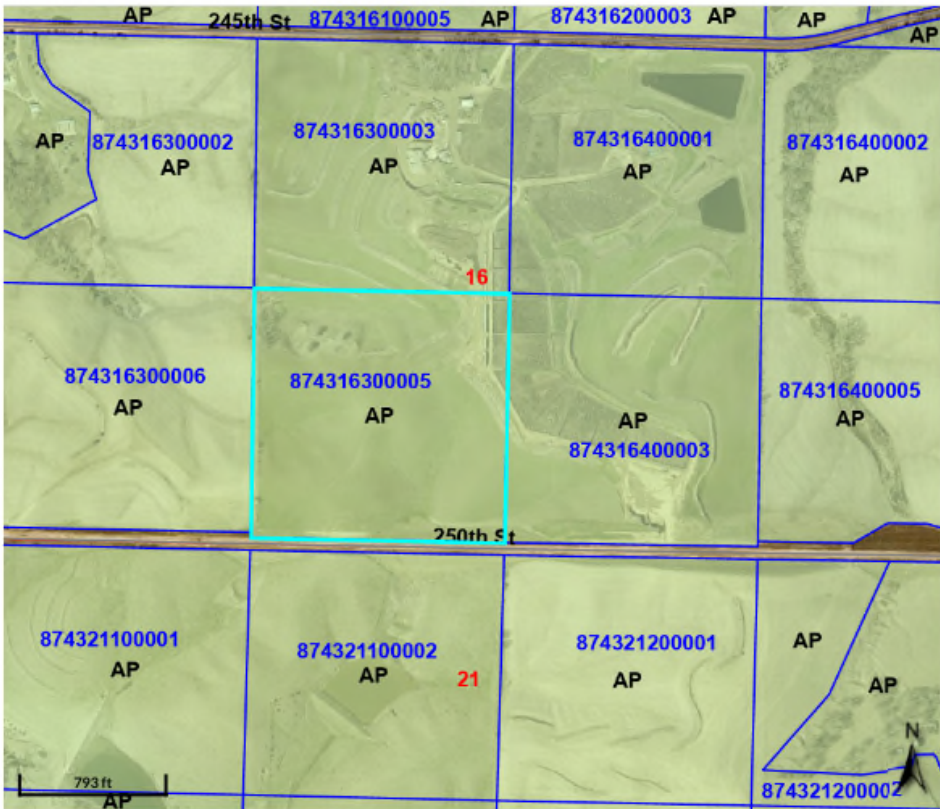
**Land**

Lot Area 40.00 Acres ;1,742,400 SF

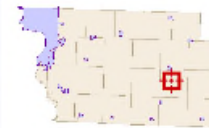
**Valuation**

|                           | 2023        | 2022        | 2021        | 2020        | 2019        |
|---------------------------|-------------|-------------|-------------|-------------|-------------|
| Classification            | Agriculture | Agriculture | Agriculture | Agriculture | Agriculture |
| + Assessed Land Value     | \$51,280    | \$39,840    | \$39,840    | \$37,670    | \$37,670    |
| + Assessed Building Value | \$0         | \$0         | \$0         | \$0         | \$0         |
| + Assessed Dwelling Value | \$0         | \$0         | \$0         | \$0         | \$0         |
| = Gross Assessed Value    | \$51,280    | \$39,840    | \$39,840    | \$37,670    | \$37,670    |
| - Exempt Value            | \$0         | \$0         | \$0         | \$0         | \$0         |
| = Net Assessed Value      | \$51,280    | \$39,840    | \$39,840    | \$37,670    | \$37,670    |

**ZONING MAP**



**Overview**

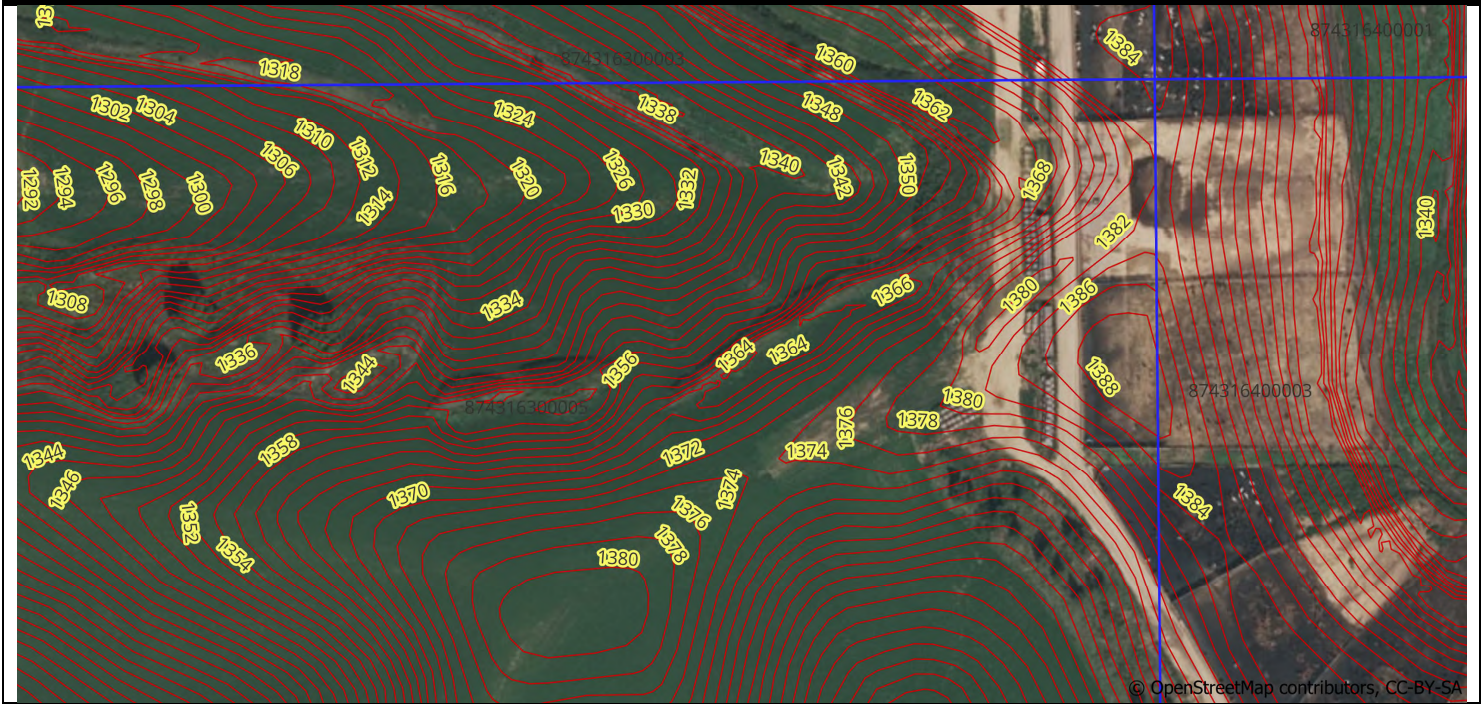


**Legend**

- Roads
- ▭ Corp Boundaries
- ▭ Townships
- ▭ Parcels
- County Zoning
  - AE
  - AP
  - GC
  - GC-PD
  - GI
  - LI
  - LI-PD
  - SR
  - WR

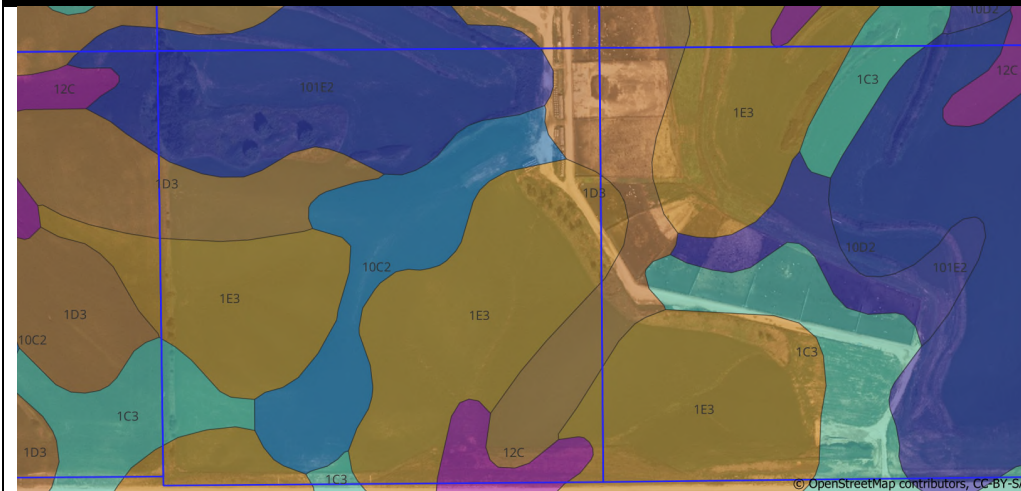
Parcel ID 874316300005      Alternate ID 722970      Owner Address BALDWIN MARK D & SHELLE J  
 Sec/Twp/Rng 16-87-43      Class A      3846 245TH ST  
 Property Address      Acreage 40.0      ANTHON, IA 51004-8065  
 District 0004  
 Brief Tax Description SESW 16-87-43  
 (Note: Not to be used on legal documents)

**ELEVATION MAP**



© OpenStreetMap contributors, CC-BY-SA

**SOIL MAP**



© OpenStreetMap contributors, CC-BY-SA

**SOIL REPORT**

**Summary**

Parcel ID 874316300005  
 Gross Acres 40.00  
 ROW Acres 0.00  
 Gross Taxable Acres 40.00  
 Exempt Acres 0.00  
 Net Taxable Acres 40.00 (Gross Taxable Acres - Exempt Land)  
 Average Unadjusted CSR2 39.43 (1577.23 CSR2 Points / 40 Gross Taxable Acres)  
 Agland Active Config 2017 CSR2

**Sub Parcel Summary**

| Description  | Acres        | CSR2  | Unadjusted CSR2 Points | Adjusted CSR2 Points |
|--------------|--------------|-------|------------------------|----------------------|
| 100% Value   | 39.22        | 39.43 | 1,546.27               | 1,546.27             |
| Non-Crop     | 0.78         | 39.69 | 30.96                  | 25.95                |
| <b>Total</b> | <b>40.00</b> |       | <b>1,577.23</b>        | <b>1,572.22</b>      |

**Soil Summary**

| Description  | SMS   | Soil Name  | CSR2         | Adjusted Acres | Unadjusted CSR2 Points | Adjusted CSR2 Points |
|--------------|-------|--|--------------|----------------|------------------------|----------------------|
| 100% Value   | 12C   | NAPIER SILT LOAM, 5 TO 9 PERCENT SLOPES                      | 89.00        | 1.27           | 113.03                 | 113.03               |
| 100% Value   | 10C2  | MONONA SILT LOAM, 5 TO 9 PERCENT SLOPES, MODERATELY ERODED   | 86.00        | 6.51           | 559.86                 | 559.86               |
| 100% Value   | 1C3   | IDA SILT LOAM, 5 TO 9 PERCENT SLOPES, SEVERELY ERODED        | 58.00        | 1.31           | 75.98                  | 75.98                |
| 100% Value   | 101E2 | MONONA-IDA SILT LOAMS, 14 TO 20 PERCENT SLOPES, MODERATELY E | 40.00        | 7.75           | 310.00                 | 310.00               |
| 100% Value   | 1D3   | IDA SILT LOAM, 9 TO 14 PERCENT SLOPES, SEVERELY ERODED       | 32.00        | 6.04           | 193.28                 | 193.28               |
| 100% Value   | 1E3   | IDA SILT LOAM, 14 TO 20 PERCENT SLOPES, SEVERELY ERODED      | 18.00        | 16.34          | 294.12                 | 294.12               |
| Non-Crop     | 101E2 | MONONA-IDA SILT LOAMS, 14 TO 20 PERCENT SLOPES, MODERATELY E | 40.00        | 0.75           | 30.00                  | 25.01                |
| Non-Crop     | 1D3   | IDA SILT LOAM, 9 TO 14 PERCENT SLOPES, SEVERELY ERODED       | 32.00        | 0.03           | 0.96                   | 0.94                 |
| <b>Total</b> |       |  | <b>40.00</b> |                | <b>1,577.23</b>        | <b>1,572.22</b>      |



**WOODBURY COUNTY BOARD OF SUPERVISORS AGENDA ITEM(S) REQUEST FORM**

Date: 8/2/2023

Weekly Agenda Date: 8/8/2023

**ELECTED OFFICIAL / DEPARTMENT HEAD / CITIZEN:** Supervisor J.Taylor/M. Nelson

**WORDING FOR AGENDA ITEM:**

Upon Striking Agricultural Preservation as relates to Amendment 2 (Utility-Scale Solar), a Motion to Give Direction for a New Proposed Ordinance in Regards to Utility-Scale Solar

**ACTION REQUIRED:**

Approve Ordinance

Approve Resolution

Approve Motion

Public Hearing

Other: Informational

Attachments

**EXECUTIVE SUMMARY:**

The Board of Supervisors unanimously has voiced support for adding solar energy systems (private use) as accessory use in each zoning district and affirming support of solar energy systems (utility scale) in the GI Zoning District. However, given that AP constitutes roughly 75% of Woodbury County's 875 sq. mi and inherent to Agricultural Preservation is the preservation of agriculture, we have an interest in doing what is inherent in the name: preserving agriculture. Toward that end, we are not against solar but think that the following strikes a very reasonable and thoughtful balance, something that can feel rushed in the readings and end up making solar development projects so loose as to not know the desired saturation, legal implications (at least 2 other counties are in lawsuits based on the conditions set after the fact), and how we want to grow the next 25, 50, and 100 years.

Iowa Farm Bureau states regarding energy policy: "Iowa should maintain a balanced electrical energy generation portfolio to ensure energy reliability and resilience at an affordable cost" (2023) and "Iowa's electrical energy policy should not promote new wind and solar energy generation on viable and productive agricultural ground. Existing structures and nonproductive ground should be utilized to expand our energy production" (2023).

**BACKGROUND:**

Iowa Cattlemen land use policy states: "Whereas the issue of land use in Iowa becomes increasingly important as Iowa population grows and the use of land becomes more intensified, and whereas the cattlemen of Iowa have distinctive problems and interests in the use of land for production of beef cattle; and whereas the complexities of the many issues and interests involved are substantial, not the least of which are the preservation of private property rights and the location of control over land-use decisions. Therefore, be it resolved, land suitable for the grazing of livestock should be deemed agricultural land worthy of preservation and that grazing and be given over recreational and/or urban uses. Be it further resolved, public lands should be subject to the same rules and regulations as privately owned lands."

As the two supervisors representing the most rural areas, we deeply desire the preservation of agriculture while at the same time understanding the need for balance: private property rights, economic development, clean energy, and freedom. Therefore, if the county was to engage in utility-scale solar, at minimum, the county should consider this only if the following is met:

+ A conditional use permit for AP "C" with Planning and Zoning and the Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.

+ A slope of no more than 5% in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.

+ A maximum height of no more than 20' for panel structures.

+ Of all AP, no more than 49% can be in such a project. In short, 51% must be for agricultural production or no longer considered "AP."

+ Utility solar can be no more than 2% of all AP "agricultural preservation," preserving 98% of AP. This equates to approximately 8,540 acres of the 427,000 acres of ag land, ag land constituting 75% of the 570,000 total acres in Woodbury County.

**FINANCIAL IMPACT:**

(cont...)

- + Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- + A requirement (or at least strong consideration) that the utility-scale solar project either be on a landowner's property or that the owner of the land be a resident of Woodbury County.

**IF THERE IS A CONTRACT INVOLVED IN THE AGENDA ITEM, HAS THE CONTRACT BEEN SUBMITTED AT LEAST ONE WEEK PRIOR AND ANSWERED WITH A REVIEW BY THE COUNTY ATTORNEY'S OFFICE?**

Yes  No

**RECOMMENDATION:**

Upon Striking Agricultural Preservation as relates to Amendment 2 (Utility-Scale Solar), a Motion to Give Direction for a New Proposed Ordinance in Regards to Utility-Scale Solar

**ACTION REQUIRED / PROPOSED MOTION:**

Upon Striking Agricultural Preservation as relates to Amendment 2 (Utility-Scale Solar), a Motion to Give Direction for a New Proposed Ordinance in Regards to Utility-Scale Solar

*Approved by Board of Supervisors April 5, 2016.*

**WOODBURY COUNTY BOARD OF SUPERVISORS AGENDA ITEM(S) REQUEST FORM**

Date: 9/21/2023

Weekly Agenda Date: 9/26/2023

**ELECTED OFFICIAL / DEPARTMENT HEAD / CITIZEN:** Supervisor J. Taylor/M. Nelson

**WORDING FOR AGENDA ITEM:**

Give Direction to Planning and Zoning/BOA for Further Considerations During Public Hearings Regarding Utility-Scale Zoning

**ACTION REQUIRED:**

Approve Ordinance

Approve Resolution

Approve Motion

Public Hearing

Other: Informational

Attachments

**EXECUTIVE SUMMARY:**

The Board of Supervisors unanimously has voiced support for adding solar energy systems (private use) as accessory use in each zoning district and affirming support of solar energy systems (utility scale) in the GI Zoning District. However, given that AP constitutes roughly 75% of Woodbury County's 875 sq. mi and inherent to Agricultural Preservation is the preservation of agriculture, we have an interest in doing what is inherent in the name: preserving agriculture. Toward that end, we are not against solar but think that the following strikes a very reasonable and thoughtful balance.

During the last item, we asked that consideration of adding utility-scale solar be considered in AP with limitations such as slope (<5%, no more than 2% of all AP be for solar, a "C" for conditional use, notification from 500 ft to 1 mi, at least 51% maintained in agricultural production.)

Upon public hearing comments and further reflection, we offer an alternative to be considered that might be preferable, namely the expansion of "Light Industrial." We would ask that landowners who desire such utility-scale solar be rezoned to this presently constituting only 101 acres of Woodbury County's 570,000 acres. Landowners could continue to farm the land but open up an avenue that would be far preferable than Agricultural Preservation and much more appropriate.

**BACKGROUND:**

- + A conditional use permit for AP "C" with Planning and Zoning and the Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.
- + A slope of no more than 5% ONLY for fixed arrays (most technology is now movable arrays) in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
- + No more than 1% of industrial land conversion every 4 years for reclassification, roughly 5,700 acres.
- + Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
- + A decommissioning plan from solar companies reviewed by P&Z/BOA subject to approval by the Woodbury County Board of Supervisors.



**FINANCIAL IMPACT:**

None

**IF THERE IS A CONTRACT INVOLVED IN THE AGENDA ITEM, HAS THE CONTRACT BEEN SUBMITTED AT LEAST ONE WEEK PRIOR AND ANSWERED WITH A REVIEW BY THE COUNTY ATTORNEY'S OFFICE?**

Yes  No

**RECOMMENDATION:**

Move to give direction for a new proposed ordinance in regards to utility-scale solar

**ACTION REQUIRED / PROPOSED MOTION:**

Move to give direction for a new proposed ordinance in regards to utility-scale solar

*Approved by Board of Supervisors April 5, 2016.*

**Topics for Consideration**

Content Provided Herein is for Discussion/Informational Purposes and is Subject to Changes.

**INFORMATION ITEM OUTLINE**

**1. TOPIC 1: Introduction**

**2. TOPIC 2: Appropriate Location(s)**

- a. Zoning Districts
- b. Considerations
  - i. Zoning District(s)
  - ii. Corn Suitability Rating 1 vs. 2
  - iii. Agricultural Related Use
  - iv. Slope Cap
  - v. Acre Cap
  - vi. Height Cap
  - vii. Density
  - viii. Notification Area
  - ix. Site Considerations
  - x. Property Ownership
- c. Other / Additional

**3. TOPIC 3: Ordinance Type (Standalone vs. Zoning Ordinance Amendment)**

- a. Standalone Ordinance
- b. Ordinance Amendment
- c. Other / Additional

**4. TOPIC 4: Process Types**

- a. Zoning Ordinance Map Amendment (Rezone)
  - i. Regular Process
  - ii. General Industrial (GI)
  - iii. Limited Industrial (LI)
  - iv. Overlay District?
- b. Conditional Use Permit
  - i. Regular Process
  - ii. Added Ordinance Requirements
  - iii. Other / Additional

**5. TOPIC 5: Information Collection (Application Requirements)**

- a. Zoning Ordinance Map Amendment (Rezone)
- b. Conditional use Permit Application Procedures
- c. Certified Abstractor's Listing
- d. General Information
- e. Mapping
- f. Documentation
- g. Requirements for Development Plans / Site Plans
- h. Other / Additional

**6. TOPIC 6: Requirements for Permitting of US-SES**

- a. Separation Distances / Setbacks / by Zoning District
- b. Screening
- c. Fencing / Security

- d. Signage
- e. Lighting
- f. Noise
- g. Glare Minimization
- h. Utility Connections
- i. Accessory Structures
- j. Outdoor Storage
- k. Endangered Species and Wetlands
- l. Weed Control
- m. Slope
- n. Waste
- o. Maintenance, Repair, or Replacement
- p. Cessation of Operations
- q. Repowering
- r. Decommissioning
- s. Cleaning Chemicals and Solvents
- t. Road Use Agreements
- u. Special Flood Hazard Area (Floodplain)
- v. Soil Erosion and Sediment Control
- w. Storm Water Management
- x. Compliance with Local, State, and Federal Regulations
- y. Transfer
- z. Administration and Enforcement
- aa. Fee Structure
- bb. Other / Additional

**7. TOPIC 7: Definitions**

|                                   |                             |  |
|-----------------------------------|-----------------------------|--|
| Agreement                         | Non-participating Landowner | Solar Energy Systems, Private                |
| Agrisolar or Agrivoltaics         | Occupied Structure          | Solar Energy Systems, Utility Scale (US-SES) |
| Applicant                         | Operator                    | Solar Panel                                  |
| Community Solar                   | Owner                       | Solar Storage Battery                        |
| Conditional Use Permit (CUP)      | Participating Landowner     | Solar Storage Unit                           |
| Concentrating Solar Power Systems | Photovoltaic (PV) Cells     | Solar Thermal Energy System (STES)           |
| Corn Suitability Rating 2 (CSR2)  | Professional Engineer       | Structure                                    |
| Critical Slope Angle              | Project Area                | Structure-Mounted Energy System              |
| Developed Project Areas           | Property Line               | Substation                                   |
| Easement                          | Residence                   | System Height                                |
| Feeder Circuits / Lines           | Setback                     | - Other Additional -                         |
| Glare/Glint                       | Slope                       |  |
| Grounded-Mounted System           | Solar Array                 |  |
| Interconnection                   | Solar Collector             |  |
| Module                            | Solar Easement              |  |
| Mounting                          | Solar Energy                |  |

- These definitions are being presented for discussion and informational purposes only and is subject to changes including additions, deletions, or modifications.

**8. TOPIC 8: Other**

## DETAILED OUTLINE

### 1. APPROPRIATE LOCATION(S)

- a. Zoning District(s)
  - i. General Industrial (GI)
    1. 11,221 total acres\*
  - ii. Agricultural Preservation (AP)
    1. 476,513 total acres\*
  - iii. Limited Industrial (LI)
    1. 101 total acres\* \*includes acres already developed.
  - iv. Possible Creation of a “Utility-Scale Solar Overlay District” to be placed over portions of AP, per rezone application.?
- b. Considerations:
  - i. Zoning District(s)
  - ii. Corn Suitability Rating 1 / Corn Suitability Rating 2
    1. Under 65 CSR (Woodbury County Development Plan)
    2. CSR1/2 Resources:
      - a. <https://crops.extension.iastate.edu/cropnews/2015/04/corn-suitability-rating-2-equation-updated>
      - b. <https://www.fbn.com/community/blog/iowa-corn-suitability-rating-index-csr2#:~:text=The%20range%20of%20CSR2%20is,and%20it%20is%20not%20irrigated.>
      - c. [https://support.agridatainc.com/CornSuitabilityRating2\(CSR2\).ashx](https://support.agridatainc.com/CornSuitabilityRating2(CSR2).ashx)
      - d. <http://www.extension.iastate.edu/Publications/PM1168.pdf>
      - e. <http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm>
  - iii. Agricultural Related Use (51%)
    1. Of all AP, no more than 49% can be in such a project. In short, 51% must be for agricultural production or no longer considered “AP.”
  - iv. Slope Cap
    1. A slope of no more than 5% in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.
    2. No greater than 5% soil slopes.
  - v. Acre Cap
    1. Utility solar can be no more than 2% of all AP “agricultural preservation,” preserving 98% of AP. This equates to approximately 8,540 acres of the 427,000 acres of ag land, ag land constituting 75% of the 570,000 total acres in Woodbury County.
    2. Agricultural Preservation (AP)
      - a. 2% Cap = 9,530 acres
    3. General Industrial (GI)
      - a. No cap
  - vi. Height Cap
    1. 20 FT?
  - vii. Density
    1. Separation Distances / Setbacks / By Zoning District
      - a. Occupied Residence
      - b. Occupied Structures
      - c. Non-participating Parcels
      - d. Public Right-of-Way
      - e. Airports
      - f. Etc.
  - viii. Notification Area
    1. Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.
  - ix. Site Considerations
    1. A conditional use permit for AP “C” with Planning and Zoning and Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/sol, and other factors when approving permit.
  - x. Property Ownership
    1. A requirement (or at least strong consideration) that the utility-scale solar project either be on a landowner’s property or that the owner of the land be a resident of Woodbury County.

### 2. ORDINANCE TYPE (STANDALONE VS. ZONING ORDINANCE AMENDMENT)

- a. Standalone Ordinance
  - i. Similar to the Commercial Wind Energy Conversion Systems Ordinance
    1. Permits considered by the Board of Supervisors
    2. No use of Zoning Districts
- b. Zoning Ordinance Amendment
  - i. Conditional Use Process
    1. Zoning Commission Application Review for Recommendation
    2. Board of Adjustment Consideration for Approval
  - ii. Rezone to a different zoning district or overlay district
    1. Zoning Commission Application Review for Recommendation
    2. Board of Supervisors Consideration for Approval

- iii. Zoning Districts are used to determine appropriate areas of the county to consider permits.

### 3. **PROCESS TYPES**

- a. Zoning Ordinance Map Amendment (Rezone)
  - i. General Industrial (GI)
  - ii. Overlay District? Utility-Scale Solar Energy Systems Overlay District?
    - 1. Appropriateness of the Area Based on Considerations referenced in Section 1.
  - iii. Zoning Commission / Board of Supervisors
- b. Conditional Use Permit
  - i. Regular Process
  - ii. Added Ordinance Requirements

### 4. **INFORMATION COLLECTION (APPLICATION)**

- a. Conditional Use Permit Application Procedures (Zoning Ordinance Section 2.02.9)
- b. Certified Abstractor's Listing (1 Mile?)
- c. General Information
  - i. Name of Applicant(s), Project Owner(s), and/or Operator(s), Landowner(s) – Contact Information
  - ii. Project Summary
  - iii. General Description
  - iv. Number of Modules
  - v. Manufacturer
  - vi. Model
  - vii. Mounting Type
  - viii. System Height
  - ix. System Capacity
  - x. Total Land Area covered by the system.
  - xi. Information about facilities
    - 1. Substations
    - 2. Feeder lines
    - 3. Battery Storage
    - 4. Etc.
- d. Map of the Project Location and Surrounding Area
- e. Legal Description of the Property with the US-SES will be located
- f. Evidence of a power purchase agreement or interconnection application for the project
- g. Consultation with or notifications from relevant state and federal agencies
  - i. Demonstrating how the project will not be a hazard to:
    - 1. Wildlife
    - 2. Communications
    - 3. Air Traffic
    - 4. Etc.
- h. Documentation of easement locations acquired for US-SES and associated facilities
- i. Project Plan
  - i. Based on a plat of survey by an Iowa licensed surveyor to establish property lines and/or setbacks. Project plan shall include:
    - 1. Parcel lines;
    - 2. All existing structures, with dimensions (length, width, & height clearly marked);
    - 3. Sanitary Infrastructure (e.g. Septic Fields);
    - 4. Presence of wells, capped and otherwise functional;
    - 5. Setback Measurements;
    - 6. Easements present on the property, including those for existing utilities;
    - 7. Field tile locations with mapping;
    - 8. Floodplain Locations;
    - 9. Topography Lines (with 2-foot contours);
    - 10. Location of all solar panels, solar collectors, solar arrays, and associated equipment (with dimensions);
    - 11. The height and depths of each mounting structure including footings, and maximum area of ground cover. Include dimensions (length, width, & height clearly marked) and ground clearance for each US-SES;
    - 12. A detailed electrical grid drawing, certified by an electrical engineer, showing all connection points in the US-SES and to a connecting electrical grid. Include utility lines, telephone lines and other lines, both above and below ground within 200 feet of any and all above-ground portions of the US-SES;
    - 13. Standard drawings and dimensional representatives of the solar energy system including panels and arrays, mounting structures, and footings.
    - 14. Color photo simulations showing the proposed location of the tower with a photo-realistic representation of the proposed US-SES as it would appear viewed from the nearest residentially used and / or zoned property and nearest roadway, street or highway.
    - 15. Planned location and dimensions of security fencing;
    - 16. A grading plan with 2-foot contours showing existing and proposed topography.
    - 17. A storm water management plan showing retention/detention areas, storm sewers and drainage ways. A drainage report certified by a professional engineer is required to verify the size of retention or detention facilities and outflows from the site. Any flood hazard areas should be identified.



18. A landscaping plan illustrating screening and buffering intended to minimize conflicts with nearby properties and uses. Species, numbers and initial sizes of plant materials should be indicated.
19. A soil analysis illustrating the soil types, slopes and Corn Suitability Rating 2 (CSR2) for the entire footprint of the project area.
20. Any other information necessary to describe the intended use.

## 5. **REQUIREMENTS**

- a. Separation Distances / Setbacks / By Zoning District
  - i. Occupied Residence
  - ii. Occupied Structures
  - iii. Non-participating Parcels
  - iv. Public Right-of-Way
  - v. Airports
  - vi. Etc.
- b. Screening
  - i. Adequate safeguards shall be taken to fence or screen any on-site hazards from the public. A landscape buffer may be required to be installed and maintained. The need for screening requirements will be evaluated as part of the review by Staff and the approval process and will be based on the surroundings of the site.
- c. Fencing / Security
  - i. A security fence must be installed along all exterior sides of the US-SES installation and be equipped with a minimum of one gate and locking mechanism on the primary access side. Security fences, gates and warning signs must be maintained in good condition until the US-SES solar installation is decommissioned.
- d. Signage
  - i. No signs other than appropriate warning signs, or standard signs for operation or identification, shall be allowed.
- e. Lighting
  - i. Lighting shall be shielded and downcast such that the light does not project directly onto the adjacent properties.
- f. Noise
  - i. Noise levels caused by the US-SES measured at the residence(s) shall not exceed fifty (50) decibels (A-weighted) when located adjacent to an existing residence or residential district.
- g. Glare Minimization
  - i. The US-SES shall be designed and constructed to diminish glare or reflection onto adjacent properties and adjacent roadways and must not interfere with traffic, including air traffic, or create a safety hazard.
- h. Utility Connections
  - i. Reasonable efforts shall be made to place all project collection lines within the solar installation underground, depending on appropriate soil conditions, shape and topography of the site, distance to the connection, or other conditions or requirements. High-voltage lines between the US-SES and substations may be above ground.
- i. Accessory Structures
  - i. All accessory structures shall be subject to the bulk and height regulations of structures in the underlying zoning district, unless specified differently in the ordinance.
- j. Outdoor Storage
  - i. Only the outdoor storage of materials, vehicles, and equipment that directly support the operation and maintenance of the US-SES shall be allowed.
- k. Endangered Species and Wetlands
  - i. Applicant(s) shall consult with the Iowa Department of Natural Resources and provide verification to the Zoning Director or their designee.
- l. Weed Control
  - i. Applicant(s) must present an acceptable weed/grass control plan for property outside of the fenced area for the entire project. The operating company during the operation of the Solar Farm must maintain the fence and adhere to a weed control plan.
- m. Slope
  - i. Slope length and steepness influence both the volume and velocity of surface runoff. Long slopes produce more runoff to the bottom of slopes. Steep slopes increase runoff velocity. Both situations increase the potential for erosion. The project area shall not exceed medium erosion potential including eight (5%) percent or greater slope.
- n. Waste
  - i. All solid wastes, whether generated from supplies, equipment parts, packaging, operation, grazed animals, farming operation or maintenance of the US-SES shall be removed from the site and disposed of in an appropriate manner. All hazardous waste generated by the operation shall be removed from the site immediately and disposed of in a manner consistent with all local, state, and federal guidelines.
- o. Maintenance, Repair, or Replacement
  - i. Maintenance shall include, but not limited to painting, structural repairs, integrity of security measures. Site access shall be maintained to a level acceptable to emergency response officials. Any retrofit, replacement or refurbishment of equipment shall adhere to all applicable local, state and federal requirements. Any discarded materials or construction debris will be promptly removed in a timely manner. Said debris shall remain on the property no longer than sixty (60) days.
- p. Cessation
  - i. Any US-SES provided for in this Ordinance that has not been in operation and producing electricity for at least one hundred and eighty (180) consecutive days, excluding natural catastrophic event, shall be removed. The Woodbury County Zoning Director or their designee shall notify the owner to remove the system. Within ninety (90) days, the owner shall either submit evidence showing that the system has been operating and producing electricity or remove it. If the owner fails to or refuses to remove the US-SES, the violation shall be referred to the Woodbury County Attorney. In the case of a

natural catastrophic event, a detailed restoration plan to return to operational status must be provided to the Zoning Director.

- q. Repowering
  - i. Proposals to replace more than twenty-five percent (25%) of the panels in a facility within a twelve (12) month period shall be required to submit a Conditional Use Permit Application for review and approval with all associated costs assigned to the Applicant and/or the property owner(s).
- r. Decommissioning
  - i. The US-SES's owner shall enter into a decommissioning agreement with Woodbury County prior to the start of construction of the US-SES project. Woodbury County's approval and execution of the agreement shall not be unreasonably withheld. The plan shall include:
    - 1. A description of the plan to remove the US-SES's equipment, or at landowner's request, to restore the land to its previous use upon the end of the project's life.
    - 2. Provisions for the removal of structures, debris, and associated equipment on the surface and to a level of not less than four (4) feet above the surface, and the timeline/sequence in which removal is expected to occur;
    - 3. Provisions for the restoration of the soil, vegetation and disturbed earth, which shall be graded and reseeded;
    - 4. An estimate of the decommissioning costs certified by a licensed professional engineer in current dollars. The engineer providing this estimate shall submit it to the Woodbury County Finance/Budget Director, or their designee, for review and all costs associated with this engagement shall be borne by the applicant;
    - 5. A written financial plan approved to ensure that funds will be available for decommissioning and land restoration;
    - 6. A provision that the terms of the decommissioning plan shall be binding upon the owner or operator and any of their successors, assigns, or heirs.
    - 7. Upon review of the decommissioning plan, the Woodbury County Board of Supervisors shall set an amount to be held in a bond, escrow, or other acceptable form of funds approved by the Board. The value of the surety shall not be reduced based on the salvage value of any materials or equipment. The plan shall state that Woodbury County shall have access to the project and to the funds to effect or complete decommissioning one (1) year after cessation of operations; and,
    - 8. The applicant shall provide the county with a new estimate of the cost to decommission the US-SES project every five (5) years under the same conditions as set forth in this Sections above. Salvage value of structures, electrical wire and other appurtenances shall not be considered within the cost estimate calculations. Upon receipt of this new estimate, the county may require, and the applicant, owner, and/or operator of the US-SES project shall provide, a new financial plan for decommissioning acceptable to the County. Failure to provide an acceptable financial plan shall be considered a cessation of operations.
    - 9. Release of Financial Security. Financial security shall only be released when the Board of Supervisors determines, after inspection, that the conditions of the decommissioning plan have been met.
- s. Cleaning Chemicals and Solvents
  - i. During operation of the proposed installation, all chemicals or solvents used to clean photovoltaic panels should be low in volatile organic compounds and the operator should use recyclable or biodegradable products to the extent possible. Any on-site storage of chemicals or solvents shall be referenced.
- t. Road Use Agreements
  - i. Applicant(s) shall adhere to the Woodbury County Road Use and Repair Agreement, and in doing so, shall identify all roads to be used for the purpose of transporting US-SES associated parts, cement, and/or equipment for construction, operation or maintenance of the US-SES and obtain applicable weight and size permits from the impacted road authorities prior to construction.
- u. Special Flood Hazard Area
  - i. No portion of the US-SES site proposed for development may be located in a mapped 100-year floodplain.
- v. Soil Erosion and Sediment Control
  - i. The applicant(s) agree to conduct all roadwork and other site development work in compliance with a national pollutant discharge elimination system (NPDES) permit as required by the state department of natural resources and comply with requirements as detailed by local jurisdictional authorities during the plan submittal. If subject to NPDES requirements, the applicant must submit the permit for review and comment, and an erosion and sediment control plan before beginning construction. The plan must include both general "best management practices" for temporary erosion and sediment control both during and after construction and permanent drainage and erosion control measures to prevent damage to local roads or adjacent areas and to prevent sediment-laden run-off into waterways.
- w. Storm Water Management
  - i. The plan shall include details on stormwater rate and runoff management as well as pollutant removal and flood reduction. The applicant shall include a detailed analysis of pre- and post-development stormwater runoff rates for review. Such review will incorporate appropriate stormwater management practices as required by the County Engineer, Woodbury County and any State of Iowa best practices. The plan shall include detention of specified rainfall events, and infiltration components consistent with practices as detailed in the state stormwater management manual.
- x. Compliance with Local, State, and Federal Regulations
  - i. US-SES shall comply with applicable local, state, and federal regulations.
- y. Transfer
  - i. Building permits and associated decommissioning and road use agreements granted under this Ordinance may be transferred to another party subject to the Woodbury County Board of Supervisors approval, which approval shall not be unreasonably withheld. Any assignee of the building permits and associated decommissioning and road agreements shall be subject to all the requirements in this Ordinance and the agreements.
- z. Administration and Enforcement
  - i. The Zoning Director and any necessary personnel may enter any property for which a Conditional Use or Building Permit has been issued under this ordinance to conduct an inspection to determine whether the conditions stated in the permit have

been met as specified by statute, ordinance, and code. Failure to provide access by appointment within 48 hours of request shall be deemed a violation of this ordinance.

aa. Fee Structure

- i. The Conditional Use Permit fee(s) will be approved and adopted by Resolution through the Woodbury County Board of Supervisors under Zoning Permit Fees.

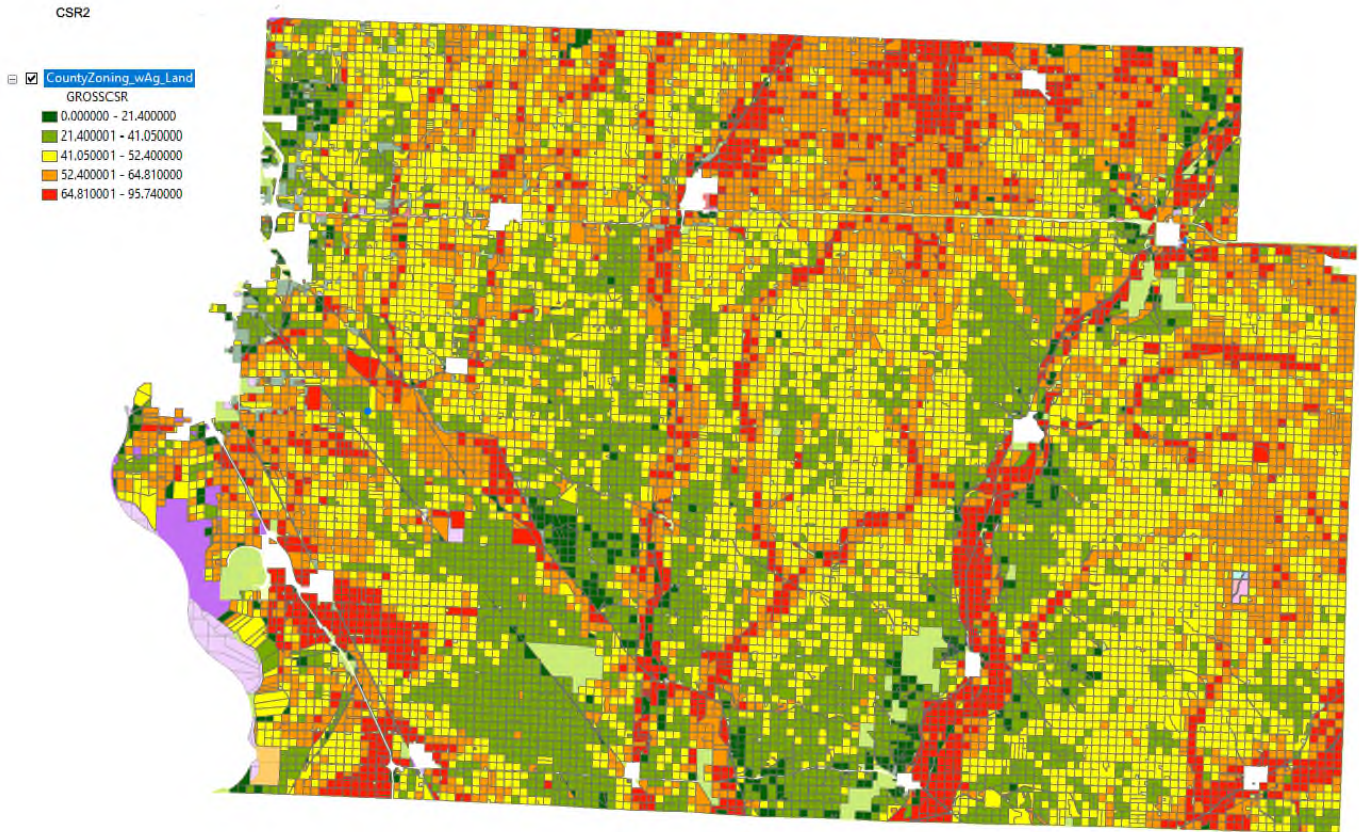
6. **DEFINITIONS**

- a. Agreement. A legally binding document signed by both a participating landowner and an owner or operator for a specific purpose, including but not limited to a contract, easement, or lease.
- b. Agrisolar or Agrivoltaics. A utility-scale solar system co-located on the same parcel of land primarily adapted, by reason of nature and area, for use for agricultural production, including crop production, grazing, apiaries, or other agricultural products or services. Fifty-one percent (51%) of the use of the land is for agricultural purposes.
- c. Applicant. The person or entity submitting the application under this Ordinance, which is normally expected to be the owner or operator of a US-SES, or the owner of the US-SES development.
- d. Community Solar. A utility-scale solar energy system developed by a municipality, utility, or other third party that typically allows community members to subscribe to the project.
- e. Conditional Use Permit (CUP). A use that is allowed in conformance with the regulations of the zoning district in which it is located, if and only if, approved by the Board of Adjustment as provided in subsection 2.02-9. A CUP issued by the Woodbury County Board of Adjustment is required before associated building permit(s) can be issued in unincorporated Woodbury County.
- f. Concentrating Solar Power Systems. A system that generates solar power by using mirrors, lenses, or similar reflecting surfaces to concentrate sunlight collected over large areas onto smaller focal areas.
- g. Corn Suitability Rating 2 (CSR2). An index to the inherent soil productivity of each kind of soil for row crop production. The index is scaled from 100, for the most productive soils, to 5 as the least productive.
- h. Critical Slope Angle. The maximum slope incline which the soil and rock materials underlying the slope can support, without failure, under existing climate, vegetation, and land use.
- i. Developed Project Areas. The total project area that is subject to an agreement between the Owner/Operator and the Participating Landowner and is actually developed and utilized for placement of a US-SES.
- j. Easement. A legal agreement for the use of property for a specified purpose.
- k. Feeder Circuits/Lines. A power line or network of lines used as a collection system that carries energy produced by a solar energy system to an interconnection point like a substation. Feeder circuits are most often placed underground.
- l. Glare/Glint. Light reflected off of a surface.
- m. Ground-Mounted System. A system where a rack(s) of panels is mounted on concrete posts or poles anchored in the ground and are wired or plumbed to an adjacent home or structure.
- n. Interconnection. Link between a generator of electricity and the electric grid. Interconnection typically requires connection via infrastructure such as power lines and a substation, as well as a legal agreement for the project to be connected to the grid.
- o. Module. An individual unit comprised of multiple photovoltaic (PV) cells, with multiple modules used in a solar energy system.
- p. Mounting. The method of anchoring solar energy system modules to the ground or a building.
- q. Non-Participating Landowner. A landowner who has not signed a binding agreement with the Applicant/Developer/Owner of the US-SES project.
- r. Occupied Structure. For the purpose of this ordinance, shall include any existing occupied house, apartment, barn, or machine shed regularly used by the property owner, or parties in possession of the property at the time of the permit application.
- s. Operator. The entity or individual that operates a solar energy system.
- t. Owner. The entity or entities with an equity interest in the US-SES, including their respective successors and assigns. Owner does not mean the landowner from whom a lease, easement, or other property right is acquired for locating the US-SES unless the landowner has an equity interest in the US-SES, or any person holding a security interest in the US-SES solely to secure an extension of credit, or a person foreclosing on such security interest provided that after foreclosure, such person seeks to sell the US-SES at the earliest practical date.
- u. Participating Landowner. A landowner under lease, easement or other binding property agreement with the applicant, developer, or owner of the US-SES.

- v. Photovoltaic (PV) Cells. Semiconductors which generate electricity whenever light strikes them; generally grouped on panels.
- w. Professional Engineer. A qualified individual who is licensed in the State of Iowa as a professional engineer.
- x. Project Area. The geographic area encompassing all components of a US-SES project, including border fencing.
- y. Property Line. The legal boundary between separately owned real estate parcels, and between privately owned parcels and public owned land or public right of way.
- z. Residence. A house, apartment or other shelter that is the abode of a person, family, or household and regularly occupied.
- aa. Setback. The minimum distance from a certain object, structure or point to the edge of any part or component of the US-SES.
- bb. Slope. The inclination of the land surface from the horizontal, with the steeper and longer having the most erosion potential.
- cc. Solar Array. Equipment used for private or utility scale solar energy systems. Can be mounted on primary or accessory structures, on a racking system affixed to the ground, or integrated as a mechanical or structural component of a structure.
- dd. Solar Collector. A device, structure or part of a device or structure for which the primary purpose is to transform solar radiant energy into thermal, mechanical, chemical, or electrical energy.
- ee. Solar Easement. An easement created to protect a solar project from encroachment by adjacent properties which would shade panels. See Iowa Code 564A.
- ff. Solar Energy. Radiant energy received from the sun that can be collected in the form of heat or light by a solar collector.
- gg. Solar Energy Systems, Private. An energy system that converts solar energy to usable thermal, mechanical, chemical, or electrical energy primarily for immediate onsite use that already has an existing principal use on the same parcel. Solar Energy Systems, Private shall be allowed only as a non-utility scale accessory use to a permitted principal use. Surplus energy sold back to a utility must comply with all applicable laws including but not limited to Section 199, Chapter 15.11(5) of Iowa Administrative Code, and all requirements of the Iowa Utilities Board. Systems can be mounted on primary or accessory structures, on a racking system affixed to the ground, or integrated as a mechanical or structural component of a structure.
- hh. Solar Energy Systems, Utility Scale (US-SES). An energy system, commonly referred to as a “solar farm”, which converts solar energy to useable thermal, mechanical, chemical, or electrical energy primarily for transmission through the electrical grid for offsite use or wholesale and/or retail sale. Systems can be mounted on primary or accessory structures, on a racking system affixed to the ground, or integrated as a mechanical or structural component of a structure. Utility scale solar energy systems do not include concentrating solar power (CSP) systems.
- ii. Solar Panel. 1) A grouping of photovoltaic cells used to generate electricity directly from sunlight. A grouping of these panels is called an array. 2) A panel circulating water or other liquid through tubes to collect, transfer and store the sun’s heat for domestic hot water and building heat.
- jj. Solar Storage Battery. A device that stores energy from the sun and makes it available in an electrical form.
- kk. Solar Storage Unit. A component of a solar energy device that is used to store solar-generated electricity or heat for later use.
- ll. Solar Thermal Energy System (STES). A system that directly heats water or other liquids using sunlight. The heated liquid is used for such purposes as space heating and cooling, domestic hot water, and heating pool water.
- mm. Structure. Anything constructed or erected on the ground or attached to the ground, including but not limited to, antenna(s), buildings, sheds, cabins, residences, signs, storage tanks, towers, wind turbines and other similar objects.
- nn. Structure-Mounted Energy System. A system where photovoltaic panels or solar thermal panels are mounted on racks attached to the roof or sidewalls of a building. Panels can be flush-mounted or angled for optimal sun exposure.
- oo. Substation. A facility that converts electricity produced by a generator like a solar energy system to a higher voltage, allowing for interconnection to high-voltage transmission lines.
- pp. System Height. The height of a solar energy system, usually referring to ground mounted systems. Total system height is the measurement from the ground to the top of the mounting or modules associated with a system.
- qq. Transmission lines. Power lines used to carry electricity from collection systems or substations over long distances.

**Consideration 1:** A conditional use permit for AP “C” with Planning and Zoning and Board of Adjustment to be able to site-specifically take into consideration the concerns of neighbors, land/soil, and other factors when approving permit.

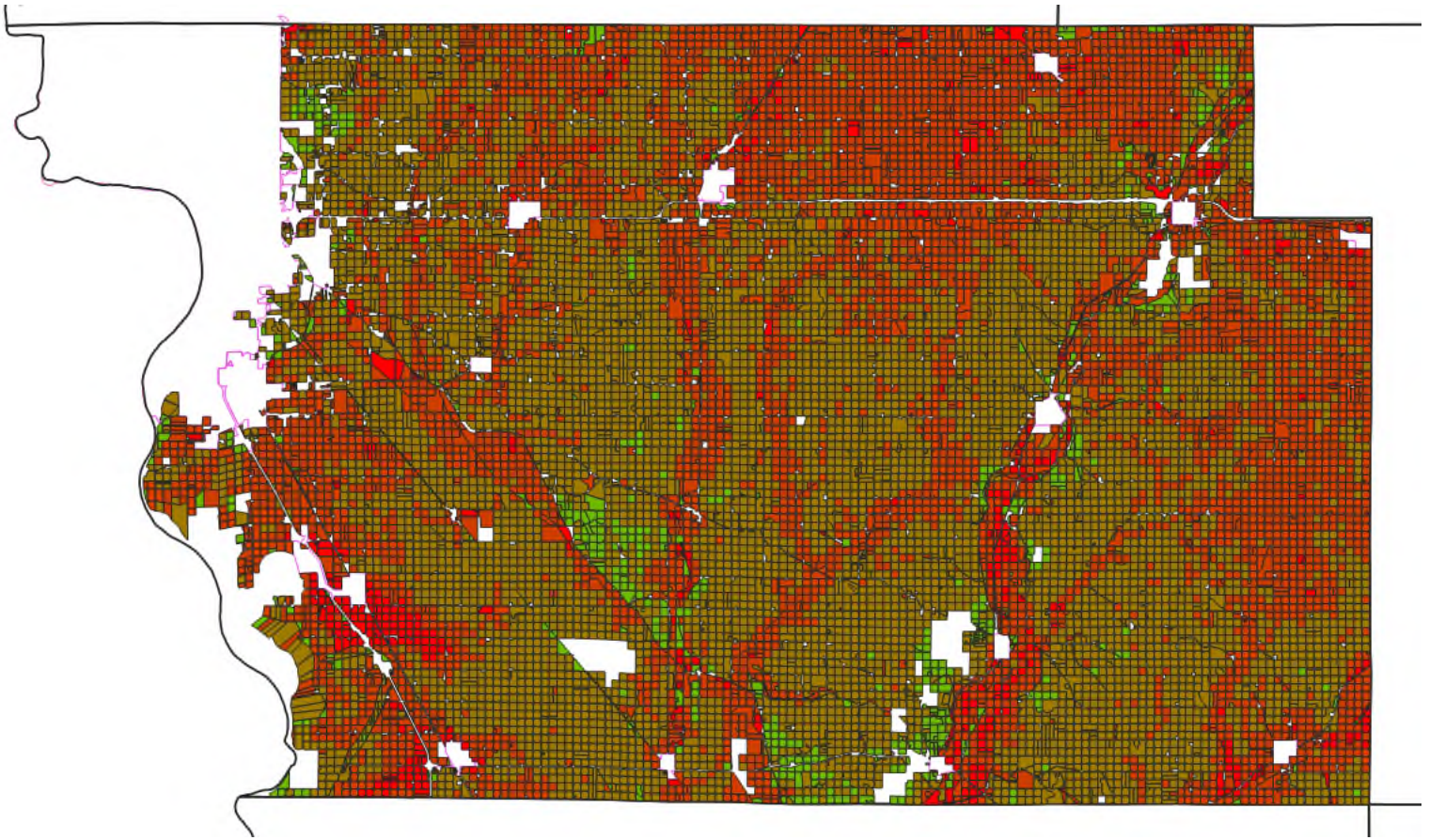
- **Public Notification:** Newspaper Legals and Letter to Property Owners within 1 mile regarding public hearing before Board of Adjustment and Zoning Commission consideration.
- **Land/Soil: Corn Suitability Rating 2 (CSR2) and Soil Types with Slope Content**
  - **CSR2 Average by Parcel in Agricultural Preservation (AP) Zoning District** \*Data acquired via Schneider/Beacon
    - **Using 65+ CSR2**



- **Agricultural Preservation: Estimated Total acres based on Schneider/Beacon gross acres with gross CSR2 greater than 65**
  - 204,405.91 Acres
- **Agricultural Preservation: Estimated Total acres based on Schneider/Beacon gross acres with gross CSR2 greater than 75**
  - 115,504.96 Acres

- **CSR2 Average by Parcel in Agricultural Preservation (AP) Zoning District** \*Data acquired via Schneider/Beacon
  - ▾   **CSR2 75**
    - 0 - 25
    - 25 - 50
    - 50 - 75
    - 75 - 100



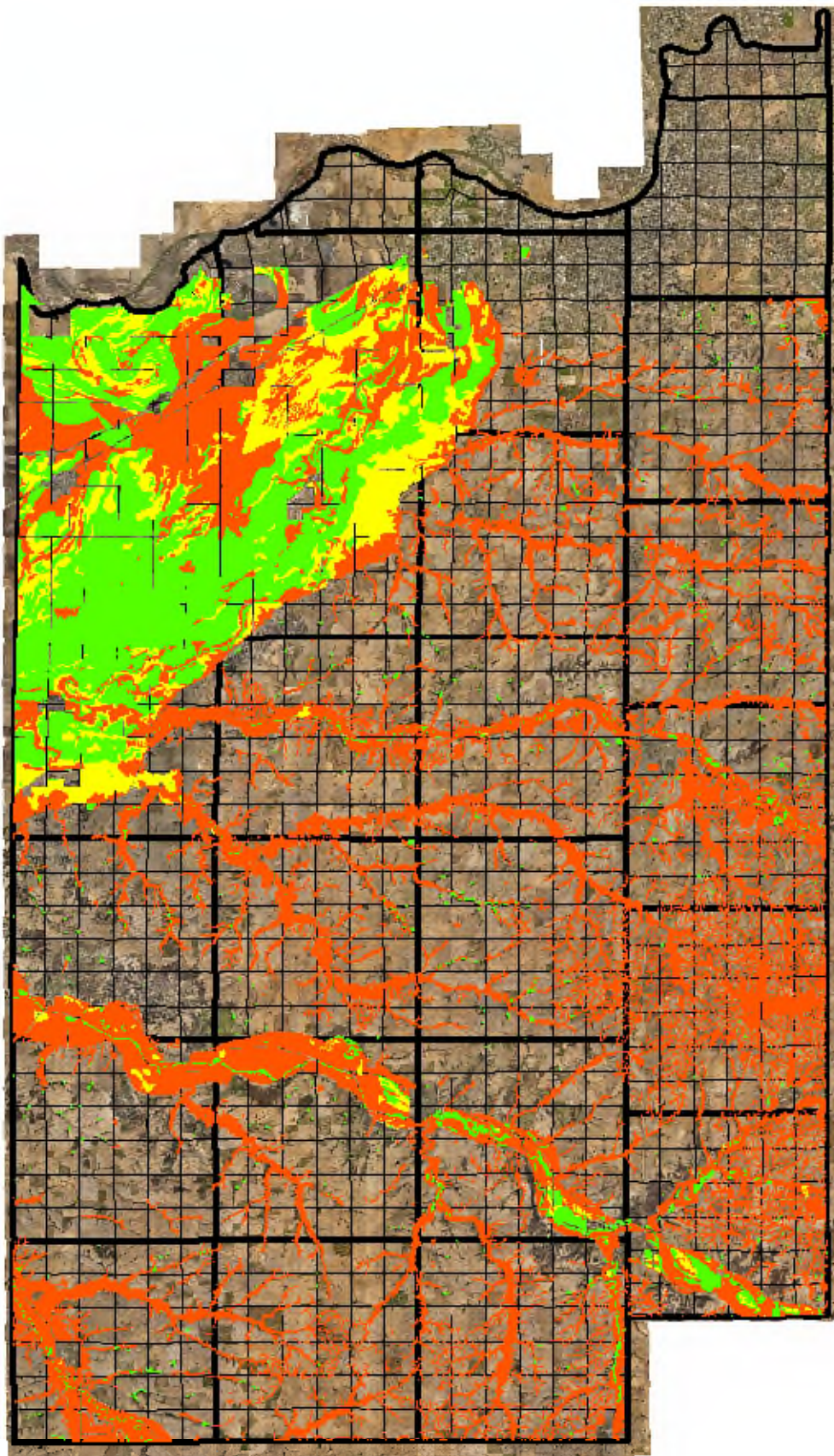


- **Agricultural Preservation: Estimated Total acres based on Schneider/Beacon gross acres with gross CSR2 greater than 65**
  - 204,405.91 Acres
  
- **Agricultural Preservation: Estimated Total acres based on Schneider/Beacon gross acres with gross CSR2 greater than 75**
  - 115,504.96 Acres



**Consideration 2:** A slope of no more than 5% in order to preserve the land and to account for soil erosion, compaction, and future land stewardship.

### Soil Slope and CSR2 Comparison

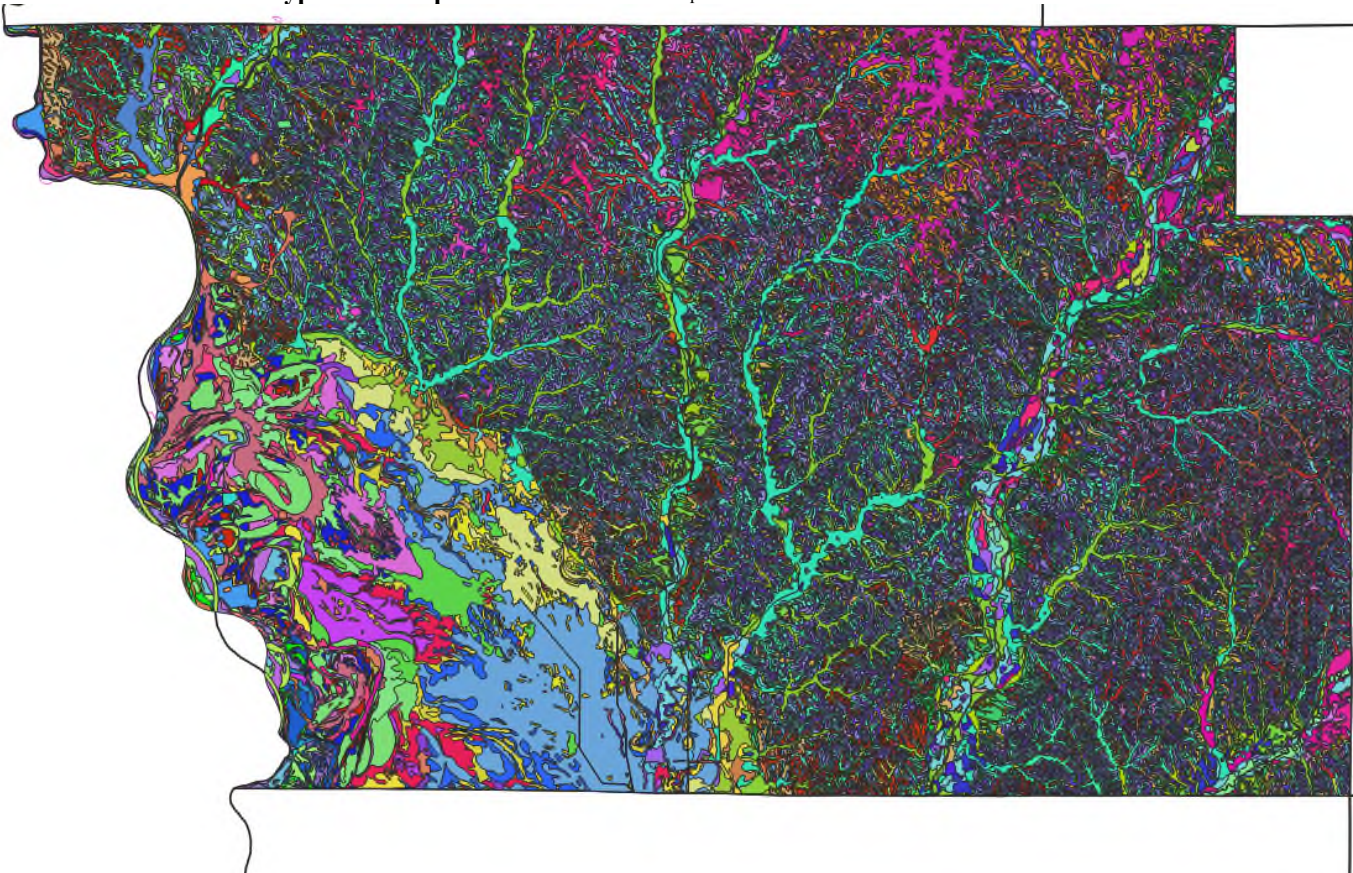


AP zoned area in  
5 or less slope 363124 acres (red)  
5 or less slope and CSR2 <= 75 138991 acres (yellow)  
5 or less slope and CSR2 <= 65 122556 acres (green)

\*NRCS data collected from the Assessor's website via Woodbury County Secondary Roads



○ Soil Types with Slope Content \*NRCS Data acquired via Schneider/Beacon



|   |  |  |
|---|--|--|
| ✓ | Albaton silty clay, 0 to 2 percent slopes, rarely flooded                            | Albaton silty clay, 0 to 2 percent slopes, rarely flooded                            |
| ✓ | Albaton silty clay, depressional, drained, 0 to 1 percent slopes, frequently flooded | Albaton silty clay, depressional, drained, 0 to 1 percent slopes, frequently flooded |
| ✓ | Anthon silty clay loam, 0 to 2 percent slopes  | Anthon silty clay loam, 0 to 2 percent slopes  |
| ✓ | Anthon silty clay loam, 2 to 5 percent slopes  | Anthon silty clay loam, 2 to 5 percent slopes  |
| ✓ | Blake silty clay loam, 0 to 2 percent slopes, occasionally flooded                   | Blake silty clay loam, 0 to 2 percent slopes, occasionally flooded                   |
| ✓ | Blake silty clay loam, 0 to 2 percent slopes, rarely flooded                         | Blake silty clay loam, 0 to 2 percent slopes, rarely flooded                         |
| ✓ | Blencoe-Woodbury silty clays, 0 to 2 percent slopes, rarely flooded                  | Blencoe-Woodbury silty clays, 0 to 2 percent slopes, rarely flooded                  |
| ✓ | Blend silty clay, 0 to 2 percent slopes, rarely flooded                              | Blend silty clay, 0 to 2 percent slopes, rarely flooded                              |
| ✓ | Burcham silt loam, 0 to 2 percent slopes, rarely flooded                             | Burcham silt loam, 0 to 2 percent slopes, rarely flooded                             |
| ✓ | Burchard clay loam, 9 to 18 percent slopes   | Burchard clay loam, 9 to 18 percent slopes   |
| ✓ | Calco silty clay loam, 0 to 2 percent slopes, occasionally flooded                   | Calco silty clay loam, 0 to 2 percent slopes, occasionally flooded                   |
| ✓ | Castana silt loam, 14 to 20 percent slopes   | Castana silt loam, 14 to 20 percent slopes   |
| ✓ | Castana silt loam, 9 to 14 percent slopes  | Castana silt loam, 9 to 14 percent slopes  |
| ✓ | Cooper silty clay loam, 0 to 2 percent slopes, rarely flooded                        | Cooper silty clay loam, 0 to 2 percent slopes, rarely flooded                        |
| ✓ | Danbury silt loam, 0 to 2 percent slopes, occasionally flooded                       | Danbury silt loam, 0 to 2 percent slopes, occasionally flooded                       |
| ✓ | Deloit loam, 2 to 5 percent slopes   | Deloit loam, 2 to 5 percent slopes   |
| ✓ | Deloit loam, 5 to 9 percent slopes   | Deloit loam, 5 to 9 percent slopes   |
| ✓ | Deloit loam, 9 to 18 percent slopes  | Deloit loam, 9 to 18 percent slopes  |
| ✓ | Dockery-Quiver silt loams, deep loess, 0 to 2 percent slopes, occasionally flooded   | Dockery-Quiver silt loams, deep loess, 0 to 2 percent slopes, occasionally flooded   |
| ✓ | Fairhaven silt loam, 32 to 40 inches to sand and gravel, 0 to 2 percent slopes       | Fairhaven silt loam, 32 to 40 inches to sand and gravel, 0 to 2 percent slopes       |
| ✓ | Fairhaven silt loam, 32 to 40 inches to sand and gravel, 2 to 5 percent slopes       | Fairhaven silt loam, 32 to 40 inches to sand and gravel, 2 to 5 percent slopes       |
| ✓ | Fluvaquents, 0 to 2 percent slopes, frequently flooded                               | Fluvaquents, 0 to 2 percent slopes, frequently flooded                               |
| ✓ | Galva silty clay loam, 2 to 5 percent slopes   | Galva silty clay loam, 2 to 5 percent slopes   |
| ✓ | Galva silty clay loam, 5 to 9 percent slopes, eroded                                 | Galva silty clay loam, 5 to 9 percent slopes, eroded                                 |
| ✓ | Galva silty clay loam, terrace, 2 to 5 percent slopes                                | Galva silty clay loam, terrace, 2 to 5 percent slopes                                |
| ✓ | Galva silty clay loam, terrace, 5 to 9 percent slopes, eroded                        | Galva silty clay loam, terrace, 5 to 9 percent slopes, eroded                        |
| ✓ | Grable-Morconick complex, 0 to 2 percent slopes, occasionally flooded                | Grable-Morconick complex, 0 to 2 percent slopes, occasionally flooded                |
| ✓ | Grable-Morconick complex, 0 to 2 percent slopes, rarely flooded                      | Grable-Morconick complex, 0 to 2 percent slopes, rarely flooded                      |
| ✓ | Grantcenter silty clay loam, 0 to 2 percent slopes, rarely flooded                   | Grantcenter silty clay loam, 0 to 2 percent slopes, rarely flooded                   |
| ✓ | Hamburg silt loam, 40 to 75 percent slopes   | Hamburg silt loam, 40 to 75 percent slopes   |
| ✓ | Hawick sandy loam, 14 to 18 percent slopes   | Hawick sandy loam, 14 to 18 percent slopes   |
| ✓ | Hawick sandy loam, 18 to 25 percent slopes   | Hawick sandy loam, 18 to 25 percent slopes   |
| ✓ | Hawick sandy loam, 5 to 9 percent slopes   | Hawick sandy loam, 5 to 9 percent slopes   |
| ✓ | Hawick sandy loam, 9 to 14 percent slopes  | Hawick sandy loam, 9 to 14 percent slopes  |
| ✓ | Haynie silt loam, 0 to 2 percent slopes, occasionally flooded                        | Haynie silt loam, 0 to 2 percent slopes, occasionally flooded                        |
| ✓ | Haynie silt loam, deep loess, 0 to 2 percent slopes, rarely flooded                  | Haynie silt loam, deep loess, 0 to 2 percent slopes, rarely flooded                  |
| ✓ | Holly Springs silty clay loam, 0 to 2 percent slopes, rarely flooded                 | Holly Springs silty clay loam, 0 to 2 percent slopes, rarely flooded                 |
| ✓ | Holly Springs silty clay loam, 0 to 2 percent slopes, rarely flooded, overwash       | Holly Springs silty clay loam, 0 to 2 percent slopes, rarely flooded, overwash       |
| ✓ | Ida silt loam, 14 to 20 percent slopes, severely eroded                              | Ida silt loam, 14 to 20 percent slopes, severely eroded                              |
| ✓ | Ida silt loam, 2 to 5 percent slopes, severely eroded                                | Ida silt loam, 2 to 5 percent slopes, severely eroded                                |
| ✓ | Ida silt loam, 20 to 30 percent slopes   | Ida silt loam, 20 to 30 percent slopes   |
| ✓ | Ida silt loam, 20 to 30 percent slopes, severely eroded                              | Ida silt loam, 20 to 30 percent slopes, severely eroded                              |
| ✓ | Ida silt loam, 30 to 40 percent slopes   | Ida silt loam, 30 to 40 percent slopes   |
| ✓ | Ida silt loam, 5 to 9 percent slopes   | Ida silt loam, 5 to 9 percent slopes   |
| ✓ | Ida silt loam, 5 to 9 percent slopes, severely eroded                                | Ida silt loam, 5 to 9 percent slopes, severely eroded                                |



|   |  |  |
|---|--|--|
| ✓ | Ida silt loam, 9 to 14 percent slopes, severely eroded                         | Ida silt loam, 9 to 14 percent slopes, severely eroded                         |
| ✓ | Ida-Urban land complex, 14 to 20 percent slopes                                | Ida-Urban land complex, 14 to 20 percent slopes                                |
| ✓ | Ida-Urban land complex, 2 to 9 percent slopes                                  | Ida-Urban land complex, 2 to 9 percent slopes                                  |
| ✓ | Ida-Urban land complex, 20 to 30 percent slopes                                | Ida-Urban land complex, 20 to 30 percent slopes                                |
| ✓ | Ida-Urban land complex, 9 to 14 percent slopes                                 | Ida-Urban land complex, 9 to 14 percent slopes                                 |
| ✓ | Judson silty clay loam, deep loess, 2 to 5 percent slopes                      | Judson silty clay loam, deep loess, 2 to 5 percent slopes                      |
| ✓ | Judson silty clay loam, deep loess, 5 to 9 percent slopes                      | Judson silty clay loam, deep loess, 5 to 9 percent slopes                      |
| ✓ | Judson-Rawles complex, 0 to 5 percent slopes                                   | Judson-Rawles complex, 0 to 5 percent slopes                                   |
| ✓ | Keg loam, 0 to 2 percent slopes, rarely flooded                                | Keg loam, 0 to 2 percent slopes, rarely flooded                                |
| ✓ | Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded                | Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded                |
| ✓ | Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded, overwash      | Kennebec silt loam, 0 to 2 percent slopes, occasionally flooded, overwash      |
| ✓ | Kennebec silty clay loam, 0 to 2 percent slopes, occasionally flooded          | Kennebec silty clay loam, 0 to 2 percent slopes, occasionally flooded          |
| ✓ | Lakeport silty clay loam, 0 to 2 percent slopes, rarely flooded                | Lakeport silty clay loam, 0 to 2 percent slopes, rarely flooded                |
| ✓ | Larpenteur loam, 0 to 2 percent slopes, rarely flooded                         | Larpenteur loam, 0 to 2 percent slopes, rarely flooded                         |
| ✓ | Liston-Burchard complex, 18 to 25 percent slopes                               | Liston-Burchard complex, 18 to 25 percent slopes                               |
| ✓ | Liston-Burchard complex, 25 to 40 percent slopes                               | Liston-Burchard complex, 25 to 40 percent slopes                               |
| ✓ | Luton silty clay loam, 0 to 2 percent slopes, rarely flooded                   | Luton silty clay loam, 0 to 2 percent slopes, rarely flooded                   |
| ✓ | Luton silty clay, 0 to 2 percent slopes, rarely flooded                        | Luton silty clay, 0 to 2 percent slopes, rarely flooded                        |
| ✓ | Modale complex, 0 to 2 percent slopes, occasionally flooded                    | Modale complex, 0 to 2 percent slopes, occasionally flooded                    |
| ✓ | Modale complex, 0 to 2 percent slopes, rarely flooded                          | Modale complex, 0 to 2 percent slopes, rarely flooded                          |
| ✓ | Monona silt loam, 14 to 20 percent slopes                                      | Monona silt loam, 14 to 20 percent slopes                                      |
| ✓ | Monona silt loam, 14 to 20 percent slopes, severely eroded                     | Monona silt loam, 14 to 20 percent slopes, severely eroded                     |
| ✓ | Monona silt loam, 2 to 5 percent slopes  | Monona silt loam, 2 to 5 percent slopes  |
| ✓ | Monona silt loam, 2 to 5 percent slopes, eroded                                | Monona silt loam, 2 to 5 percent slopes, eroded                                |
| ✓ | Monona silt loam, 20 to 30 percent slopes                                      | Monona silt loam, 20 to 30 percent slopes                                      |
| ✓ | Monona silt loam, 5 to 9 percent slopes, eroded                                | Monona silt loam, 5 to 9 percent slopes, eroded                                |
| ✓ | Monona silt loam, 9 to 14 percent slopes, eroded                               | Monona silt loam, 9 to 14 percent slopes, eroded                               |
| ✓ | Monona silt loam, 9 to 14 percent slopes, severely eroded                      | Monona silt loam, 9 to 14 percent slopes, severely eroded                      |
| ✓ | Monona silt loam, terrace, 0 to 2 percent slopes                               | Monona silt loam, terrace, 0 to 2 percent slopes                               |
| ✓ | Monona silt loam, terrace, 2 to 5 percent slopes                               | Monona silt loam, terrace, 2 to 5 percent slopes                               |
| ✓ | Monona silt loam, terrace, 2 to 5 percent slopes, eroded                       | Monona silt loam, terrace, 2 to 5 percent slopes, eroded                       |
| ✓ | Monona silt loam, terrace, 5 to 9 percent slopes, eroded                       | Monona silt loam, terrace, 5 to 9 percent slopes, eroded                       |
| ✓ | Monona silty clay loam, 14 to 20 percent slopes, eroded                        | Monona silty clay loam, 14 to 20 percent slopes, eroded                        |
| ✓ | Monona silty clay loam, 2 to 5 percent slopes                                  | Monona silty clay loam, 2 to 5 percent slopes                                  |
| ✓ | Monona silty clay loam, 5 to 9 percent slopes, eroded                          | Monona silty clay loam, 5 to 9 percent slopes, eroded                          |
| ✓ | Monona silty clay loam, 9 to 14 percent slopes, eroded                         | Monona silty clay loam, 9 to 14 percent slopes, eroded                         |
| ✓ | Monona silty clay loam, terrace, 0 to 2 percent slopes                         | Monona silty clay loam, terrace, 0 to 2 percent slopes                         |
| ✓ | Monona silty clay loam, terrace, 2 to 5 percent slopes                         | Monona silty clay loam, terrace, 2 to 5 percent slopes                         |
| ✓ | Monona silty clay loam, terrace, 5 to 9 percent slopes, eroded                 | Monona silty clay loam, terrace, 5 to 9 percent slopes, eroded                 |
| ✓ | Monona silty clay loam, terrace, 9 to 14 percent slopes, eroded                | Monona silty clay loam, terrace, 9 to 14 percent slopes, eroded                |
| ✓ | Monona-Ida silt loams, 14 to 20 percent slopes, eroded                         | Monona-Ida silt loams, 14 to 20 percent slopes, eroded                         |
| ✓ | Monona-Urban land complex, 14 to 20 percent slopes                             | Monona-Urban land complex, 14 to 20 percent slopes                             |
| ✓ | Monona-Urban land complex, 2 to 5 percent slopes                               | Monona-Urban land complex, 2 to 5 percent slopes                               |
| ✓ | Monona-Urban land complex, 5 to 9 percent slopes                               | Monona-Urban land complex, 5 to 9 percent slopes                               |
| ✓ | Monona-Urban land complex, 9 to 14 percent slopes                              | Monona-Urban land complex, 9 to 14 percent slopes                              |
| ✓ | Morconick fine sandy loam, 0 to 2 percent slopes, occasionally flooded         | Morconick fine sandy loam, 0 to 2 percent slopes, occasionally flooded         |
| ✓ | Morconick fine sandy loam, 0 to 2 percent slopes, rarely flooded               | Morconick fine sandy loam, 0 to 2 percent slopes, rarely flooded               |
| ✓ | Moville-Holly Springs, overwash complex, 0 to 2 percent slopes, rarely flooded | Moville-Holly Springs, overwash complex, 0 to 2 percent slopes, rarely flooded |
| ✓ | Napa-Luton-Tieville silty clays, 0 to 2 percent slopes, rarely flooded         | Napa-Luton-Tieville silty clays, 0 to 2 percent slopes, rarely flooded         |
| ✓ | Napier silt loam, 2 to 5 percent slopes  | Napier silt loam, 2 to 5 percent slopes  |
| ✓ | Napier silt loam, 5 to 9 percent slopes  | Napier silt loam, 5 to 9 percent slopes  |
| ✓ | Napier-Castana silt loams, 9 to 20 percent slopes                              | Napier-Castana silt loams, 9 to 20 percent slopes                              |
| ✓ | Napier-Castana-Urban land complex, 9 to 14 percent slopes                      | Napier-Castana-Urban land complex, 9 to 14 percent slopes                      |
| ✓ | Napier-Gullied land complex, 5 to 14 percent slopes                            | Napier-Gullied land complex, 5 to 14 percent slopes                            |
| ✓ | Napier-Kennebec-Colo complex, 0 to 5 percent slopes                            | Napier-Kennebec-Colo complex, 0 to 5 percent slopes                            |
| ✓ | Napier-Rawles complex, 2 to 5 percent slopes                                   | Napier-Rawles complex, 2 to 5 percent slopes                                   |
| ✓ | Napier-Urban land complex, 2 to 5 percent slopes                               | Napier-Urban land complex, 2 to 5 percent slopes                               |
| ✓ | Napier-Urban land complex, 5 to 9 percent slopes                               | Napier-Urban land complex, 5 to 9 percent slopes                               |
| ✓ | Onawa silty clay, 0 to 2 percent slopes, occasionally flooded                  | Onawa silty clay, 0 to 2 percent slopes, occasionally flooded                  |
| ✓ | Onawa-Albaton complex, 0 to 2 percent slopes, rarely flooded                   | Onawa-Albaton complex, 0 to 2 percent slopes, rarely flooded                   |
| ✓ | Owego silty clay, 0 to 2 percent slopes, rarely flooded                        | Owego silty clay, 0 to 2 percent slopes, rarely flooded                        |
| ✓ | Percival silty clay, 0 to 2 percent slopes, rarely flooded                     | Percival silty clay, 0 to 2 percent slopes, rarely flooded                     |
| ✓ | Percival-Albaton complex, 0 to 2 percent slopes, occasionally flooded          | Percival-Albaton complex, 0 to 2 percent slopes, occasionally flooded          |
| ✓ | Percival-Haynie-Urban land complex, 0 to 2 percent slopes, rarely flooded      | Percival-Haynie-Urban land complex, 0 to 2 percent slopes, rarely flooded      |
| ✓ | Pits, clay   | Pits, clay   |
| ✓ | Pits, sand and gravel  | Pits, sand and gravel  |
| ✓ | Rawles silt loam, 0 to 2 percent slopes, occasionally flooded                  | Rawles silt loam, 0 to 2 percent slopes, occasionally flooded                  |
| ✓ | Rawles-Urban land complex, 0 to 2 percent slopes                               | Rawles-Urban land complex, 0 to 2 percent slopes                               |
| ✓ | Salix silt loam, 0 to 2 percent slopes, rarely flooded                         | Salix silt loam, 0 to 2 percent slopes, rarely flooded                         |
| ✓ | Sarpy loamy fine sand, 0 to 2 percent slopes, rarely flooded                   | Sarpy loamy fine sand, 0 to 2 percent slopes, rarely flooded                   |
| ✓ | Sarpy loamy fine sand, 2 to 5 percent slopes, occasionally flooded             | Sarpy loamy fine sand, 2 to 5 percent slopes, occasionally flooded             |
| ✓ | Sarpy loamy fine sand, 2 to 5 percent slopes, rarely flooded                   | Sarpy loamy fine sand, 2 to 5 percent slopes, rarely flooded                   |
| ✓ | Sarpy loamy fine sand, 5 to 9 percent slopes, occasionally flooded             | Sarpy loamy fine sand, 5 to 9 percent slopes, occasionally flooded             |
| ✓ | Sarpy-Morconick complex, 0 to 2 percent slopes, occasionally flooded           | Sarpy-Morconick complex, 0 to 2 percent slopes, occasionally flooded           |
| ✓ | Scroll silty clay, 0 to 2 percent slopes, occasionally flooded                 | Scroll silty clay, 0 to 2 percent slopes, occasionally flooded                 |
| ✓ | Sewage lagoon  | Sewage lagoon  |
| ✓ | Smithland silt loam, 0 to 2 percent slopes, occasionally flooded, overwash     | Smithland silt loam, 0 to 2 percent slopes, occasionally flooded, overwash     |
| ✓ | Smithland silty clay loam, 0 to 2 percent slopes, occasionally flooded         | Smithland silty clay loam, 0 to 2 percent slopes, occasionally flooded         |
| ✓ | Smithland-Danbury-Judson complex, 0 to 5 percent slopes                        | Smithland-Danbury-Judson complex, 0 to 5 percent slopes                        |
| ✓ | Spillville loam, 0 to 2 percent slopes, occasionally flooded                   | Spillville loam, 0 to 2 percent slopes, occasionally flooded                   |
| ✓ | Ticonic very fine sandy loam, 0 to 2 percent slopes, rarely flooded            | Ticonic very fine sandy loam, 0 to 2 percent slopes, rarely flooded            |
| ✓ | Tieville silty clay, 0 to 2 percent slopes, rarely flooded                     | Tieville silty clay, 0 to 2 percent slopes, rarely flooded                     |
| ✓ | Udorthents, loamy  | Udorthents, loamy  |
| ✓ | Udorthents, sanitary landfill  | Udorthents, sanitary landfill  |
| ✓ | Urban land   | Urban land   |
| ✓ | Water  | Water  |
| ✓ | Wilsey silt loam, 0 to 2 percent slopes, occasionally flooded                  | Wilsey silt loam, 0 to 2 percent slopes, occasionally flooded                  |
| ✓ | Woodbury silty clay, 0 to 2 percent slopes, rarely flooded                     | Woodbury silty clay, 0 to 2 percent slopes, rarely flooded                     |
| ✓ | Zook silty clay loam, 0 to 2 percent slopes, occasionally flooded              | Zook silty clay loam, 0 to 2 percent slopes, occasionally flooded              |

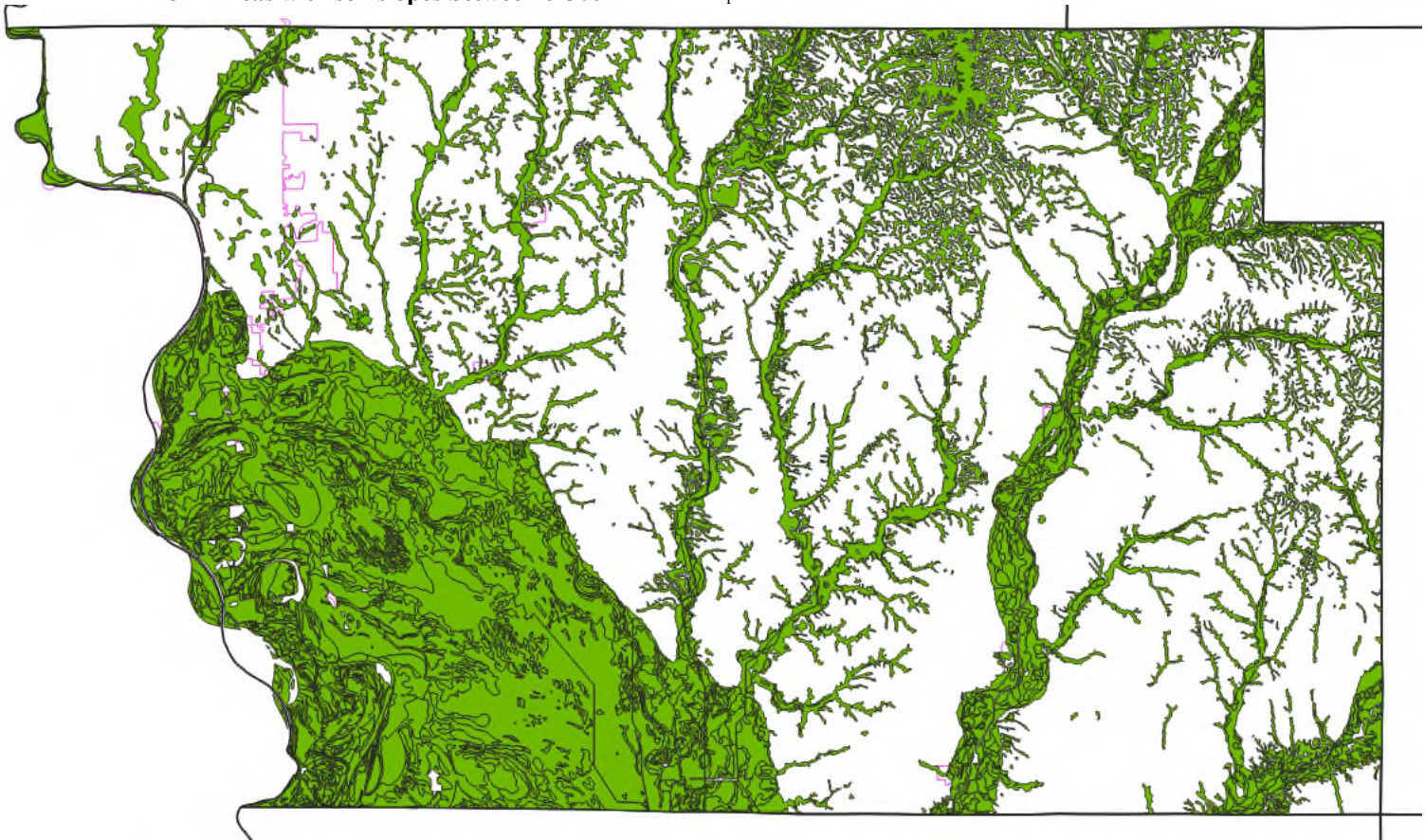
\*NRCS Data acquired via Schneider/Beacon



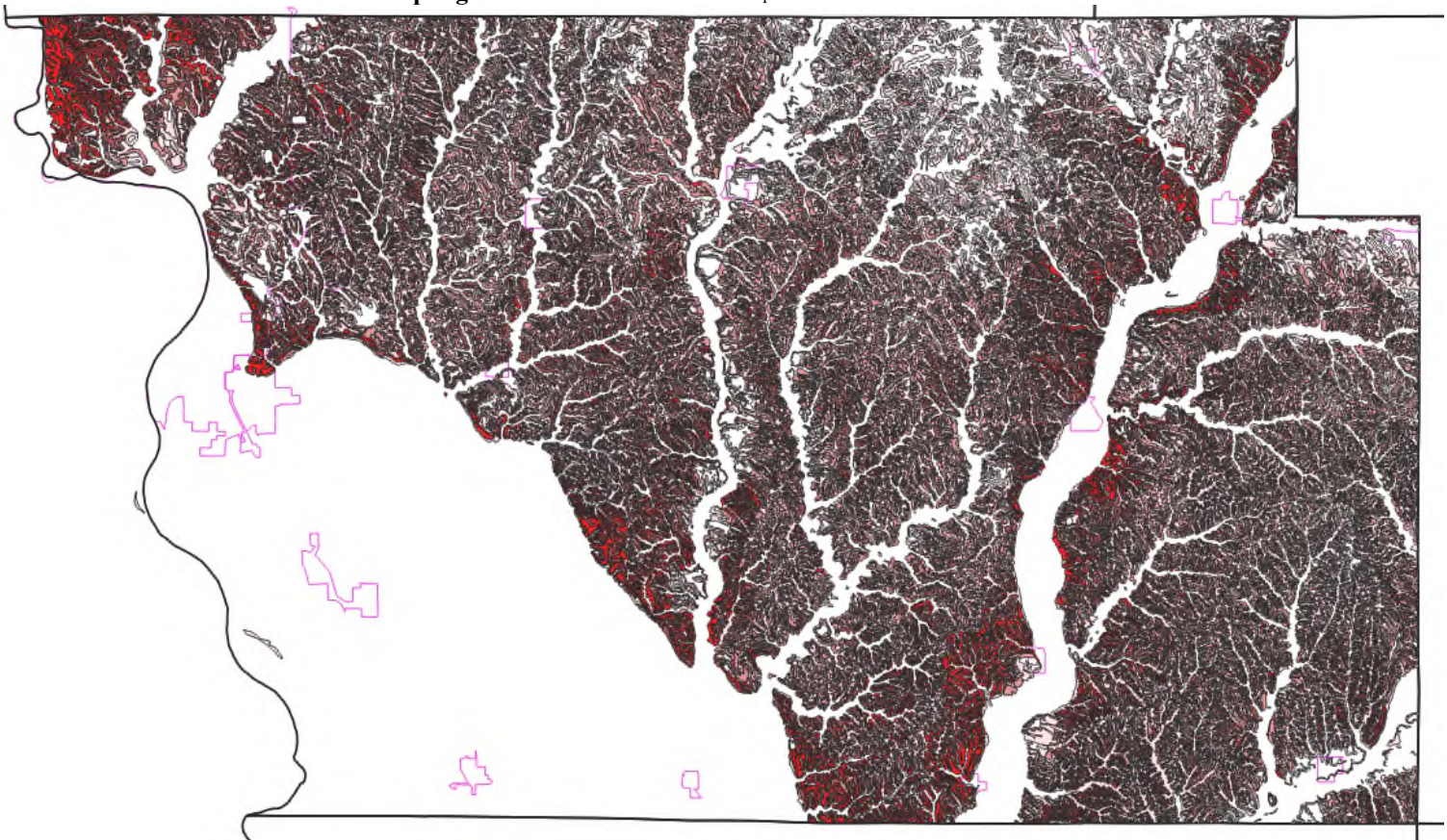




- **Areas with soil slopes between 0-5%** \*NRCS Data acquired via Schneider/Beacon

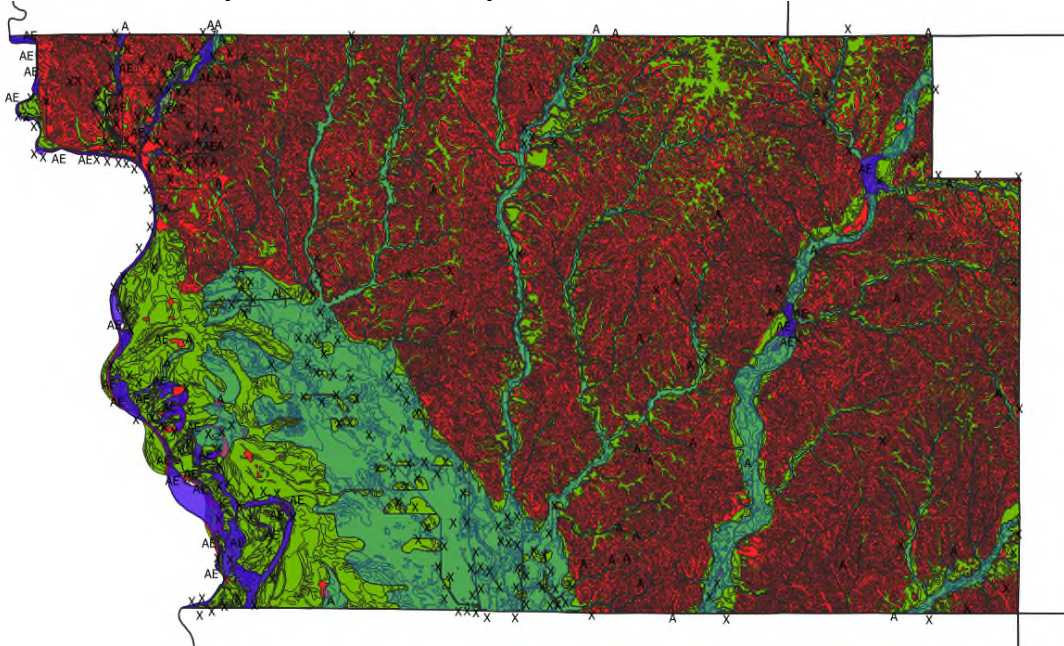


- **Areas with soil slopes greater than 5%** \*NRCS Data acquired via Schneider/Beacon

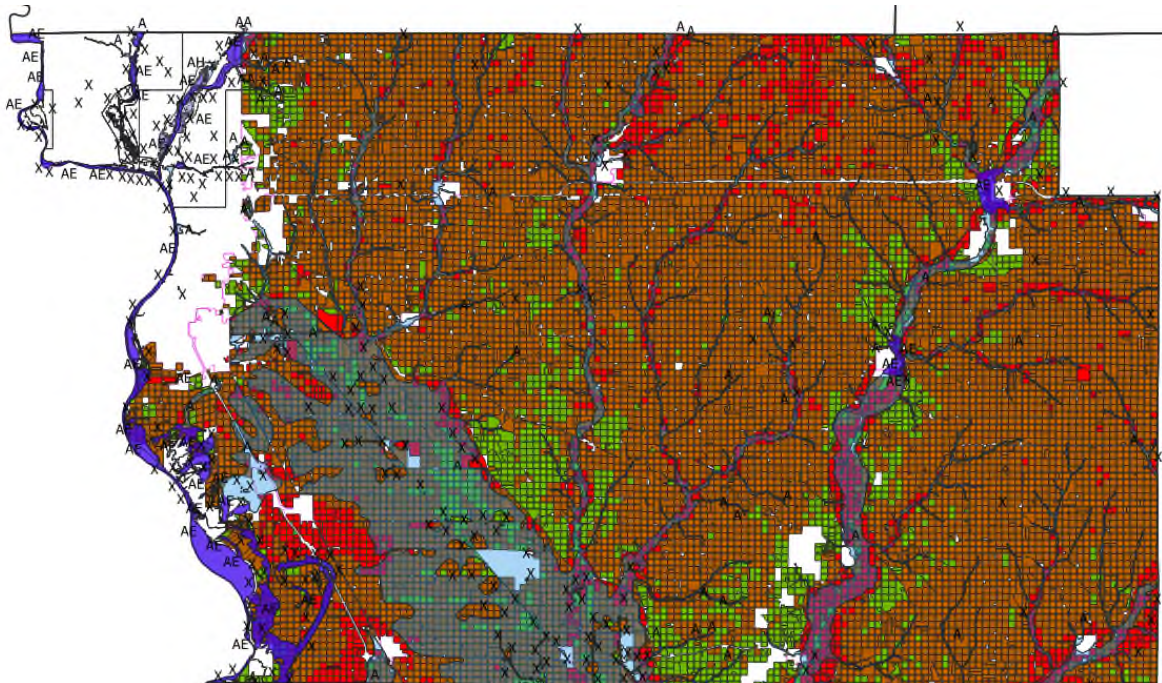




- **Floodplain and Soils with Slope over 5%** \*NRCS data and floodplain Data acquired via Schneider/Beacon
  - **Blue Represents Floodplain Areas**
  - **Red represents areas with Slope over 5%**
  - **Green represents areas with Slope under 5%**

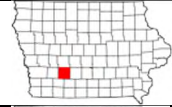



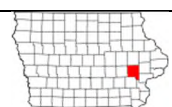

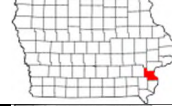
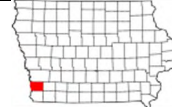
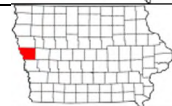


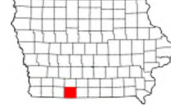




- **Floodplain and CSR2** \*NRCS data and floodplain Data acquired via Schneider/Beacon
  - **Floodplain – “Blue”**
  - **CSR2 –**
    - **0-35 – “Green”**
    - **35-64 – “Brown”**
    - **65-100 = “Red”**



**Consideration 3:** A maximum height of no more than 20’ for panel structures.

- Language could be considered that places a 20’ height limitation on the solar panels.
  - According to the *Renewable Solar Energy Systems Model Ordinance* by Guyer and Snell, 20 FT is offered as a possible height limitation for consideration. However, if agrisolar systems are to be considered in the future, the bulk regulations of the zoning district could be considered which are 45 FT. According to the AgriSolar Clearinghouse, “maximum heights range from 12 to 45 feet. Most fall between 15 and 25 feet” (Website: <https://www.agrisolarclearinghouse.org/>)

| County    | Location  | Population (2023) | Height Requirement   |
|-----------|---|-------------------|--|
| Adair     |    | 7,439             | Unspecified.   |
| Clayton   |    | 16,716            | Reverts to Zoning Ordinance. Varies: 25 to 35 FT.                    |
| Clinton   |    | 45,662            | Bulk regulations of the ordinance for structures by Zoning District. |
| Dubuque   |    | 100,949           | Bulk regulations of the ordinance for structures by Zoning District. |
| Johnson   |  | 159,445           | 35 FT  |
| Linn      |  | 236,020           | Not referenced.  |
| Louisa    |  | 10,672            | Not referenced.  |
| Mills     |  | 14,310            | 15 FT at a maximum tilt.   |
| Monona    |  | 8,604             | No restriction.  |
| Muscatine |  | 43,382            | Bulk regulations.  |
| Polk      |  | 510,929           | Bulk regulations.  |
| Ringgold  |  | 4,522             | No reference.  |

|       |   |         |  |
|-------|---|---------|--|
| Scott |   | 177,501 | Bulk regulations of the ordinance for structures by Zoning District. |
| Tama  |  | 16,946  | TBD  |

**Consideration 4:** Of all AP, no more than 49% can be in such a project. In short, 51% must be for agricultural production or no longer considered “AP.”

- This is to consider the co-existence of agricultural and utility solar. If a solar project is to co-exist on farm ground, it may be considered to require that 51% of the project be used to support agricultural purposes.

**Consideration 5:** Utility solar can be no more than 2% of all AP “agricultural preservation,” preserving 98% of AP. This equates to approximately 8,540 acres of the 427,000 acres of ag land, ag land constituting 75% of the 570,000 total acres in Woodbury County.

- Based on GIS data calculated by WCICC, it appears the Agricultural Preservation (AP) Zoning District is comprised of 508,624.55 total assessed acres. If a 2% cap is instituted, this would make approximately 10,172.49 acres available for consideration for utility-solar in the AP Zoning District.

| Zoning District   | Total Assessed Net Acres | 2% Cap              |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
|---|--------------------------|---------------------|-----------------|----------|---|--------------|----|-----------------|-------|---|--------------|----|-----------------|-------|---|--------------|----|-----------------|-------|---|--------------|----|-----------------|-------|---|--------------|----|-----------------|-------|---|--------------|----|-----------------|-------|---|--------------|----|-----------------|-------|---|--------------|----|-----------------|-------|-----------------|--------------|-----|---|-------|-----------------|-------------------------------------|-------|---|----------------------|-------|-------------------------------------|----------------------------|-------|----------------------|----------|---------------------|----------------------------|---|-----------|------------|-----------|
| <b>Agricultural Preservation (AP)</b><br><table border="1"> <thead> <tr> <th>ParcelNumber</th> <th>County_Zoning_GIS</th> <th>area</th> <th>netacres</th> </tr> </thead> <tbody> <tr><td>1</td><td>874231300002</td><td>AP</td><td>1749948.0119600</td><td>40.00</td></tr> <tr><td>2</td><td>894328300001</td><td>AP</td><td>1687765.7362400</td><td>39.00</td></tr> <tr><td>3</td><td>864610400002</td><td>AP</td><td>1694640.7414700</td><td>39.00</td></tr> <tr><td>4</td><td>884422300005</td><td>AP</td><td>1585196.7091100</td><td>36.11</td></tr> <tr><td>5</td><td>864423100001</td><td>AP</td><td>1704218.3953600</td><td>38.43</td></tr> <tr><td>6</td><td>874301400003</td><td>AP</td><td>1676879.5581500</td><td>39.00</td></tr> <tr><td>7</td><td>864306200006</td><td>AP</td><td>1846312.5195300</td><td>40.42</td></tr> <tr><td>8</td><td>864214400001</td><td>AP</td><td>1780673.1848300</td><td>40.00</td></tr> <tr><td>9</td><td>864735200003</td><td>AP</td><td>1711274.6214900</td><td>40.00</td></tr> </tbody> </table><br><table border="1"> <tr><td>Total_AP_Parcel</td><td>1</td><td>16277</td></tr> <tr><td>Total_AP_Parcel_with_calculated_area_data</td><td>1</td><td>16000</td></tr> <tr><td>Total_AP_Parcel_with_net_acres_data</td><td>1</td><td>16017</td></tr> <tr><td>Total_AP_Area_in_SqR</td><td>1</td><td>22235446657.2539488</td></tr> <tr><td>Total_AP_assessed_netacres</td><td>1</td><td>508624.55</td></tr> </table> | ParcelNumber             | County_Zoning_GIS   | area            | netacres | 1 | 874231300002 | AP | 1749948.0119600 | 40.00 | 2 | 894328300001 | AP | 1687765.7362400 | 39.00 | 3 | 864610400002 | AP | 1694640.7414700 | 39.00 | 4 | 884422300005 | AP | 1585196.7091100 | 36.11 | 5 | 864423100001 | AP | 1704218.3953600 | 38.43 | 6 | 874301400003 | AP | 1676879.5581500 | 39.00 | 7 | 864306200006 | AP | 1846312.5195300 | 40.42 | 8 | 864214400001 | AP | 1780673.1848300 | 40.00 | 9               | 864735200003 | AP  | 1711274.6214900                           | 40.00 | Total_AP_Parcel | 1                                   | 16277 | Total_AP_Parcel_with_calculated_area_data | 1                    | 16000 | Total_AP_Parcel_with_net_acres_data | 1                          | 16017 | Total_AP_Area_in_SqR | 1        | 22235446657.2539488 | Total_AP_assessed_netacres | 1 | 508624.55 | 508,624.55 | 10,172.49 |
| ParcelNumber  | County_Zoning_GIS        | area                | netacres        |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 1   | 874231300002             | AP                  | 1749948.0119600 | 40.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 2   | 894328300001             | AP                  | 1687765.7362400 | 39.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 3   | 864610400002             | AP                  | 1694640.7414700 | 39.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 4   | 884422300005             | AP                  | 1585196.7091100 | 36.11    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 5   | 864423100001             | AP                  | 1704218.3953600 | 38.43    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 6   | 874301400003             | AP                  | 1676879.5581500 | 39.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 7   | 864306200006             | AP                  | 1846312.5195300 | 40.42    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 8   | 864214400001             | AP                  | 1780673.1848300 | 40.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 9   | 864735200003             | AP                  | 1711274.6214900 | 40.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_Parcel   | 1                        | 16277               |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_Parcel_with_calculated_area_data   | 1                        | 16000               |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_Parcel_with_net_acres_data   | 1                        | 16017               |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_Area_in_SqR  | 1                        | 22235446657.2539488 |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_assessed_netacres  | 1                        | 508624.55           |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| <b>General Industrial (GI)</b><br><table border="1"> <thead> <tr> <th>ParcelNumber</th> <th>County_Zoning_GIS</th> <th>area</th> <th>netacres</th> </tr> </thead> <tbody> <tr><td>1</td><td>874719200006</td><td>GI</td><td>501954.5607650</td><td>11.47</td></tr> <tr><td>2</td><td>874717300006</td><td>GI</td><td>1568660.3322300</td><td>34.55</td></tr> <tr><td>3</td><td>874717300004</td><td>GI</td><td>1783263.2969900</td><td>40.00</td></tr> <tr><td>4</td><td>874731200001</td><td>GI</td><td>1650863.1450400</td><td>37.73</td></tr> <tr><td>5</td><td>874811300002</td><td>GI</td><td>33478.7569978</td><td>0.00</td></tr> <tr><td>6</td><td>874811400004</td><td>GI</td><td>1703073.5293600</td><td>39.00</td></tr> <tr><td>7</td><td>874720400002</td><td>GI</td><td>1705136.0371400</td><td>39.00</td></tr> <tr><td>8</td><td>874721300007</td><td>GI</td><td>158891.1942290</td><td>3.41</td></tr> </tbody> </table><br><table border="1"> <tr><td>Total_AP_Parcel</td><td>1</td><td>340</td></tr> <tr><td>Total_AP_Parcel_with_calculated_area_data</td><td>1</td><td>338</td></tr> <tr><td>Total_AP_Parcel_with_net_acres_data</td><td>1</td><td>338</td></tr> <tr><td>Total_AP_Area_in_SqR</td><td>1</td><td>458024577.7374108</td></tr> <tr><td>Total_AP_assessed_netacres</td><td>1</td><td>9051.89</td></tr> </table>  | ParcelNumber             | County_Zoning_GIS   | area            | netacres | 1 | 874719200006 | GI | 501954.5607650  | 11.47 | 2 | 874717300006 | GI | 1568660.3322300 | 34.55 | 3 | 874717300004 | GI | 1783263.2969900 | 40.00 | 4 | 874731200001 | GI | 1650863.1450400 | 37.73 | 5 | 874811300002 | GI | 33478.7569978   | 0.00  | 6 | 874811400004 | GI | 1703073.5293600 | 39.00 | 7 | 874720400002 | GI | 1705136.0371400 | 39.00 | 8 | 874721300007 | GI | 158891.1942290  | 3.41  | Total_AP_Parcel | 1            | 340 | Total_AP_Parcel_with_calculated_area_data | 1     | 338             | Total_AP_Parcel_with_net_acres_data | 1     | 338                                       | Total_AP_Area_in_SqR | 1     | 458024577.7374108                   | Total_AP_assessed_netacres | 1     | 9051.89              | 9,051.89 | -                   |                            |   |           |            |           |
| ParcelNumber  | County_Zoning_GIS        | area                | netacres        |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 1   | 874719200006             | GI                  | 501954.5607650  | 11.47    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 2   | 874717300006             | GI                  | 1568660.3322300 | 34.55    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 3   | 874717300004             | GI                  | 1783263.2969900 | 40.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 4   | 874731200001             | GI                  | 1650863.1450400 | 37.73    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 5   | 874811300002             | GI                  | 33478.7569978   | 0.00     |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 6   | 874811400004             | GI                  | 1703073.5293600 | 39.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 7   | 874720400002             | GI                  | 1705136.0371400 | 39.00    |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| 8   | 874721300007             | GI                  | 158891.1942290  | 3.41     |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_Parcel   | 1                        | 340                 |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_Parcel_with_calculated_area_data   | 1                        | 338                 |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_Parcel_with_net_acres_data   | 1                        | 338                 |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_Area_in_SqR  | 1                        | 458024577.7374108   |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |
| Total_AP_assessed_netacres  | 1                        | 9051.89             |                 |          |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |   |              |    |                 |       |                 |              |     |   |       |                 |                                     |       |   |                      |       |                                     |                            |       |                      |          |                     |                            |   |           |            |           |

**Consideration 6:** Current notification for utility-scale solar shall be 1 mile for public comment instead of 500 feet.

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- As a conditional use, the notification area of 500 FT from the project site could be expanded to one (1) mile. It will be important to note, that this could increase administrative costs. However, the Board of Supervisors did revise the fee schedule on August 2, 2022 to require the owners(s)/applicant(s) for conditional use permits to pay additional costs associated with the processing, printing, and the mailing of notifications of the public hearings when the number of mailings exceeds 30. They shall also pay the additional costs of the legal publication notice(s) in newspaper(s) when the fees exceed \$100.00.
- The Zoning Commission may also make recommendations to the fee structure for utility-scale solar conditional use permits.

**Consideration 7:** A requirement (or at least strong consideration) that the utility-scale solar project either be on a landowner's property or that the owner of the land be a resident of Woodbury County.

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- The Zoning Commission might consider either a requirement or consideration that the utility-scale solar project either be on a landowner's property or that the owner of the land be a resident of Woodbury County.