

## PLAN COMMISSION AGENDA

Tuesday, November 26, 2019  
6:00 PM

- 1) Call to Order
- 2) Pledge of Allegiance
- 3) Roll Call
- 4) Public Participation (Non-Agenda Harrison Related Items)  
*Please be advised per State Statute Section 19.84(2), information will be received from the public; be further advised that there may be limited discussion on the information received; however, no action will be taken under public comments.*
- 5) Approve Minutes
  - October 29, 2019
- 6) Convene Meeting and Enter Public Hearing
  - a. Conditional Use Permit – Cell Tower – Tillman Infrastructure LLC – Hwy 10
- 7) Close Public Hearing and Reconvene Regular Meeting
- 8) Items for Discussion and Possible Action
  - a. Conditional Use Permit – Cell Tower – Tillman Infrastructure LLC – Hwy 10
  - b. Preliminary Plat – Kimberly Heights 4 – Schmidt Road
- 9) Items for Discussion
  - a. Report: Zoning Permits
- 10) Set Next Meeting Date
  - Tentatively January 28, 2020 at 6:00pm
- 11) Adjourn

Any person with hearing disabilities or requiring special accommodations to participate in the meeting should contact the Clerk's Office (920-989-1062) at least 24-hours prior to the meeting. This is a public meeting. As such, a quorum of the Village Board, Zoning Board of Appeals, or Committees may be in attendance. However, the only business to be conducted is for the Plan Commission.

Posted: November 19, 2019

PLAN COMMISSION  
MEETING MINUTES – October 29 2019

- 1) The meeting was called to order in the Harrison Municipal Building by Chairman Hietpas at 6pm.
- 2) The Pledge of Allegiance was recited.
- 3) Roll Call: Members present were: Jim Fochs, Jim Lincoln, Buddy Lisowe, Darlene Bartlein, Kevin Hietpas, Pat Hennessey, and Dennis Reed.  
Staff Present: Mark Mommaerts, Planner; Carie Krause, Deputy Clerk - Treasurer
- 4) Public Participation: None.
- 5) Motion (Lisowe/Lincoln) to approve the minutes of September 24 2019.  
Motion carried 7-0.
- 6) Convene Meeting and Enter Public Hearing at 6:01pm
  - a) Comprehensive Plan Amendment – Premier Real Estate Management, LLC – Friendship Drive. No Comments.
  - b) Zoning Map Amendment – Premier Real Estate Management, LLC – Friendship Drive. No Comments.
  - c) Conditional Use Permit – Premier Real Estate Management, LLC – Friendship Drive.
    1. John Maas of JMM Consulting stated that this is a great opportunity for the Village.
    2. Peter Bebeau, Highline Road questioned if there would be some sort of barrier because this will be right up to his property.
    3. Tori Kolonich of Terragon Park Apts questioned if there was truly a need for more apartments because both Terragon Park and Northshore have occupancy.
    4. Sarah Hillenbrand of Premiere Real Estate stated that there is still a need in the area. She also provided statistics of less than 3% vacancy across thousands of Premier Real Estate Management, LLC units across the area.
  - d) Comprehensive Plan Amendment – Southtowne Place – Manitowoc Rd. No Comments.
  - e) Zoning Map Amendment – Southtowne Place – Manitowoc Rd. Planner Mommaerts stated that a letter was received from a resident who is against the project.
  - f) Comprehensive Plan Amendment – Novotny/Sweere – County KK. No Comments.
  - g) Zoning Map Amendment – Novotny/Sweere – County KK. No Comments.
  - h) Official Map Amendment – Novotny/Sweere – County KK. Dave Schmalz of McMahon represented the owners and stated that they are requesting to not run Amy Ave through.
  - i) Zoning Map Amendment – Kimberly Heights 4 – Schmidt Road. No Comments.
  - j) Conditional Use Permit – Bill’s Custom Conveying – Hwy 114. Bill Porretto, owner of Bill’s Custom Conveying stated that he is currently renting and ran out of space.
  - k) Zoning Text Amendment – Driveway Openings. No Comments.
  - l) Zoning Text Amendment – Drainage Easements. No Comments.
- 7) Close Public Hearing and Reconvene Regular Meeting at 6:28pm

8) Items for Discussion and Possible Action

- a) Certified Survey Map – Hopfensperger – W4958 Schmidt Road: Planner Mommaerts introduced the item stating that this item was postponed from the September meeting in order for the applicant to revise the CSM or apply for a lot size variance. The applicant submitted a revised CSM. The applicant is proposing a 1-lot Certified Survey Map (CSM) for the property located at W4958 Schmidt Road (Tax ID 39070). There is an existing house that is proposed to be divided from the remaining lands. The house is currently served with private septic and well. The proposed lot is approximately 267-feet by 162-feet and 43,560-square feet in area. The property is currently zoned General Agricultural [AG]. The AG zoning district requires a minimum of 150-feet of road frontage and a minimum of 1-acre (43,560-square feet) area for new lots. As proposed, the lot does meet the minimum area requirement of the zoning district. The remnant parcel will have approximately 70-feet of road frontage along Schmidt Road. This could serve as a future road access to the property. Motion (Lisowe/Bartlein) to approve the Certified Survey Map as received on October 9, 2019 for Hopfensperger. Motion carried 7-0.
- b) Certified Survey Map – Mueller – Pigeon Road: Planner Mommaerts introduced the item stating that the applicant is proposing a 1-lot Certified Survey Map (CSM) for a parcel on Pigeon Road, Tax ID 43380. The property is approximately 5.05-acres. The property will have a 33-foot access out to Pigeon Road. This 33-foot strip was identified when parcel Tax ID 40180 was created a few years ago via CSM #3578. Motion (Fochs/Lisowe) to approve the Certified Survey Map for the Mueller property on Pigeon Rd. Motion carried 7-0.
- c) Plan Commission Resolution 2019-02 – Premier Real Estate Management, LLC – Friendship Drive: Planner Mommaerts introduced the item stating that the applicant is proposing to amend the future land use map in the Comprehensive Plan to allow for multiple-family residential. Currently, the future land use map identifies this area as commercial. When the Village updated the Comprehensive Plan several years ago, this site received much discussion as to whether it should be commercial or multi-family residential. At the time, it was decided to keep it as commercial until a development project was proposed, either commercial or multi-family. There are commercial uses on the north, south and east side of the property and residential uses on the west and south sides. Multi-family residential can be a buffer between the commercial and residential uses. Motion (Fochs/Lincoln) to approve PC2019-02 Comprehensive Plan Amendment. Motion carried 7-0.
- d) Zoning Map Amendment – Premier Real Estate Management, LLC – Friendship Drive: Planner Mommaerts introduced the item stating that the applicant is proposing to rezone from General Agricultural [AG] to Multiple-Family Residential [RM] the area for the development. Motion (Lisowe/Fochs) to approve Zoning Map Amendment from General Agricultural [AG] to Multiple-Family Residential [RM]. Motion carried 7-0.
- e) Special Exception to Design Standards – Premier Real Estate Management, LLC – Friendship Drive: Planner Mommaerts introduced the item stating that the applicant is

requesting a special exception to the design standards for the building exteriors. Current ordinance requires brick, block, or other masonry material on 75% of the exterior walls facing a public street. The applicant is proposing 50% brick on all sides of the buildings. Although the street view will not have as much brick, the 50% brick on all sides will make for a more attractive view to adjacent properties and will allow the development to be more cohesive.

Motion (Lisowe/Bartlein) to approve the Special Exception to Design Standards with 50 percent brick on all sides.

Motion carried 7-0.

- f) Conditional Use Permit – Premier Real Estate Management, LLC – Friendship Drive: Planner Mommaerts introduced the item stating that the zoning ordinance requires a Conditional Use Permit for any multiple-family developer greater than 3-buildings or greater than 24-units. The applicant is proposing a 10-building development with 120-units total. Landscaping and buffering should be provided along the single-family residential uses to the west and south. Potentially relocating the dumpster enclosure in the southwest corner of the site to a different area to reduce noise and nuisance issues with the adjacent properties.

Staff recommends approval of the Conditional Use Permit with the following conditions:

1. The applicant works with the Darboy Sanitary District and Village of Harrison on sanitary sewer and water main routing to ensure adjacent properties can be adequately served with water and sanitary sewer.
2. A 20-foot wide berm and landscape area be provided along the south and west sides of the development. The berm should be approximately 5-feet in height with evergreen and other plantings. Care should be taken to design the berm and plantings to shield vehicle headlights shining into adjacent properties.
3. The dumpster enclosure in the southwest corner of the site shall be relocated between buildings 5/8 or 8/9.
4. All exterior parking area lighting shall be direct cut-off fixtures to reduce/eliminate any glare.
5. All provisions of the zoning ordinance and all other Village ordinances shall be met.
6. Any comments or revisions from Village staff during the site plan review process shall be incorporated as conditions of approval.
7. All necessary permits shall be obtained prior to construction.

Motion (Hennessey/Lisowe) to approve the Conditional Use Permit with the 7 conditions listed for Friendship Drive with a modification of the 2<sup>nd</sup> Condition: changing South and West sides to Southwest & North sides facing residential properties.

Motion carried 7-0.

- g) Plan Commission Resolution 2019-03 – Southtowne Place – Manitowoc Road: Planner Mommaerts introduced the item stating that the applicant is proposing to amend the future land use map in the Comprehensive Plan to allow for two-family residential on the northern portion of the property. Currently, the future land use map identifies this area as only single-family. The applicant wishes to create a slightly higher density residential area via zero lot line homes in order to reduce infrastructure costs per unit to create a more affordable development. The applicant is proposing 16-lots for single-family



- attached housing (8 zero lot line buildings). The remaining 13-lots will be for single-family detached homes.  
Motion (Fochs/Lincoln) to approve Plan Commission Resolution PC2019-03.  
Motion carried 7-0.
- h) Zoning Map Amendment – Southtowne Place – Manitowoc Road: Planner Mommaerts introduced the item stating that the applicant is proposing to rezone from General Agricultural [AG] to Single-Family Residential (Suburban) [RS-1] the area for single-family detached lots and the existing house lot, and from General Agricultural [AG] to Two-Family Residential [RT] that area for single-family attached or zero lot line.  
Motion (Lisowe/Fochs) to approve the zoning map amendment from AG to RS-1 and RT as presented on the zoning map.  
Motion carried 7-0.
- i) Plan Commission Resolution 2019-04 – Novotny/Sweere – County KK: Planner Mommaerts introduced the item stating that the applicant is proposing to amend the future land use map in the Comprehensive Plan to allow for multiple-family residential on the southern portion of the property. Currently, the future land use map identifies this area as commercial. The applicant wishes to create a higher density residential area via townhomes (single-family attached dwellings) in order to reduce infrastructure costs per unit to create a more affordable development. The applicant feels that the area adjacent to the stormwater pond will create attractive views for residential development.  
Motion (Hennessey/Lincoln) to approve the Plan Commission Resolution PC2019-04.  
Motion carried 7-0.
- j) Zoning Map Amendment – Novotny/Sweere – County KK: Planner Mommaerts introduced the item stating that the applicant is proposing to rezone from Office & Retail Commercial [COR] to Multiple-Family Residential [RM] the area for townhome development.  
Motion (Lisowe/Bartlein) to approve the Zoning Map Amendment from COR to RM.  
Motion carried 7-0.
- k) Amy Avenue Extension – Novotny/Sweere – County KK: Planner Mommaerts introduced the item stating that the applicant is requesting that the extension of Amy Avenue be eliminated. There is a temporary cul-de-sac at the end of Amy Avenue on the west side the property for access and a driveway access out to County KK. The applicant is proposing emergency vehicle access between the residential and commercial developments as secondary access points. Staff has concerns about stopping Amy Avenue at each end of this property. The intent was for Amy Avenue to extend from State Park Road to Highline Road. The missing component of Amy Avenue is on this property and a small stretch along the adjacent property. In addition, Darboy Sanitary District has a sanitary sewer & water easement over the land where Amy Avenue is mapped for their existing sewer & water mains.  
Motion (Lisowe/Fochs) to deny the request to eliminate Amy Ave through the property.  
Motion carried 7-0.
- l) Certified Survey Map – Novotny/Sweere – County KK: Planner Mommaerts introduced the item stating that the applicant is proposing a 2-lot Certified Survey Map (CSM) in order to create separate parcels for the proposed development. Lot 1 would be for the commercial development. Lot 2 would be for the residential development. Staff

recommends that the right-of-way be dedicated for the extension of Amy Avenue as part of the CSM.

Motion (Fochs/Lisowe) to approve the CSM for the Novotny/Sweere property with the condition that the right-of-way for future Amy Avenue be dedicated to the public for roadway purposes.

Motion carried 7-0.

- m) Zoning Map Amendment – Kimberly Heights 4 – Schmidt Road: Planner Mommaerts introduced the items stating that the applicant is proposing a zoning map amendment (rezoning) for the property located along Schmidt Road (Tax IDs 33246 & part of 33250) in preparation for phase 4 of the Kimberly Heights subdivision. The property is currently zoned General Agricultural [AG]. The applicant wishes to rezone it to Single-Family Residential (Suburban) [RS-1]. The Future Land Use Map as part of the Comprehensive Plan identifies this area as Single-Family Residential (Sewered). Public sewer and water will be available to the subdivision.

Motion (Hennessey/Fochs) to approve the Zoning Map Amendment for Kimberly Heights 4.

Motion carried 7-0.

- n) Certified Survey Map – Kimberly Heights 4 – Schmidt Road: Planner Mommaerts introduced the item stating that the applicant is proposing a 2-lot Certified Survey Map (CSM) for the property located at W5506 Schmidt Road (Tax IDs 33248 & 33250). The property is currently zoned General Agricultural [AG]. There is an existing house and accessory building that will remain on Lot 1. The house is currently served with private septic and well. The proposed lot is approximately 2.84-acres. Lot 2 is proposed to be approximately 10.95-acres. Lot 2 is intended to be further subdivided as part of phase 4 of the Kimberly Heights subdivision (along with Tax ID 33246). Lot 2 is proposed to be rezoned to single-family residential. A portion of the Schmidt Road ROW was previously dedicated by CSM #3685. This CSM will dedicate additional ROW adjacent to Tax ID 33248.

Motion (Fochs/Bartlein) to approve the 2 lot CSM for W5506 Schmidt Rd.

Motion carried 7-0.

- o) Conditional Use Permit – Bill’s Custom Conveying – Hwy 114: Planner Mommaerts introduced the item stating that the applicant is proposing a two-phase development for a property along Hwy 114, between Pigeon Road and Hwy 55, Tax ID 40088. The property is 11.15-acres in size and is zoned General Agricultural [AG]. The property includes 3-acre of wetlands. A wetland crossing is proposed for Phase 1.

Phase 1 is a 10,800-square foot contractor business with offices and indoor storage areas and an 18,000-square foot parking area. The business has 7 employees. Hours of operation are proposed to be 7:00am-5:00pm. Outside storage of excavation equipment (semi-trailer, excavator, and dump truck) is proposed. The applicant wishes to start Phase 1 as soon as possible.

Phase 2 of the development includes 2 mini-warehousing buildings. It is unknown when Phase 2 is anticipated to be built.

Motion (Lisowe/Fochs) to approve the CSM for Bills Custom Conveying with all of the recommended Staff Conditions listed.

Motion carried 7-0.

p) Zoning Text Amendment – Driveway Openings: Planner Mommaerts introduced the item stating that a property owner on Sumac Lane spoke to the Board about a driveway to their shed. The property owner constructed a shed with permit approval. The permit applicant did not include any information for a driveway. Staff was notified that a driveway out to Handle Drive was in the process of being constructed. Staff contacted the property owner to inform them that a second driveway was in violation of the zoning ordinance. The property owner decided to stop the paving at the property line. The property is on the southeast corner of Sumac Lane and Handle Drive. The house has an existing driveway out to Sumac Lane.

The Village Board has interest in amending the ordinance to allow for a second driveway. The Board is asking the Plan Commission to review the ordinance and make a recommendation to the Board for proposed changes, if any.

Motion (Lisowe/Lincoln) to approve the Zoning Text Amendment.

Motion carried 7-0.

q) Zoning Text Amendment – Drainage Easements: Planner Mommaerts introduced the item stating that drainage easements require approval from the Village. Currently, a request is made to the Village Board and is placed on the agenda for the Board to review. The Board has developed a “Permission to Occupy Drainage Easement” form that states that the fence may be removed if drainage issues occur. This form is recorded as part of the deed for future property owners. This issue with this process is time. Many times the applicant must wait 2-3 weeks for approval, or more depending on Board meeting schedule.

Motion (Fochs/Lisowe) to approve the Zoning Text Amendment.

Motion carried 7-0.

9) Items for Discussion

a) Report: Zoning Permits: Single Family YTD is 51, which is 8 less than last year however we have more Commercial Developments this year with an estimated value of about 5 Million dollars more than last year.

10) Next Meeting Date: Tentative November 26 2019 at 6:00pm.

11) Adjourn: Motion (Lisowe/Fochs) to adjourn the meeting at 6:59pm.

Motion carried 7-0.

Prepared by: Carie Krause, Deputy Clerk – Treasurer

Dated: November 4 2019

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**PLAN COMMISSION MEETING**

**VILLAGE OF HARRISON**

**From:**

Mark J. Mommaerts, AICP, Planner

**Meeting Date:**

November 26, 2019

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**Title:**

Conditional Use Permit – Cell Tower

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**Issue:**

Should the Plan Commission recommend approval of the Conditional Use Permit to the Village Board?

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**Background and Additional Information:**

Tillmann Infrastructure is requesting a Conditional Use Permit (CUP) in order to construct a wireless communications facility on the property located along Hwy 10, between Hwy 114 and County N, Location ID 33536. The proposed wireless communications facility will consist of a 180-foot tall self support lattice tower with a 9-foot lightning rod for a total height of 189-feet. It will be located within a 100-foot by 100-foot lease area on the property. The proposed tower will be constructed, owned, and managed by Tillmann Infrastructure. Upon construction, Verizon Wireless will install equipment on the tower at the 170-foot level. The tower will be unstaffed and will only require service technicians periodically, about once a month. Typical service vehicles will be pick-up truck/van sized.

The property is currently zoned General Agricultural [AG]. Wireless communication facilities are a conditional use in the AG zoning district. The zoning ordinance has a special provisions section for wireless communication facilities, which is attached. State Statutes also cover mobile tower siting regulations, SS 66.0404, which is attached. With some provisions, State Statutes preempt Harrison's zoning, including tower height and financial guarantee amount. In these instances, State Statutes will prevail and Harrison's provisions are not applicable.

One of the provisions of Harrison's is in regards to co-locations, Section 117-132(f)(4). The codes states that no new tower shall be permitted unless the applicant can demonstrate that no existing tower can accommodate the applicant's proposed antenna by meeting any one of the six criteria listed (Harrison Zoning Ord attachment page 4&5). The applicant is stating that criteria #5 pertaining to fees, costs, or contractual provisions of an existing tower apply. The applicant has a sworn statement from Verizon Wireless regarding fees and contractual provisions that are 30%-40% higher at the existing tower than the proposed new tower. The sworn statement also states that the existing tower (SBA) is no longer viable from an economic standpoint. The sworn statement is also a requirement of State Statue 66.0404(2)(b)6.

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**Basis for Approval:** *(from the Zoning Ordinance Section 117-319)*

1. *Zoning. The proposed use conforms to the underlying zoning district intent and design standards and is in harmony with the general purpose and intent of this chapter. Where there is an existing nonconforming structure, the design standards of the underlying zoning district may be waived by the plan commission and town board. Wireless Communication Towers are a conditional use in the AG Zoning District.*
2. *Plans. The proposed use conforms to the comprehensive plan and any other officially adopted plan. The Comprehensive Plan includes a goal to promote services and community facilities in order to meet the growing demand for such services.*
3. *Traffic. Adequate measures have been or will be taken to provide ingress and egress so designed as to minimize traffic congestion in the public streets. There is limited traffic accessing the site and the proposed use should not negatively affect the traffic on Hwy 10.*
4. *Landscaping and screening. Appropriate landscaping and screening has been or will be provided to protect adjacent uses or properties from light, noise and other visual impacts that are associated with the proposed use as established in article VI, Access, Parking, and Loading and article IX, Landscaping and Screening Standards. The applicant is proposing a 6-foot wide landscape buffer strip surrounding the lease area.*
5. *Neighborhood compatibility. The proposed use is compatible with the predominant or prevailing land use of the neighborhood surrounding the proposed development and whether the proposed use creates a nuisance due to noise, odor, or dust. Currently there is limited development around the proposed lease area. The proposed use will have limited nuisance due to noise, odor, or dust, mostly during the construction process.*
6. *Services. Adequate facilities, access roads, drainage and/or necessary services have been or will be provided. Roadway access must be granted by WisDOT. Stormwater Management must be reviewed and approved by the Village.*

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**Findings of Fact:**

- Staff finds that the Conditional Use Permit request will comply with the Harrison Zoning Ordinance with the below conditions.
- Property owners within 300-feet of the subject property have been notified via first-class mail.

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**Recommended Action:**

Staff recommends approval of the Conditional Use Permit for a new wireless communications tower request with the following conditions:

1. Please provide a site data table on the plans that outlines the total site area, disturbed area and the impervious area after construction. If the disturbed area is greater than one acre; a Notice of Intent shall be filed with the Wisconsin Department of Natural Resources. Please provide a copy of the application as well as the Certificate of Coverage when it is received, if required. Plans will not be approved until the Certificate of Coverage is received. If the proposed impervious area exceeds 20,000 square-feet, storm water treatment will be required as outlined in the Post-Construction Storm Water Management Ordinance Section 07 (3)(a)1, and Section 07(3)(b)1 that state, "For post-construction sites with 20,000 square-feet or more of impervious surface disturbance..." properties shall "reduce the total suspended solids load by 80% for new development"

and “the peak post-development discharge rate shall not exceed the pre-development discharge rate for the 2-year, 10-year, and 100-year, 24-hour design storms.”

2. It appears that a new driveway entrance is proposed to the site and a new fiber conduit and handhole are to be installed in the USH 10 Right-of-Way. Please note that a WisDOT Right of Way Permit and a WisDOT Utility Permit are required to be obtained for the proposed work to be performed within the right of way. WisDOT approval shall be supplied to the Village before plans are approved.
3. The site survey appears to indicate that the existing drainage pattern is southwest. The Compound Grading Plan shows proposed corner lot grades at the outer edge of the lease area, but none along the proposed access drive. Please provide proposed grades along the new driveway to ensure that drainage from the neighboring property to the northeast is not blocked with this development. (Sheet A-7)
4. A bond with a corporate surety in the amount of \$20,000.00 shall be provided in accordance with Section 117-132(f)(7) of the Harrison Zoning Ordinance.
5. All appropriate local, state, and federal permits shall be obtained prior to construction. Including but not limited too the following permits for the Village of Harrison: Site Plan Review, Zoning Permit, Building Permit, and Stormwater Management and Erosion Control Permit.
6. All plan/permit review comments and conditions from Village staff shall be included as a condition of approval under the Conditional Use Permit. The Plan Commission may hear appeals from staff review comments and/or condition and either uphold, modify, or eliminate any such comment and/or condition.
7. All applicable provisions of the Harrison Code of Ordinances, State Statutes, and Federal regulations shall be met.

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**Attachments:**

- Aerial Map
- Harrison Zoning Ordinance – Sec 117-132
- State Statutes – 66.0404
- Application & Plan Set



# Calumet County, WI

## Legend

- Address Point
  - ▭ County Boundary
  - ▭ Wisconsin Water
  - ▭ Other Counties
  - Unincorporated Community
  - ▭ Town Boundary
  - ▭ Point of Interest
  - ▭ Parcel Boundary
  - ▭ Property Hook
  - ▭ PLSS Section
  - ▭ State Parks
  - ▭ County Parks
  - ▭ Lake
  - ▭ River and Stream
  - ▭ Major Roads
  - ▭ Local Roads
  - ▭ Local Roads
  - ▭ Municipal Streets
  - ▭ Trail
  - ▭ Railroad
- Color 2018
- Red: Band\_1
  - Green: Band\_2
  - Blue: Band\_3



**DISCLAIMER:** This map is not guaranteed to be accurate, correct, current, or complete and conclusions drawn are the responsibility of the user.

Author:	
Date Printed:	11/18/19 2:48 PM
Source:	



Sec. 117-132. - Wireless communication facilities.

(a) *Purpose and intent.* The purpose of this section is to establish general guidelines for the siting of towers and antennas. The intent of this section is to:

- (1) Encourage the location of towers in nonresidential areas and minimize the total number of towers throughout the community.
- (2) Strongly encourage the joint use of new and existing tower sites.
- (3) Encourage users of towers and antennas to locate, to the extent possible, in areas where the adverse impact on the community is minimal.
- (4) Encourage users of towers and antennas to configure them in a way that minimizes the adverse visual impact of the towers and antennas.
- (5) Enhance the ability of the providers of wireless communication services to provide such services to the community quickly, effectively, and efficiently.

(b) *Definitions.* For the purposes of this section, the following terms are defined:

*Alternative tower structure* shall mean man-made structures such as light poles, elevated tanks, electric utility transmission line towers, nonresidential buildings, and similar alternative-design mounting structures that camouflage or conceal the presence of antennas or towers.

*Antenna* shall mean any exterior apparatus designed for telephonic, radio, or television communications through the sending and/or receiving of electromagnetic waves.

*FAA* shall mean the Federal Aviation Administration.

*FCC* shall mean the Federal Communications Commission.

*Governing authority* shall mean the governing authority of the town.

*Height* shall mean, when referring to a tower or other structure, the distance measured from grade at the base of the tower or structure to the highest point on the tower or structure, even if said highest point is an antenna.

*Pre-existing towers and antennas* shall have the meaning set forth in subsection (c)(4).

*Tower* shall mean any structure that is designed and constructed primarily for the purpose of supporting one or more antennas, including self-supporting lattice towers, guy towers, or monopole towers. The term includes radio and television transmission towers, microwave towers, common-carrier towers, cellular telephone towers, PCS towers, alternative tower structures, and the like.

(c) *Applicability.*

- (1) *District height limitations.* The requirements set forth in this section shall govern the location of towers that exceed, and antennas that are installed, at a height in excess of the height limitations specified for each zoning district. The height limitations applicable to buildings and structures shall not apply to towers and antennas, however, in no case shall any tower (including antennas), exceed a height of 100 feet or FAA limitations, whichever is less.
- (2) *Public property.* Antennas or towers located on property owned, leased, or otherwise controlled by the governing authority may be constructed to a height of 150 feet or FAA limitations, whichever is less, provided a license or lease authorizing such antennas or tower has been approved by the governing authority.



- (3) *Amateur radio: receive-only antennas.* This article shall not govern any tower, or the installation of any antenna under 40 feet in height and is owned and operated by a federally-licensed amateur radio station operator or exclusively as a receive-only antenna.
  - (4) *Pre-existing towers and antennas.* Any tower or antenna for which a permit has been properly issued prior to the effective date of this chapter shall not be required to meet the requirements of this section, other than the requirements of subsections (d)(4) and (5) unless a previous permit was conditioned upon compliance with new regulations. Any such towers or antennas shall be referred to in this article as "pre-existing towers" or "pre-existing antennas".
- (d) *General guidelines and requirements.*
- (1) *Principal or accessory use.* Antennas and towers may be considered either principal or accessory uses. A different existing use or an existing structure on the same lot shall not preclude the installation of an antenna or tower on such lot. For purposes of determining whether the installation of a tower or antenna complies with district development regulations, including but not limited to setback requirements, lot coverage requirements, and other such requirements, the dimensions of the entire lot shall control, even though the antennas or towers may be located on leased parcels within such lots. Towers that are constructed and antennas that are installed, in accordance with the provisions of this chapter shall not be deemed to constitute the expansion of a nonconforming use or structure.
  - (2) *Inventory of existing sites.* Each applicant for an antenna and or tower shall provide to the planning department an inventory of all existing towers that are within a three-mile radius of the proposed site, including specific information about the location, height, and design of each tower. The planning department may share such information with other applicants applying for administrative approvals or conditional use permits under this section, or other organizations seeking to locate antennas within the jurisdiction of the town, provided, however, that the planning department is not, by sharing such information, in any way representing or warranting that such sites are available or suitable.
  - (3) *Aesthetics and lighting.* The guidelines set forth in this subsection shall govern the location of all towers and the installation of all antennas, provided, however, that the governing authority may waive these requirements if it determines that the intent of this section is better served thereby.
    - a. Towers shall maintain a galvanized steel finish, or, be subject to any applicable standards of the FAA, be painted a neutral color so as to reduce visual obtrusiveness.
    - b. At a tower site, the design of the buildings and related structures shall, to the extent possible, use materials, colors, textures, screening, and landscaping that will blend the tower facilities to the natural setting and built environment.
    - c. If an antenna is installed on a structure other than a tower, the antenna and supporting electrical and mechanical equipment must be of a neutral color that is identical to, or closely compatible with, the color of the supporting structure so as to make the antenna and related equipment as visually unobtrusive as possible.
    - d. Towers shall not be artificially lighted, unless required by the FAA or other applicable authority. If lighting is required, the governing authority may review the available lighting alternatives and approve the design that would cause the least disturbance to the surrounding views.
    - e. Towers and antennas shall not be used for displaying any advertising. If FCC rules require that the owner's name be shown on the tower or antennae, it shall be posted no more than six feet above the ground on a placard no larger than two square feet.
  - (4) *Federal requirements.* All towers must meet or exceed current standards and regulations of the FAA, the

FCC, and any other agency of the federal government with the authority to regulate towers and antennas. If such standards and regulations are changed, then the owners of the towers and antennas governed by this section shall bring such towers and antennas into compliance with such revised standards and regulations within six months of the effective date of such standards and regulations, unless a more stringent compliance schedule is mandated by the controlling federal agency. Failure to bring towers and antennas into compliance with such revised standards and regulations shall constitute grounds for the removal of the tower or antenna by the governing authority at the owner's expense.

- (5) *Building codes, safety standards.* To ensure the structural integrity of towers, the owner of a tower shall ensure that it is maintained in compliance with the standards contained in applicable state and local building codes, and the applicable standards for towers that are published by the Electronic Industries Association, as amended from time to time. If, upon inspection, the governing authority concludes that a tower fails to comply with such codes and standards and constitutes a danger to persons or property, then upon notice being provided to the owner of the tower, the owner shall have 30 days to bring such tower into compliance with such standards. If the owner fails to bring such tower into compliance within said 30 days, the governing authority may authorize removal of such tower at the owner's expense.

(e) *Permitted uses.*

- (1) *General.* The uses listed in this subsection are deemed to be permitted uses and shall not require a conditional use permit. Nevertheless, all such uses shall comply with subsection (d) and all other applicable sections. All permitted uses shall require staff review prior to issuance of any permit.
- (2) *Specific permitted uses.* The following uses are specifically permitted:
- a. Installing an antenna on an existing structure other than a tower (such as elevated tanks, electric utility transmission line towers, or nonresidential buildings), so long as said additional antenna adds no more than 20 feet to the height of said existing structure; and
  - b. Installing an antenna on an existing tower, including a pre-existing tower, and further including the placement of additional buildings or other supporting equipment used in connection with said antenna, so long as any accessory building does not exceed 150 square feet per user.

(f) *Conditional use permits.*

- (1) *General.* The following provisions shall govern conditional use permits:
- a. If the tower or antenna is not a permitted use under subsection (e)(2), then a conditional use permit, pursuant to the procedures in article XI, Conditional Use Permits, shall be required prior to construction of any tower, or the placement of any antenna.
  - b. Towers and antennas may only be located in the general agricultural (AG), community commercial (CC), business park (BP), and industrial and manufacturing (IM) zoning districts, except that amateur radio towers or antennas may be allowed in residential districts.
  - c. If a conditional use permit is granted, the governing authority may impose conditions to the extent the governing authority concludes such conditions are necessary to minimize any adverse effect of the proposed tower on adjoining properties.
  - d. Any information of an engineering nature that the applicant submits, whether civil, mechanical, or electrical shall be certified by a licensed professional engineer.
- (2) *Information required.* Each applicant requesting a conditional use permit under this section shall submit a scaled site plan and a scaled elevation view and other supporting drawings, calculations, and other documentation, signed and sealed by appropriate licensed professionals, showing the location and

dimensions of all improvements, including information concerning topography, frequency coverage, tower height requirements, setbacks, drives, parking, fencing, landscaping, adjacent uses, and other information deemed by the governing authority to be necessary to assess compliance with this section.

- (3) *Factors considered in granting conditional use permits.* The governing authority shall consider the following factors in determining whether to issue a conditional use permit, although the governing authority may waive or reduce the burden on the applicant of one or more of these criteria if the governing authority concludes that the purpose and intent of this section is better served thereby.
- a. Height of the proposed tower.
  - b. Capacity of the tower structure for additional antenna equipment to accommodate expansion, or to allow for co-location of another provider's equipment.
  - c. Proximity of the tower to residential structures and residential district boundaries.
  - d. Nature of uses on adjacent and nearby properties.
  - e. Surrounding topography.
  - f. Surrounding tree coverage and foliage.
  - g. Design of the tower, with particular reference to design characteristics that have the effect of reducing or eliminating visual obtrusiveness.
  - h. Proposed ingress and egress.
  - i. Availability of suitable existing towers and other structures as discussed in subsection (f)(4).
- (4) *Co-location.*
- a. Any proposed wireless communication tower and tower site shall be designed structurally, electrically, and in all respects to accommodate co-location of both the applicant's antenna(s) and comparable antenna(s) for at least two additional users. Towers and tower sites shall be designed to allow for future rearrangement of antennas upon the tower, to accept antennas mounted at varying heights, and to accommodate supporting buildings and equipment.
  - b. The holder of a permit for a tower, excepting amateur radio towers and sites, shall allow co-location for at least two additional users and shall not make access to the tower and tower site for the additional users economically unfeasible. If additional user(s) demonstrate (through independent arbitrator or other pertinent means) that the holder of a tower permit has made access to such tower and tower site economically unfeasible, then the permit shall become null and void.
  - c. No new tower, excepting amateur radio towers and sites, shall be permitted unless the applicant demonstrates to the reasonable satisfaction of the governing authority that no existing tower or structure can accommodate the applicant's proposed antenna. Evidence submitted to demonstrate that no existing tower or structure can accommodate the applicant's proposed antenna may consist of any of the following:
    1. No existing towers or structures are located within the geographic area required to meet applicant's engineering requirements.
    2. Existing towers or structures are not of sufficient height to meet applicant's engineering requirements.
    3. Existing towers or structures do not have sufficient structural strength to support applicant's proposed antenna and related equipment.
    4. The applicant's proposed antenna would cause electromagnetic interference with the antenna on the existing towers or structures, or the antenna on the existing towers or structures would

cause interference with the applicant's proposed antenna.

5. The fees, costs, or contractual provisions required by the owner to share an existing tower or structure or to adapt an existing tower.
  6. The applicant demonstrates that there are other limiting factors that render existing towers and structures unsuitable.
- (5) *Setbacks and separation.* The following setbacks and separation requirements shall apply to all towers and antennas for which a conditional use permit is required; provided, however, that the governing authority may, reduce the standard setbacks and separation requirements if the purpose and intent of this section would be better served thereby.
- a. Towers must be set back a distance equal to the height of the tower from any off-site residential structure.
  - b. Towers, guys, and accessory facilities must satisfy the minimum zoning district setback requirements.
- (6) *Landscaping.* The following requirements shall govern the landscaping surrounding towers for which a conditional use permit is required; provided, however, that the governing authority may waive such requirements if the purpose and intent of this section would be better served thereby.
- a. Tower facilities shall be landscaped with a mixture of deciduous and evergreen trees and shrubs that effectively screens the view of the tower compound from adjacent properties. The standard buffer shall consist of a landscaped strip at least six feet wide outside the perimeter of the compound.
  - b. In locations where the visual impact of the tower would be minimal, the landscaping requirement may be reduced or waived altogether by the governing authority.
  - c. Existing mature tree growth and natural land forms on the site shall be preserved to the maximum extent possible. In some cases, such as towers sited on large wooded lots, natural growth around the property perimeter may be sufficient buffer.
- (7) *Financial guarantee.* A bond with a corporate surety, duly licensed in the state, in the amount of \$20,000.00 per 100 feet of height shall be provided to assure that the applicant, its representatives, its agents, and its assigns will comply with all the terms, conditions, provisions, requirements, and specifications contained in this chapter, including abandonment. The bond amount shall be recalculated every five years based on the Consumer Price Index over that period of time. The town shall be named as obligee in the bond and must approve the bonding company.
- (g) *Removal of abandoned antennas and towers.* Any antenna or tower that is not operated for a continuous period of six months shall be considered abandoned, and the owner of such antenna or tower shall remove such antenna or tower and associated equipment and structures within 90 days of receipt of notice from the governing authority notifying the owner of such abandonment. If such antenna or tower is not removed within said 90 days, the governing authority may remove such antenna or tower at the owner's expense. If there are two or more users of a single tower, then this provision shall not become effective until all users cease using the tower.

(Ord. No. 10-147, § 5.7, 7-27-2010)

**66.0404 Mobile tower siting regulations. (1) DEFINITIONS.** In this section:

(a) “Antenna” means communications equipment that transmits and receives electromagnetic radio signals and is used in the provision of mobile services.

(b) “Application” means an application for a permit under this section to engage in an activity specified in sub. (2) (a) or a class 2 collocation.

(c) “Building permit” means a permit issued by a political subdivision that authorizes an applicant to conduct construction activity that is consistent with the political subdivision’s building code.

(d) “Class 1 collocation” means the placement of a new mobile service facility on an existing support structure such that the owner of the facility does not need to construct a free standing support structure for the facility but does need to engage in substantial modification.

(e) “Class 2 collocation” means the placement of a new mobile service facility on an existing support structure such that the owner of the facility does not need to construct a free standing support structure for the facility or engage in substantial modification.

(f) “Collocation” means class 1 or class 2 collocation or both.

(g) “Distributed antenna system” means a network of spatially separated antenna nodes that is connected to a common source via a transport medium and that provides mobile service within a geographic area or structure.

(h) “Equipment compound” means an area surrounding or adjacent to the base of an existing support structure within which is located mobile service facilities.

(i) “Existing structure” means a support structure that exists at the time a request for permission to place mobile service facilities on a support structure is filed with a political subdivision.

(j) “Fall zone” means the area over which a mobile support structure is designed to collapse.

(k) “Mobile service” has the meaning given in 47 USC 153 (33).

(L) “Mobile service facility” means the set of equipment and network components, including antennas, transmitters, receivers, base stations, power supplies, cabling, and associated equipment, that is necessary to provide mobile service to a discrete geographic area, but does not include the underlying support structure.

(m) “Mobile service provider” means a person who provides mobile service.

(n) “Mobile service support structure” means a freestanding structure that is designed to support a mobile service facility.

(o) “Permit” means a permit, other than a building permit, or approval issued by a political subdivision which authorizes any of the following activities by an applicant:

1. A class 1 collocation.
2. A class 2 collocation.
3. The construction of a mobile service support structure.

(p) “Political subdivision” means a city, village, town, or county.

(q) “Public utility” has the meaning given in s. 196.01 (5).

(r) “Search ring” means a shape drawn on a map to indicate the general area within which a mobile service support structure should be located to meet radio frequency engineering requirements, taking into account other factors including topography and the demographics of the service area.

(s) “Substantial modification” means the modification of a mobile service support structure, including the mounting of an antenna on such a structure, that does any of the following:

1. For structures with an overall height of 200 feet or less, increases the overall height of the structure by more than 20 feet.
2. For structures with an overall height of more than 200 feet, increases the overall height of the structure by 10 percent or more.

3. Measured at the level of the appurtenance added to the structure as a result of the modification, increases the width of the support structure by 20 feet or more, unless a larger area is necessary for collocation.

4. Increases the square footage of an existing equipment compound to a total area of more than 2,500 square feet.

(t) “Support structure” means an existing or new structure that supports or can support a mobile service facility, including a mobile service support structure, utility pole, water tower, building, or other structure.

(u) “Utility pole” means a structure owned or operated by an alternative telecommunications utility, as defined in s. 196.01 (1d); public utility, as defined in s. 196.01 (5); telecommunications utility, as defined in s. 196.01 (10); political subdivision; or cooperative association organized under ch. 185; and that is designed specifically for and used to carry lines, cables, or wires for telecommunications service, as defined in s. 182.017 (1g) (cq); for video service, as defined in s. 66.0420 (2) (y); for electricity; or to provide light.

**(2) NEW CONSTRUCTION OR SUBSTANTIAL MODIFICATION OF FACILITIES AND SUPPORT STRUCTURES.** (a) Subject to the provisions and limitations of this section, a political subdivision may enact a zoning ordinance under s. 59.69, 60.61, or 62.23 to regulate any of the following activities:

1. The siting and construction of a new mobile service support structure and facilities.

2. With regard to a class 1 collocation, the substantial modification of an existing support structure and mobile service facilities.

(b) If a political subdivision regulates an activity described under par. (a), the regulation shall prescribe the application process which a person must complete to engage in the siting, construction, or modification activities described in par. (a). The application shall be in writing and shall contain all of the following information:

1. The name and business address of, and the contact individual for, the applicant.
2. The location of the proposed or affected support structure.
3. The location of the proposed mobile service facility.
4. If the application is to substantially modify an existing support structure, a construction plan which describes the proposed modifications to the support structure and the equipment and network components, including antennas, transmitters, receivers, base stations, power supplies, cabling, and related equipment associated with the proposed modifications.
5. If the application is to construct a new mobile service support structure, a construction plan which describes the proposed mobile service support structure and the equipment and network components, including antennas, transmitters, receivers, base stations, power supplies, cabling, and related equipment to be placed on or around the new mobile service support structure.

6. If an application is to construct a new mobile service support structure, an explanation as to why the applicant chose the proposed location and why the applicant did not choose collocation, including a sworn statement from an individual who has responsibility over the placement of the mobile service support structure attesting that collocation within the applicant’s search ring would not result in the same mobile service functionality, coverage, and capacity; is technically infeasible; or is economically burdensome to the mobile service provider.

(c) If an applicant submits to a political subdivision an application for a permit to engage in an activity described under par. (a), which contains all of the information required under par. (b), the political subdivision shall consider the application complete. If the political subdivision does not believe that the application is complete, the political subdivision shall notify the applicant in writing, within 10 days of receiving the application, that the application is not complete. The written notification shall specify in detail the required information that was incomplete. An applicant

may resubmit an application as often as necessary until it is complete.

(d) Within 90 days of its receipt of a complete application, a political subdivision shall complete all of the following or the applicant may consider the application approved, except that the applicant and the political subdivision may agree in writing to an extension of the 90 day period:

1. Review the application to determine whether it complies with all applicable aspects of the political subdivision's building code and, subject to the limitations in this section, zoning ordinances.

2. Make a final decision whether to approve or disapprove the application.

3. Notify the applicant, in writing, of its final decision.

4. If the decision is to disapprove the application, include with the written notification substantial evidence which supports the decision.

(e) A political subdivision may disapprove an application if an applicant refuses to evaluate the feasibility of collocation within the applicant's search ring and provide the sworn statement described under par. (b) 6.

(f) A party who is aggrieved by the final decision of a political subdivision under par. (d) 2. may bring an action in the circuit court of the county in which the proposed activity, which is the subject of the application, is to be located.

(g) If an applicant provides a political subdivision with an engineering certification showing that a mobile service support structure, or an existing structure, is designed to collapse within a smaller area than the setback or fall zone area required in a zoning ordinance, that zoning ordinance does not apply to such a structure unless the political subdivision provides the applicant with substantial evidence that the engineering certification is flawed.

(h) A political subdivision may regulate the activities described under par. (a) only as provided in this section.

(i) If a political subdivision has in effect on July 2, 2013, an ordinance that applies to the activities described under par. (a) and the ordinance is inconsistent with this section, the ordinance does not apply to, and may not be enforced against, the activity.

**(3) COLLOCATION ON EXISTING SUPPORT STRUCTURES.** (a) 1. A class 2 collocation is a permitted use under ss. 59.69, 60.61, and 62.23.

2. If a political subdivision has in effect on July 2, 2013, an ordinance that applies to a class 2 collocation and the ordinance is inconsistent with this section, the ordinance does not apply to, and may not be enforced against, the class 2 collocation.

3. A political subdivision may regulate a class 2 collocation only as provided in this section.

4. A class 2 collocation is subject to the same requirements for the issuance of a building permit to which any other type of commercial development or land use development is subject.

(b) If an applicant submits to a political subdivision an application for a permit to engage in a class 2 collocation, the application shall contain all of the information required under sub. (2) (b) 1. to 3., in which case the political subdivision shall consider the application complete. If any of the required information is not in the application, the political subdivision shall notify the applicant in writing, within 5 days of receiving the application, that the application is not complete. The written notification shall specify in detail the required information that was incomplete. An applicant may resubmit an application as often as necessary until it is complete.

(c) Within 45 days of its receipt of a complete application, a political subdivision shall complete all of the following or the applicant may consider the application approved, except that the applicant and the political subdivision may agree in writing to an extension of the 45 day period:

1. Make a final decision whether to approve or disapprove the application.

2. Notify the applicant, in writing, of its final decision.

3. If the application is approved, issue the applicant the relevant permit.

4. If the decision is to disapprove the application, include with the written notification substantial evidence which supports the decision.

(d) A party who is aggrieved by the final decision of a political subdivision under par. (c) 1. may bring an action in the circuit court of the county in which the proposed activity, which is the subject of the application, is to be located.

**(4) LIMITATIONS.** With regard to an activity described in sub. (2) (a) or a class 2 collocation, a political subdivision may not do any of the following:

(a) Impose environmental testing, sampling, or monitoring requirements, or other compliance measures for radio frequency emissions, on mobile service facilities or mobile radio service providers.

(b) Enact an ordinance imposing a moratorium on the permitting, construction, or approval of any such activities.

(c) Enact an ordinance prohibiting the placement of a mobile service support structure in particular locations within the political subdivision.

(d) Charge a mobile radio service provider a fee in excess of one of the following amounts:

1. For a permit for a class 2 collocation, the lesser of \$500 or the amount charged by a political subdivision for a building permit for any other type of commercial development or land use development.

2. For a permit for an activity described in sub. (2) (a), \$3,000.

(e) Charge a mobile radio service provider any recurring fee for an activity described in sub. (2) (a) or a class 2 collocation.

(f) Permit 3rd party consultants to charge the applicant for any travel expenses incurred in the consultant's review of mobile service permits or applications.

(g) Disapprove an application to conduct an activity described under sub. (2) (a) based solely on aesthetic concerns.

(gm) Disapprove an application to conduct a class 2 collocation on aesthetic concerns.

(h) Enact or enforce an ordinance related to radio frequency signal strength or the adequacy of mobile service quality.

(i) Impose a surety requirement, unless the requirement is competitively neutral, nondiscriminatory, and commensurate with the historical record for surety requirements for other facilities and structures in the political subdivision which fall into disuse. There is a rebuttable presumption that a surety requirement of \$20,000 or less complies with this paragraph.

(j) Prohibit the placement of emergency power systems.

(k) Require that a mobile service support structure be placed on property owned by the political subdivision.

(L) Disapprove an application based solely on the height of the mobile service support structure or on whether the structure requires lighting.

(m) Condition approval of such activities on the agreement of the structure or mobile service facility owner to provide space on or near the structure for the use of or by the political subdivision at less than the market rate, or to provide the political subdivision other services via the structure or facilities at less than the market rate.

(n) Limit the duration of any permit that is granted.

(o) Require an applicant to construct a distributed antenna system instead of either constructing a new mobile service support structure or engaging in collocation.



(p) Disapprove an application based on an assessment by the political subdivision of the suitability of other locations for conducting the activity.

(q) Require that a mobile service support structure, existing structure, or mobile service facilities have or be connected to backup battery power.

(r) Impose a setback or fall zone requirement for a mobile service support structure that is different from a requirement that is imposed on other types of commercial structures.

(s) Consider an activity a substantial modification under sub. (1) (s) 1. or 2. if a greater height is necessary to avoid interference with an existing antenna.

(t) Consider an activity a substantial modification under sub. (1) (s) 3. if a greater protrusion is necessary to shelter the antenna from inclement weather or to connect the antenna to the existing structure by cable.

(u) Limit the height of a mobile service support structure to under 200 feet.

(v) Condition the approval of an application on, or otherwise require, the applicant's agreement to indemnify or insure the political subdivision in connection with the political subdivision's exercise of its authority to approve the application.

(w) Condition the approval of an application on, or otherwise require, the applicant's agreement to permit the political subdivision to place at or collocate with the applicant's support structure any mobile service facilities provided or operated by, whether in whole or in part, a political subdivision or an entity in which a political subdivision has a governance, competitive, economic, financial or other interest.

**(4e) SETBACK REQUIREMENTS.** (a) Notwithstanding sub. (4) (r), and subject to the provisions of this subsection, a political subdivision may enact an ordinance imposing setback requirements related to the placement of a mobile service support structure that applies to new construction or the substantial modification of facilities and support structures, as described in sub. (2).

(b) A setback requirement may apply only to a mobile service support structure that is constructed on or adjacent to a parcel of land that is subject to a zoning ordinance that permits single-family residential use on that parcel. A setback requirement does not apply to an existing or new utility pole, or wireless support structure in a right-of-way that supports a small wireless facility, if the pole or facility meets the height limitations in s. 66.0414 (2) (e) 2. and 3.

(c) The setback requirement under par. (b) for a mobile service support structure on a parcel shall be measured from the lot lines of other adjacent and nonadjacent parcels for which single-family residential use is a permitted use under a zoning ordinance.

(d) A setback requirement must be based on the height of the proposed mobile service support structure, and the setback requirement may not be a distance that is greater than the height of the proposed structure.

**(5) APPLICABILITY.** If a county enacts an ordinance as described under sub. (2) the ordinance applies only in the unincorporated parts of the county, except that if a town enacts an ordinance as described under sub. (2) after a county has so acted, the county ordinance does not apply, and may not be enforced, in the town, except that if the town later repeals its ordinance, the county ordinance applies in that town.

**History:** 2013 a. 20, 173; 2019 a. 14.

**66.0405 Removal of rubbish.** Cities, villages and towns may remove ashes, garbage, and rubbish from such classes of places in the city, village or town as the board or council directs. The removal may be from all of the places or from those whose owners or occupants desire the service. Districts may be created and removal provided for certain districts only, and different regulations may be applied to each removal district or class of property. The cost of removal may be funded by special assessment

against the property served, by general tax upon the property of the respective districts, or by general tax upon the property of the city, village or town. If a city, village or town contracts for ash, garbage or rubbish removal service, it may contract with one or more service providers.

**History:** 1993 a. 246; 1999 a. 150 s. 119; Stats. 1999 s. 66.0405.

**66.0406 Radio broadcast service facility regulations.**

**(1) DEFINITIONS.** In this section:

(a) "Political subdivision" means any city, village, town, or county.

(b) "Radio broadcast services" means the regular provision of a commercial or noncommercial service involving the transmission, emission, or reception of radio waves for the transmission of sound or images in which the transmissions are intended for direct reception by the general public.

(c) "Radio broadcast service facilities" means commercial or noncommercial facilities, including antennas and antenna support structures, intended for the provision of radio broadcast services.

**(2) LIMITATIONS ON LOCAL REGULATION.** Beginning on May 1, 2013, if a political subdivision enacts an ordinance, adopts a resolution, or takes any other action that affects the placement, construction, or modification of radio broadcast service facilities, the ordinance, resolution, or other action may not take effect unless all of the following apply:

(a) The ordinance, resolution, or other action has a reasonable and clearly defined public health or safety objective, and reflects the minimum practical regulation that is necessary to accomplish that objective.

(b) The ordinance, resolution, or other action reasonably accommodates radio broadcast services and does not prohibit, or have the effect of prohibiting, the provision of such services in the political subdivision.

**(3) CONTINUED APPLICATION OF EXISTING REGULATIONS.** If a political subdivision has in effect on May 1, 2013, an ordinance or resolution that is inconsistent with the requirements that are specified in sub. (2) for an ordinance, resolution, or other action to take effect, the existing ordinance or resolution does not apply, and may not be enforced, to the extent that it is inconsistent with the requirements that are specified in sub. (2).

**(4) DENIAL OF PLACEMENT, CONSTRUCTION, OR MODIFICATION OF FACILITIES.** If a political subdivision denies a request by any person to place, construct, or modify radio broadcast service facilities in the political subdivision, the denial may be based only on the political subdivision's public health or safety concerns. The political subdivision must provide the requester with a written denial of the requester's request, and the political subdivision must provide the requester with substantial written evidence which supports the reasons for the political subdivision's action.

**History:** 2013 a. 20; 2013 a. 173 s. 33.

**66.0407 Noxious weeds.** (1) In this section:

(a) "Destroy" means the complete killing of weeds or the killing of weed plants above the surface of the ground by the use of chemicals, cutting, tillage, cropping system, pasturing livestock, or any or all of these in effective combination, at a time and in a manner as will effectually prevent the weed plants from maturing to the bloom or flower stage.

(b) "Noxious weed" means Canada thistle, leafy spurge, field bindweed, any weed designated as a noxious weed by the department of natural resources by rule, and any other weed the governing body of any municipality or the county board of any county by ordinance or resolution declares to be noxious within its respective boundaries.

**(3)** A person owning, occupying or controlling land shall destroy all noxious weeds on the land. The person having immediate charge of any public lands shall destroy all noxious weeds on the lands. The highway patrolman on all federal, state or county trunk highways shall destroy all noxious weeds on that



**TILLMAN INFRASTRUCTURE**



**APPLICATION FOR CONDITIONAL USE PERMIT FOR  
THE PROPOSED NEW TOWER  
AT**

**TAX PARCEL NO. 33536  
VILLAGE OF HARRISON, WISCONSIN 54952**

**TILLMAN SITE # – TI-OPP-11894**



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8. Site Selection Affidavit
9. Fall Zone Letter
10. Inventory of Existing Sites
11. Zoning Map
12. Search Area Map
13. Existing Tower Map
14. Site Plan<sup>1</sup>

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<sup>1</sup> Included separately due to document size.

# Letter of Application

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October 9, 2019

Mark Mommaerts, AICP  
Town & Village Planner of Harrison Wisconsin  
W5298 Hwy 114  
Menasha, WI 54952

RE: Tillman/Verizon Site Number: TI-OPP-11984

Parcel ID Number: 33536  
Harrison, WI 54952

Dear Mr. Mommaerts:

Tillman Infrastructure has finalized a lease agreement with the owners of the above referenced property to construct a wireless telecommunications service facility. The proposed shared use facility is designed to house the equipment necessary to provide clear and uninterrupted wireless telecommunications services to the Town and Village of Harrison.

Tillman Infrastructure is making this request pursuant to the Sections 117-132 and 138 of the Village and Town of Harrison's Zoning Ordinance (the "Zoning Ordinance") and Wisconsin Statue § 66.0404. The proposed wireless telecommunications facility will consist of a 180'-0" tall self-support lattice tower with a 9'-0" lightning rod for a total height of 189'-0" to be located within a 100'-0" x 100'-0" lease area. The proposed tower will be erected, owned and managed by Tillman Infrastructure. Upon construction, Verizon Wireless will install their equipment on the tower at the 170'-0" level. The facility is unstaffed and will only require service technicians, in a pick-up/van sized vehicle, to visit the site approximately once per month.

The proposed mobile service facility is located in the AG (General Agriculture) District. As provided by Section 117-132(f) of the Zoning Ordinance, mobile service facilities are allowed in the AG District with a conditional use permit. Ord. No. 10-147, § 5.7, 7-27-2010.

On behalf of Tillman Infrastructure, LCC Telecom Services has submitted all required documentation for the proposed tower in accordance with Wis. Stat. § 66.0404 and the Zoning Ordinance. Should you have any questions please feel free to contact me. I look forward to working with you during the approval process in order to provide the residents of the Town and Village of Harrison the best possible Personal Communications Services coverage.

Sincerely,



Reid Seagren  
Site Acquisition Manager  
LCC Telecom Services

# Application Materials

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# Village of Harrison

W5298 Hwy 114  
 Harrison, WI 54952  
 Phone: 920-989-1062

# CONDITIONAL USE PERMIT APPLICATION

Applicant Information			
Applicant Name (Indiv., Org. or Entity) Tillman Infrastructure LLC		Authorized Representative Reid Seagren- LCC Telecom Services	Title Site Acquisition Manager
Mailing Address 10700 West Higgins Rd Ste 240		City Rosemont	State IL
E-mail Address rseagren@lcc telecom.com		Telephone (include area code) (815) 621-9110	Postal Code 60018
E-mail Address rseagren@lcc telecom.com		Telephone (include area code) (815) 621-9110	Fax (include area code) 847-608-1299
Landowner Information (if different than Applicant)			
Name (Organization or Entity) Claudette L. Dietz		Contact Person Claudette L. Dietz	Title Owner
Mailing Address N8842 Kasten Rd.		City Harrison	State WI
E-mail Address N/A		Telephone (include area code) (920) 734-7968	Postal Code 54952
E-mail Address N/A		Telephone (include area code) (920) 734-7968	Fax (include area code) N/A
Project or Site Location			
Site Name (Project): Citadel		Location ID(s): TI-OPP-11894	
Site Address / Location: PIN: 33536 in the City of Harrison, Calumet County, WI		Plat / CSM / Lot No.:	
Quarter: <input type="checkbox"/> NW <input checked="" type="checkbox"/> NE <input type="checkbox"/> SW <input type="checkbox"/> SE	Section: 15	Township: 20 N	Range: 18 E
Legal Description: See Legal Description in Attached Materials			
Current Zoning: General Agriculture (AG)		Proposed Zoning: No Rezoning	
Current Uses: Vacant		Proposed Uses: Placement of Cell Tower	
Lot Dimensions: Front: 718' Side: 776 Rear: 589 Side: 361 Lot Area: 26.3 <input checked="" type="checkbox"/> acres or <input type="checkbox"/> square feet			
Description of the Proposed Use for the Property (attach separate document if needed)			
Tillman Infrastructure proposes to install a 189' tall self supporting tower on the above described vacant parcel.			
For a more detailed explanation of Tillman's proposed use of the property, please see the attached Narrative Overview			
Development Plan			
<input checked="" type="checkbox"/> See reverse side for complete application submittal requirements.			
Fees			
<input checked="" type="checkbox"/> \$350.00			
Certification & Permission			
<p><b>Certification:</b> I hereby certify that I am the landowner of the property which is the subject of this Application. I certify that the information contained in this form and attachments is true and accurate. I understand that failure to comply with any or all of the provisions of the ordinances and/or permit may result in notices, fines / forfeitures, stop work orders, permit revocation, and cease &amp; desist orders.</p> <p><b>Permission:</b> As landowner of the property, I hereby give the permit authority permission to enter and inspect the property to evaluate this application, to determine compliance with the ordinances and to perform corrective actions after issuing proper notice to the landowner.</p>			
Applicant Signature <i>Reid Seagren</i>		Date Signed 10/8/19	
Landowner Signature (required) <i>Claudette L. Dietz</i>		Date Signed 5-28-19	

### LEAVE BLANK - FOR MUNICIPAL USE ONLY

Date Complete Application Received:	Fee Received \$	Receipt No:
	Date Paid:	Taken By:

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY)  
3/13/2019

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer any rights to the certificate holder in lieu of such endorsement(s).

PRODUCER <b>McGriff Insurance Services</b> 5850 Waterloo Road, Suite 240 Columbia, MD 21045 410 480-4400	CONTACT NAME: <b>Jennifer Burton</b>
	PHONE (A/C, No, Ext): <b>410 480-4400</b> FAX (A/C, No): <b>866-548-4197</b> E-MAIL ADDRESS: <b>jennifer.burton@mcgriffinsurance.com</b>
INSURED <b>Tillman Infrastructure Holdings LLC</b> <b>Tillman Infrastructure LLC</b> 152 W. 57th Street, 27th Floor New York, NY 10019	INSURER(S) AFFORDING COVERAGE      NAIC #
	INSURER A : Hanover Insurance Company      22292
	INSURER B : The American Insurance Company      21857
	INSURER C : Travelers Indemnity Co of America      25666
	INSURER D : Allmerica Financial Benefits      41840
	INSURER E : INSURER F :


COVERAGES      CERTIFICATE NUMBER:      REVISION NUMBER:

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSR	WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
A	<input checked="" type="checkbox"/> COMMERCIAL GENERAL LIABILITY <input type="checkbox"/> CLAIMS-MADE <input checked="" type="checkbox"/> OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: <input type="checkbox"/> POLICY <input type="checkbox"/> PRO-JECT <input checked="" type="checkbox"/> LOC OTHER:			LHQD18401002	03/01/2019	03/01/2020	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$1,000,000 MED EXP (Any one person) \$10,000 PERSONAL & ADV INJURY \$2,000,000 GENERAL AGGREGATE \$2,000,000 PRODUCTS - COMP/OP AGG \$2,000,000 \$
D	AUTOMOBILE LIABILITY <input checked="" type="checkbox"/> ANY AUTO <input type="checkbox"/> OWNED AUTOS ONLY <input type="checkbox"/> SCHEDULED AUTOS <input type="checkbox"/> HIRED AUTOS ONLY <input type="checkbox"/> NON-OWNED AUTOS ONLY			AWQD44545803	03/01/2019	03/01/2020	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ \$
A	<input checked="" type="checkbox"/> UMBRELLA LIAB <input checked="" type="checkbox"/> OCCUR <input checked="" type="checkbox"/> EXCESS LIAB <input type="checkbox"/> CLAIMS-MADE DED    RETENTION \$			UHQD18401302	03/01/2019	03/01/2020	EACH OCCURRENCE \$10,000,000 AGGREGATE \$10,000,000 Ea Occ/Agg. \$15,000,000
C	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) If yes, describe under DESCRIPTION OF OPERATIONS below	Y/N	N/A	FHE00049097306 UB5K012003	03/01/2019	03/01/2020	<input checked="" type="checkbox"/> PER STATUTE <input type="checkbox"/> OTH-ER E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
A	Professional Liab			LHQD18371302	03/01/2019	03/01/2020	\$2,000,000 Ea. Claim \$2,000,000 Aggregate

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

FOR INFORMATIONAL PURPOSES ONLY

CERTIFICATE HOLDER  INSURED COPY	CANCELLATION SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.
	AUTHORIZED REPRESENTATIVE 

# Site Data Sheet

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**Applicant:** Tillman Infrastructure, LLC  
152 West 57<sup>th</sup> Street  
8<sup>th</sup> Floor  
New York, New York 10019

**Agent:** Reid Seagren  
LCC Telecom Services  
10700 Higgins Road Suite 240  
Rosemont, IL 60018  
Phone: (815) 621-9110  
Email: rseagren@lcctelecom.com

**Tower Owner:** Tillman Infrastructure, LLC  
152 West 57<sup>th</sup> Street  
8<sup>th</sup> Floor  
New York, New York 10019

**Applicant's Interest in the Property:** Leasehold

**Property Owner:** Claudette Dietz  
N8842 Kasten Rd.  
Harrison, WI, 54952

**Address of Property:** Tax Parcel No. 33536 Harrison, WI 54952

**Request:** Tillman Infrastructure requests a Conditional Use Permit and any and all other approvals or permits necessary to construct a 180'-0" self-support lattice tower with a 9'-0" lightning rod for a total height of 189'-0" and associated mobile service facilities and equipment compounds to be located within a 100'-0" x 100'-0" lease area.

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# Legal Description

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An interest in land, said interest being over a portion of the following described parent parcel:

The following described real estate in Calumet County, State of Wisconsin:

That part of the East half (E 1/2) of the Northeast Quarter (NE 1/4) of Section number fifteen (15), Township Number Twenty (20) North of Range Number Eighteen (18) East lying north of Highway 10. AND BEING the same property conveyed to Claudette L. Dietz from Leslie Kasten and Laverne Kasten by Warranty Deed dated August 15, 1972 and recorded August 17, 1972 in Deed Book 137, Page 6.

Tax Parcel No. 33536



# Narrative Overview

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Tillman Infrastructure, LLC (“Tillman Infrastructure”), seeks a Conditional Use Permit and any other permits or approvals necessary in order to install a mobile service facility on the property located at Tax Parcel No. 33536 Harrison, WI 54952. Tillman Infrastructure has an agreement with Verizon Wireless to develop this site on Verizon Wireless’ behalf for the installation of mobile service facilities and equipment compounds. In addition to Verizon Wireless, this site will be built to accommodate additional tenants and will be offered as a shared facility to any other communication carrier that has a need for a facility in the area. Verizon Wireless has acquired the necessary licenses from the Federal Communications Commission (“FCC”) to provide Personal Communications Services (“PCS”) coverage throughout the United States. These licenses include the Village and Town of Harrison.

The wireless telecommunications facility that Tillman Infrastructure is proposing to install on behalf of Verizon Wireless is needed to ensure that the Village and Town of Harrison continues to receive the best uninterrupted PCS services, including wireless telephone service, voice paging, messaging and wireless internet and broadband data transmission. PCS systems operate on a grid system with overlapping cells meshed together, forming a seamless network. No single site can function as a stand-alone entity as each site is interconnected, forming the network. The technical criteria for establishing cell sites are very exacting as to the location and height. The proposed site at Parcel No. 33536 Harrison, WI 54952 is within the geographic area deemed necessary by Verizon Wireless engineers. The location will also be made available as a shared use facility in order for other wireless telecommunications providers to provide uninterrupted services. Verizon Wireless’ technology operates at radio frequency bands allocated by the FCC as part of their license.

In accordance with Sections 117-132 and 117-138 of the Village and Town of Harrison’s Zoning Ordinance (the “Zoning Ordinance”) and Wisconsin Statute § 66.0404, Tillman Infrastructure is filing an application to install a mobile service facility. The facility will consist of a 180’-0” tall self-support lattice style tower with a 9’-0” lightning rod for a total height of 189’-0” to be located within a 100’-0” x 100’-0” lease area. The proposed facility will be sited in the Village and Town of Harrison’s AG (General Agriculture) District. As provided by Section 117-



132(f) of the Zoning Ordinance, mobile service facilities are allowed in the AG District with a conditional use permit.

The facility is unstaffed and will only require service technicians, in a pick-up/van sized vehicle, to visit the site approximately once per month. Access will be provided via an easement through an existing driveway off of US Highway 10. The site is entirely self-monitored using a sophisticated alarm system. The system alerts personnel to any equipment malfunction or breach of security. Additionally, the facility will only use power and landline telephone services, and will require no water or sanitation services and no additional police or fire services.

In accordance with FCC regulations, the mobile service facility will not interfere with any form of communication, including but not limited to, land-line phones, cable and satellite television and radio broadcasts. PCS technology has become a vital part of emergency services, aiding local residents and motorists in a variety of situations, thus helping to protect the general public's health, safety and welfare. The proposed wireless telecommunications facility at this site will further enhance goals of providing the most reliable network possible in this area and enhance emergency services, including E911.

The proposed mobile service facility will be designed and constructed to meet all applicable governmental and industry safety standards. Specifically, Tillman Infrastructure will comply with all FCC and FAA rules and regulations regarding construction requirements and technical standards. Any and all RF emissions are subject to the exclusive jurisdiction of the FCC. Any height, lighting or marking issues are subject to the exclusive jurisdiction of the FAA.

LCC Telecom Services, on behalf of Tillman Infrastructure, looks forward to working with the Town of Harrison to bring the benefits of the proposed service to the entire area. The addition of the mobile service facility will ensure the best continued wireless services for the Village and Town of Harrison. This application is complete and satisfies all standards required by Wisconsin Statute § 66.0404 and the Zoning Ordinance.

# Statement of Compliance with Wisconsin State Statute and the Town of Harrison Zoning Ordinance.

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The proposed facility is governed by § 66.0404 of the Wisconsin Statutes, entitled “Mobile Tower Siting Regulations” (the “State Statute”) which dictates the zoning and permit approval process for the facility. The proposed facility satisfies all the requirements of Wis. Stat. §66.0404.

The Village and Town of Harrison’s requirements for approval of a Conditional Use Permit for a wireless communication facility are stated in Sections 117-132 and 117-138 of the Village and Town of Harrison’s Zoning Ordinance (the “Zoning Ordinance”). This application complies with all of the applicable requirements, as outlined below.

## **Application Requirements- Wis. Stat. § 66.0404(2)(2)(b)(1-6)**

§66.0404(2)(2)(b)(1-6) of the State Statute identifies six categories of information that may be required before an application to construct or substantially modify a new facility can be deemed complete. As the present application is for the construction of a new facility, five of the six categories are required for the instant application to be complete.

All six categories of information called for in §66.0404(2)(2)(b)(1-6) of the State Statute are identified below, with the required document or information described in bold below the requirement.

1. The name and business address of, and the contact individual for, the applicant.  
§66.0404(2)(2)(b)(1).

**The applicant is Tillman Infrastructure, LLC whose address is 152 West 57th Street, 8th Floor, New York, New York 10019. Reid Seagren of LCC Telecom Services is the agent of and contact individual for Tillman Infrastructure. His business address is 10700 Higgins Road, Rosemont, IL 60018.**

2. The location of the proposed or affected support structure. §66.0404(2)(2)(b)(2).

**A support structure is defined in §66.0404(1)(l) of the State Statute as “a freestanding structure that is designed to support a mobile service facility.” In this case, the proposed support structure is a 180’-0” tall self-support lattice tower with a 9’-0” lightning rod for a total height of 189’-0”.**

**The support structure is proposed to be located on Tax Parcel No. 33536 Harrison, WI 54952. The support structure will be located within an equipment compound as defined in Wis. Stat. §66.0404(1)(h). This fenced lease area is part of a larger parent parcel at the above address. The location of the support structure is depicted on Sheet A-1 of the Site Plan (“Sheet A-1”) included as a part of this application.**

3. The location of the proposed mobile service facility. §66.0404(2)(2)(b)(3).

**A mobile service facility is defined in Wis. Stat. §66.0404(1)(l) as “a set of equipment and network components, including antennas, transmitters, receivers, base stations, power supplies, cabling, and associated equipment, that is necessary to provide mobile service to a discreet geographic area.” In this case, the equipment consists of base station equipment cabinets on an 8’ x 10’ platform, along with antennas, transmitters, receivers, power supplies, cabling and associated equipment. All of the equipment is necessary to operate the mobile service facility.**

**The proposed mobile service facility is to be located to be located on Tax Parcel No. 33536 Harrison, WI 54952. The mobile service facility will be located within an equipment compound as defined in Wis. Stat. §66.0404(1)(h). This fenced lease parcel is part of a larger parent parcel at the above address. The location of the mobile service facility is depicted on Sheet A-1.**

4. If the application is to substantially modify an existing support structure, a construction plan which describes the proposed modifications to the support structure and the equipment and network components, including antennas, transmitters, receivers, base stations, power supplies, cabling and related equipment associated with the proposed modifications. §66.0404(2)(2)(b)(4).

**§66.0404(2)(2)(b)(4) of the State Statute only applies to substantial modification applications as defined in Wis. Stat. §66.0404(1)(s). This section applies only to modification of existing sites. As this application is for the construction of a new mobile service support structure this information is not required for the present application.**

5. A construction plan which describes the proposed mobile service support structure and the equipment and network components, including antennas, transmitters, receivers, base stations, power supplies, cabling, and related equipment to be placed on or around the new mobile service support structure. §66.0404(2)(2)(b)(5).

**The construction plan required for a new mobile service support structure and facility under §66.0404(2)(b)(5) of the State Statute has been submitted in the Site Plan as part of this application. The Site Plan includes all of the elements required under the State Statute.**

6. An explanation as to why the applicant chose the proposed location and why the applicant did not choose collocation, including a sworn statement from an individual who has responsibility over the placement of the mobile service support structure attesting that collocation within the applicant's search ring would not result in the same mobile service functionality, coverage, and capacity; is technically infeasible; or is economically burdensome to the mobile service provider. §66.0404(2)(2)(b)(6).

**Sworn Statement Required By Wis. Stat. § 66.0404(2)(2)(b)(6)**

**Wis. Stat. § 66.0404(2)(2)(b)(5) requires an explanation as to why the applicant did not choose collocation, including a sworn statement attesting to the reason underlying the decision.**

**The proposed location was selected based on search criteria provided by Verizon Wireless to LCC Telecom Services. These criteria included a 3,000' search radius within which the new tower could be located. This search radius was provided to ensure adequate coverage of the target area. This search area, and the location of the proposed tower within it, are shown on the attached Search Area Map. In addition to the proposed location being near the center of the search area, this location was selected, as it allowed the tower to be placed further than the 65' fall radius of the tower, as identified in the attached Fall Zone Letter, from neighboring structures and property lines. This location was also selected based on environmental factors, as it allows the tower to be placed further from Lake Winnebago than would other locations within the search area. For additional information about why this site was selected see the attached Site Selection Affidavit.**

**The applicant did not choose collocation here, because continued collocation on the existing tower, located to the West of the proposed location off of Highway 10, is economically burdensome to Verizon Wireless as is attested to in the attached Sworn Statement. SBA typically charges Verizon 30% to 40% more than Tillman Infrastructure, with annual increases in rent, to lease space on SBA's towers. A site-specific comparison of rent and lease terms on SBA's existing tower and Tillman's proposed tower cannot be provided due to the restrictive language of SBA's non-disclosure agreement with Verizon. Further, collocation on a different existing tower within Verizon's search area is not possible because there are no other towers within the search radius, as illustrated in the attached FCC Tower Inventory and Existing Tower Map included with this application.**

## **Application Requirements for Conditional Use Permit- Town of Harrison**

The Village and Town of Harrison's requirements for approval of a Conditional Use Permit for a wireless communication facility are identified in Sections 117-132 and 117-138 of the Zoning Ordinance. The information required by the Zoning Ordinance is identified below, with the required document or information described in bold below the requirement.

- The height limitations applicable to buildings and structures shall not apply to towers and antennas, however, in no case shall any tower (including antennas), exceed a height of 100 feet or FAA limitations, whichever is less. Harrison Town Zoning Ordinance § 17-132 (c)(1).

**Under existing regulations, the proposed tower, with a total height of 189', would not satisfy the Zoning Ordinance. However, § 66.0404(4)(u) of the Wisconsin State Statute prohibits a locality from limiting the height of a mobile support structure to under 200'. Accordingly, the allowable height of the proposed tower would be 200' and the 189' total height is compliant.**

- An inventory of all existing towers within a three-mile radius of the proposed site, including specific information about the location, height, and design of each tower. Harrison Town Zoning Ordinance § 17-132 (d)(2).

**There are a total of 7 towers registered within a 3 mile radius of the proposed site. Please see attached exhibit entitled "Tower Inventory" for more detailed information.**

- *Aesthetics and lighting.* The guidelines set forth in this subsection shall govern the location of all towers and the installation of all antennas, provided, however, that the governing authority may waive these requirements if it determines that the intent of this section is better served thereby. Harrison Town Zoning Ordinance § 17-132 (d)(3).
  - a. Towers shall maintain a galvanized steel finish, or, be subject to any applicable standards of the FAA, be painted a neutral color so as to reduce visual obtrusiveness.

**The proposed tower will maintain a galvanized steel finish.**

- b. At a tower site, the design of the buildings and related structures shall, to the extent possible, use materials, colors, textures, screening, and landscaping that will blend the tower facilities to the natural setting and built environment.

**As shown on the sheets A-1, A-2, and A-8 of the Site Plan, the tower and facilities shall be screened by newly installed trees to blend the tower facilities to the natural setting and built environment.**

- c. If an antenna is installed on a structure other than a tower, the antenna and supporting electrical and mechanical equipment must be of a neutral color that is identical to, or closely compatible with, the color of the supporting structure so as to make the antenna and related equipment as visually unobtrusive as possible.

**The antenna shall be installed on a tower as shown on Sheet A-3 of the Site Plan.**

- d. Towers shall not be artificially lighted, unless required by the FAA or other applicable authority. If lighting is required, the governing authority may review the available lighting alternatives and approve the design that would cause the least disturbance to the surrounding views.

**The tower shall not be artificially lighted, as shown on Sheet A-3 of the Site Plan.**

- e. Towers and antennas shall not be used for displaying any advertising. If FCC rules require that the owner's name be shown on the tower or antennae, it shall be posted no more than six feet above the ground on a placard no larger than two square feet.

**The proposed tower and antennas will not be used for displaying any advertising, as shown on Sheet A-12 of the included Site Plan.**

- Any proposed wireless communication tower and tower site shall be designed structurally, electrically, and in all respects to accommodate co-location of both the applicant's antenna(s) and comparable antenna(s) for at least two additional users. Towers and tower sites shall be designed to allow for future rearrangement of antennas upon the tower, to accept antennas mounted at varying heights, and to accommodate supporting buildings and equipment. Harrison Town Zoning Ordinance § 17-132 (f)(4)(a).

**The proposed tower has been designed in all respects to accommodate co-location as illustrated on Sheets A-1 and A-3 of the Site Plan.**

- No new tower, excepting amateur radio towers and sites, shall be permitted unless the applicant demonstrates to the reasonable satisfaction of the governing authority that no existing tower or structure can accommodate the applicant's proposed antenna. Evidence submitted to demonstrate that no existing tower or structure can accommodate the applicant's proposed antenna may consist of ... (t)he fees, costs, or contractual provisions required by the owner to share an existing tower or structure or to adapt an existing tower. Harrison Town Zoning Ordinance § 17-132 (f)(4)(C).

**The applicant did not choose collocation here, because continued collocation on the existing tower, located to the West of the proposed location off of Highway 10, is economically burdensome to Verizon Wireless as is attested to in the attached Sworn Statement. SBA typically charges Verizon 30% to 40% more than Tillman Infrastructure, with regular increases, to lease space on SBA's towers. A site-specific comparison of rent and lease terms on SBA's existing tower and Tillman's proposed tower cannot be provided due to the restrictive language of SBA's non-disclosure agreement with Verizon. In addition, collocation on a different existing tower within Verizon's search area is not possible because there are no other towers within the search radius, as illustrated in the attached FCC Tower Inventory and Existing Tower Map included with this application.**

- *Setbacks and separation.* The following setbacks and separation requirements shall apply to all towers and antennas for which a conditional use permit is required; provided, however, that the governing authority may, reduce the standard setbacks and separation requirements if the purpose and intent of this section would be better served thereby. Harrison Town Zoning Ordinance § 17-132 (f)(5).
  - a. Towers must be set back a distance equal to the height of the tower from any off-site residential structure.

**The proposed tower will be set back a distance equal to the height of the tower from any off-site residential structure as shown on Sheet A-1 and Sheet 1 of 2 of the Site Plan. See also section 66.0404(2)(g) of the Wisconsin State Statutes.**

- b. Towers, guys, and accessory facilities must satisfy the minimum zoning district setback requirements.

**Per §117-81 of the Zoning Ordinance, structures in the General Agriculture District must maintain setbacks of 50' from a municipal road, 60' from a county road, 75' from a state or federal road, 50' from the front and rear yard, and 25' from the side yard. As shown on Sheet A-1 of the Site Plan, the proposed tower is 154' to the front yard and right of way for U.S. Highway 10, 185' and 328' from the side yards, and 1097' from the rear yard.**

- The following requirements shall govern the landscaping surrounding towers for which a conditional use permit is required; provided, however, that the governing authority may waive such requirements if the purpose and intent of this section would be better served thereby. Harrison Town Zoning Ordinance § 17-132 (f)(6).
  - a. Tower facilities shall be landscaped with a mixture of deciduous and evergreen trees and shrubs that effectively screens the view of the tower compound from adjacent properties. The standard buffer shall consist of a landscaped strip at least six feet wide outside the perimeter of the compound.

**A landscaping buffer with a depth of 6' will be installed around the facilities as shown on sheets A-1 and A-8 of the Site Plan.**

- Financial guarantee. A bond with a corporate surety, duly licensed in the state, in the amount of \$20,000.00 per 100 feet of height shall be provided to assure that the applicant, its representatives, its agents, and its assigns will comply with all the terms, conditions, provisions, requirements, and specifications contained in this chapter, including abandonment. The bond amount shall be recalculated every five years based on the Consumer Price Index over that period of time. The town shall be named as obligee in the bond and must approve the bonding company. Harrison Town Zoning Ordinance § 17-132 (f)(7).

**A \$20,000 surety bond will be provided as a condition of approval of this application as permitted by Section 66.0404(4)(i) of the Wisconsin State Statutes.**

- Operation plan. A narrative detailing the hours of operation, anticipated number of occupants and/or employees, whether there will be any outside storage of materials, equipment or vehicles, and plans for removal and control of waste and trash. Harrison Town Zoning Ordinance § 17-138 (1).

**The proposed tower will be an unmanned communication site operating twenty-four hours a day, seven days a week as described in more detail in the Narrative Section of this application. No materials, equipment or vehicles will be stored at the site. Certain equipment used in the ongoing operation will be located in self-contained cabinets or small shelters located at the site as indicate on Sheets A-2, A-6, A-7, and A-8. The unmanned facility will not generate waste and trash.**

- Building plan. The building plan shall show the layout of building(s), size and layout of rooms, design of building(s) façade, and any other materials or notes to properly depict the building(s). Harrison Town Zoning Ordinance § 17-138 (2).

**This application does not include or contemplate the construction of any building, therefore there is no floor plan available. Sheet A-2 of the Site Plan illustrates the proposed development.**



- Site plan. The site plan shall include a legal description of the property, the location of all existing and proposed streets, easements, building(s), parking areas, pedestrian and vehicular access points, and pedestrian walkways. A graphic outline of any development phasing and the land use and zoning classifications of adjacent properties shall also be indicated on the site plan. Harrison Town Zoning Ordinance § 17-138 (3).

**A legal description of the property is provided in the section of this application entitled Legal Description. The location of all existing and proposed streets, easements, building(s), parking areas, pedestrian areas, pedestrian and vehicular access points, and pedestrian walkways are shown on sheets A-1 and Sheet A-2 included in attached Site Plan. No development phasing is planned, construction will occur in one phase.**

**The land use and zoning classifications of adjacent properties, as shown in the included Zoning Map, are as follows:**

**North: PID: 33530 at County N General Agriculture (AG); PID: 33534 at W5730 WOODLAND RD General Agriculture (AG).**

**East: PID: 33540 at W5719 WOODLAND RD. General Agriculture (AG); PID 33542 at W5732 HWY 10 General Agriculture (AG)**

**South: PID: 39440 at W5789 HWY 10 Single Family Residential (RS-1); PID: 39438 at N8813 COUNTY N Neighborhood Commercial (CN).**

**West: PID: 33544 at N8842 KASTEN DR General Agriculture (AG)**

**For further information see attached exhibit entitled Zoning Map.**

- Drainage plan. A drainage plan shall show existing topography at two-foot intervals, spot elevations of existing and proposed buildings, and the approximate location of any proposed stormwater management facilities needed in order to meet the post-construction stormwater management requirements. Harrison Town Zoning Ordinance § 17-138 (4).

**A grading and drainage plan is illustrated on Sheets A-6 and A-7 of the Site Plan. The proposed facility will be constructed within a small area, that will be covered in porous gravel. Topography is shown in 1' intervals on Sheet A-1 of the attached Site Plan.**

- Landscape plan. The landscape plan shall identify the location of existing trees and land forms. The landscape plan shall also indicate the location, extent and type of all proposed plantings and shall also show the location, height, opaque characteristics, extent and type of any required screening. Harrison Town Zoning Ordinance § 17-138 (5).

**A landscaping plan providing screening is depicted on sheets A-2, A-7, and A-8 of the Site Plan included with this application.**

- Utility plan. The utility plan shall show the location of all utilities (storm, sanitary, water mains, electrical, natural gas and communication lines), exterior lighting, outdoor signs, and waste and trash collection areas. Areas for snow removal storage shall also be shown. Harrison Town Zoning Ordinance § 17-138 (6).

**The electrical and communication utilities used at the site are shown on sheets A-1 and E-1 of the attached Site Plan. There will be no storm, sanitary, water or natural gas utilities utilized at the site.**

# Sworn Statement

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**Network Real Estate  
180 Washington Valley Rd.  
Bedminster, NJ 07921**

September 10, 2019

To: Planning Commission  
W5298 State Road 114  
Harrison, WI 54952

Attn: Village Planner  
Mr. Mark Mommaerts

**RE: *Proposed Tillman Wireless Facility at N8757 County Hwy N, Menasha, WI 54952  
Verizon's Statement of Economic Burden***

To Whom It May Concern:

Please allow this letter to serve as evidence in the above-noted zoning matter, establishing the economic basis warranting approval of the pending application.

Verizon proposes to relocate its equipment from an existing wireless facility owned by SBA Communications to a proposed new tower owned and operated by Tillman Infrastructure and located at N8757 County Hwy N, Menasha, WI 54952 ("Tillman Tower"). Verizon will relocate to the Tillman Tower because the SBA tower is no longer viable from an economic standpoint.

The recurring fee (i.e. rent and other increases) assessed by SBA, which has escalated significantly from the starting figure provided in Verizon and SBA's original agreement, is excessive by today's standards in the industry and has rendered the status quo cost-prohibitive for Verizon. SBA's inflated license fee derives from an outdated real estate model that does not reflect terms and conditions that wireless providers are getting with other tower companies today. Continuing to pay excessive fees for use of the SBA tower is not a financially sustainable model for Verizon. To continue improving our cellular coverage and capacity in a financially sustainable way, Verizon must fundamentally change its tower strategy.

SBA's monthly fees are typically between 30% and 40% higher than Tillman's. SBA's prices automatically escalate on average between 3-4 % per year, whereas Tillman has no escalation for fifteen (15) years. Tillman's prices are all-inclusive, whereas SBA charges additional fees for almost every added or replaced piece of equipment. Tillman's new tower would immediately offer dedicated space to accommodate Verizon's needs for many years.



**Network Real Estate  
180 Washington Valley Rd.  
Bedminster, NJ 07921**

Corporate-level negotiations, aimed at reducing SBA rents and updating their leasing model, have not accomplished their intended objective. Relocation to the Tillman tower will result in a significant reduction in Verizon's recurring license fee. This allows for additional investment into our network and increases our ability to continuously improve the wireless experience for our customers. If the Village of Harrison approves the new Tillman tower, as we request, Verizon has committed to relocating onto this tower.

For these reasons, Verizon requests your approval to relocate from our current facility to obtain relief from SBA's excessive fees, facilitating our ability to continue to improve wireless service and to upgrade our network, for the benefit of the entire community.

Sincerely,



Margaret Salemi  
Director,  
Network Engineering and Operations  
Verizon Wireless

Network Real Estate  
180 Washington Valley Rd.  
Bedminster, NJ 07921

State of New Jersey        )  
  )  
County of Somerset        )        ss

On September 10, 2019 before me, Andrea Stefanski, Notary Public in and for said County, personally appeared Margaret Salemi, [signer/witness] who has/have satisfactorily identified him/her/themselves as the signer(s) or witness(es) to the above referenced document.

(Affix Notary Stamp Here)

*Andrea Stefanski*

Notary Public Signature

My Commission Expires: 02/04/2024

**ANDREA STEFANSKI**  
**NOTARY PUBLIC OF NEW JERSEY**  
Comm. # 50098346  
My Commission Expires 2/4/2024



# Site Selection Affidavit

I, Reid Seagren, of the City of Naperville and DuPage County, having been duly sworn, state and depose as follows:

LCC Telecom Services is petitioning for approval of a Conditional Use Permit for a new wireless communications facility in the Village of Harrison (the "Village"). Tillman Infrastructure is working in partnership with Verizon Wireless to construct a new wireless facility to replace an existing site. A replacement site is required due to economically burdensome lease terms at the current location.

Based on radio frequency criteria supplied by Verizon Wireless, LCC Telecom Services was charged with finding an alternative location within a 3,000' search radius. This radius was provided to ensure that any new tower constructed would provide the Village with equal or better coverage than did the existing site. As is shown on the Existing Tower Map included with this application, the existing site is the only wireless support structure within the search radius. As a result, collocating on a separate support structure was not possible. The selected site is in an agricultural parcel, near the center of the search area, away from the nearby Lake Winnebago. Every effort was made to secure a location with a land use appropriate to the proposed facility

This statement is submitted pursuant to Wisconsin Statute 66.0404 Mobile Tower Siting Regulations, Section (2)(b)6. That section requires an explanation as to why construction of a new facility is necessary at the proposed location and why collocation within the applicant's search ring would not result in the same mobile service functionality, coverage and capacity; is technically infeasible; or is economically burdensome to the mobile service provider. As is described in more detail in the Sworn Statement included with this application, relocation to this parcel is necessary due to unreasonable and economically burdensome rent being charged at the existing site. In addition, the new facility was selected to ensure the uninterrupted provision of quality wireless communication services to the Village.

X 

Reid Seagren

SUBSCRIBED AND SWORN Before Me on the

9<sup>th</sup> day of October, 2019

Signature  (Seal)

NOTARY PUBLIC

My Commission expires: 10/12/2020



# Fall Zone Letter

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April 9, 2019

Jill Castaneda  
Tillman Infrastructure  
152 W 57<sup>th</sup> Street, 27<sup>th</sup> Floor  
New York, NY 10019

RE: Proposed 180' Sabre Self-Supporting Tower for TI-OPP-11894, WI

Dear Ms. Castaneda,

Upon receipt of order, we propose to design a tower for the above referenced project for an ASCE 7-16 Ultimate Wind Speed of 106 mph and 50 mph with 1.5" radial ice, Structure Class II, Exposure C, Topographic Category 1 in accordance with the Telecommunications Industry Association Standard ANSI/TIA-222-G, "Structural Standard for Antenna Supporting Structures and Antennas".

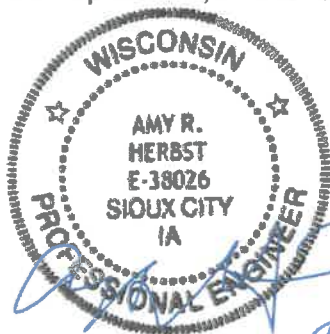
When designed according to this standard, the wind pressures and steel strength capacities include several safety factors, resulting in an overall minimum safety factor of 25%. Therefore, it is highly unlikely that the tower will fail structurally in a wind event where the design wind speed is exceeded within the range of the built-in safety factors.

Should the wind speed increase beyond the capacity of the built-in safety factors, to the point of failure of one or more structural elements, the most likely location of the failure would be within one or more of the tower members in the upper portion. This would result in a buckling failure mode, where the loaded member would bend beyond its elastic limit (beyond the point where the member would return to its original shape upon removal of the wind load).

Therefore, it is likely that the overall effect of such an extreme wind event would be localized buckling of a tower section. Assuming that the wind pressure profile is similar to that used to design the tower, the tower is most likely to buckle at the location of the highest combined stress ratio in the upper portion of the tower. This would result in the portion of the tower above the failure location "folding over" onto the portion of the tower below the failure location. ***Please note that this letter only applies to the above referenced tower designed and manufactured by Sabre Towers & Poles.*** In the unlikely event of total separation, this would result in collapse within a radius of 65 feet.

Sincerely,

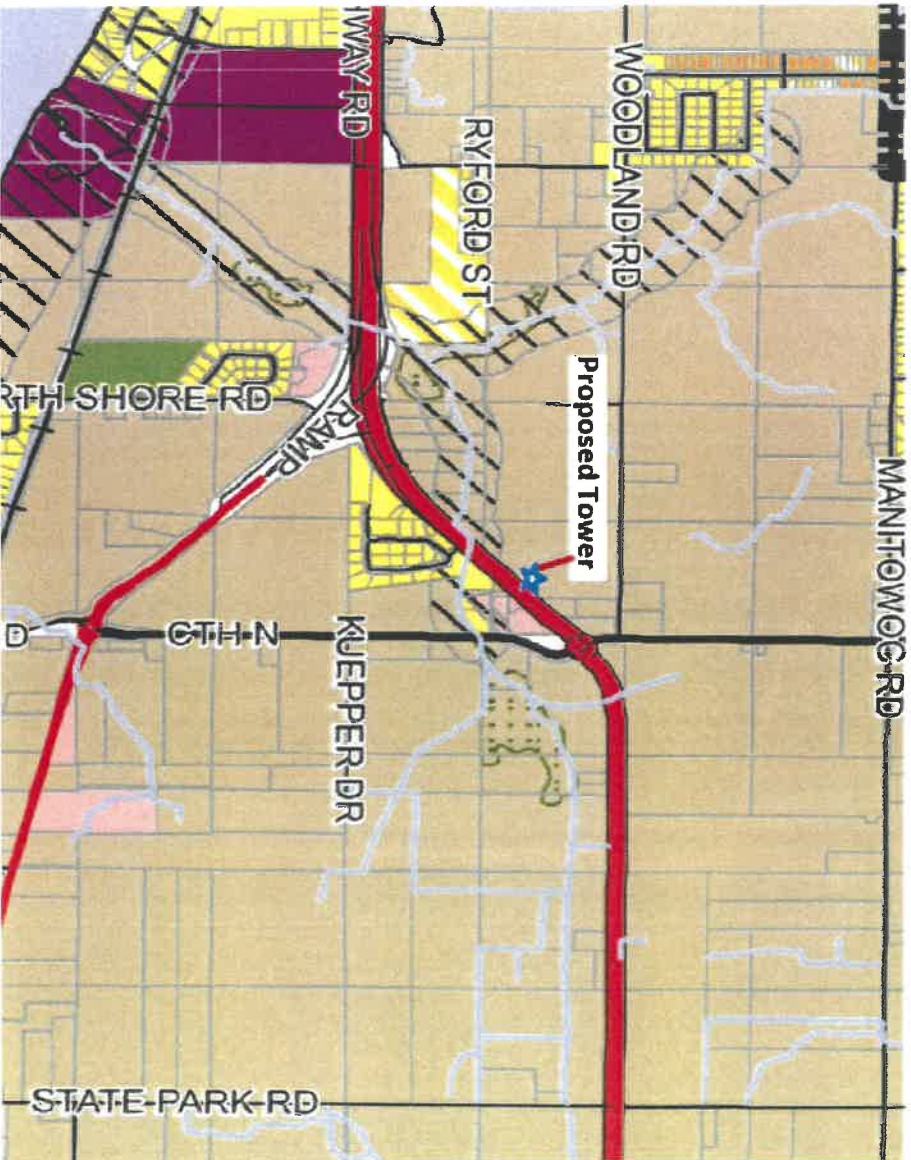
Amy R. Herbst, P.E.  
Senior Design Engineer



# Inventory of Existing Sites

	Registration No.	Status	File No.	Owner	Latitude/Longitude	City/State	AGL - Meters	Type
1	<a href="#">1033863</a>	Constructed	A1129093	Alltel Corporation	44-13-32.4N 088-22-44.6W	APPLETON, WI	79.5	Free standing or Guyed Structure
2	<a href="#">1052706</a>	Constructed	A1085185	Immaculate Heart Media, Inc.	44-14-49.0N 088-18-01.2W	KAUKAUNA, WI	73.8	3TA1 - Antenna Tower Array
3	<a href="#">1052712</a>	Constructed	A1085184	Immaculate Heart Media, Inc.	44-14-53.0N 088-18-01.2W	KAUKAUNA, WI	73.8	3TA2 - Antenna Tower Array
4	<a href="#">1052713</a>	Constructed	A1085183	Immaculate Heart Media, Inc.	44-14-54.0N 088-17-59.2W	KAUKAUNA, WI	73.8	3TA3 - Antenna Tower Array
5	<a href="#">1221794</a>	Constructed	A0835478	SBA Structures, LLC		Menasha, WI	60.7	Free standing or Guyed Structure
6	<a href="#">1239538</a>	Terminated	A0623650	Appleton Oshkosh Neenah MSA, LP d/b/a Alltel	44-14-49.3N 088-21-25.8W	APPLETON, WI	31.1	Mast
7	<a href="#">1280080</a>	Constructed	A0819837	American Towers LLC	44-10-40.7N 088-17-04.8W	SHERWOOD, WI	33.2	Pole

# Zoning Map



## Zoning Map

Village of Harrison  
 Calumet & Outagamie Counties  
 Wisconsin

Town of Harrison  
 Calumet County  
 Wisconsin

### Legend

- Zoning Districts**
- AG-1 Suburban Agriculture
  - RS-1 Single Family Residential (Suburban)
  - RS-2 Single Family Residential (Traditional)
  - RT-1 Two Family Residential
  - RM-1 Multiple Family Residential
  - CM-1 Neighborhood Commercial
  - CDR-1 Office & Retail, districtal
  - CC-1 Community Commercial
  - BP-1 Business Park
  - MC-1 Medium & Compact
  - MA-1 Medium Density
  - MA-2 Medium Density
  - MD-1 Medium Density
  - PD-1 Planned Development Overlay
  - SPD-1 Special District
  - SMD-1 Special District
- Road Centerline**
- County Highway
  - State Highway
  - US Highway
  - Local Roads
  - Interstates
  - Trails
  - Canals
  - Railroads
  - Service
- Please note that the SHD & SMD boundaries are subject to be change based on determinations of navigable waterways.**

This map was created by  
 Village of Harrison  
 Planning & Zoning  
 Department  
 1000 North  
 Harrison Ave  
 Harrison, WI 54901

Adopted July 27, 2011  
 Effective November 1, 2011  
 Current as of November 16, 2011



# Search Area Map

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# Existing Tower Map

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**PROJECT:** NEW SITE BUILD  
**TILLMAN SITE NAME:** HARRISON MENASHA RELO -B  
**TILLMAN SITE CASCADE:** TI-OPP-11894-B  
**SITE ADDRESS:** N8842 KASTEN ROAD  
 HARRISON, WI 54952  
**SITE TYPE:** 180' SELF SUPPORT



**LCC**  
**TELECOM SERVICES**  
 10700 HIGGINS ROAD, SUITE 240  
 ROSEMONT, IL 60018  
 OFFICE: (847) 393-4528

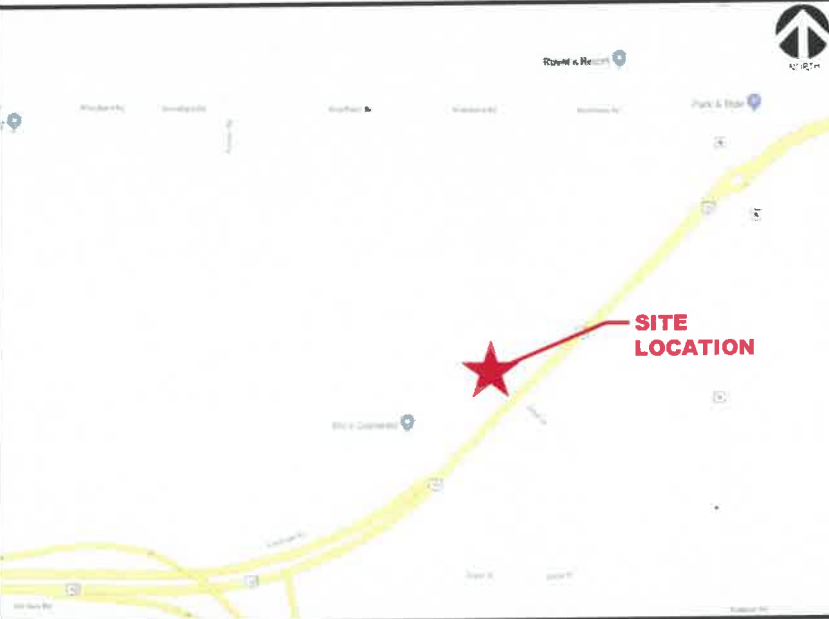
**RAMAKER & ASSOCIATES, INC.**  
 100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com  
 Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal  
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



Signature: *[Signature]* Date: 8/05/2019

**VICINITY MAP:**



**PROJECT INFORMATION:**

**SITE ADDRESS:**  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

**SITE ACQUISITION**  
 LCC TELECOM SERVICES  
 10700 HIGGINS ROAD, SUITE 240  
 ROSEMONT, IL 60018  
 CONTACT: JOHN WALLACE  
 PHONE: (847) 608-6300

**SITE COORDINATES:**  
 LATITUDE: 44.2111203  
 LONGITUDE: -88.3271361

**A&E FIRM**  
 RAMAKER & ASSOCIATES, INC.  
 855 COMMUNITY DRIVE  
 SAUK CITY, WI 53583  
 CONTACT: JASON FRAZIER  
 EMAIL: JFRAZIER@RAMAKER.COM  
 PHONE: (608) 643-4100

**MUNICIPAL ID:**  
 BLOCK: N/A  
 PARCEL #: 131-0000-0000000-000-0-201815-00-110B  
 ZONE: N/A

**PROPERTY OWNER:**  
 CLAUDETTE L. DIETZ

**FIBER PROVIDER**  
 T.B.D.

**APPLICANT**  
 TILLMAN INFRASTRUCTURE  
 PHONE: (646) 578-8394

**POWER PROVIDER**  
 T.B.D.

**APPROVALS:**

CONSTRUCTION MANAGER:  
 SITE ACQUISITION:  
 LANDLORD:

**SHEET INDEX**

SHEET NUMBER	SHEET DESCRIPTION
T-1	COVER SHEET
N-1	NOTES
N-2	NOTES
N-3	NOTES
1 OF 2	SURVEY
2 OF 2	SURVEY
A-1	OVERALL SITE PLAN
A-2	ENLARGED SITE PLAN
A-3	TOWER ELEVATION
A-4	COMPOUND FENCE AND GATE DETAILS
A-5	COMPOUND SIGN DETAILS
A-6	COMPOUND SITE DETAILS, GRADING & EROSION CONTROL DETAILS
A-7	COMPOUND GRADING PLAN
A-8	COMPOUND TREE PLANTING DETAILS
E-1	COMPOUND UTILITY PLAN
E-2	COMPOUND UTILITY DETAILS
E-3	TYPICAL COMPOUND GROUNDING PLAN
E-4	TYPICAL GROUNDING DETAILS
E-5	TYPICAL GROUNDING DETAILS
VZW-1	VERIZON COVER SHEET
VZW-2	VERIZON ANTENNA CONFIGURATION
VZW-3	VERIZON ANTENNA CONFIGURATION
VZW-4	VERIZON RFDS
VZW-5	VERIZON RFDS
VZW-6	VERIZON TOWER EQUIPMENT DETAILS
VZW-7	VERIZON GROUND EQUIPMENT LAYOUT
VZW-8	VERIZON EQUIPMENT ELEVATIONS
VZW-9	VERIZON CONCRETE PAD AND ICE BRIDGE DETAILS
VZW-10	VERIZON UTILITY PLAN

**REFERENCE DOCUMENTS:**

RFDS DESIGN DATE: 07/11/2019  
 STRUCTURAL ANALYSIS DATE: TBD  
 MOUNT ANALYSIS DATE: TBD

**CODE COMPLIANCE:**

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- 2015 INTERNATIONAL BUILDING CODE
- INTERNATIONAL MECHANICAL CODE
- ANSI/TIA-222 STRUCTURAL STANDARD
- NFPA 780 - LIGHTNING PROTECTION CODE
- NATIONAL ELECTRICAL CODE



**AERIAL MAP:**



MARK	DATE	DESCRIPTION
ISSUE #	FINAL - REV 0	DATE ISSUED 08/05/2019

PROJECT TITLE:  
**TI-OPP-11894-B**

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE:  
**TITLE SHEET**

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: T-1



**GENERAL**

THE CONSTRUCTION DOCUMENT DRAWINGS ARE INTERRELATED. WHEN PERFORMING THE WORK, EACH CONTRACTOR MUST REFER TO ALL DRAWINGS. COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

**DIVISION 1: GENERAL REQUIREMENTS**  
**SECTION 01700 - PROJECT CLOSEOUT**

**PART 1 - GENERAL**

- OBTAIN AND SUBMIT RELEASES ENABLING THE OWNER UNRESTRICTED USE OF THE WORK AND ACCESS TO SERVICES AND UTILITIES; INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES AND SIMILAR RELEASES
- SUBMIT RECORD DRAWINGS, DAMAGE OR SETTLEMENT SURVEY, PROPERTY SURVEY, AND ACCESS TO SERVICES AND UTILITIES; INCLUDE OCCUPANCY PERMITS, OPERATING CERTIFICATES AND SIMILAR RELEASES
- COMPLETE FINAL CLEAN UP REQUIREMENTS, INCLUDING TOUCH-UP PAINTING. TOUCH UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES.

**PART 2 - FINAL CLEANING**

- COMPLETE THE FOLLOWING CLEANING OPERATIONS BEFORE REQUESTING INSPECTION FOR CERTIFICATION OF COMPLETION.
  - CLEAN THE PROJECT SITE, YARD AND GROUNDS, IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES, INCLUDING LANDSCAPE DEVELOPMENT AREAS, OF RUBBISH, WASTE MATERIALS, LITTER AND FOREIGN SUBSTANCES. SWEEP PAVED AREAS BROOM CLEAN. REMOVE PETRO-CHEMICAL SPILLS, STAINS AND OTHER FOREIGN DEPOSITS. RAKE GROUNDS THAT ARE NEITHER PLANTED NOR PAVED, TO A SMOOTH EVEN-TEXTURED SURFACE.
  - REMOVE TOOLS, CONSTRUCTION EQUIPMENT, MACHINERY AND SURPLUS MATERIAL FROM THE SITE.
  - REMOVE SNOW AND ICE TO PROVIDE SAFE ACCESS TO THE SITE AND EQUIPMENT ENCLOSURE.
  - CLEAN EXPOSED EXTERIOR AND INTERIOR HARD-SURFACED FINISHES TO A DIRT FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. AVOID DISTURBING NATURAL WEATHERING OF EXTERIOR SURFACES.
  - REMOVE DEBRIS FROM LIMITED ACCESS SPACES, INCLUDING ROOFS, EQUIPMENT ENCLOSURE, MANHOLES, AND SIMILAR SPACES.
  - REMOVE LABELS THAT ARE NOT PERMANENT LABELS.
  - TOUCH-UP AND OTHERWISE REPAIR AND RESTORE MARRED EXPOSED FINISHES AND SURFACES. REPLACE FINISHES AND SURFACES THAT CAN NOT BE SATISFACTORILY REPAIRED OR RESTORED, OR THAT SHOW EVIDENCE OF REPAIR OR RESTORATION. DO NOT PAINT OVER "UL" AND SIMILAR LABELS, INCLUDING ELECTRICAL NAME PLATES.
  - LEAVE THE PROJECT CLEAN AND READY FOR OCCUPANCY.

**DIVISION 2: SITE WORK**  
**SECTION 02200 - EARTHWORK AND DRAINAGE**

**PART 1 - GENERAL**

- WORK INCLUDED: SEE SITE PLAN.
- DESCRIPTIONS  
LEASE AREA, AND IF APPLICABLE ACCESS DRIVE / TURNAROUND AREA, AND UNDERGROUND UTILITY EASEMENTS ARE TO BE CONSTRUCTED TO PROVIDE A WELL DRAINED, EASILY MAINTAINED, EVEN SURFACE FOR MATERIAL AND EQUIPMENT DELIVERIES AND MAINTENANCE PERSONNEL ACCESS.
- QUALITY ASSURANCE
  - APPLY SOIL STERILIZER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS (AS NEEDED).
  - APPLY AND MAINTAIN GRASS SEED AS RECOMMENDED BY THE SEED PRODUCER (IF REQUIRED).
  - PLACE AND MAINTAIN VEGETATION LANDSCAPING, IF INCLUDED WITHIN THE CONTRACT, RECOMMENDED BY NURSERY INDUSTRY STANDARDS.
- SEQUENCING
  - CONFIRM SURVEY STAKES AND SET ELEVATION STAKES PRIOR TO ANY CONSTRUCTION.
  - COMPLETELY GRUB THE ACCESS DRIVE W/ TURNAROUND, UNDERGROUND UTILITY EASEMENTS, (IF APPLICABLE) AND LEASE AREA PRIOR TO FOUNDATION CONSTRUCTION, PLACEMENT OF BACKFILL AND SUB-BASE MATERIAL.
  - CONSTRUCT TEMPORARY CONSTRUCTION AREA ALONG ACCESS DRIVE.
  - BRING THE LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION PRIOR TO INSTALLING FOUNDATION.
  - APPLY SOIL STERILIZER PRIOR TO PLACING BASE MATERIALS.
  - GRADE, SEED, FERTILIZE, AND MULCH ALL AREAS DISTURBED BY CONSTRUCTION (INCLUDING UNDERGROUND UTILITY EASEMENTS)

- IMMEDIATELY AFTER BRINGING LEASE AREA AND ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION, WATER TO ENSURE GROWTH.
- REMOVE GRAVEL FROM TEMPORARY CONSTRUCTION ZONE TO AN AUTHORIZED AREA OR AS DIRECTED BY PROJECT MANAGER.
  - AFTER APPLICATIONS OF FINAL SURFACES, APPLY SOIL STERILIZER TO STONE SURFACES.

**PART 2 - PRODUCTS**

- MATERIALS
  - SOIL STERILIZER SHALL BE EPA-REGISTERED, PRE-EMERGENCE LIQUID:  
TOTAL KILL (PRODUCT 910) - EPA 10292-7  
PHASAR CORPORATION  
P.O. BOX 5123  
DEARBORN, MI 48128  
(313) 563-8000  
AMBUSH HERBICIDE - EPA REGISTERED  
FRAMAR INDUSTRIAL PRODUCTS  
1435 MORRIS AVE.  
UNION, NJ 07083  
(800) 526-4924
  - ROAD AND SITE MATERIALS SHALL CONFORM TO DOT SPECIFICATIONS FILL MATERIAL (UNLESS OTHERWISE NOTED) - ACCEPTABLE SELECT FILL SHALL STANDARD SPECIFICATIONS... BE IN ACCORDANCE WITH STATE DEPARTMENT OF HIGHWAY AND TRANSPORTATION.
  - SOIL STABILIZER FABRIC SHALL BE MIRAFI - 500X.

**PART 3 - EXECUTION**

- INSPECTIONS  
LOCAL BUILDING INSPECTORS SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS, UNLESS OTHERWISE SPECIFIED BY JURISDICTION.
- PREPARATION
  - CLEAR TREES, BRUSH AND DEBRIS FROM LEASE AREA, ACCESS DRIVE W/ TURN-AROUND AND UNDER GROUND UTILITY EASEMENTS AS REQUIRED FOR CONSTRUCTION.
  - PRIOR TO OTHER EXCAVATION AND CONSTRUCTION, GRUB ORGANIC MATERIAL TO A MINIMUM OF SIX (6) INCHES BELOW GRADE.
  - UNLESS OTHERWISE INSTRUCTED BY CARRIER, TRANSPORT ALL REMOVED TREES, BRUSH AND DEBRIS FROM THE PROPERTY TO AN AUTHORIZED LANDFILL.
  - PRIOR TO PLACEMENT OF FILL OR BASE MATERIALS, ROLL THE SOIL.
  - WHERE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED, LINE THE AREAS WITH STABILIZER MAT PRIOR TO PLACEMENT OF FILL OR BASE MATERIAL.
- INSTALLATION
  - GRADE OR FILL THE LEASE AREA AND ACCESS DRIVE W/TURNAROUND AS REQUIRED IN ORDER THAT UPON DISTRIBUTION OF SPOILS, RESULTING FROM EXCAVATIONS, THE RESULTING GRADE WILL CORRESPOND WITH SAID SUB-BASE COURSE. ELEVATIONS ARE TO BE CALCULATED FROM BENCHMARK, FINISHED GRADES, OR INDICATED SLOPES.
  - CLEAR EXCESS SPOILS, IF ANY, FROM JOB SITE AND DO NOT SPREAD BEYOND THE LIMITS OF PROJECT AREA UNLESS AUTHORIZED BY PROJECT MANAGER AND AGREED TO BY LANDOWNER.
  - BRING THE ACCESS DRIVE W/ TURNAROUND TO BASE COURSE ELEVATION TO FACILITATE CONSTRUCTION AND OBSERVATION DURING CONSTRUCTION OF THE SITE.
  - AVOID CREATING DEPRESSIONS WHERE WATER MAY POND.
  - THE CONTRACT SHALL INCLUDE GRADING, BANKING, AND DITCHING, UNLESS OTHERWISE INDICATED.
  - WHEN IMPROVING AN EXISTING ACCESS DRIVE, GRADE THE EXISTING DRIVE TO REMOVE ANY ORGANIC MATTER AND SMOOTH THE SURFACE BEFORE PLACING FILL OR STONE.
  - PLACE FILL OR STONE IN SIX (6) INCH MAXIMUM LIFTS. AND COMPACT BEFORE PLACING NEXT LIFT.
  - THE TOP SURFACE COURSE SHALL EXTEND A MINIMUM OF ONE (1) FOOT BEYOND THE SITE FENCE (UNLESS OTHERWISE NOTED) AND SHALL COVER THE AREA AS INDICATED.
  - APPLY RIPRAP TO THE SIDE SLOPES OF ALL FENCED SITE AREAS, PARKING AREAS, AND ALL OTHER SLOPES GREATER THAN 2:1.
  - APPLY RIPRAP TO THE SIDES OF DITCHES OR DRAINAGE SWALES.
  - RIPRAP ENTIRE DITCH FOR SIX (6) FEET IN ALL DIRECTIONS AT CULVERT OPENINGS.
  - APPLY SEED, FERTILIZER, AND STRAW COVER TO ALL OTHER DISTURBED AREAS, DITCHES, AND DRAINAGE SWALES, NOT OTHERWISE RIP RAPPED.
  - UNDER NO CIRCUMSTANCES WILL DITCHES, SWALES, OR CULVERTS BE PLACED SO THAT THEY DIRECT WATER TOWARDS, OR PERMIT STANDING WATER IMMEDIATELY ADJACENT TO COMPOUND. IF DESIGNS OR ELEVATIONS ARE IN CONFLICT WITH THIS, ADVISE CONSTRUCTION MANAGER IMMEDIATELY.
  - IN DITCHES WITH SLOPES GREATER THAN 10%, MOUND DIVERSIONARY HEADWALLS IN THE DITCH AT CULVERT ENTRANCES. POSITION THE HEADWALL AT AN ANGLE NO GREATER THAN 60° OFF THE DITCH LINE. RIPRAP THE UPSTREAM SIDE OF THE HEADWALL AS WELL AS THE DITCH FOR SIX (6) FEET ABOVE THE CULVERT ENTRANCE.
  - APPLY SEED AND FERTILIZER TO SURFACE CONDITIONS WHICH WILL

- ENCOURAGE ROOTING. RAKE AREAS TO BE SEEDED TO EVEN THE SURFACE AND LOOSEN THE SOIL.
- SOW SEED IN TWO DIRECTIONS IN TWICE THE QUANTITY RECOMMENDED BY THE SEED PRODUCER.
  - ENSURE GROWTH OF SEEDED AND LANDSCAPED AREAS, BY WATERING, UP TO THE POINT OF RELEASE FROM THE CONTRACT. CONTINUE TO REWORK THE BARE AREAS UNTIL COMPLETE COVERAGE IS OBTAINED.

- FIELD QUALITY CONTROL  
COMPACT SOILS TO MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D-1557. AREAS OF SETTLEMENT WILL BE EXCAVATED AND REFILLED AT CONTRACTOR'S EXPENSE. INDICATE PERCENTAGE OF COMPACTION ACHIEVED ON AS-BUILT DRAWINGS.
- PROTECTION
  - PROTECT SEEDED AREAS FROM EROSION BY SPREADING STRAW TO A UNIFORM LOOSE DEPTH OF 1-2 INCHES, STAKE AND TIE DOWN AS REQUIRED. USE OF EROSION CONTROL MESH OR MULCH NET WILL BE AN ACCEPTABLE ALTERNATE.
  - ALL TREES PLACED IN CONJUNCTION WITH A LANDSCAPE CONTRACT WILL BE WRAPPED, TIED WITH HOSE PROTECTED WIRE, AND SECURED TO 2" X 2" X 4'-0" WOODEN STAKES EXTENDING TWO-FEET INTO THE GROUND ON FOUR SIDES OF THE TREE.
  - PROTECT ALL EXPOSED AREAS AGAINST WASHOUTS AND SOIL EROSION. PLACE STRAW BALES AT THE INLET APPROACH TO ALL NEW OR EXISTING CULVERTS. WHERE THE SITE OR ROAD AREAS HAVE BEEN ELEVATED IMMEDIATELY ADJACENT TO THE RAIL LINE, STAKE EROSION CONTROL FABRIC FULL LENGTH IN THE SWALE TO PREVENT CONTAMINATION OF THE RAIL BALLAST. ALL EROSION CONTROL METHODS SHALL CONFORM TO APPLICABLE BUILDING CODE REQUIREMENTS.

**SECTION 02830 - FENCING AND GATE(S)**

**PART 1 - GENERAL**

- WORK INCLUDED  
SEE PLAN FOR SITE AND LOCATION OF FENCE AND GATE(S).
- QUALITY ASSURANCE  
ALL STEEL MATERIALS UTILIZED IN CONJUNCTION WITH THIS SPECIFICATION WILL BE GALVANIZED OR STAINLESS STEEL. WEIGHT OF ZINC COATING ON THE FABRIC SHALL NOT BE LESS THAN 12 OUNCES PER SQUARE FOOT OF MATERIAL COVERED. POSTS SHALL BE HOT-DIPPED IN GRADE 'E' ZINC, 18 OUNCES PER SQUARE FOOT.
- SEQUENCING  
IF THE SITE AREA HAS BEEN BROUGHT UP TO SURFACE COURSE ELEVATION (PRIOR TO THE FENCE CONSTRUCTION), FENCE POST EXCAVATION SPOILS MUST BE CONTROLLED TO PRECLUDE CONTAMINATION OF SAID SURFACE COURSE.
- SUBMITTALS
  - MANUFACTURER'S DESCRIPTIVE LITERATURE.
  - CERTIFICATE OR STATEMENT OF COMPLIANCE WITH THE SPECIFICATIONS.

**PART 2 - PRODUCTS**

- FENCE MATERIAL
  - ALL FABRIC WIRE, RAILS, HARDWARE, AND OTHER STEEL MATERIALS SHALL BE HOT-DIPPED GALVANIZED.
  - FABRIC SHALL BE SEVEN-FOOT HIGH OR TO MATCH EXISTING FENCE TWO-INCH CHAIN LINK MESH OF NO. 9 GAUGE (0.148") WIRE. THE FABRIC SHALL HAVE A KNUCKLED FINISH FOR THE TOP SELVAGES. FABRIC SHALL CONFORM TO THE SPECIFICATIONS OF ASTM A-392 CLASS 1.
  - BARBED WIRE SHALL BE DOUBLE-STRAND, 12-1/2 GAUGE TWISTED WIRE, WITH 14-GAUGE, 4-POINT ROUND BARBS SPACED ON FIVE-INCH CENTERS.
  - ALL POSTS SHALL BE SCHEDULE - 40 MECHANICAL SERVICE PIPE AND SHALL BE TYPE 1 ASTM A-128 AND OF THE FOLLOWING DIAMETER LINE 2" SCHEDULE 40 (23#8" O.D.) GATE 3" SCHEDULE 40 (31#2" O.D.) CORNER 3" SCHEDULE 40 (31#2" O.D.)
  - GATE POSTS SHALL BE EXTENDED 12 INCHES, INCLUDING DOME CAP, TO PROVIDE FOR ATTACHMENT OF BARBED WIRE.
  - ALL TOP AND BRACE RAILS SHALL BE 1" DIAMETER SCHEDULE 40 MECHANICAL-SERVICE PIPE.
  - GATE FRAMES AND BRACES SHALL BE 1.90 INCH DIAMETER SCHEDULE 40 MECHANICAL-SERVICE PIPE. FRAMES SHALL HAVE WELDED CORNERS.
  - GATE FRAMES SHALL HAVE A FULL-HEIGHT VERTICAL BRACE, AND A FULL-WIDTH HORIZONTAL BRACE, SECURED IN PLACE BY USE OF GATE BRACE CLAMPS.
  - GATE HINGES SHALL BE MERCHANTS METAL MODEL 64386 HINGE ADAPTER WITH MODEL 6409, 188-DEGREE ATTACHMENT.
  - THE GUIDE (LATCH ASSEMBLY) SHALL BE HEAVY INDUSTRIAL DOUBLE GATE LATCH. SEE DETAIL.
  - LATCHES AND STOPS SHALL BE PROVIDED FOR ALL GATES.
  - PLUNGER ROD COMPLETE WITH RECEPTOR TO BE PROVIDED AT THE INACTIVE LEAF OF ALL DOUBLE GATE INSTALLATIONS.
  - ALL STOPS SHALL HAVE KEEPERS CAPABLE OF HOLDING THE GATE

- LEAF IN THE OPEN POSITION.
- A NO. 7 GAUGE ZINC COATED TENSION WIRE SHALL BE USED AT THE BOTTOM OF THE FABRIC, TERMINATED WITH BAND CLIPS AT CORNER AND GATE POSTS.
- A SIX-INCH BY 1/2-INCH DIAMETER EYEBOLT TO HOLD TENSION WIRE SHALL BE PLACED AT LINE POSTS.
- STRETCHER BARS SHALL BE 3/16-INCH BY 3/4-INCH OR HAVE EQUIVALENT CROSS-SECTIONAL AREA.
- ALL CORNER GATE AND PANELS SHALL HAVE A 3/8-INCH TRUSS ROD WITH TURNBUCKLES.
- ALL POSTS EXCEPT GATE POSTS SHALL HAVE A COMBINATION CAP AND BARBED WIRE SUPPORTING ARM. GATE POSTS SHALL HAVE A DOME CAP.
- OTHER HARDWARE INCLUDES BUT MAY NOT BE LIMITED TO THE CLIPS, BAND CLIPS AND TENSION BAND CLIPS.
- BARBED WIRE GATE GUARDS SHALL BE FITTED WITH DOME CAPS.
- BARBED WIRE SUPPORT ARMS SHALL BE PRESSED STEEL COMPLETE WITH SET BOLT AND LOCK WIRE IN THE ARM.
- ALL CAPS SHALL BE MALLEABLE IRON, DOME OR ACORN SHAPED AS REQUIRED BY PIPE SIZE.
- WHERE THE USE OF CONCERTINA HAS BEEN SPECIFIED, 24-INCH DIAMETERS COIL, BARBED TAPE, STAINLESS STEEL, CYCLONE FENCE MODEL G8P TO TYPE III SHALL BE FURNISHED. IT SHALL BE SUPPORTED ABOVE THE TOP RAIL BY USE OF SIX (6) WIRE BARBED WIRE ARMS POSITIONED ATOP EACH LINE/CORNER POST.

- INSPECTION  
TO CONFIRM PROPER DEPTH AND DIAMETER OF POST HOLE EXCAVATIONS. ALL POST HOLES WILL BE EXCAVATED AS PER CONSTRUCTION DOCUMENTS.
- INSTALLATION
  - FOUNDATIONS SHALL HAVE A MINIMUM SIX (6) INCH CONCRETE COVER UNDER POST.
  - ALL FENCE POSTS SHALL BE VERTICALLY PLUMB; ONE QUARTER (1/4) INCH
  - AT CORNER POSTS, GATE POSTS, AND SIDES OF GATE FRAME, FABRIC SHALL BE ATTACHED WITH STRETCHER AND TENSION BAND-CLIPS AT FIFTEEN(15) INCH INTERVALS.
  - AT LINE POSTS, FABRIC SHALL BE ATTACHED WITH BAND-CLIPS AT FIFTEEN (15) INCH INTERVALS.
  - FABRIC SHALL BE ATTACHED TO BRACE RAILS, TENSION WIRE AND TRUSS RODS WITH TIE-CLIPS AT TWO (2) FOOT INTERVALS.
  - A MAXIMUM GAP OF ONE INCH WILL BE PERMITTED BETWEEN TIE CHAIN LINE FABRIC AND THE FINAL GRADE.
  - GATE SHALL BE INSTALLED SO LOCKS ARE ACCESSIBLE FROM BOTH SIDES.
  - GATE HINGE BOLTS SHALL HAVE THEIR THREADS PEENED OR WELDED TO PREVENT UNAUTHORIZED REMOVAL.
  - CONCRETE TO BE A MINIMUM OF 4,000 PSI AT 7 DAYS. CEMENT SHALL EXCEED ASTM C150, TYPE IIIA.
- PROTECTION  
UPON COMPLETION OF ERECTION, INSPECT FENCE MATERIAL AND PAINT FIELD CUTS OR GALVANIZING BREAKS WITH ZINC-BASED PAINT, COLOR TO MATCH THE GALVANIZED METAL.

**APPLICABLE STANDARDS**

- ASTM-A120 SPECIFICATION FOR PIPE, STEEL BLACK AND HOT-DIPPED ZINC COATED (GALVANIZED) WELDED AND SEAMLESS, FOR ORDINARY USES.
- ASTM-A123 ZINC (HOT-DIP GALVANIZED) COATING ON IRON AND STEEL PRODUCTS.
- ASTM-A153 STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE.
- ASTM-A392 SPECIFICATION FOR ZINC-COATED STEEL CHAIN LINK FENCE FABRIC.
- ASTM-A491 SPECIFICATION FOR ALUMINUM-COATED STEEL CHAIN LINK FENCE FABRIC
- ASTM-A525 STANDARD SPECIFICATION FOR STEEL SHEET ZINC COATED (GALVANIZED) BY THE HOT-DIPPED PROCESS. ASTM-A570 SPECIFICATION FOR HOT-ROLLED CARBON STEEL SHEET AND STRIP. STRUCTURAL QUALITY.
- ASTM-A535 SPECIFICATION FOR ALUMINUM COATED STEEL BARBED WIRE.
- FEDERAL SPECIFICATION RR-F-191- FENCING, WIRE AND POST METAL (AND GATES, CHAIN LINK FENCE FABRIC, AND ACCESSORIES)



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Certification Seal:  
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



Signature: *[Signature]* Date: 8/05/2019

MARK	DATE	DESCRIPTION

ISSUE PHASE	FINAL - REV 0	DATE ISSUED	08/05/2019
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PROJECT TITLE

**TI-OPP-11894-B**

PROJECT INFORMATION  
131-0000-000000-000-0-201815-00-110B  
N8842 KASTEN ROAD  
HARRISON, WI 54952  
CALUMET COUNTY

SHEET TITLE

**NOTES**

SCALE: NONE

PROJECT NUMBER	42279
SHEET NUMBER	N-1



DIVISION 3: CONCRETE  
SECTION 03000 - BASIC CONCRETE MATERIALS AND METHODS

PART 1 - GENERAL

1. WORK INCLUDED FORM WORK, REINFORCEMENT, ACCESSORIES, CAST-IN-PLACE CONCRETE, FINISHING, AND CURING.
2. INSPECTIONS
  - A. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING BUILDING DEPARTMENT INSPECTIONS REQUIRED FOR HIS SCOPE OF WORK.
  - B. ALL REINFORCING STEEL SHALL BE INSPECTED AND APPROVED BY THE CARRIER CONSTRUCTION MANAGER, OR THEIR DESIGNEE, PRIOR TO PLACEMENT OF CONCRETE.
  - C. THE CARRIER CONSTRUCTION MANAGER SHALL BE NOTIFIED NO LESS THAN 48 HOURS IN ADVANCE OF CONCRETE POURS.
3. QUALITY ASSURANCE
  - A. CONSTRUCT AND ERECT CONCRETE FORM WORK IN ACCORDANCE WITH ACI 301 AND ACI 318.
  - B. PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ASTM A184.
  - C. PERFORM CAST-IN-PLACE CONCRETE WORK IN ACCORDANCE WITH ACI 301, ACI 318, AND ACI 117-90.
  - D. OPEN FOUNDATION TRENCHES SHALL BE INSPECTED BY MES PRIOR TO CONCRETE INSTALLATION.
4. SUBMITTALS SUBMIT CONCRETE MIX AND REINFORCING STEEL SHOP DRAWINGS FOR APPROVAL BY CARRIER CONSTRUCTION MANAGER/ENGINEER. THE SHOP DRAWINGS SHALL BE SUBMITTED IN THE FORM OF TWO (2) CONCRETE MIX DESIGN INFORMATION SHEETS AND TWO (2) BLUE LINE DRAWINGS FOR REINFORCING STEEL.

PART 2 - PRODUCTS

1. REINFORCEMENT MATERIALS
  - A. REINFORCEMENT STEEL, ASTM A615, 60 ksi YIELD GRADE, DEFORMED BILLET STEEL BARS, PLAIN FINISH.
  - B. WELDED STEEL WIRE FABRIC ASTM A185 PLAIN TYPE, IN FLAT SHEETS, PLAIN FINISH.
  - C. CHAIRS, BOLSTERS, BAR SUPPORTS, SPACERS, SIZED AND SHAPED FOR SUPPORTS OF REINFORCING.
  - D. FABRICATE CONCRETE REINFORCING IN ACCORDANCE WITH ACI 315, ACI 318, ASTM A184
2. CONCRETE MATERIALS
  - A. CEMENT: ASTM C150, PORTLAND TYPE
  - B. FINE AND COURSE AGGREGATES: ASTM C33 - MAXIMUM SIZE OF CONCRETE AGGREGATE SHALL NOT EXCEED; ONE (1) INCH SIZE SUITABLE FOR INSTALLATION METHOD UTILIZED OR ONE-THIRD CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING.
  - C. WATER: CLEAN AND NOT DETRIMENTAL TO CONCRETE
  - D. AIR ENTRAINING ADMIXTURE: ASTM C260
  - E. BONDING AGENT: LATEX EMULSION FOR BONDING NEW TO OLD CONCRETE AS MANUFACTURED BY DAYTON SUPERIOR.
  - F. NON-SHRINK GROUT: PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS.
3. CONCRETE MIX
  - A. CONCRETE MATERIALS SHALL CONFORM TO THE APPROPRIATE A.C.I. REQUIREMENTS FOR EXPOSED STRUCTURAL CONCRETE.
  - B. MIX AND DELIVER CONCRETE IN ACCORDANCE WITH ASTM C94, A.L.T. 3.
  - C. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI 318 CHAPTER 4 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE. PROVIDE CONCRETE AS FOLLOWS:
    1. COMPRESSIVE STRENGTH: 4000 psi AT 28 DAYS.
    2. SLUMP: 3 INCHES

PART 3 - EXECUTION

1. INSERTS, EMBEDDED COMPONENTS AND OPENINGS
  - A. THE CONTRACTOR SHALL COORDINATE AND CROSS-CHECK ARCHITECTURAL, BUILDING & ELECTRICAL DRAWINGS FOR OPENINGS, SLEEVES, ANCHORS, HANGERS, AND OTHER ITEMS RELATED TO CONCRETE WORK AND SHALL ASSUME FULL RESPONSIBILITY FOR THE PROPER LOCATION BEFORE PLACING CONCRETE
  - B. PROVIDE FORMED OPENINGS WHERE REQUIRED FOR WORK TO BE EMBEDDED IN AND PASSING THROUGH CONCRETE MEMBERS.
  - C. COORDINATE WORK OF OTHER SECTIONS IN FORMING AND SETTING OPENING, SLOTS, RECESSES, CHASES, SLEEVES, BOLTS, ANCHORS, AND OTHER INSERTS.
  - D. INSTALL CONCRETE ACCESSORIES STRAIGHT, LEVEL AND PLUMB.
2. REINFORCEMENT PLACEMENT
  - A. PLACE REINFORCEMENT, SUPPORTED AND SECURED AGAINST DISPLACEMENT.
  - B. ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT, OR OTHER FOREIGN COATINGS.
  - C. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.

D. MINIMUM CONCRETE COVER FOR REINFORCING SHALL BE 3 INCHES UNLESS OTHERWISE NOTED. E. CONCRETE COVER FROM TOP OF FOUNDATION TO ENDS OF VERTICAL REINFORCEMENT SHALL NOT EXCEED 3 INCHES NOR BE LESS THAN 2 INCHES.

3. PLACING CONCRETE
  - A. VIBRATE ALL CONCRETE.
  - B. ALL CONCRETE WORK SHALL ADHERE TO THE LATEST A.C.I. STANDARDS FOR WINTER POURING AND CURING PROCEDURES IF SEASONAL CONDITIONS APPLY
4. CURING
  - A. AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING.
  - B. MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR A PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.
5. PROVIDE HAND RUBBED SMOOTH FINISH TO ALL EXPOSED VERTICAL FORMED CONCRETE SURFACES.
6. FIELD QUALITY CONTROL
  - A. SUBMIT THREE (3) CONCRETE TEST CYLINDERS - TAKEN FOR EVERY 15 CUBIC YARD OR LESS. SUBMIT CONCRETE TESTS TO THE PROJECT MANAGER IN ACCORDANCE WITH ASTM C, C-31 AND C-39.
  - B. SUBMIT ONE (1) ADDITIONAL TEST CYLINDER - TAKEN DURING COLD WEATHER POURS, AND CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.
  - C. SUBMIT ONE (1) SLUMP TEST - TAKEN FOR EACH SET OF TEST CYLINDERS TAKEN.
7. DEFECTIVE CONCRETE MODIFY OR REPLACE CONCRETE NOT CONFORMING TO REQUIRED LINES, DETAILS OR ELEVATIONS AT COST OF GC, AS DIRECTED BY ARCHITECT/ENGINEER.

DIVISION 5: METALS  
SECTION 05000 - METALS

PART 1 - GENERAL

1. SECTION INCLUDES: STRUCTURAL STEEL FRAMING MEMBERS, BASE PLATES, PLATES, BARS AND GROUTING UNDER BASE PLATES.
2. SUBMITTALS: SHOP DRAWINGS: INDICATE SIZES, SPACING, AND LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, CONNECTIONS, CAMBERS, LOADS, AND WELDED SECTIONS.
3. QUALITY ASSURANCE:
  - A. FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
  - B. PERFORM DESIGN UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER LICENSED IN THE STATE.

PART 2 - PRODUCTS

1. MATERIALS:
  - A. STRUCTURAL STEEL MEMBERS: ASTM A572, GRADE 50
  - B. STRUCTURAL TUBING: ASTM A500, GRADE B
  - C. PIPE: ASTM A53, TYPE E OR S, GRADE B
  - D. BOLTS, NUTS, AND WASHERS: ASTM A325
  - E. ANCHOR BOLTS: ASTM A307
  - F. WELDING MATERIALS: AWS D1.1, TYPE REQUIRED FOR MATERIALS BEING WELDED
  - G. GROUT: NON-SHRINK TYPE, PREMIXED COMPOUND CONSISTING OF NONMETALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING ADDITIVES, CAPABLE OF DEVELOPING MINIMUM COMPRESSIVE STRENGTH OF 7000 psi AT 28 DAYS.
  - H. SHOP AND TOUCH-UP PRIMER: SSPC 15, TYPE 1, RED OXIDE
  - I. TOUCH-UP PRIMER FOR GALV. SURFACES: ZINC RICH TYPE
2. FABRICATION: CONTINUOUSLY SEAL JOINTED MEMBERS BY CONTINUOUS WELDS. GRIND EXPOSED WELDS SMOOTH.
3. FINISH:
  - A. PREPARE STRUCTURAL COMPONENT SURFACES IN ACCORDANCE WITH SSPC SP-1 TO SP-10 PROCEDURES.
  - B. STRUCTURAL STEEL MEMBERS SHALL BE HOT DIPPED GALVANIZED.

PART 3 - EXECUTION

1. EXAMINATION AND PREPARATION: VERIFY THAT THE FIELD CONDITIONS ARE ACCEPTABLE.
2. ERECTION:
  - A. ALLOW FOR ERECTION LOADS. PROVIDE TEMPORARY BRACING TO MAINTAIN FRAMING IN ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRIDGING AND BRACING.
  - B. FIELD WELD COMPONENTS INDICATED ON SHOP DRAWINGS.
  - C. DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF THE ARCHITECT/ENGINEER.
  - D. AFTER ERECTION, TOUCH-UP WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED OR GALVANIZED WITH TOUCH-UP PRIMERS AS SPECIFIED UNDER SECTION 05000 - METALS, PART 2 - PRODUCTS, H & I. SURFACES TO BE IN CONTACT WITH CONCRETE NOT INCLUDED.
3. FIELD QUALITY CONTROL: FIELD INSPECTION OF MEMBERS, CONNECTIONS, WELDS AND TORQUING.

DIVISION 16: ELECTRICAL  
SECTION 16050 - BASIC ELECTRICAL MATERIALS AND METHODS

1. CONTRACTOR SHALL REVIEW THE CONTRACT DOCUMENTS PRIOR TO ORDERING THE ELECTRICAL EQUIPMENT AND STARTING THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE ARCHITECT LISTING ANY DISCREPANCIES OR CONFLICTING INFORMATION.
2. ELECTRICAL PLANS, DETAILS AND DIAGRAMS ARE DIAGRAMMATIC ONLY. VERIFY EXACT LOCATIONS AND MOUNTING HEIGHTS OF ELECTRICAL EQUIPMENT WITH OWNER PRIOR TO INSTALLATION.
3. EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, JUNCTION BOX, SWITCH BOX, ETC. THE TYPE OF TAGGING METHODS SHALL BE IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (O.S.H.A.).
4. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN GOOD WORKING CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED "J" WHERE APPLICABLE. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, NBFU AND "UL" LISTED.
5. ALL CONDUIT SHALL HAVE A PULL CORD.
6. PROVIDE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
7. ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C.
8. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY UBC, NEC AND ALL APPLICABLE CODES.
9. PATCH, REPAIR AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
10. PLASTIC PLATES FOR ALL SWITCHES, RECEPTACLES, TELEPHONE AND BLANKED OUTLETS SHALL HAVE ENGRAVED LETTERING WHERE INDICATED ON THE DRAWINGS. WEATHERPROOF RECEPTACLES SHALL HAVE SIERRA #WPD-8 LIFT COVER PLATES.

SECTION 16400 - SERVICE AND DISTRIBUTION

1. WIRE AND CABLE CONDUCTORS SHALL BE COPPER, 600V, TYPE THHN OR THWN, WITH A MIN. SIZE OF #12 AWG, COLOR CODED. ALL RECTIFIER DROPS SHALL BE STRANDED TO ACCEPT CRIMP CONNECTORS.
2. ALL CHEMICAL GROUND RODS SHALL BE "UL" APPROVED.
3. METER SOCKET AMPERES, VOLTAGE, NUMBER OF PHASES SHALL BE A NOTED ON THE DRAWINGS. MANUFACTURED BY MILBANK OR APPROVED EQUAL, AND SHALL BE UTILITY COMPANY APPROVED.
4. CONDUIT:
  - A. RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH GALVANIZED ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 2/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
  - B. ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL, FITTING SHALL BE GLAND RING COMPRESSION TYPE.
  - C. FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE. ALL FLEXIBLE CONDUITS SHALL HAVE FULL LENGTH GROUND WIRE.
  - D. ALL UNDERGROUND CONDUIT SHALL BE AS NOTED ON THE DRAWINGS AT A MINIMUM DEPTH OF 30" BELOW GRADE. IT IS REQUIRED AND WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO NOTIFY THE UTILITY CLEARANCE HOTLINE (DIGGER'S HOTLINE OR OTHER SUCH NOTIFYING AGENCY) SEVENTY-TWO (72) BUSINESS HOURS PRIOR TO DIGGING.
5. CONTRACTOR TO COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS ARE TO BE PAID BY THE CONTRACTOR.
6. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS WITH WHITE ON BLUE BACKGROUND LETTERING (MINIMUM LETTER HEIGHT SHALL BE 1/4-INCH). NAMEPLATES SHALL BE FASTENED WITH STAINLESS STEEL SCREWS, NOT ADHESIVE.
7. UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL POTENTIAL GROUNDING TESTS BY AN INDEPENDENT TESTING SERVICE ENGAGED BY THE CONTRACTOR SHALL BE SUBMITTED FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
8. GROUNDING ELECTRODE SYSTEM
  - A. PREPARATION
    1. SURFACE PREPARATION: ALL CONNECTIONS SHALL BE MADE TO BARE METAL. ALL PAINTED SURFACES SHALL BE FIELD INSPECTED AND MODIFIED TO ENSURE PROPER CONTACT. NO WASHERS ARE ALLOWED BETWEEN THE ITEMS BEING GROUNDED. ALL CONNECTIONS ARE TO HAVE A NON-OXIDIZING AGENT APPLIED PRIOR TO INSTALLATION.
    2. GROUND BAR PREPARATION: ALL COPPER GROUND BARS SHALL BE CLEANED, POLISHED AND A NON-OXIDIZING AGENT APPLIED. NO FINGERPRINTS OR DISCOLORED COPPER WILL BE PERMITTED.

3. SLEEVES: ALL GROUNDING CONDUCTORS SHALL RUN THROUGH PVC SLEEVES WHEREVER CONDUCTORS RUN THROUGH WALLS, FLOORS OR CEILINGS. IF CONDUCTORS MUST RUN THROUGH EMT, BOTH ENDS OF CONDUIT SHALL BE GROUNDED. SEAL BOTH ENDS OF CONDUIT WITH SILICONE CAULK.
  - B. GROUND BARS
    1. ALL GROUND BARS SHALL BE 1/4-INCH THICK TINNED COPPER PLATE AND OF SIZE INDICATED ON DRAWINGS.
    2. ALL CONNECTIONS TO THE GROUND BARS SHALL OBSERVE THE FOLLOWING SEQUENCE:
      - A. BOLT-HEAD
      - B. 2-HOLE LUG
      - C. NON-OX (ANTI-OXIDATION COMPOUND)
      - D. TINNED COPPER BUSS BAR
      - E. NON-OX (ANTI-OXIDATION COMPOUND)
      - F. STAR WASHER
      - G. NUT
  - C. EXTERNAL CONNECTIONS
    1. ALL BURIED GROUNDING CONNECTIONS SHALL BE MADE BY THE EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE, SPLICES, TEE'S, CROSSES, ETC. ALL CABLE TO GROUND RODS, GROUND ROD SPLICES AND LIGHTNING PROTECTION SYSTEMS ARE TO BE AS INDICATED. ALL MATERIALS USED (MOLDS, WELDING METAL, TOOLS, ETC.) SHALL BE BY "CADWELD" AND INSTALLED PER MANUFACTURER'S RECOMMENDED PROCEDURES.
    2. ALL ABOVE GRADE GROUNDING AND BONDING CONDUCTORS SHALL BE CONNECTED BY TWO HOLE CRIMP TYPE (COMPRESSION) CONNECTIONS (EXCEPT FOR THE ACEG AND GROUND ROD) MECHANICAL CONNECTIONS, FITTINGS OR CONNECTIONS THAT DEPEND SOLELY ON SOLDER SHALL NOT BE USED. ALL CABLE TO CABLE CONNECTIONS SHALL BE HIGH PRESSURE DOUBLE CRIMP TYPE CONNECTIONS. CONNECTIONS TO STRUCTURAL STEEL SHALL BE EXOTHERMIC WELDS.
  - D. GROUND RODS ALL GROUND RODS SHALL BE 5/8-INCH DIAMETER X 10'-0" LONG "COPPERED" OR APPROVED EQUAL, OF THE NUMBER AND LOCATIONS INDICATED. GROUND RODS SHALL BE DRIVEN FULL LENGTH VERTICAL IN UNDISTURBED EARTH.
  - E. GROUND CONDUCTORS ALL GROUND CONDUCTORS SHALL BE STANDARD TINNED SOLID BARE COPPER ANNEALED, AND OF SIZE INDICATED ON DRAWINGS UNLESS NOTED OTHERWISE.
  - F. LUGS
    1. LUGS SHALL BE 2-HOLE, LONG BARREL, STRAND COPPER UNLESS OTHERWISE SPECIFIED IN THE CONTRACT DOCUMENTS. LUGS SHALL BE THOMAS AND BETTS SERIES #548 BE OR EQUIVALENT MINIMUM BENDING
      - A. 535 MCM DLO 54880BE
      - B. 262 MCM DLO 54872BE
      - C. #1/0 DLO 54862BE
      - D. #4/0 THWN AND BARE 54866BE
      - E. #2/0 THWN 54862BE
      - F. #2 THHN 54207BE
      - G. #6 DLO 54205BE
    2. WHEN THE DIRECTION OF THE CONDUCTOR MUST CHANGE, IT SHALL BE DONE GRADUALLY. THE CURVATURE OF THE TURN SHALL BE DONE IN ACCORDANCE WITH THE FOLLOWING CHART:

GROUNDING CONDUCTOR SIZE	RADIUS TO INSIDE EDGE
NO. 6 AWG TO NO. 4 AWG	6 INCHES
NO. 2 AWG TO NO. 1/0 AWG	8 INCHES
NO. 2/0 AWG TO 4/0 MCM	12 INCHES
250 MCM TO 750 MCM	24 INCHES
- G. GROUND RING
  1. THE EXTERNAL GROUND RING ENCIRCLING THE TOWER (IF APPLICABLE) AND BETWEEN THE EQUIPMENT SHELTER PLANNED BARE COPPER CONDUCTORS IN DIRECT CONTACT WITH THE EARTH AT THE DEPTH INDICATED ON THE DRAWINGS. CONDUCTOR BENDS SHALL HAVE A MINIMUM BENDING RADIUS OF EIGHT (8) INCHES.
  2. ALL EXTERNAL GROUND RINGS ARE TO BE JOINED TOGETHER AND ALL CONNECTIONS MUST BE CADWELDED. NO LUGS OR CLAMPS WILL BE ACCEPTED.
- H. FENCE/GATE GROUND EACH GATE POST, CORNER POST AND GATE AS INDICATED ON DRAWING GROUND CONNECTIONS TO FENCE POSTS AND ALL OTHER CONNECTIONS FOR THE GROUND GRID SYSTEM SHALL BE MADE BY EXOTHERMIC WELD PROCESS, AND INSTALLED PER MANUFACTURER'S RECOMMENDATIONS AND PROCEDURES, AND SPRAYED WITH COLD GALVANIZED PAINT.
- I. E.E.E. FALL POTENTIAL TESTS
  - A. FOR RAW LAND SITE
    1. GROUND TESTS SHALL BE PERFORMED AS INDICATED ON DRAWINGS. A BIDDLE GROUND OHMER OR THE METHOD OF USING TWO AUXILIARY GROUND RODS (AS DESCRIBED IN I.E.E.E. STANDARDS NO. 81-1983, PART 1) MAY BE USED. THE I.E.E.E. METHOD REQUIRES THE USE OF AN A.C. TEST CURRENT. THE AUXILIARY TEST RODS MUST BE SUFFICIENTLY FAR AWAY FROM THE ROD UNDER TEST SO THAT THE REGIONS IN WHICH THEIR RESISTANCE IS LOCALIZED DO NOT OVERLAP. THE TEST POINT WILL BE THE GROUND ROD AND WILL CONSIST OF THE THREE POINT FALL OF POTENTIAL MEGGER TEST METHOD, USING THE BIDDLE NULL-BALANCE EARTH TESTER (MEGGER #250220-2 OR EQUIVALENT)
    2. CONTRACTOR TO CONDUCT GROUND RESISTANCE TEST IN THE FORMAT AS FOLLOWS:



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OFFICE: (847) 393-4528



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Certification & Seal:  
I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



Signature: *Michael L. Pinske* Date: 8/05/2019

MARK	DATE	DESCRIPTION

ISSUE PHASE	FINAL - REV 0	DATE ISSUED	08/05/2019
PROJECT TITLE	TI-OPP-11894-B		

PROJECT INFORMATION  
131-0000-000000-000-0-201815-00-110B  
N8842 KASTEN ROAD  
HARRISON, WI 54952  
CALUMET COUNTY  
SHEET TITLE

NOTES

SCALE: NONE

PROJECT NUMBER 42279  
SHEET NUMBER N-2



- A. TOWER
1. FIRST TEST - SHALL BE WITH THREE GROUND RODS INSTALLED (MINIMUM), EQUALLY SPACED AROUND THE TOWER FOUNDATION, BUT NOT CONNECTED TO THE SHELTER PAD EXTERNAL GROUND RING. FURNISH WIRE TO CONNECT (TEMPORARY CLAMP) ALL THREE GROUND RODS TOGETHER TO MAKE A SYSTEM TEST AFTER EACH ROD IS INDIVIDUALLY TESTED. IF ANY INDIVIDUAL ROD TESTS 25 OHMS OR MORE, NOTIFY THE CONTRACTOR AND OWNER'S REPRESENTATIVE SO THAT THE ROD CAN BE DRIVEN DEEPER UNTIL ALL THREE (3) RODS HAVE A RESISTANCE OF 10 OHMS OR LESS ON A DRY DAY.
  2. SECOND TEST - SHALL BE WITH THE GROUND RODS CONNECTED, WITH DRY SOIL AND WHEN NO STANDING WATER HAS BEEN PRESENT FOR THE PAST TEN (10) DAYS, THE MAXIMUM ALLOWABLE READING IS 5 OHMS TO GROUND. IF THE RESISTANCE OF THE ENTIRE SYSTEM EXCEEDS 5 OHMS THE ELECTRICAL CONTRACTOR AND OWNER'S REPRESENTATIVE SHOULD BE NOTIFIED SO THAT EITHER ADDITIONAL AND/OR DEEPER RODS CAN BE INSTALLED.
- C. EQUIPMENT PAD AND TOWER
1. AFTER THE EQUIPMENT PAD AND TOWER GROUND RESISTANCE TEST IS COMPLETED, CONTRACTOR SHALL TIE EQUIPMENT PAD EXTERNAL GROUND RING AND TOWER EXTERNAL GROUND RING TOGETHER. AFTER FIRST AND SECOND TEST ALL CONNECTIONS MUST BE MADE USING EXOTHERMIC WELD. NO LUGS OR CLAMPS WILL BE ACCEPTED.
  2. AFTER ALL THE EXTERNAL GROUND RINGS ARE TIED TOGETHER, COMPLETE A MEGGER CHECK OF THE GROUND SYSTEM SHOULD BE DONE. THE MAXIMUM ALLOWABLE LEADING IS 5 OHMS TO GROUND. 10. GROUNDING RESISTANCE TEST REPORT UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS ARE OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OF WORK COMPLETION.
10. GROUNDING RESISTANCE TEST REPORT UPON COMPLETION OF THE TESTING FOR EACH SITE, A TEST REPORT SHOWING RESISTANCE IN OHMS WITH AUXILIARY POTENTIAL ELECTRODES AT 5 FEET AND 10 FEET INTERVALS UNTIL THE AVERAGE RESISTANCE STARTS INCREASING AND ALSO NOTE THAT 10-15 PHOTOS MUST BE TAKEN TO PROOF ENTIRE EXTERNAL GROUND RING SYSTEM BEFORE BACKFILL. TWO (2) SETS OF TEST DOCUMENTS ARE OF THE INDEPENDENT TESTING SERVICE TO BE BOUND AND SUBMITTED WITHIN ONE (1) WEEK OR WORK COMPLETION.

**SECTION 16503 - POLES, POSTS, AND STANDARDS  
 (SINGLE MAST AND SELF SUPPORTING TOWERS)**

1. GENERAL
- A. LIGHTNING ROD AND EXTENSION PIPE INCLUDING ALL APPURTENANCES, TO BE FURNISHED BY OWNER, IF REQUIRED.
  - B. PROVIDE TEMPORARY LIGHTING FOR TOWER AS PER FAA REGULATIONS DURING CONSTRUCTION, IF REQUIRED.
  - C. GROUNDING: GROUND TOWER WITH A MINIMUM OF #2 AWG TINNED SOLID BARE COPPER CONDUCTOR CADWELDED TO TOWER BASE PLATE. TWO (2) GROUNDING LEADS PER TOWER BASE PLATE. NON-EXOTHERMIC WELDS SHALL BE ATTACHED DIRECTLY TO THE MONOPOLE TOWER SHAFT.



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Certification & Seal:  
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



*Michael L. Pinske* 8/05/2019  
 Signature: Date:

MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL - REV 0	DATE ISSUED 08/05/2019

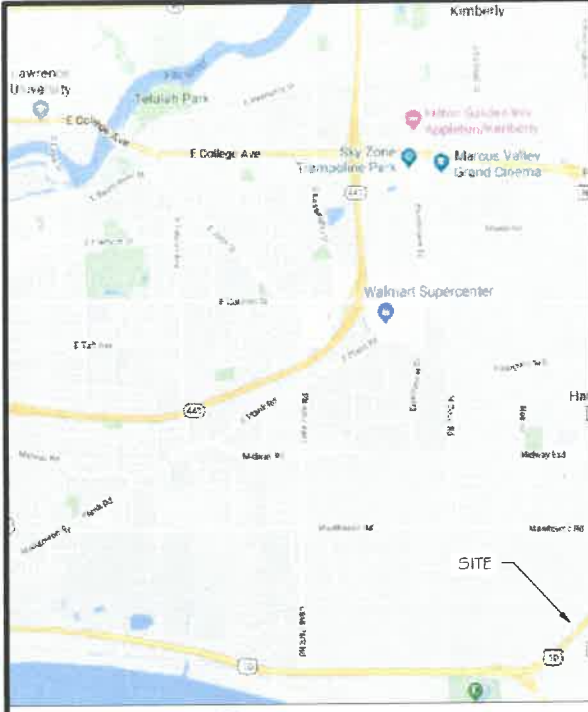
PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

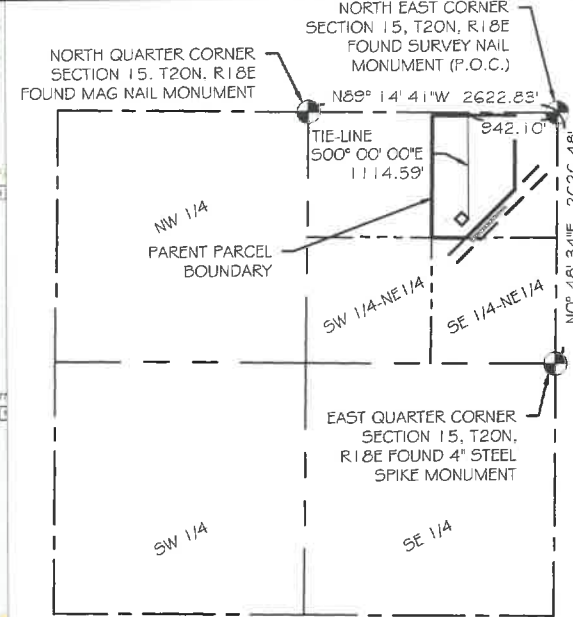
SHEET TITLE  
**NOTES**

SCALE: NONE

PROJECT NUMBER 42279  
 SHEET NUMBER N-3



VICINITY MAP  
 NOT TO SCALE



PARENT PARCEL  
 NOT TO SCALE

PARENT PARCEL DESCRIPTION PER TITLE BY FIDELITY NATIONAL TITLE INSURANCE COMPANY  
 COMMITMENT NUMBER: 28451270. PARCEL NUMBER: 33536

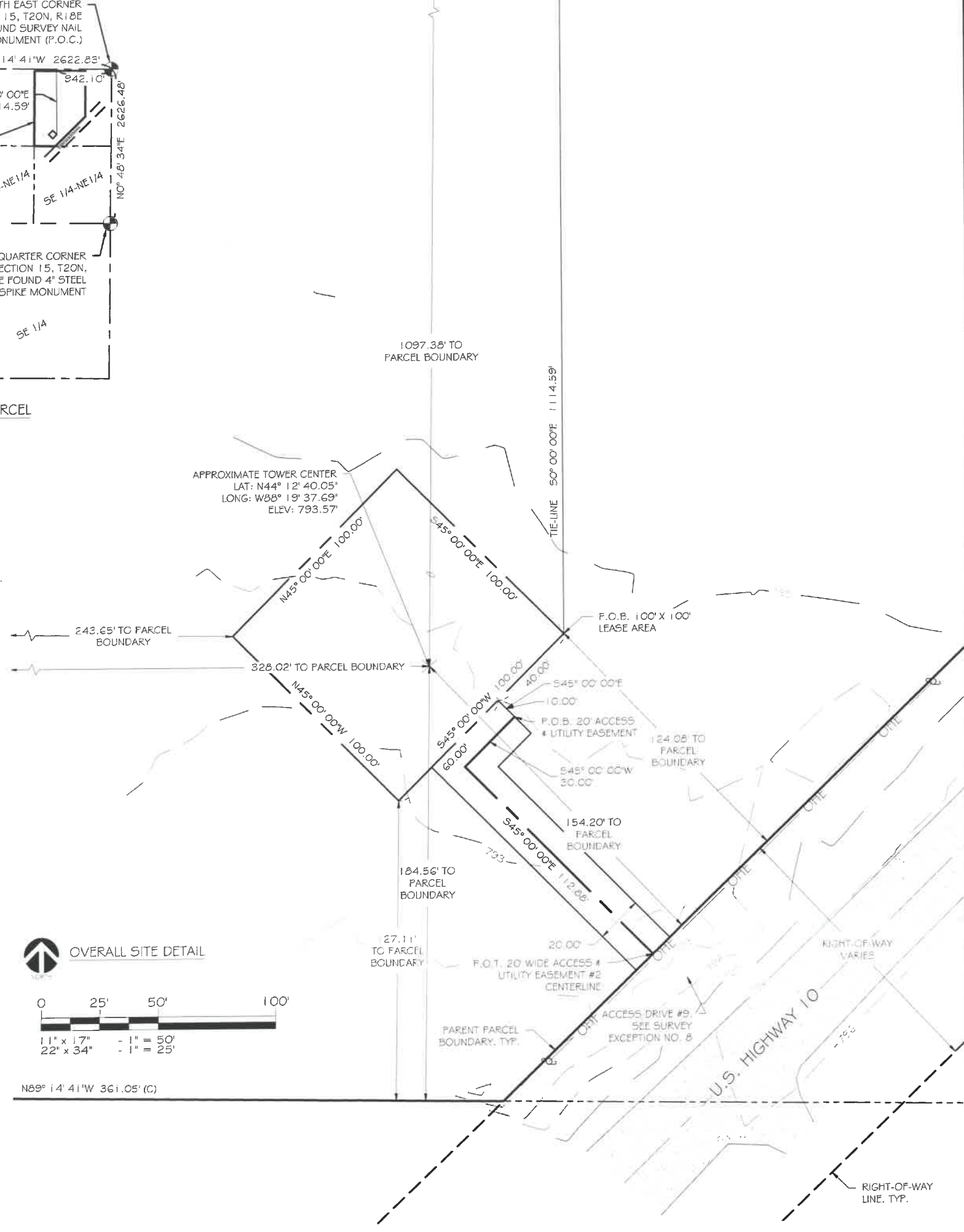
THE FOLLOWING DESCRIBED REAL ESTATE IN CALUMET COUNTY, STATE OF WISCONSIN:

THAT PART OF THE EAST HALF (E 1/2) OF THE NORTHEAST QUARTER (NE 1/4) OF SECTION NUMBER FIFTEEN (SEC 15), TOWNSHIP NUMBER TWENTY NORTH (T20N) OF RANGE NUMBER EIGHTEEN EAST (R18E) LYING NORTH OF HIGHWAY 10.

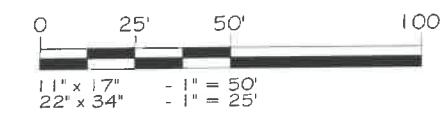
AND BEING THE SAME PROPERTY CONVEYED TO CLAUDETTE L. DIETZ FROM LESLIE KASTEN AND LAVERNE KASTEN BY WARRANTY DEED DATED AUGUST 15, 1972 AND RECORDED AUGUST 17, 1972 IN DEED BOOK 137, PAGE 6.

**SURVEYOR'S NOTES**

- 1) ALL EASEMENTS AND/OR LEASE AREAS SHOWN AND NOT LABELED AS EXISTING SHALL BE PENDING UNTIL RECORDED.
- 2) AN ATTEMPT WAS MADE TO LOCATE ALL PROPERTY CORNERS AND MONUMENTS. WHERE NO MONUMENTS WERE FOUND, THE PROPERTY LINE WAS DRAWN BASED ON RECORDED AND/OR FILED DOCUMENTS.
- 3) NOT TO BE USED AS CONSTRUCTION DRAWINGS.
- 4) THE LOCATIONS OF UNDERGROUND UTILITIES WAS DETERMINED BY FIELD OBSERVATIONS AND VISIBLE MARKINGS ONLY AT TIME OF SURVEY.
- 5) FIELDWORK WAS PERFORMED BY RAMAKER & ASSOCIATES AND REVIEWED BY TRENT D. NELSON, WI SURVEYOR'S NUMBER 3132-B.
- 6) THE PURPOSE OF THIS SURVEY IS TO ESTABLISH AND DESCRIBE A LEASE AREA AND ASSOCIATED EASEMENTS. THIS IS NOT A BOUNDARY SURVEY OF THE PARENT PARCEL.
- 7) PARENT PARCEL DESCRIPTION FROM RECORDED AND/OR FILED DOCUMENTS.
- 8) THIS MAP WAS PREPARED WITH THE AID OF A TITLE COMMITMENT BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NUMBER: 28451270, COMMITMENT DATE: DECEMBER 26, 2018.
- 9) BEARINGS ARE REFERENCED TO THE NORTH LINE OF THE NORTHEAST QUARTER OF SECTION 15, TOWNSHIP 20 NORTH, RANGE 18 EAST, MEASURED TO BEAR N89° 14' 41" W BY GPS GRID USING THE WISCONSIN COUNTY COORDINATE SYSTEM, CALUMET COUNTY, U.S. FOOT DATUM.
- 10) DATUM: WISCONSIN COUNTY COORDINATE SYSTEM, CALUMET COUNTY, U.S. FOOT.
- 11) F.E.M.A. FLOOD PANEL MAP NUMBER 55015C0029E, ZONE X, AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN.
- 12) PARCEL NUMBER: 33536.



OVERALL SITE DETAIL



**LEGEND**

	SECTION CORNER MONUMENT, FOUND 3/4" IR
	P.O.B. POINT OF BEGINNING
	P.O.C. POINT OF COMMENCEMENT
	P.O.T. POINT OF TERMINATION
	(M) MEASURED
	(C) CALCULATED
	PARENT PARCEL BOUNDARY
	EXISTING RIGHT-OF-WAY
	EXISTING OVERHEAD ELECTRIC
	EXISTING UTILITY POLE
	EXISTING ASPHALT
	EXISTING TREE LINE
	LEASE AREA
	EASEMENT SIDELINE
	EASEMENT CENTERLINE
	SECTION LINE
	QUARTER SECTION LINE
	QUARTER-QUARTER SECTION LINE

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PROJECT NUMBER:	42279
EKS 3/13/19	FINAL SURVEY
EKS 6/6/19	ADDED OVERALL PROPERTY VIEW

MARK DATE DESCRIPTION  
 Certification & Seal:  
 I hereby certify that this Survey Document was prepared and the related Survey Work was performed by me or under my direct personal supervision and that I am a duly Licensed Land Surveyor under the Laws of the State of Wisconsin.



Trent D. Nelson, PLS  
 License Number: 3132-B Date: 03/20/2019  
 ISSUE PHASE: FINAL DATE ISSUED: 03/20/2019

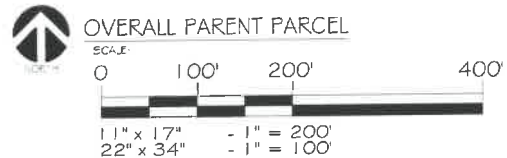
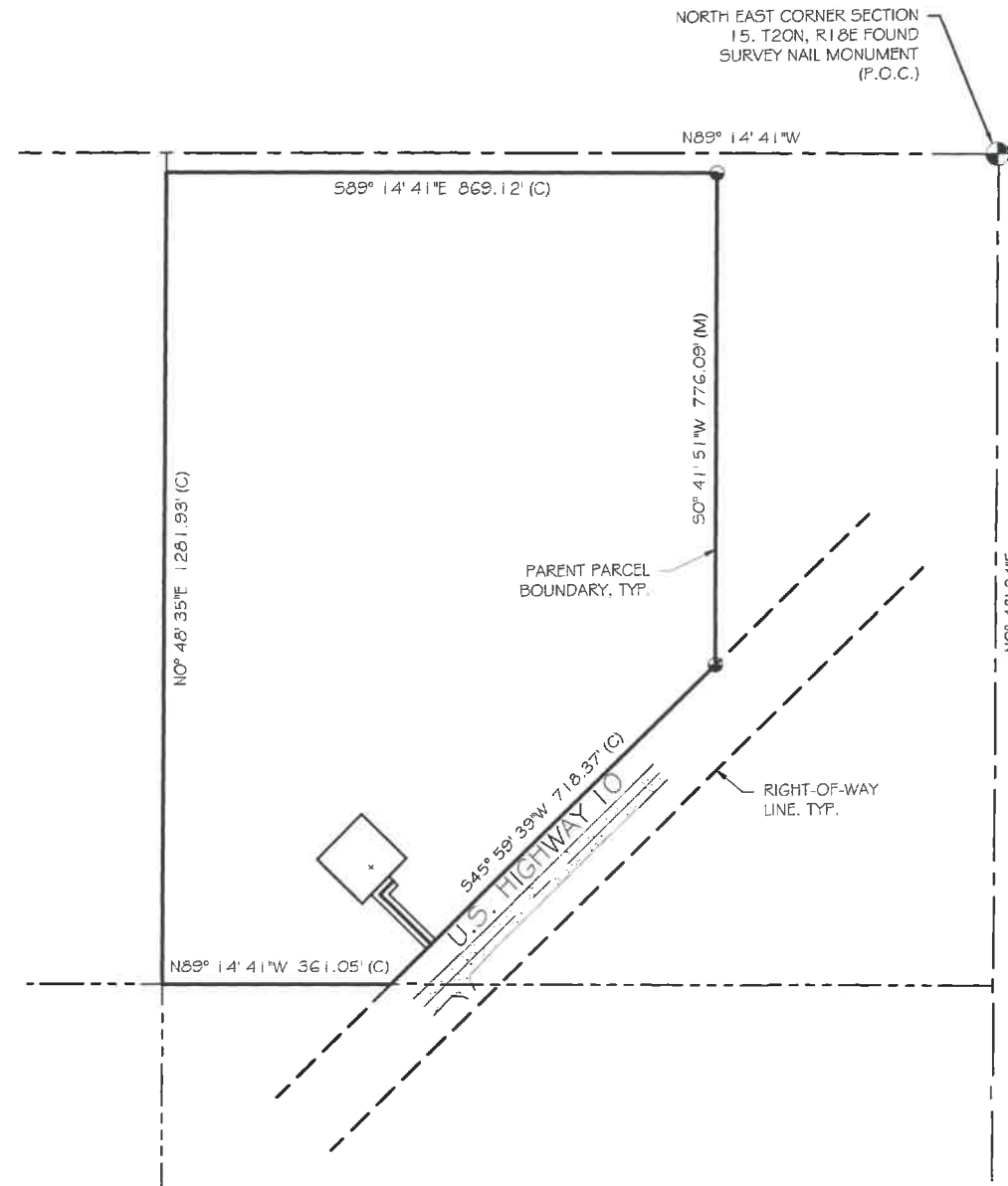
SITE NAME: TI-OPP-11894  
 CANDIDATE B  
 APPLETON  
 ADDRESS: PLO-131-CCCC-CCCCCCC-CCC-Q-201815-CC-11-CE  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE:  
**TOPOGRAPHIC SITE SURVEY**

SCALE:  
 AS NOTED

R & A NUMBER: 2019100  
 SHEET NUMBER: 1 OF 2





**LEGEND**

	SECTION CORNER
	MONUMENT, FOUND 3/4\" IR
	POINT OF BEGINNING
	POINT OF COMMENCEMENT
	POINT OF TERMINATION
	MEASURED
	CALCULATED
	PARENT PARCEL BOUNDARY
	EXISTING RIGHT-OF-WAY
	EXISTING OVERHEAD ELECTRIC
	EXISTING UTILITY POLE
	EXISTING ASPHALT
	EXISTING TREE LINE
	LEASE AREA
	EASEMENT SIDELINE
	EASEMENT CENTERLINE
	SECTION LINE
	QUARTER SECTION LINE
	QUARTER-QUARTER SECTION LINE

**100' X 100' LEASE AREA DESCRIPTION**

A PORTION OF LAND IN THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 15, TOWNSHIP 20 NORTH, RANGE 18 EAST, VILLAGE OF HARRISON, CALUMET COUNTY, WISCONSIN, AND BEING FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND SURVEY NAIL LOCATING THE NORTHEAST CORNER OF SAID SECTION 15, THENCE N89° 14' 41\" W, 942.10 FEET; THENCE S0° 00' 00\" E, 1114.59 FEET TO THE POINT OF BEGINNING; THENCE S45° 00' 00\" W, 100.00 FEET; THENCE N45° 00' 00\" W, 100.00 FEET; THENCE N45° 00' 00\" E, 100.00 FEET; THENCE S45° 00' 00\" E, 100.00 FEET TO THE POINT OF BEGINNING. SAID LEASE AREA CONTAINS 10,000 SQUARE FEET (0.23 ACRES), AND IS SUBJECT TO ANY AND ALL EASEMENTS OR AGREEMENTS, RECORDED OR UNRECORDED.

**30' WIDE ACCESS AND UTILITY EASEMENT CENTERLINE DESCRIPTION**

A PORTION OF LAND IN THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 15, TOWNSHIP 20 NORTH, RANGE 18 EAST, VILLAGE OF HARRISON, CALUMET COUNTY, WISCONSIN, AND BEING FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND SURVEY NAIL LOCATING THE NORTHEAST CORNER OF SAID SECTION 15, THENCE 89° 14' 41\" W, 942.10 FEET; THENCE S0° 00' 00\" E, 1114.59 FEET TO THE EAST CORNER OF THE AFOREMENTIONED LEASE AREA; THENCE S45° 00' 00\" W, 40.00 FEET ALONG THE SOUTHEAST LINE OF THE AFOREMENTIONED LEASE AREA; THENCE S45° 00' 00\" E, 10.00 FEET TO THE POINT OF BEGINNING; THENCE S45° 00' 00\" W, 30.00 FEET; THENCE S45° 00' 00\" E, 112.88 FEET, MORE OR LESS, TO THE NORTHERLY RIGHT-OF-WAY LINE OF HIGHWAY 10 AND THE POINT OF TERMINATION, SAID ACCESS AND UTILITY EASEMENT CONTAINS 142.88 LINEAR FEET, AND IS SUBJECT TO ANY AND ALL EASEMENTS OR AGREEMENTS, RECORDED OR UNRECORDED. SIDELINES OF SAID EASEMENT SHALL BE LENGTHENED OR SHORTENED TO TERMINATE AT THE NORTHERLY RIGHT-OF-WAY LINE OF HIGHWAY 10.

**TITLE REVIEW**

TITLE BY: FIDELITY NATIONAL TITLE INSURANCE COMPANY  
 COMMITMENT NUMBER: 28451270

**SCHEDULE B - SECTION II. SURVEY RELATED EXCEPTIONS:**

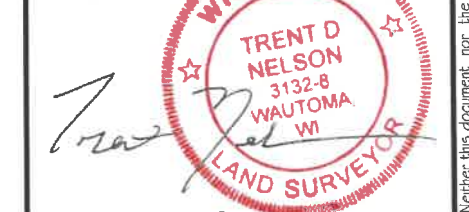
- 3.: EASEMENTS, OR CLAIMS OF EASEMENTS, NOT SHOWN BY THE PUBLIC RECORDS. **GENERAL SURVEY EXCEPTION.**
- 5.: ANY ENCROACHMENT, ENCUMBRANCE, VIOLATION, VARIATION, OR ADVERSE CIRCUMSTANCE AFFECTING THE TITLE THAT WOULD BE DISCLOSED BY AN ACCURATE AND COMPLETE LAND SURVEY OF THE LAND. **GENERAL SURVEY EXCEPTION.**
- 8.: AUTHORIZATION FOR ACCESS TO OR ACROSS A CONTROLLED-ACCESS HIGHWAY RECORDED ON 12/19/2007 IN INSTRUMENT NO. 424129. **SAID ACCESS #9, MENTIONED IN INSTRUMENT NO. 424129 IS SHOWN ON SURVEY. SAID ACCESS #9 WILL NOT AFFECT PROPOSED LEASE AREA OR ASSOCIATED EASEMENT.**
- 9.: STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION FINDING, DETERMINATION AND DECLARATION RECORDED ON 11/19/2007 IN INSTRUMENT NO. 423324. **AFOREMENTIONED ACCESS #9 GRANTS ACCESS TO AND FROM THE PROPERTY, THEREFORE NO EXCEPTIONS IN INSTRUMENT NO. 423324 SHALL AFFECT THE PROPOSED LEASE AREA AND ASSOCIATED EASEMENT.**

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PROJECT NUMBER:	42279
EKS 3/13/19	FINAL SURVEY
EKS 6/6/19	ADDED OVERALL PROPERTY VIEW

**Certification & Seal:**  
 I hereby certify that this Survey Document was prepared and the related Survey Work was performed by me or under my direct personal supervision and that I am a duly Licensed Land Surveyor under the laws of the State of Wisconsin.



Trent D. Nelson, PLS  
 License Number: 3132-8 Date: 03/20/2019

ISSUE PHASE:	FINAL	DATE ISSUED:	03/20/2019
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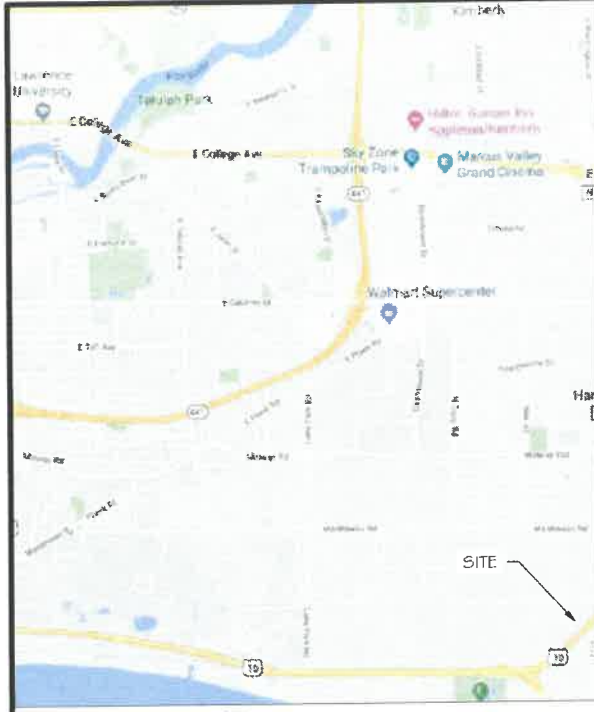
SITE NAME: TI-OPP-11894  
 CANDIDATE B  
 APPLETON  
 ADDRESS: PFD-131-CCCC-CCCC-CCC-C-201815-CC-  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE:  
**TOPOGRAPHIC SITE SURVEY**

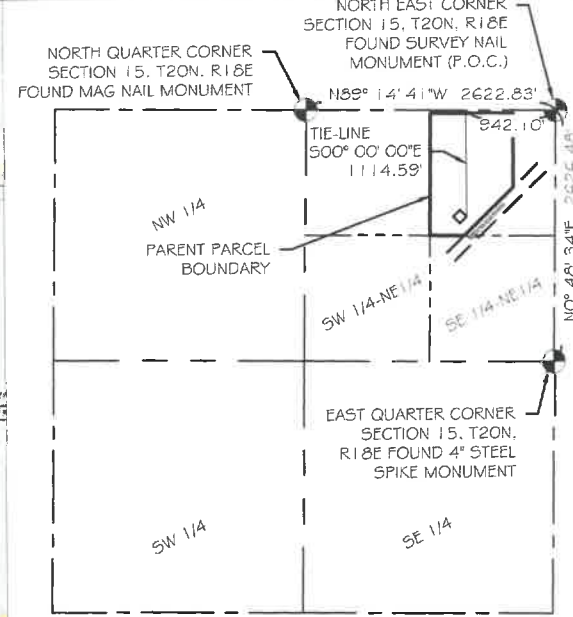
SCALE:  
 AS NOTED

R 4 A NUMBER: 2019100

SHEET NUMBER: 2 OF 2



VICINITY MAP  
 NOT TO SCALE



PARENT PARCEL  
 NOT TO SCALE

PARENT PARCEL DESCRIPTION PER TITLE BY FIDELITY NATIONAL TITLE INSURANCE COMPANY  
 COMMITMENT NUMBER: 28451270. PARCEL NUMBER: 33536

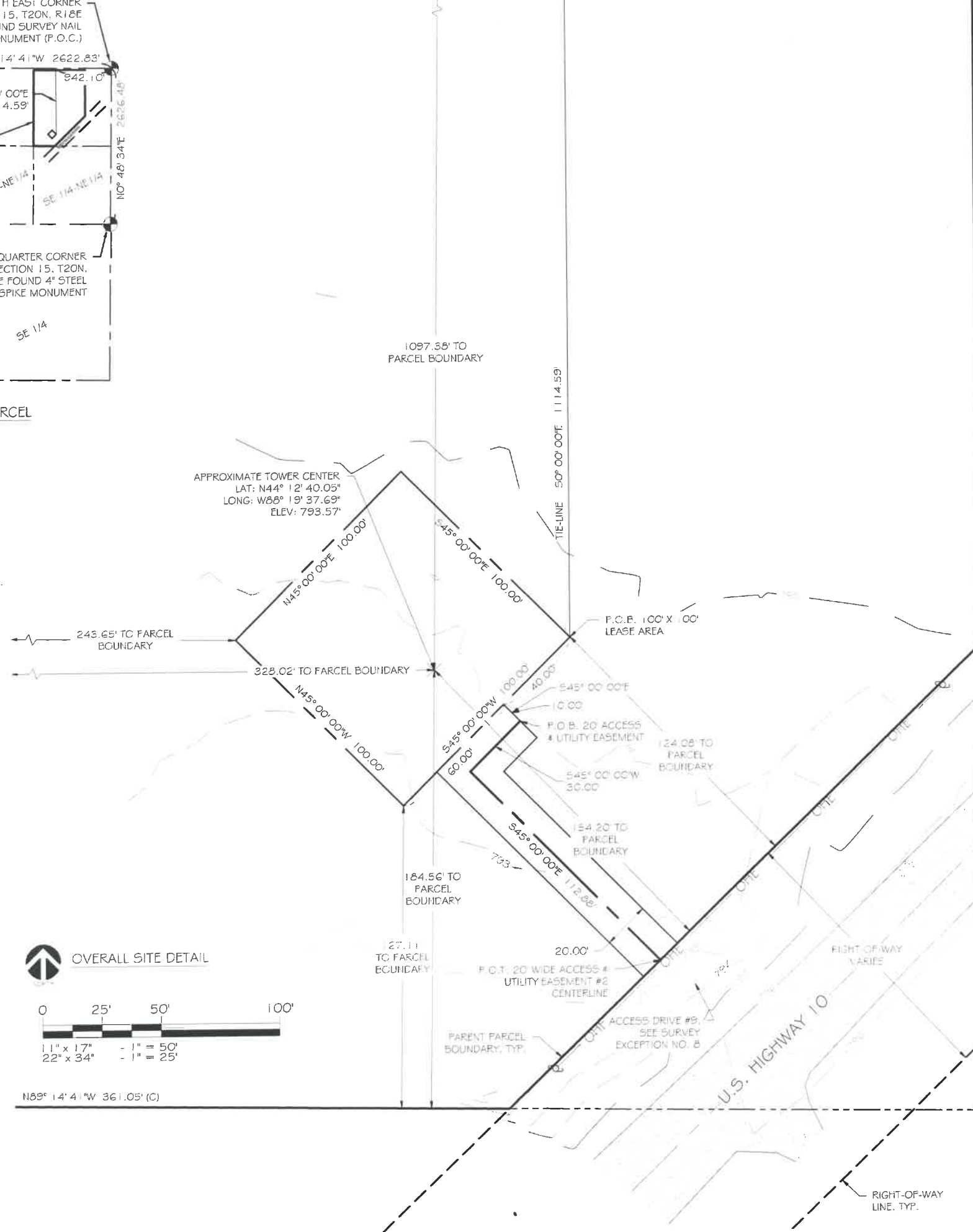
THE FOLLOWING DESCRIBED REAL ESTATE IN CALUMET COUNTY, STATE OF WISCONSIN:

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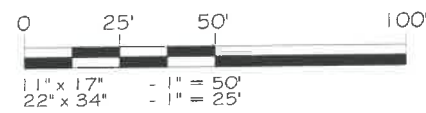
AND BEING THE SAME PROPERTY CONVEYED TO CLAUDETTE L. DIETZ FROM LESLIE KASTEN AND LAVERIE KASTEN BY WARRANTY DEED DATED AUGUST 15, 1972 AND RECORDED AUGUST 17, 1972 IN DEED BOOK 137, PAGE 6.

**SURVEYOR'S NOTES**

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- 7) PARENT PARCEL DESCRIPTION FROM RECORDED AND/OR FILED DOCUMENTS.
- 8) THIS MAP WAS PREPARED WITH THE AID OF A TITLE COMMITMENT BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NUMBER: 28451270, COMMITMENT DATE: DECEMBER 26, 2018.
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- 10) DATUM: WISCONSIN COUNTY COORDINATE SYSTEM, CALUMET COUNTY, U.S. FOOT.
- 11) F.E.M.A. FLOOD PANEL MAP NUMBER 55015C0029E, ZONE X. AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD FLAIN.
- 2) PARCEL NUMBER: 33536.



OVERALL SITE DETAIL



N89° 14' 41" W 361.05' (C)

**LEGEND**

	SECTION CORNER MONUMENT, FOUND 3/4" IR
	P.O.B. POINT OF BEGINNING
	P.O.C. POINT OF COMMENCEMENT
	P.O.T. POINT OF TERMINATION
	(M) MEASURED
	(C) CALCULATED
	PARENT PARCEL BOUNDARY
	EXISTING RIGHT-OF-WAY
	EXISTING OVERHEAD ELECTRIC
	EXISTING UTILITY POLE
	EXISTING ASPHALT
	EXISTING TREE LINE
	LEASE AREA
	EASEMENT SIDELINE
	EASEMENT CENTERLINE
	SECTION LINE
	QUARTER SECTION LINE
	QUARTER-QUARTER SECTION LINE

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PROJECT NUMBER:	42279
EKS 3/13/19	FINAL SURVEY
EKS 6/6/19	ADDED OVERALL PROPERTY VIEW

MARK DATE DESCRIPTION  
 Certification & Seal:  
 I hereby certify that this Survey Document was prepared and the related Survey Work was performed by me or under my direct personal supervision and that I am a duly Licensed Land Surveyor under the Laws of the State of Wisconsin.



Trent D. Nelson, PL5  
 License Number: 3132-8 Date: 03/20/2019  
 ISSUE FINAL DATE ISSUED: 03/20/2019

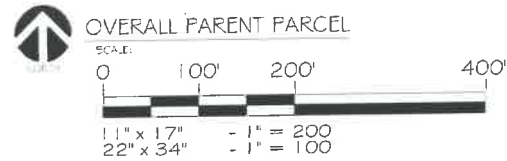
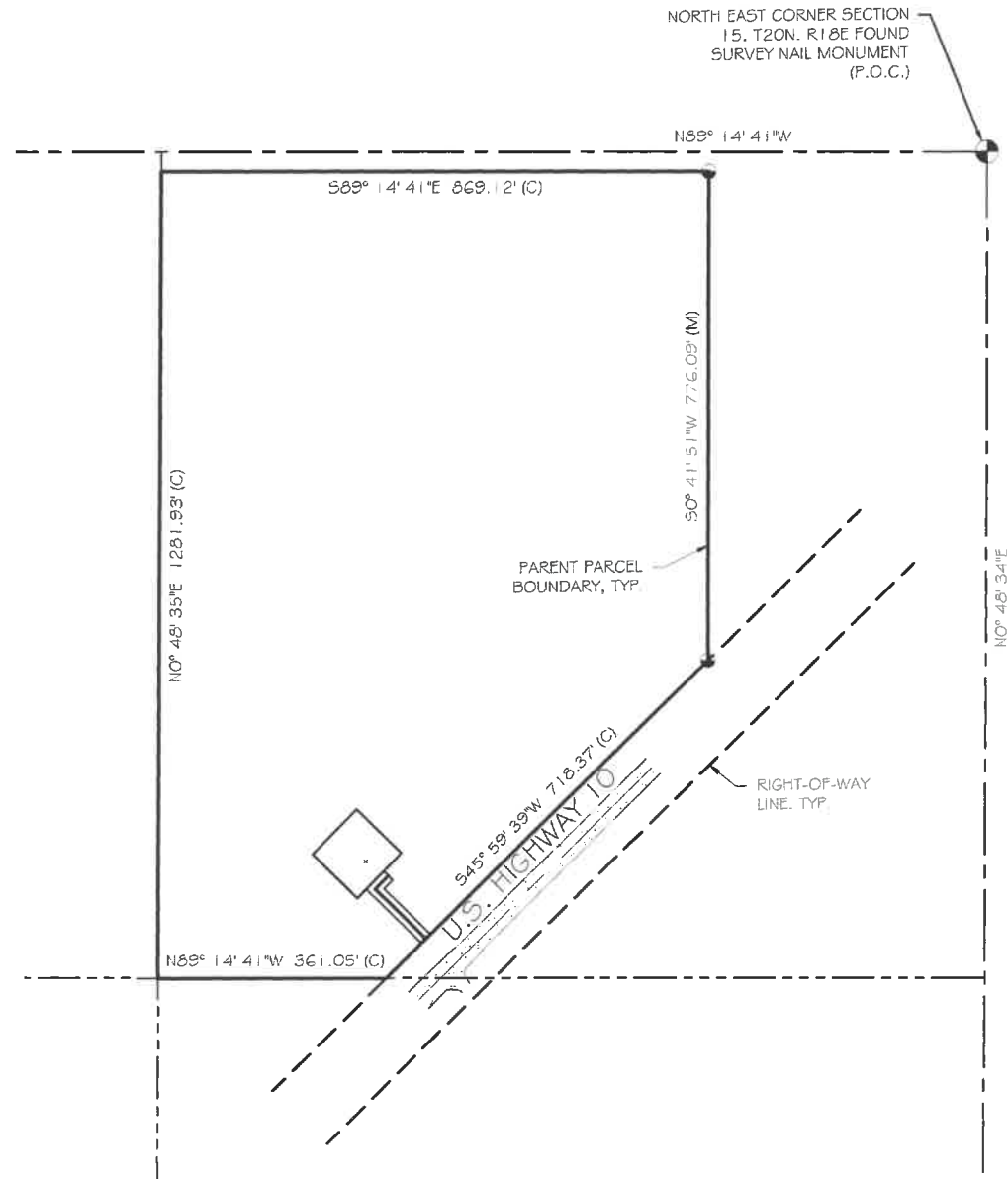
SITE NAME: TI-OPP-11894 CANDIDATE B APPLETON  
 ADDRESS: HD-15-CCCC-CCCC-CC-CC-201815-CC-1-CC HARRISON, WI 54952 CALUMET COUNTY

SHEET TITLE: TOPOGRAPHIC SITE SURVEY

SCALE: AS NOTED

R & A NUMBER: 2019100  
 SHEET NUMBER: 1 OF 2





**LEGEND**

- SECTION CORNER
- MONUMENT, FOUND 3/4" IR
- POINT OF BEGINNING
- F.O.B.
- F.O.C.
- POINT OF COMMENCEMENT
- F.O.T.
- POINT OF TERMINATION
- (M) MEASURED
- (C) CALCULATED
- PARENT PARCEL BOUNDARY
- - - EXISTING RIGHT-OF-WAY
- - - EXISTING OVERHEAD ELECTRIC
- - - EXISTING UTILITY POLE
- - - EXISTING ASPHALT
- - - EXISTING TREE LINE
- - - LEASE AREA
- - - EASEMENT SIDELINE
- - - EASEMENT CENTERLINE
- - - SECTION LINE
- - - QUARTER SECTION LINE
- - - QUARTER-QUARTER SECTION LINE

100' X 100' LEASE AREA DESCRIPTION

A PORTION OF LAND IN THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 15, TOWNSHIP 20 NORTH, RANGE 18 EAST, VILLAGE OF HARRISON, CALUMET COUNTY, WISCONSIN, AND BEING FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND SURVEY NAIL LOCATING THE NORTHEAST CORNER OF SAID SECTION 15, THENCE N89° 14' 41" W, 942.10 FEET; THENCE 50° 00' 00" E, 114.59 FEET TO THE POINT OF BEGINNING; THENCE S45° 00' 00" W, 100.00 FEET; THENCE N45° 00' 00" W, 100.00 FEET; THENCE N45° 00' 00" E, 100.00 FEET; THENCE S45° 00' 00" E, 100.00 FEET TO THE POINT OF BEGINNING. SAID LEASE AREA CONTAINS 10,000 SQUARE FEET (0.23 ACRES), AND IS SUBJECT TO ANY AND ALL EASEMENTS OR AGREEMENTS, RECORDED OR UNRECORDED.

30' WIDE ACCESS AND UTILITY EASEMENT CENTERLINE DESCRIPTION

A PORTION OF LAND IN THE NORTHEAST QUARTER OF THE NORTHEAST QUARTER OF SECTION 15, TOWNSHIP 20 NORTH, RANGE 18 EAST, VILLAGE OF HARRISON, CALUMET COUNTY, WISCONSIN, AND BEING FURTHER DESCRIBED AS FOLLOWS:

COMMENCING AT A FOUND SURVEY NAIL LOCATING THE NORTHEAST CORNER OF SAID SECTION 15, THENCE 89° 14' 41" W, 942.10 FEET; THENCE 50° 00' 00" E, 114.59 FEET TO THE EAST CORNER OF THE AFOREMENTIONED LEASE AREA; THENCE S45° 00' 00" W, 40.00 FEET ALONG THE SOUTHEAST LINE OF THE AFOREMENTIONED LEASE AREA; THENCE S45° 00' 00" E, 10.00 FEET TO THE POINT OF BEGINNING; THENCE S45° 00' 00" W, 30.00 FEET; THENCE S45° 00' 00" E, 112.88 FEET, MORE OR LESS, TO THE NORTHERLY RIGHT-OF-WAY LINE OF HIGHWAY 10 AND THE POINT OF TERMINATION. SAID ACCESS AND UTILITY EASEMENT CONTAINS 142.88 LINEAR FEET, AND IS SUBJECT TO ANY AND ALL EASEMENTS OR AGREEMENTS, RECORDED OR UNRECORDED. SIDELINES OF SAID EASEMENT SHALL BE LENGTHENED OR SHORTENED TO TERMINATE AT THE NORTHERLY RIGHT-OF-WAY LINE OF HIGHWAY 10.

TITLE REVIEW

TITLE BY: FIDELITY NATIONAL TITLE INSURANCE COMPANY  
 COMMITMENT NUMBER: 28451270

SCHEDULE B - SECTION II, SURVEY RELATED EXCEPTIONS:

3.: EASEMENTS, OR CLAIMS OF EASEMENTS, NOT SHOWN BY THE PUBLIC RECORDS. **GENERAL SURVEY EXCEPTION.**

5.: ANY ENCROACHMENT, ENCUMBRANCE, VIOLATION, VARIATION, OR ADVERSE CIRCUMSTANCE AFFECTING THE TITLE THAT WOULD BE DISCLOSED BY AN ACCURATE AND COMPLETE LAND SURVEY OF THE LAND. **GENERAL SURVEY EXCEPTION.**

8.: AUTHORIZATION FOR ACCESS TO OR ACROSS A CONTROLLED-ACCESS HIGHWAY RECORDED ON 12/19/2007 IN INSTRUMENT NO. 424128. **SAID ACCESS #9, MENTIONED IN INSTRUMENT NO. 424129 IS SHOWN ON SURVEY. SAID ACCESS #9 WILL NOT AFFECT PROPOSED LEASE AREA OR ASSOCIATED EASEMENT.**

9.: STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION FINDING, DETERMINATION AND DECLARATION RECORDED ON 11/19/2007 IN INSTRUMENT NO. 423324. **AFOREMENTIONED ACCESS #9 GRANTS ACCESS TO AND FROM THE PROPERTY, THEREFORE NO EXCEPTIONS IN INSTRUMENT NO. 423324 SHALL AFFECT THE PROPOSED LEASE AREA AND ASSOCIATED EASEMENT.**

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PROJECT NUMBER:	42279
EFS 3/13/19	FINAL SURVEY
EFS 6/6/19	ADDED OVERALL PROPERTY VIEW

MARK	DATE	DESCRIPTION
Certification & Seal:		

I hereby certify that this Survey Document was prepared and the related Survey Work was performed by me or under my direct personal supervision and that I am a duly Licensed Land Surveyor in the State of Wisconsin.



Trent D. Nelson, PLS  
 License Number: 3132-8 Date: 03/20/2019

ISSUE PHASE:	FINAL	DATE ISSUED:	03/20/2019
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SITE NAME: TI-OPP-11894  
 CANDIDATE B  
 APPLETON  
 ADDRESS: HD-15-CCOC-CCOC-CCOC-CCOC-1201815-CC-1  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE:  
**TOPOGRAPHIC SITE SURVEY**

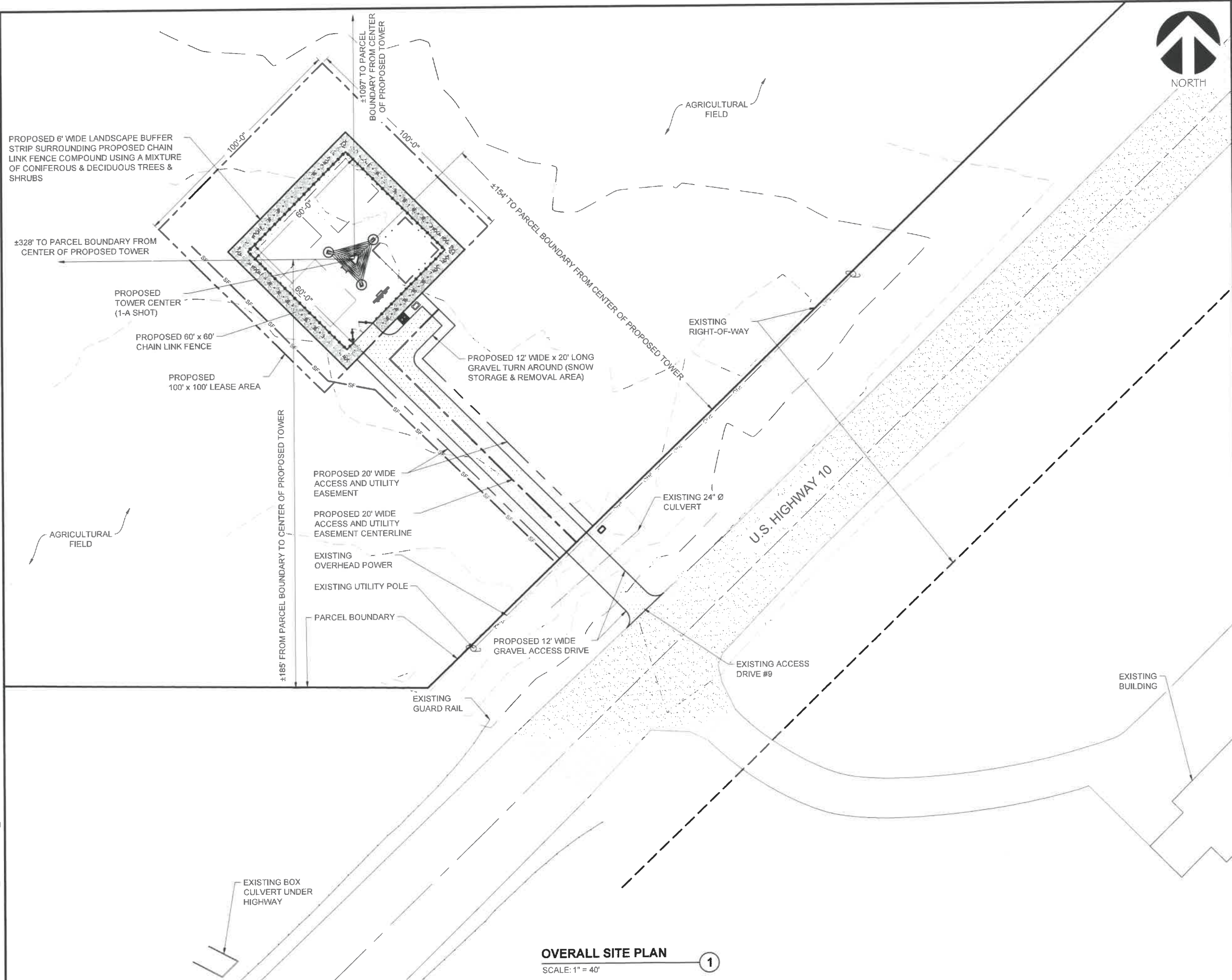
SCALE:  
 AS NOTED

R & A NUMBER: 2019100

SHEET NUMBER: 2 OF 2

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 DRAWN BY: CAS CHECKED BY: JLF

V4220042279\CAD\42279\_TI-OPP-11894\_Verizon\_CDs.dwg Printed by: cskowronski on Aug 05, 2019 - 4:36pm



**TILLMAN**  
**INFRASTRUCTURE**

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Signature: *[Signature]* Date: 8/05/2019

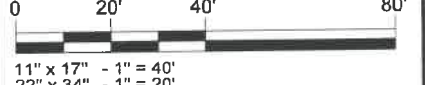
MARK	DATE	DESCRIPTION

ISSUE PHASE	FINAL - REV 0	DATE ISSUED	08/05/2019
PROJECT TITLE			

**TI-OPP-11894-B**

PROJECT INFORMATION  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**OVERALL SITE PLAN**

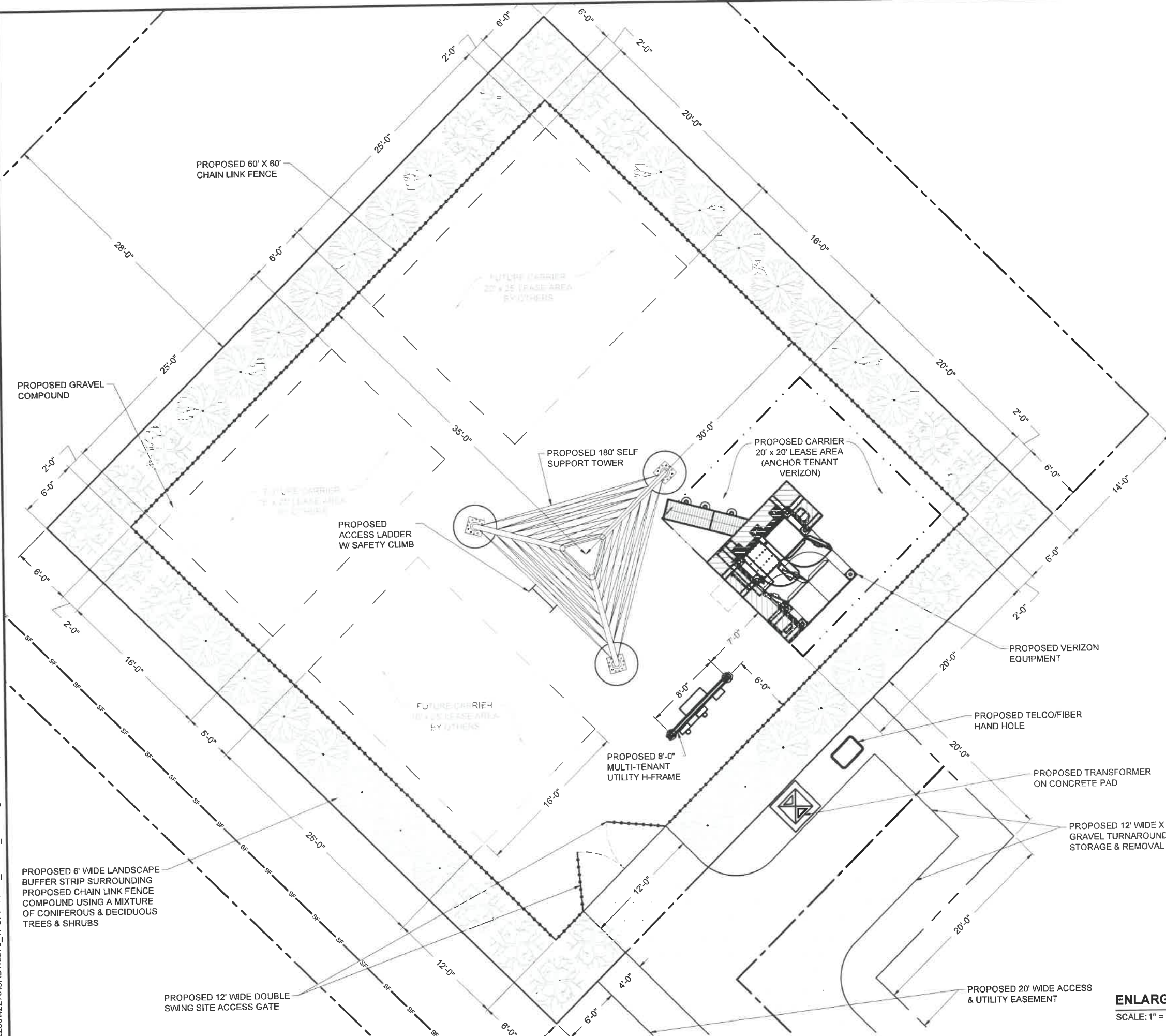


11" x 17" - 1" = 40'  
 22" x 34" - 1" = 20'  
 PROJECT NUMBER: 42279  
 SHEET NUMBER: A-1

**OVERALL SITE PLAN**  
 SCALE: 1" = 40' **1**

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Signature: *Michael L. Pinske* Date: 8/05/2019

MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL - REV 0	DATE ISSUED 08/05/2019

PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY  
 SHEET TITLE

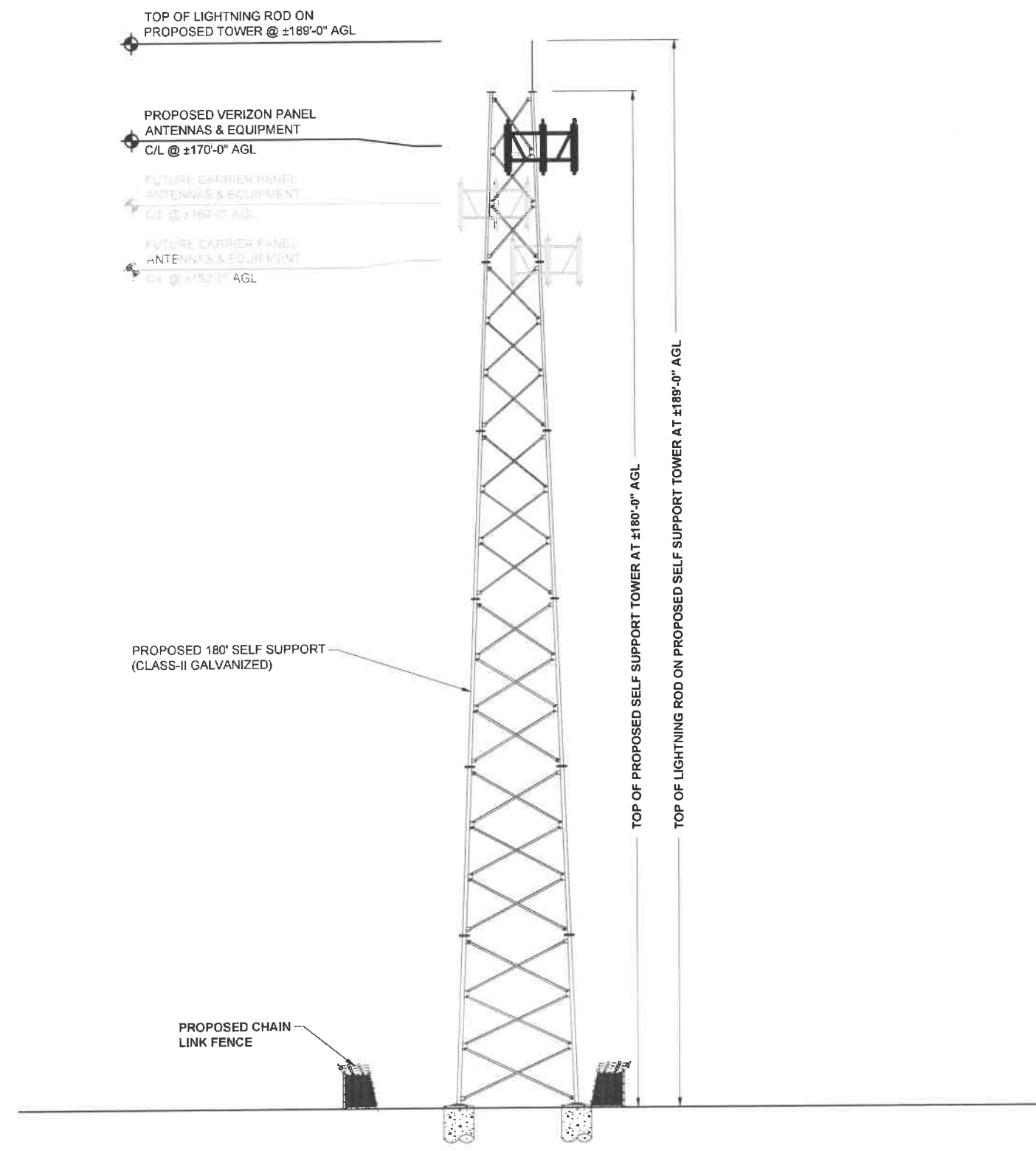
**ENLARGED SITE PLAN**

0 5' 10' 20'

11" x 17" - 1" = 10'  
 22" x 34" - 1" = 5'

PROJECT NUMBER: 42279  
 SHEET NUMBER: A-2

**ENLARGED SITE PLAN**  
 SCALE: 1" = 10'



**TOWER ELEVATION**  
 SCALE: 1" = 25'



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Signature: *Michael L. Pinske* Date: 8/05/2019

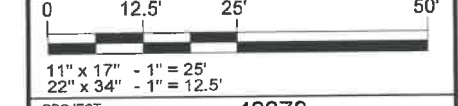
MARK	DATE	DESCRIPTION

ISSUE PHASE	FINAL - REV 0	DATE ISSUED	08/05/2019
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PROJECT TITLE  
**TI-OPP-11894-B**

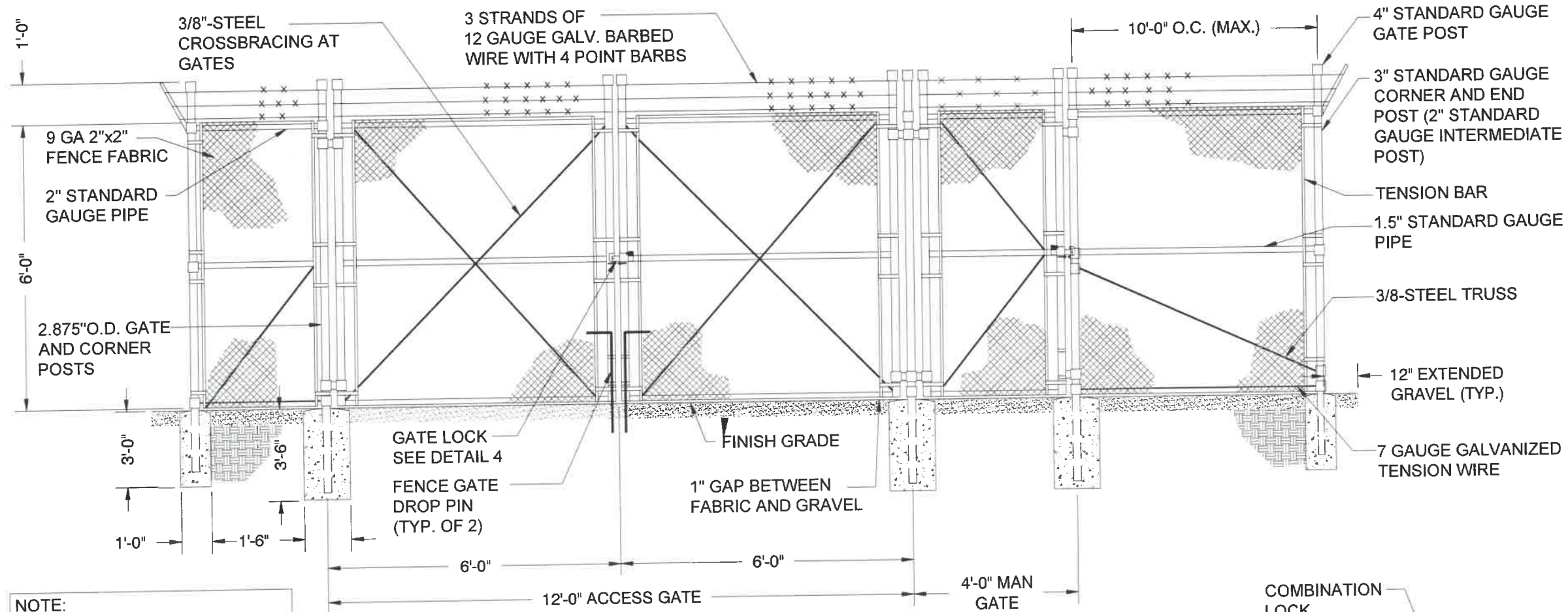
PROJECT INFORMATION  
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 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**TOWER ELEVATION**

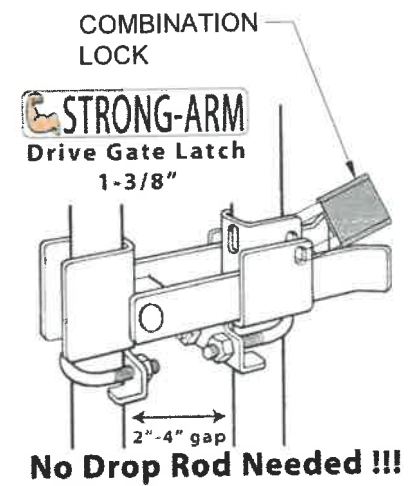


PROJECT NUMBER	42279
SHEET NUMBER	A-3





**NOTE:**  
 IF APPLICABLE, MATCH EXISTING  
 CONDITIONS AS PRACTICAL



**No Drop Rod Needed !!!**

**FENCE AND GATE DETAIL**  
 SCALE: NTS

1

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Signature: *Michael L. Pinske* Date: 8/05/2019

MARK	DATE	DESCRIPTION
ISSUE	PHASE	FINAL - REV 0
DATE ISSUED	08/05/2019	

PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**COMPOUND FENCE & GATE DETAILS**

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: A-4

SIGNAGE NOTES:

- SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL & PAINTED WITH LONG LASTING UV RESISTANT COATINGS
- SIGNS (EXCEPT WHERE NOTED OTHERWISE) SHALL BE MOUNTED TO THE TOWER, GATE & FENCE USING A MINIMUM OF 9 GAUGE ALUMINUM WIRE HOG RINGS (FENCE) OR BRACKETS, WHERE NECESSARY. BRACKETS SHALL BE OF SIMILAR METALS AS THE STRUCTURE TO AVOID GALVANIC CORROSION
- ADDITIONAL E911 ADDRESS AND FCC REGISTRATION SIGNS SHALL BE MOUNTED AT EACH ACCESS ROAD GATE LEADING TO THE COMPOUND AS WELL AS ON THE COMPOUND GATE ITSELF
- CARRIER SITE # AND EMERGENCY CONTACT SIGNS SHALL BE MOUNTED ON THE EQUIPMENT CABINET WITH PERMANENT SET ADHESIVE. TWO SIDED TAPE SHALL BE APPLIED AT EACH CORNER OF THE BACKSIDE TO AVOID PLACEMENT UNTIL THE ADHESIVE SETS

WHITE BACKGROUND  
 BLACK TEXT  
 RED TEXT

WHITE BACKGROUND, RED/BLACK LETTERING  
 MOUNTING LOCATION: SHELTER OR TENANT IMPROVEMENT ROOM DOOR, IF OUTDOOR CABINET SITE PLACE ON END CABINET CLOSEST TO SITE ACCESS POINT. PLACE ON GENERATOR.  
 QUANTITY: 1 OR 2

**PROPERTY OF TILLMAN INFRASTRUCTURE** ①  
 SCALE: NTS

WHITE TEXT  
 GREEN BACKGROUND  
 BLACK TEXT  
 WHITE BACKGROUND

WHITE/GREEN BACKGROUND, WHITE/BLACK LETTERING  
 MOUNTING LOCATION: GATE & BASE OF TOWER  
 QUANTITY: 2

**FCC REGISTRATION SIGN** ②  
 SCALE: NTS

GREEN BACKGROUND  
 BLACK TEXT  
 WHITE BACKGROUND

WHITE/GREEN BACKGROUND, BLACK LETTERING  
 MOUNTING LOCATION: GATE & BASE OF TOWER  
 QUANTITY: 2

**RF EXPOSURE INFORMATION SIGN** ③  
 SCALE: NTS

GREEN BACKGROUND  
 BLACK TEXT  
 WHITE BACKGROUND

**RF EXPOSURE INFORMATION SIGN** ④  
 SCALE: NTS

BLUE BACKGROUND  
 WHITE TEXT  
 WHITE BACKGROUND  
 BLACK TEXT

**RF EXPOSURE NOTICE SIGN** ⑤  
 SCALE: NTS

YELLOW BACKGROUND  
 BLACK TEXT  
 WHITE BACKGROUND  
 BLACK TEXT

**RF EXPOSURE CAUTION SIGN** ⑥  
 SCALE: NTS

RED BACKGROUND  
 BLACK TEXT  
 WHITE BACKGROUND  
 BLACK TEXT

**RF EXPOSURE WARNING SIGN** ⑦  
 SCALE: NTS

TILLMAN  
 INFRASTRUCTURE

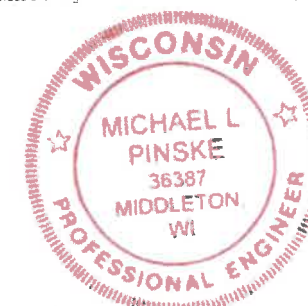
LCC

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PROJECT TITLE	TI-OPP-11894-B		

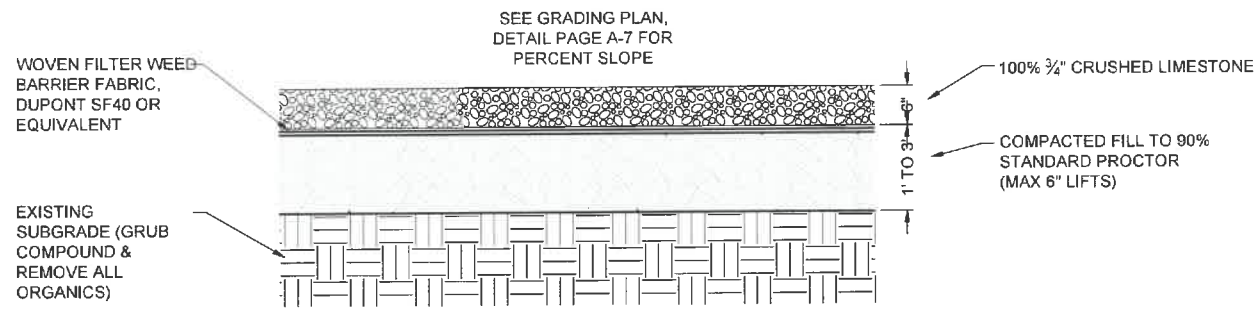
PROJECT INFORMATION  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY  
 SHEET TITLE

COMPOUND SIGN DETAILS

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: A-5

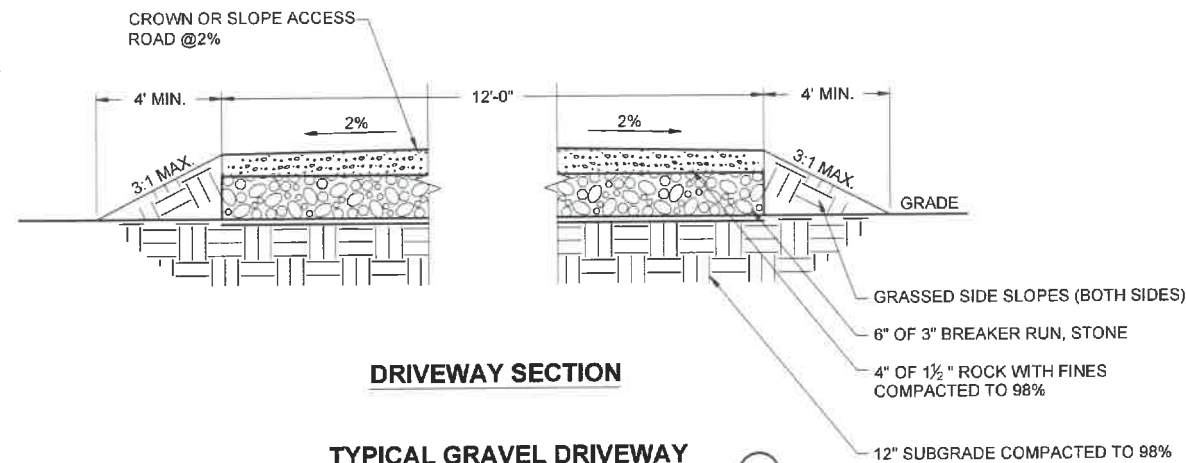




NOTES:

**COMPOUND SECTION**

THE FABRIC SHOULD BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. INTERSECTIONS OF SHEETS MUST BE SEWN OR SUFFICIENTLY OVERLAPPED (AT LEAST 24 INCHES OR AS SPECIFIED BY THE MANUFACTURER). THE GEOTEXTILE SHEETS SHOULD ALSO BE PLACED TAUT TO REDUCE WRINKLES OR FOLDS. CARE MUST BE EXERCISED TO PREVENT PHYSICAL DAMAGE OF THE GEOTEXTILE PRIOR TO, DURING AND AFTER INSTALLATION. UTILITIES SHOULD BE INSTALLED BEFORE PLACING THE FABRIC.



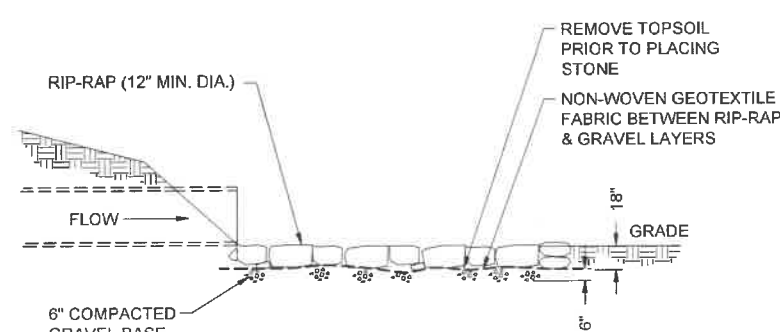
**DRIVEWAY SECTION**

**TYPICAL GRAVEL DRIVEWAY**

SCALE: NTS

**COMPOUND GRAVEL**

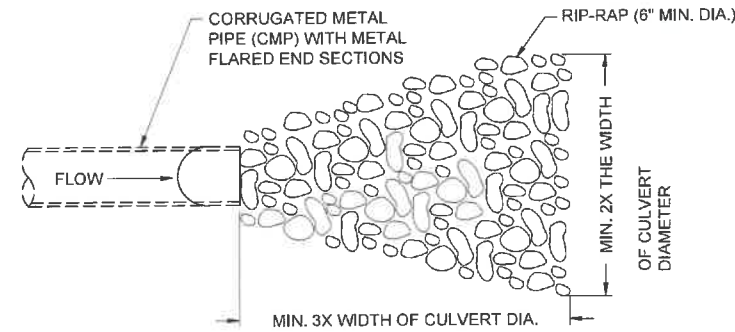
SCALE: NTS



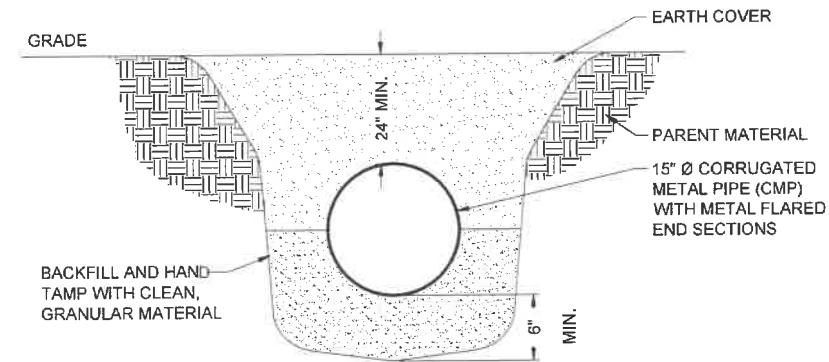
**RIP-RAP SECTION**

**TYPICAL RIP-RAP DETAIL**

SCALE: NTS



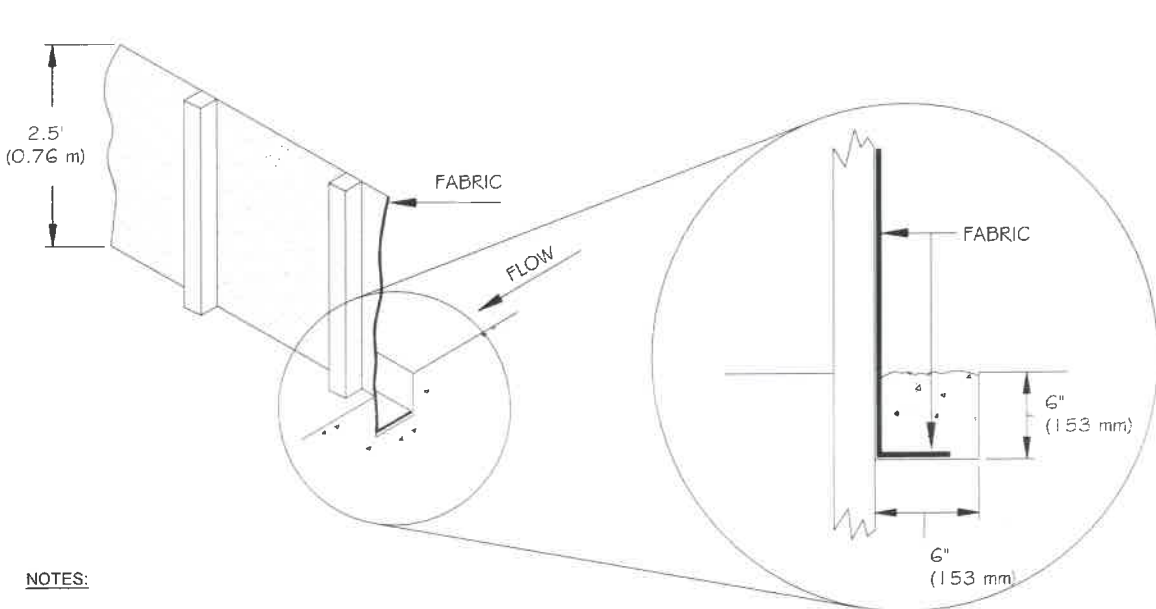
**RIP-RAP PLAN**



**CULVERT SECTION**

**TYPICAL PIPE CULVERT RIP-RAP DETAIL**

SCALE: NTS



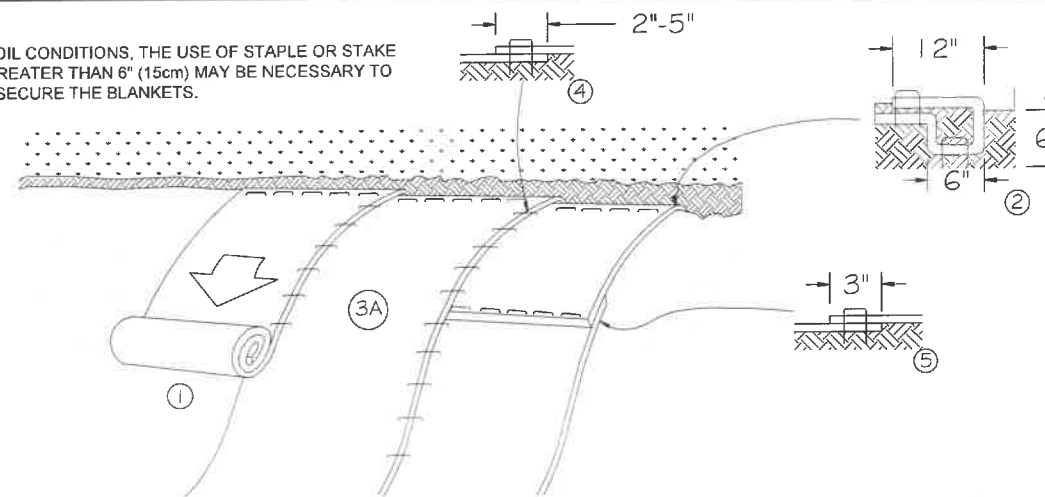
NOTES:

- PLACE BOTTOM EDGE OF FENCE INTO 6" (153 MM) DEEP TRENCH AND BACKFILLED IMMEDIATELY.
- POSTS SHALL BE:
  - 4' (1.22 M) ON CENTER
  - 2" (50.8 MM) X 2" (50.8 MM) HARDWOOD, PINE OR STEEL FENCE POSTS.
  - MINIMUM LENGTH 4.5'
  - DRIVEN 2' (0.61 M) INTO THE GROUND.

**EROSION CONTROL FENCE**

SCALE: NTS

NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15cm) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.



**STANDARD STAPLE PATTERN**

SCALE: NTS

- PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL-O-SEED DO NOT SEED PREPARED AREA. CELL-O-SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.
- BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
- ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING OPTIONAL DOT SYSTEM, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
- THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2'-5" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.
- CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.
- FOLLOW MANUFACTURER'S RECOMMENDED STAPLE PATTERN, FOR THE SLOPE FOR THE SPECIFIED BLANKET.



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Signature: *[Signature]* Date: 8/05/2019

MARK	DATE	DESCRIPTION
ISSUE	FINAL - REV 0	DATE ISSUED 08/05/2019
PHASE		
PROJECT TITLE	TI-OPP-11894-B	

PROJECT INFORMATION:  
131-0000-000000-000-0-201815-00-110B  
N8842 KASTEN ROAD  
HARRISON, WI 54952  
CALUMET COUNTY

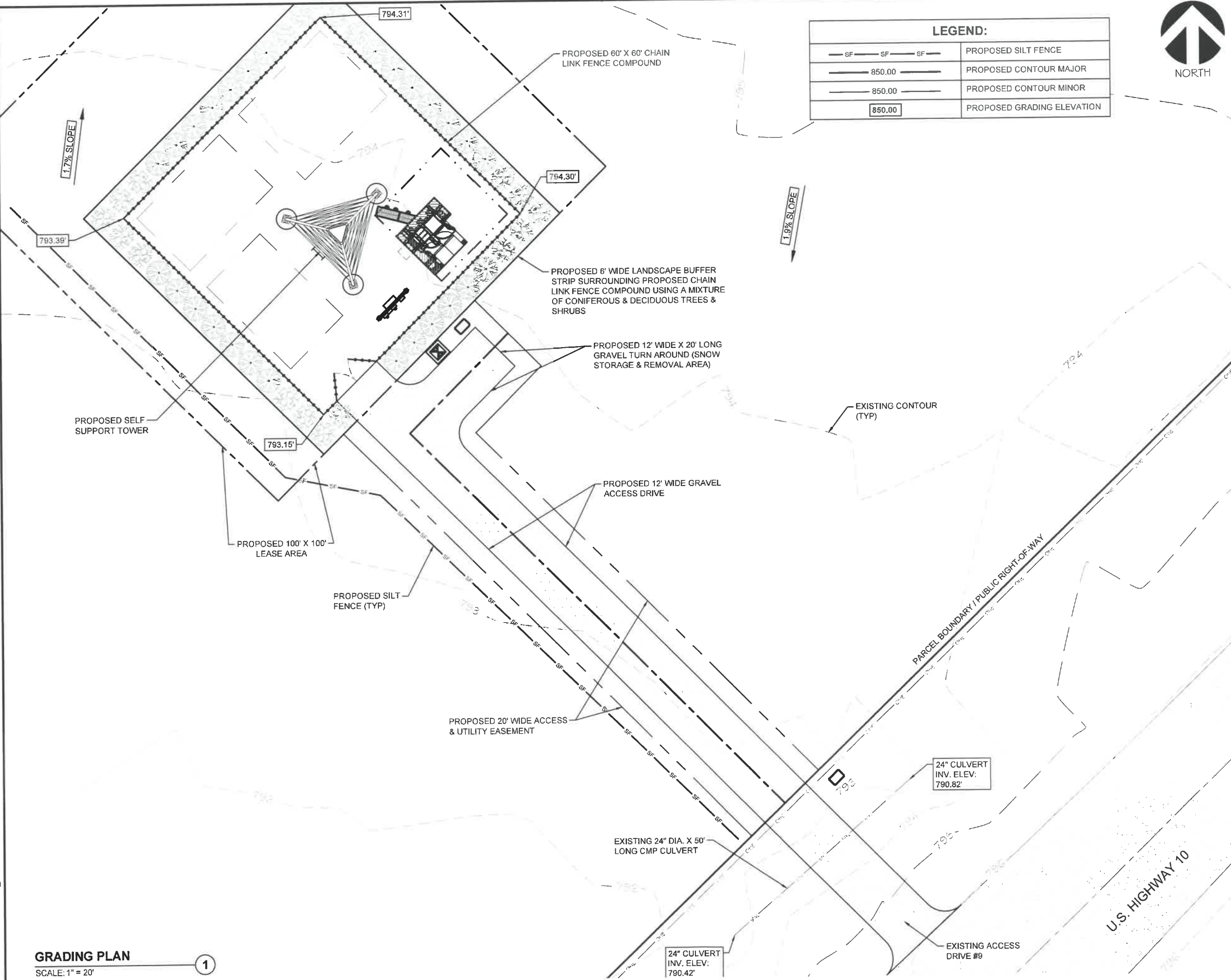
**COMPOUND SITE DETAILS, GRADING & EROSION CONTROL DETAILS**

SCALE: NONE

PROJECT NUMBER: 42279  
SHEET NUMBER: A-6

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142200W42279\CAD\42279\_TI-OPP-11894\_Verizon\_CDs.dwg Printed by: cskowronski on Aug 05, 2019 - 4:37pm



**LEGEND:**

	PROPOSED SILT FENCE
	PROPOSED CONTOUR MAJOR
	PROPOSED CONTOUR MINOR
	PROPOSED GRADING ELEVATION



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Signature: *[Signature]* Date: 8/05/2019

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ISSUE PHASE	FINAL - REV 0	DATE ISSUED 08/05/2019

PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**COMPOUND GRADING PLAN**



PROJECT NUMBER: 42279  
 SHEET NUMBER: A-7

**GRADING PLAN**  
 SCALE: 1" = 20'

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CONTRACTOR TO WATER IN TREES ONCE A WEEK FOR A PERIOD OF 30 DAYS AFTER PLANTING.  
 CONTRACTOR TO WARRANTY TREES FOR A PERIOD OF 1 YEAR.



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*Signature:* [Signature] *Date:* 8/05/2019

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ISSUE PHASE	FINAL - REV 0	DATE ISSUED 08/05/2019

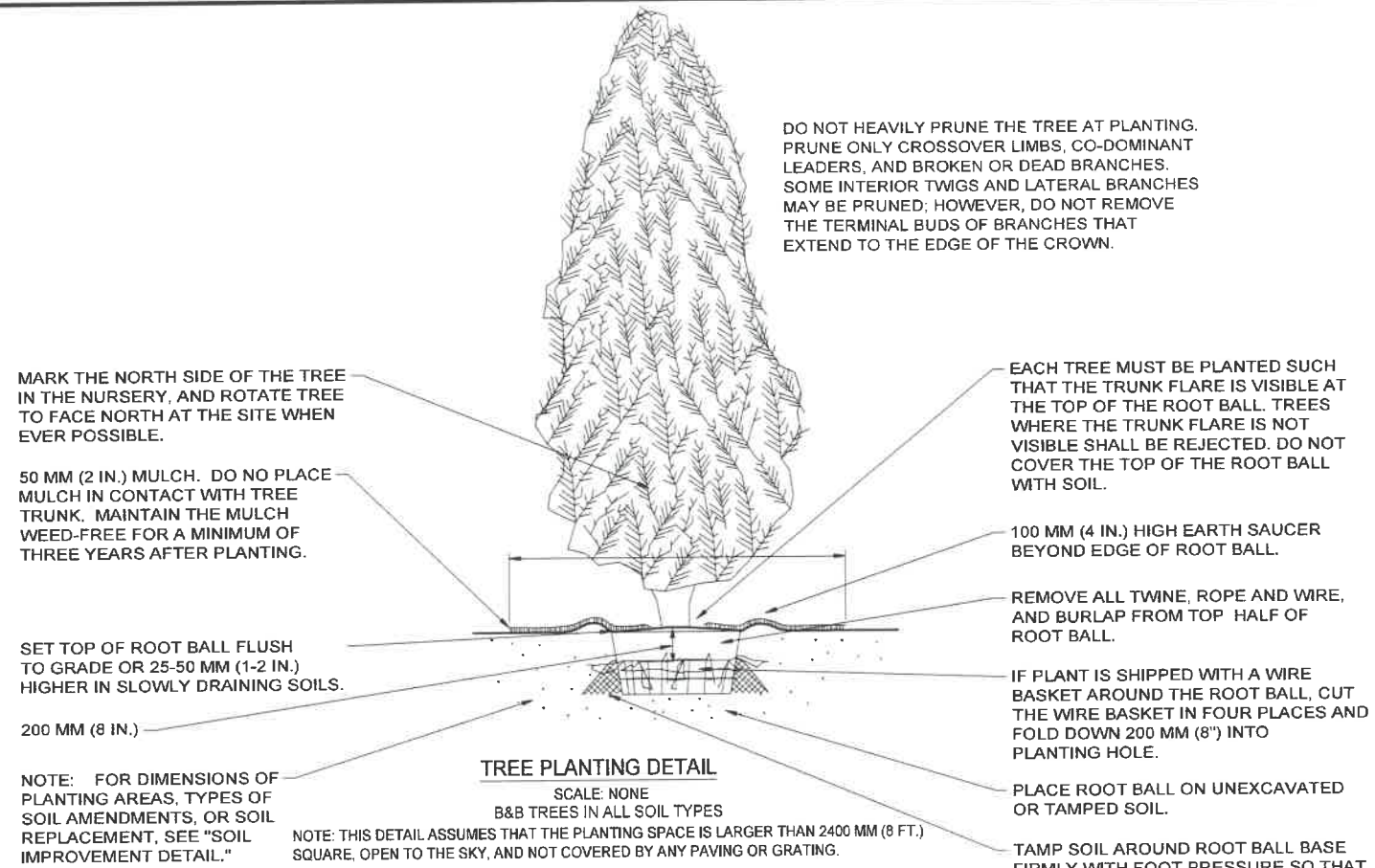
PROJECT TITLE:  
**TI-OPP-11894-B**

PROJECT INFORMATION  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE:  
**COMPOUND TREE PLANTING DETAILS**

SCALE: NONE

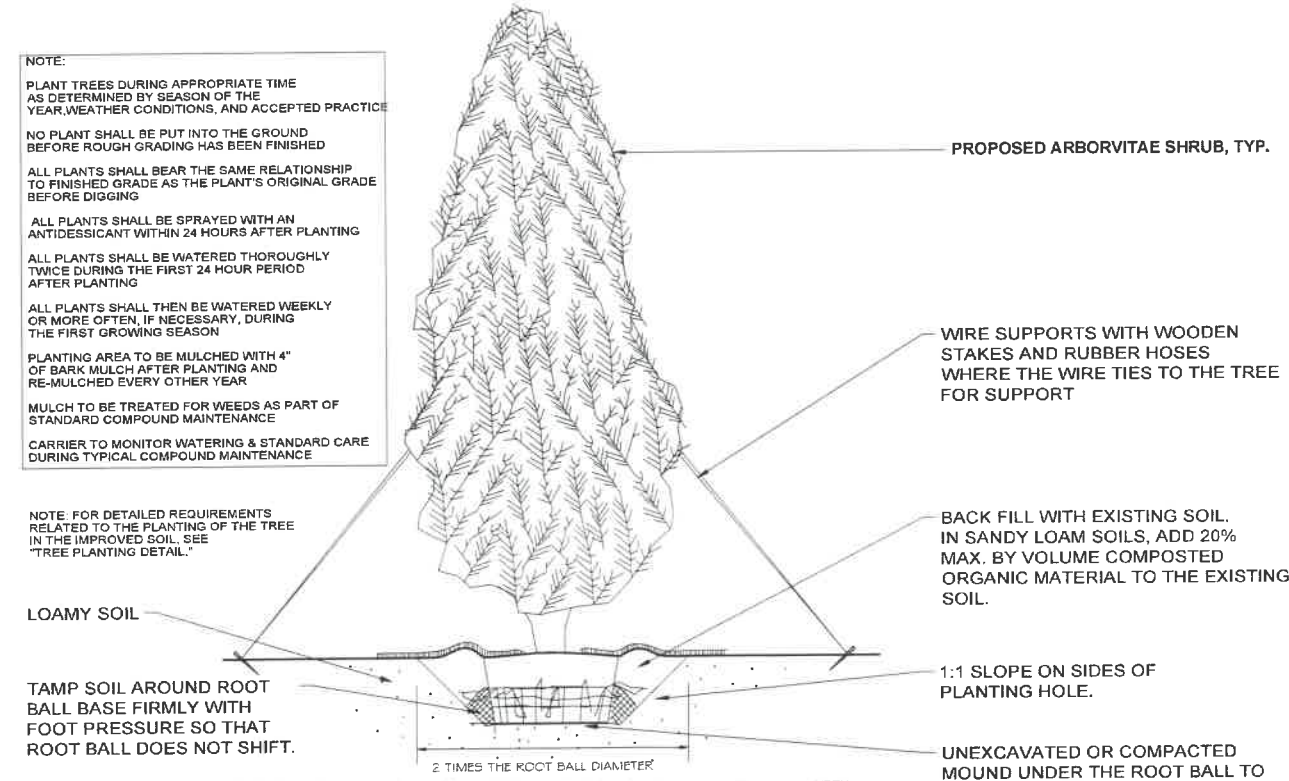
PROJECT NUMBER: 42279  
 SHEET NUMBER: A-8



**TREE PLANTING DETAIL**  
 SCALE: NTS

**NOTE:**  
 PLANT TREES DURING APPROPRIATE TIME AS DETERMINED BY SEASON OF THE YEAR, WEATHER CONDITIONS, AND ACCEPTED PRACTICE  
 NO PLANT SHALL BE PUT INTO THE GROUND BEFORE ROUGH GRADING HAS BEEN FINISHED  
 ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS THE PLANT'S ORIGINAL GRADE BEFORE DIGGING  
 ALL PLANTS SHALL BE SPRAYED WITH AN ANTIDESSICANT WITHIN 24 HOURS AFTER PLANTING  
 ALL PLANTS SHALL BE WATERED THOROUGHLY TWICE DURING THE FIRST 24 HOUR PERIOD AFTER PLANTING  
 ALL PLANTS SHALL THEN BE WATERED WEEKLY OR MORE OFTEN, IF NECESSARY, DURING THE FIRST GROWING SEASON  
 PLANTING AREA TO BE MULCHED WITH 4" OF BARK MULCH AFTER PLANTING AND RE-MULCHED EVERY OTHER YEAR  
 MULCH TO BE TREATED FOR WEEDS AS PART OF STANDARD COMPOUND MAINTENANCE  
 CARRIER TO MONITOR WATERING & STANDARD CARE DURING TYPICAL COMPOUND MAINTENANCE

**NOTE:** FOR DETAILED REQUIREMENTS RELATED TO THE PLANTING OF THE TREE IN THE IMPROVED SOIL, SEE "TREE PLANTING DETAIL."



**SOIL IMPROVEMENT DETAIL**  
 TREES PLANTED IN NON RESTRICTED SOIL CONDITIONS  
 SCALE: NTS





**TILLMAN**  
**INFRASTRUCTURE**

**LCC**  
**TELECOM SERVICES**  
 10700 HIGGINS ROAD, SUITE 240  
 ROSEMONT, IL 60018  
 OFFICE: (847) 393-4528

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Certification & Seal:  
 I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



*Michael L. Pinske* 8/05/2019  
 Signature Date

MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL - REV 0	DATE ISSUED 06/05/2019

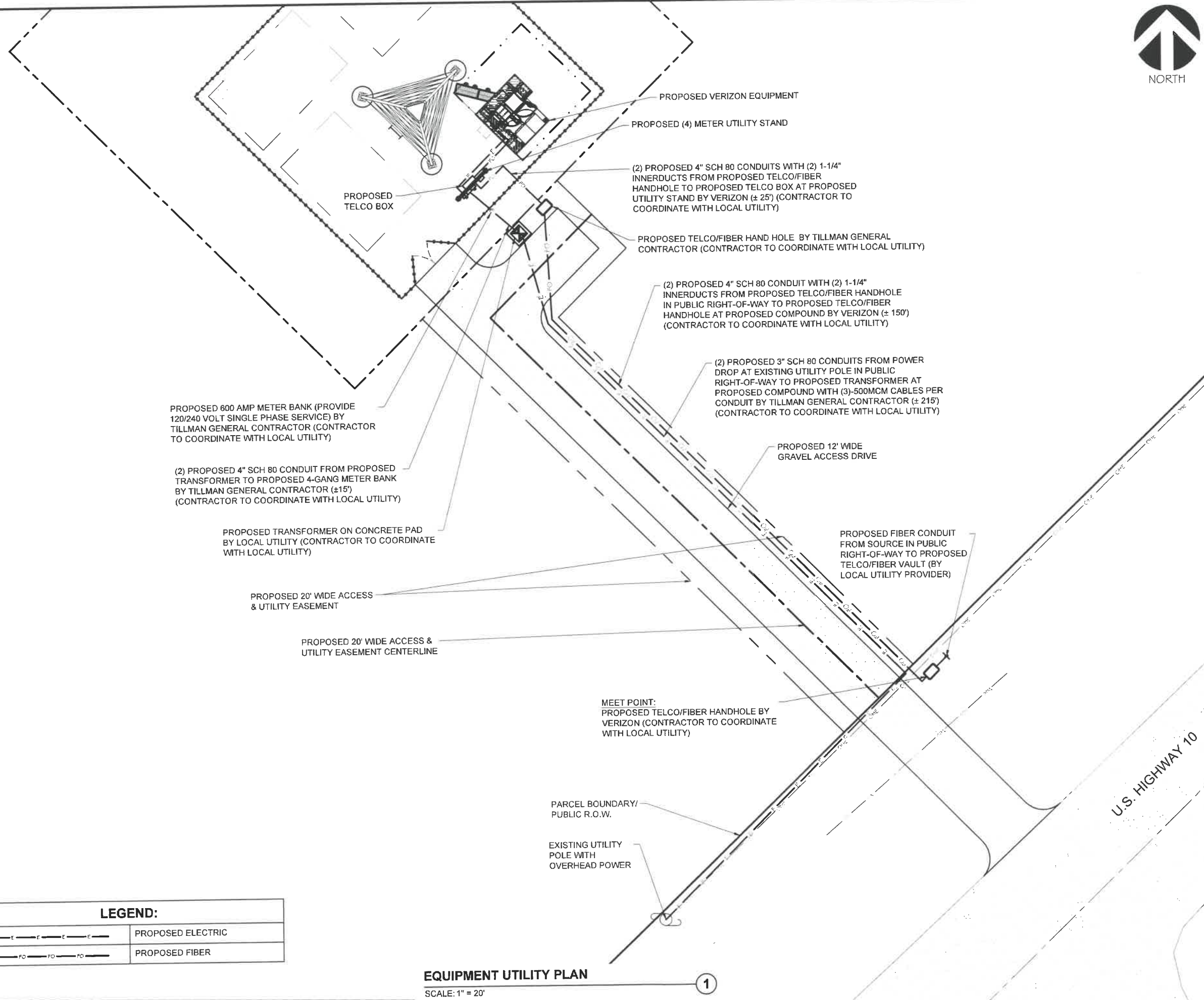
PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

**COMPOUND UTILITY PLAN**

11" x 17" - 1" = 20'  
 22" x 34" - 1" = 10'

PROJECT NUMBER: 42279  
 SHEET NUMBER: E-1



PROPOSED 600 AMP METER BANK (PROVIDE 120/240 VOLT SINGLE PHASE SERVICE) BY TILLMAN GENERAL CONTRACTOR (CONTRACTOR TO COORDINATE WITH LOCAL UTILITY)

(2) PROPOSED 4" SCH 80 CONDUIT FROM PROPOSED TRANSFORMER TO PROPOSED 4-GANG METER BANK BY TILLMAN GENERAL CONTRACTOR (±15') (CONTRACTOR TO COORDINATE WITH LOCAL UTILITY)

PROPOSED TRANSFORMER ON CONCRETE PAD BY LOCAL UTILITY (CONTRACTOR TO COORDINATE WITH LOCAL UTILITY)

PROPOSED 20' WIDE ACCESS & UTILITY EASEMENT

PROPOSED 20' WIDE ACCESS & UTILITY EASEMENT CENTERLINE

MEET POINT:  
 PROPOSED TELCO/FIBER HANDHOLE BY VERIZON (CONTRACTOR TO COORDINATE WITH LOCAL UTILITY)

PARCEL BOUNDARY/  
 PUBLIC R.O.W.

EXISTING UTILITY  
 POLE WITH  
 OVERHEAD POWER

PROPOSED VERIZON EQUIPMENT

PROPOSED (4) METER UTILITY STAND

(2) PROPOSED 4" SCH 80 CONDUITS WITH (2) 1-1/4" INNERDUCTS FROM PROPOSED TELCO/FIBER HANDHOLE TO PROPOSED TELCO BOX AT PROPOSED UTILITY STAND BY VERIZON (± 25') (CONTRACTOR TO COORDINATE WITH LOCAL UTILITY)

PROPOSED TELCO/FIBER HAND HOLE BY TILLMAN GENERAL CONTRACTOR (CONTRACTOR TO COORDINATE WITH LOCAL UTILITY)

(2) PROPOSED 4" SCH 80 CONDUIT WITH (2) 1-1/4" INNERDUCTS FROM PROPOSED TELCO/FIBER HANDHOLE IN PUBLIC RIGHT-OF-WAY TO PROPOSED TELCO/FIBER HANDHOLE AT PROPOSED COMPOUND BY VERIZON (± 150') (CONTRACTOR TO COORDINATE WITH LOCAL UTILITY)

(2) PROPOSED 3" SCH 80 CONDUITS FROM POWER DROP AT EXISTING UTILITY POLE IN PUBLIC RIGHT-OF-WAY TO PROPOSED TRANSFORMER AT PROPOSED COMPOUND WITH (3)-500MCM CABLES PER CONDUIT BY TILLMAN GENERAL CONTRACTOR (± 215') (CONTRACTOR TO COORDINATE WITH LOCAL UTILITY)

PROPOSED 12' WIDE GRAVEL ACCESS DRIVE

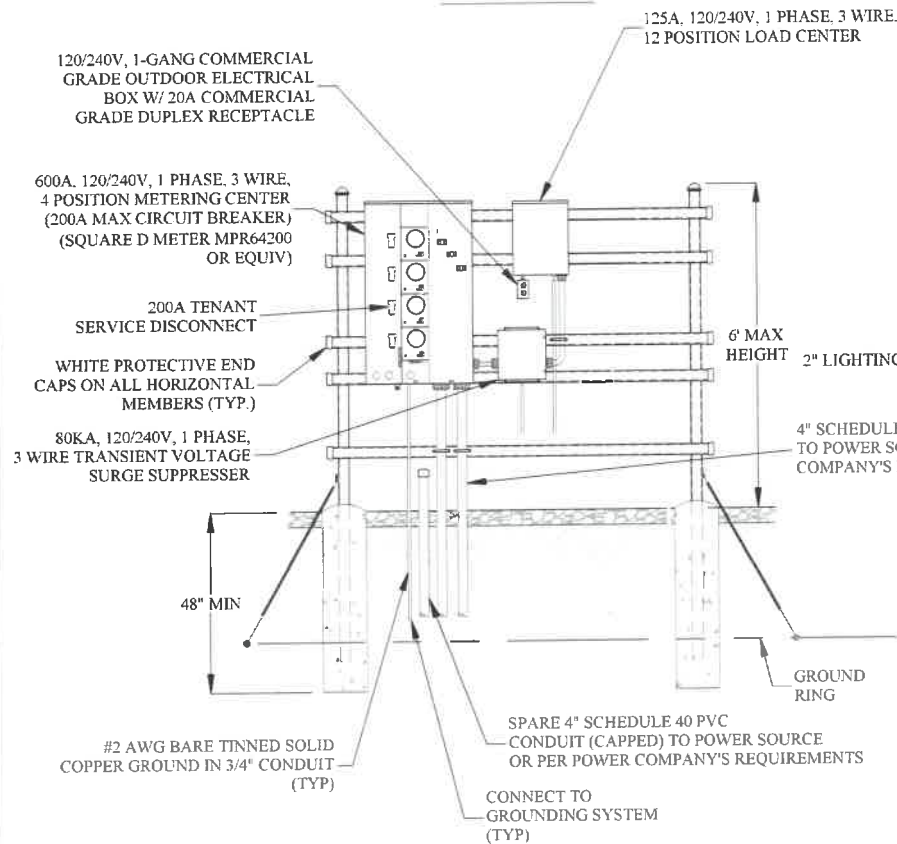
PROPOSED FIBER CONDUIT FROM SOURCE IN PUBLIC RIGHT-OF-WAY TO PROPOSED TELCO/FIBER VAULT (BY LOCAL UTILITY PROVIDER)

**LEGEND:**

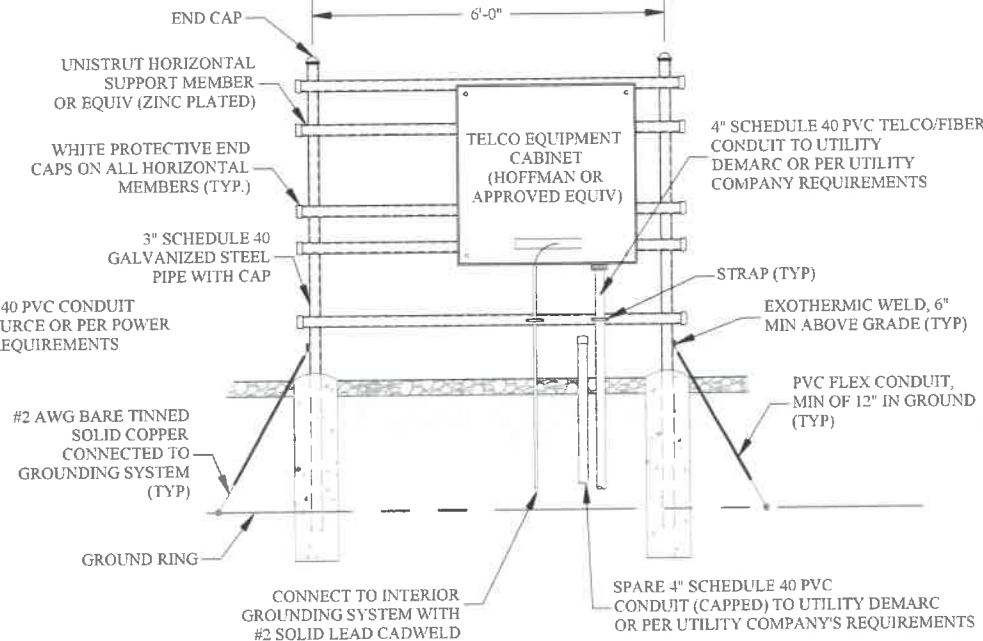
	PROPOSED ELECTRIC
	PROPOSED FIBER

**EQUIPMENT UTILITY PLAN**  
 SCALE: 1" = 20'

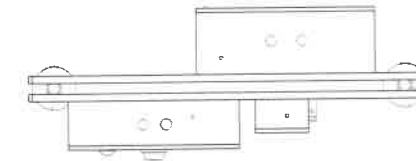
**FRONT VIEW**



**REAR VIEW**



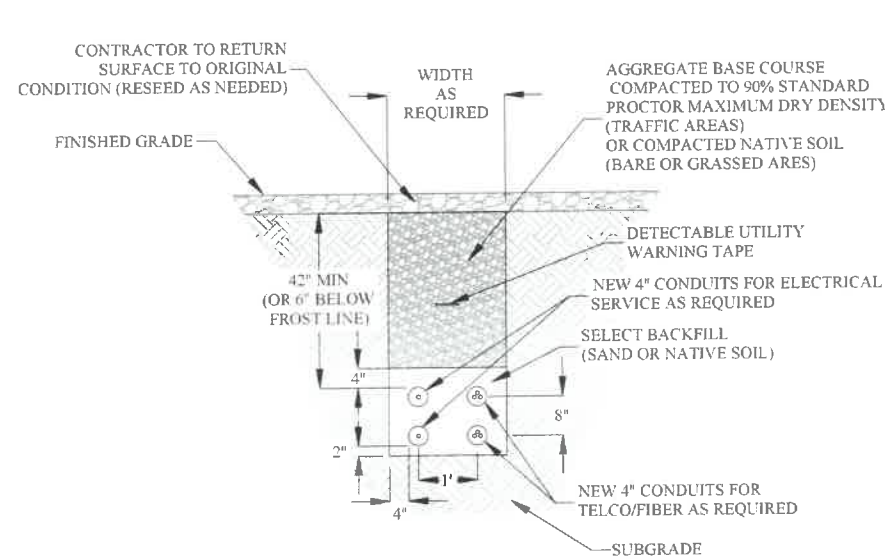
**PLAN VIEW**



**NOTES:**

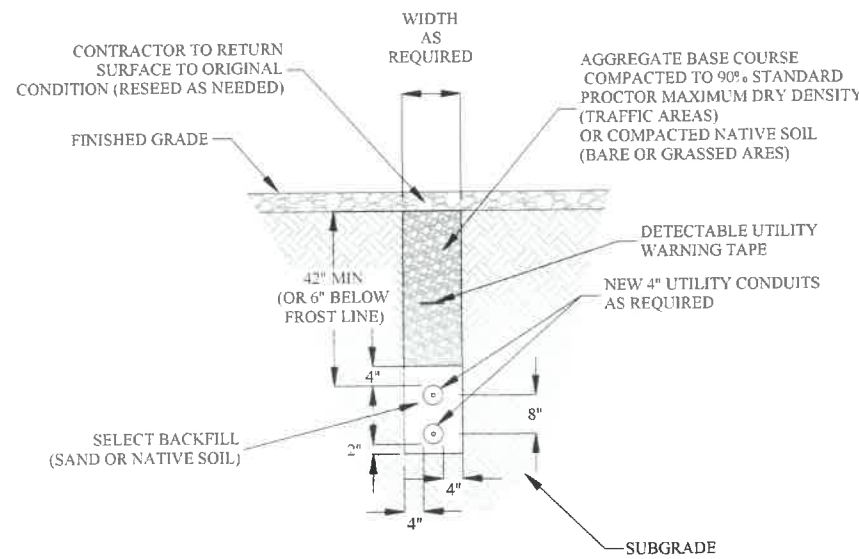
- EXACT LAYOUT AND COMPONENTS OF UTILITY RACK MAY CHANGE BASED ON OWNER/TENANT REQUIREMENTS. CONTRACTOR TO COORDINATE WITH OWNER PRIOR TO BID REGARDING POTENTIAL MODIFICATIONS.
- CONTRACTOR TO MAINTAIN 3'-0" MINIMUM CLEARANCE FROM METERING CENTER TO NEAREST OBSTRUCTION.
- CONCRETE PIER FOUNDATION TO ACHIEVE A MINIMUM STRENGTH OF 3000 PSI AT 28 DAYS. CONCRETE DEPTH TO BE A MINIMUM OF 6" BELOW FROST LINE (48" MINIMUM, TYP.)
- ELECTRIC SERVICE: 240/120V, 1Ø, 3W, 600A UNDERGROUND SERVICE TO POLE RISER
- USE COPPER STRANDED, 600V, TYPE THW/THWN, WITH CROSS-LINKED POLYETHYLENE INSULATION FOR #8 AWG AND LARGER WIRE
- UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC (MEET UL STANDARDS G51 AND NEMA TC2-1990) EXPOSED GALVANIZED STEEL. ALL CONDUIT BENDS SHALL BE A MIN. OF 24" RADIUS OR AS SPECIFIED BY THE LATEST EDITION OF THE NEC, WHICHEVER IS GREATER
- GROUNDING CONDUCTOR SHALL BE #2 AWG SOLID BARE TINNED COPPER UNLESS OTHERWISE NOTED
- 4" PVC CONDUIT INSTALLED 30" (MIN) BELOW GRADE FOR INCOMING SERVICE BY TELEPHONE COMPANY. PROVIDE PULL STRING - 200 LB TEST POLYETHYLENE CORD
- ALL ELECTRICAL & TELCO EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED UV RESISTANT PLASTIC LABELS. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS

**JOINT UTILITY TRENCH**



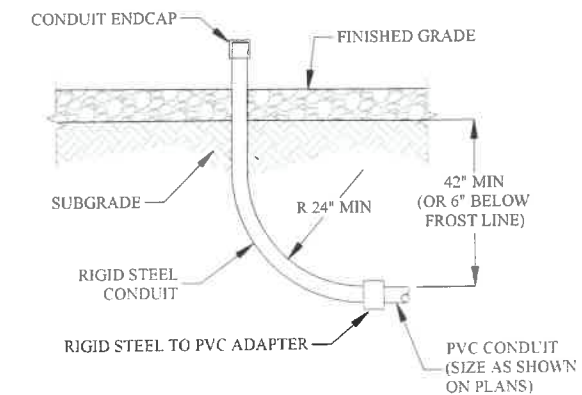
NOTES:  
 1. CONDUIT TYPE, SIZE, QUANTITY, AND SEPARATION TO BE VERIFIED WITH LOCAL UTILITY PROVIDER REQUIREMENTS

**SINGLE UTILITY TRENCH**



NOTES:  
 1. CONDUIT TYPE, SIZE, QUANTITY, AND SEPARATION TO BE VERIFIED WITH LOCAL UTILITY PROVIDER REQUIREMENTS

**CONDUIT STUB-UP**



**UTILITY STAND DETAIL**

SCALE: NTS

1



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 I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



Signature: *Michael L. Pinske* Date: 8/05/2019

MARK	DATE	DESCRIPTION
ISSUE	08/05/2019	FINAL - REV 0
PHASE		
PROJECT TITLE		

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

TI-OPP-11894-B

COMPOUND UTILITY DETAILS

SCALE: NONE

PROJECT NUMBER: 42279

SHEET NUMBER: E-2

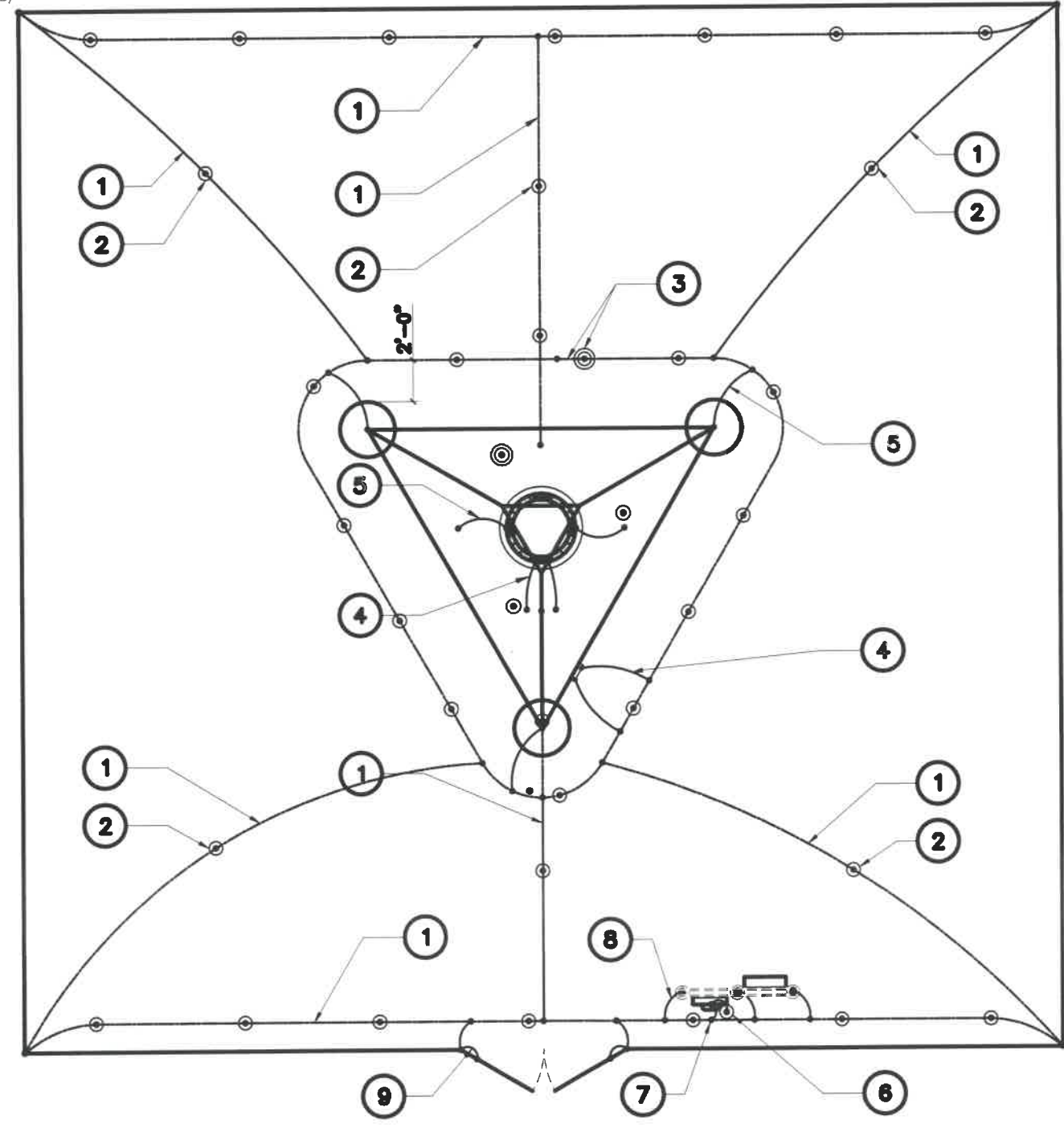
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GROUNDING LEGEND	
●	EXOTHERMIC WELD CONNECTION
■	COMPRESSION FITTING CONNECTION
○	5/8"X10" COPPER-CLAD STEEL GROUND ROD
⊙	5/8"X10" COPPER-CLAD STEEL GROUND ROD WITH INSPECTION WELL
—	PROPOSED GROUND WIRING
▭	TINNED COPPER GROUND BAR 1/4"X4"X12" OR 1/4"X4"X20"

**NOTE:**  
 SEE COMPOUND PLAN FOR COMPOUND ORIENTATION,  
 UTILITY H-FRAME, GATE AND TOWER LOCATION  
 (PLAN DEPICTS SELF SUPPORT AND MONOPOLE TOWERS)

- GROUND RING. #2 SOLID TINNED, BARE COPPER WIRE
- 5/8"Ø x 10'-0" COPPER CLAD STEEL GROUND ROD SPACED MIN. 10'-0", MAX 15'-0" APART
- GROUND SYSTEM TEST WELL
- #2 SOLID TINNED, BARE COPPER GROUND WIRE FROM LOWER TOWER GROUND BAR TO NEW GROUND RING (2 REQ'D)
- #2 SOLID TINNED, BARE COPPER GROUND WIRE FROM TOWER BASE PLATE TO NEW GROUND RING
- 5/8"Ø x 10'-0" COPPER CLAD GROUND ROD FOR ELECTRICAL SERVICE GROUND
- #2 SOLID TINNED, BARE COPPER GROUND WIRE FROM ELECTRICAL SERVICE GROUND TO LIGHTNING PROTECTION GROUND RING
- #2 SOLID TINNED, BARE COPPER GROUND WIRE. BOND UTILITY POST W/ VS TYPE CADWELD. (1 PER POST REQ'D)
- A.L.T. OR EQUAL 2/0 GROUNDING CONDUCTOR W/BLACK NEOPRENE INSULATION & PRE-CAPPED ENDS ATTACHED TO GATE POST AND GATE FRAME W/ VS TYPE EXOTHERMIC. INSTALL W/ WELDS 18" ABOVE FINISH GRADE
- IN THE EVENT A PAD/PIER FOUNDATION IS INSTALLED, THE BURIED GROUND RING SHALL BE INSTALLED A MINIMUM 2 FT. FROM THE EDGE OF CONCRETE



**COMPOUND GROUNDING PLAN**  
 SCALE: NTS



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Signature: *[Signature]* Date: 8/05/2019

MARK	DATE	DESCRIPTION

ISSUE PHASE	DATE ISSUED
FINAL - REV 0	08/05/2019

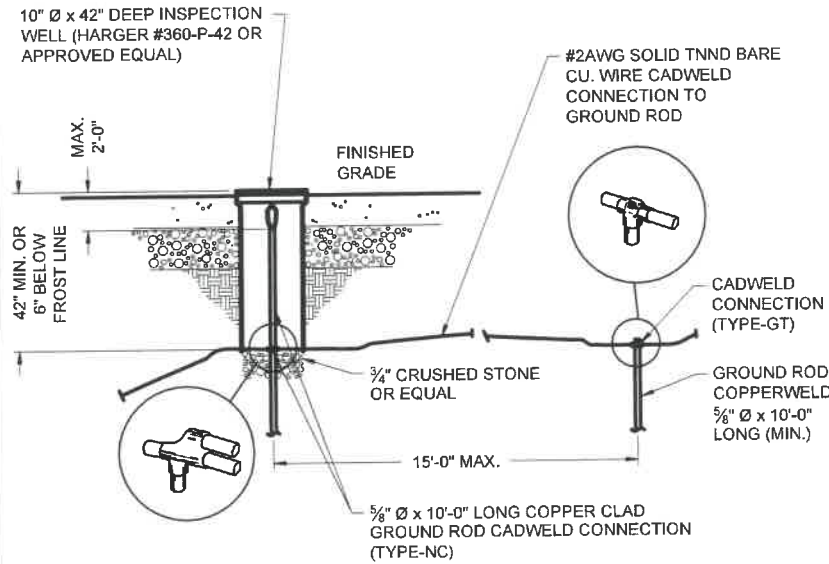
PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

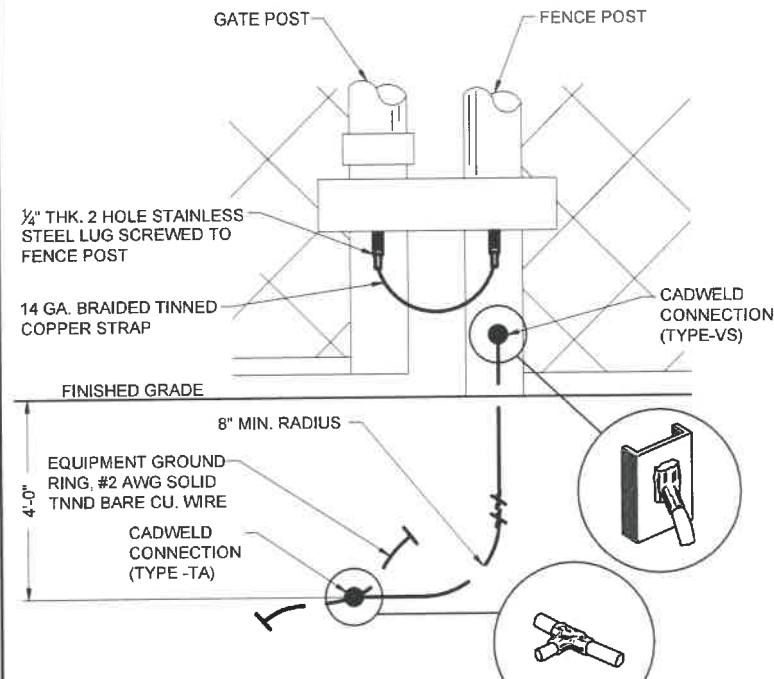
SHEET TITLE  
**TYPICAL COMPOUND GROUNDING PLAN**

SCALE: NONE

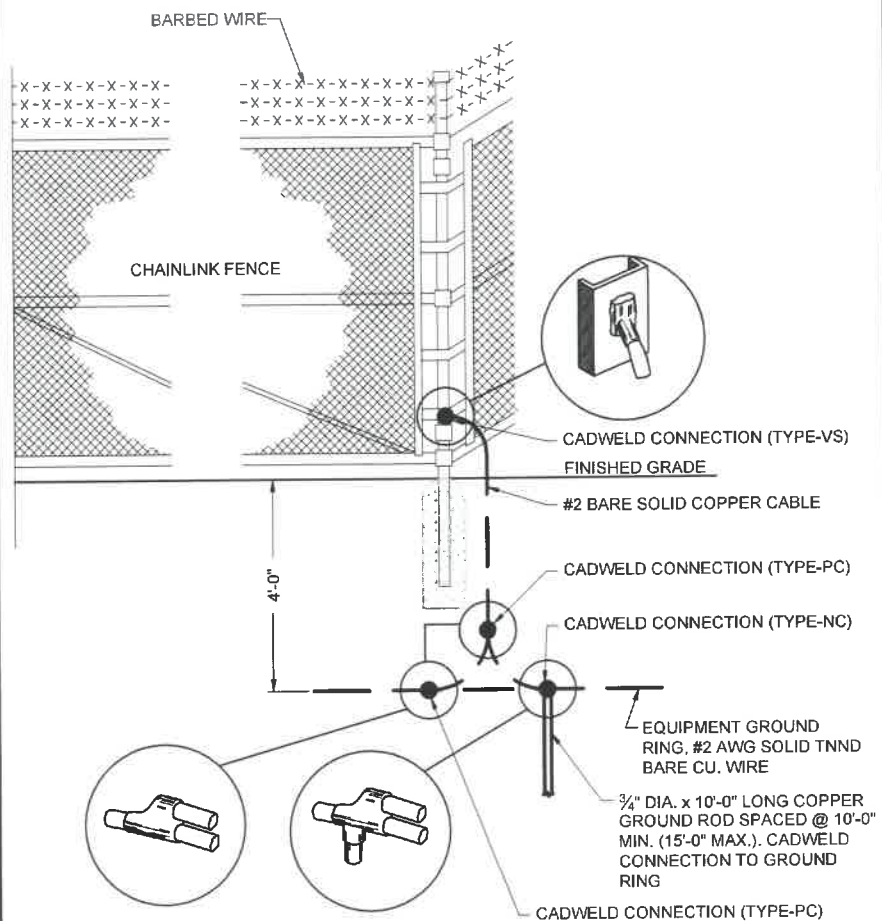
PROJECT NUMBER	42279
SHEET NUMBER	E-3



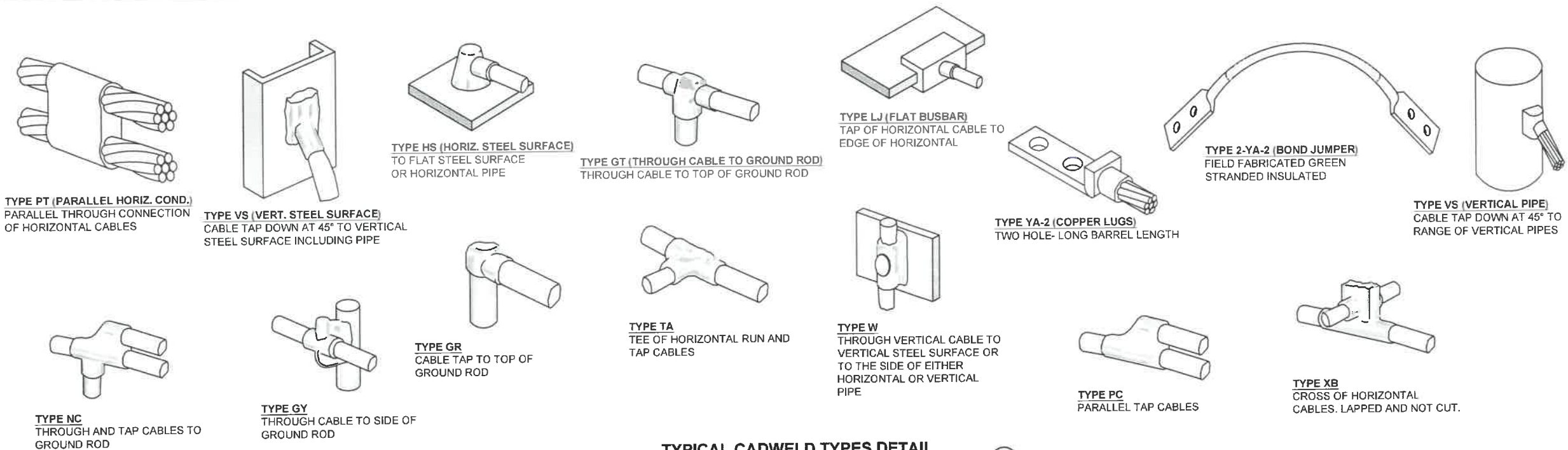
**INSPECTION WELL & GROUND ROD DETAIL**  
 SCALE: NTS



**GATE POST GROUNDING DETAIL**  
 SCALE: NTS



**FENCE CORNER POST GROUNDING DETAIL**  
 SCALE: NTS



**TYPICAL CADWELD TYPES DETAIL**  
 SCALE: NTS

*Certification & Seal*  
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Signature: *Michael L. Pinske* Date: 8/05/2019

MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL - REV 0	DATE ISSUED 08/05/2019
PROJECT TITLE		

TI-OPP-11894-B

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

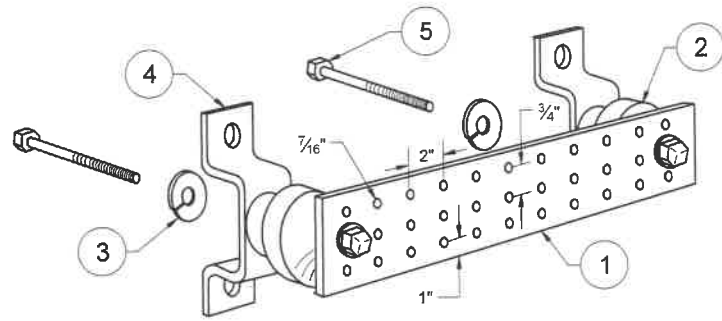
**TYPICAL GROUNDING DETAILS**

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: E-4



**NOTES:**  
 1. ALL MOUNTING HARDWARE CAN BE USED ON 6", 12", 18", ETC. GROUND BARS.  
 2. ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGB114420M.



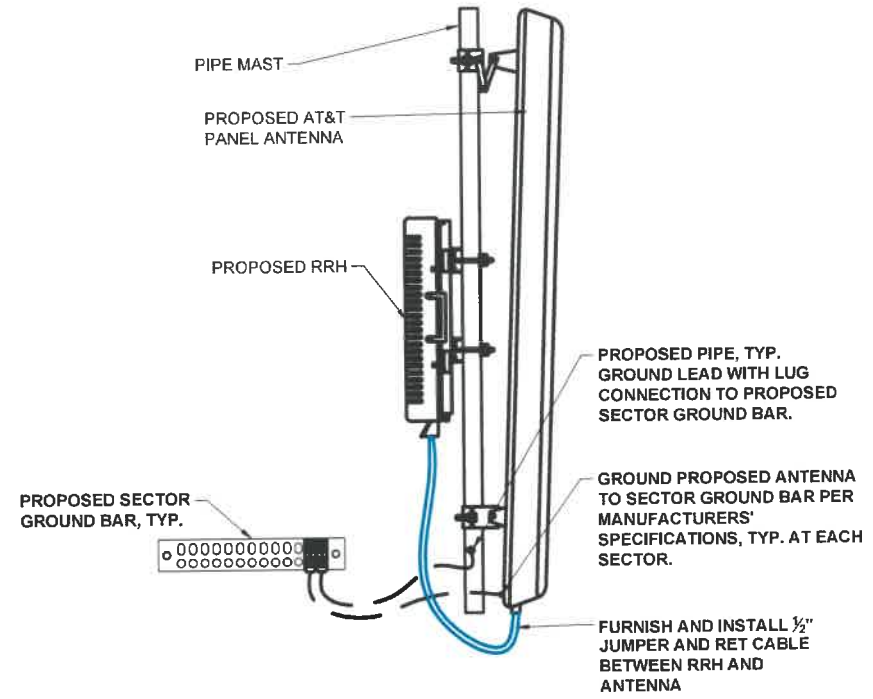
**LEGEND**

- ① TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON CO., HARGER TGB114420M, OR EQUIVALENT. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
- ② INSULATORS. INSTRUMENT CO. CAT. NO. 3061-4 OR HARGER EQUIVALENT.
- ③ 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
- ④ WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
- ⑤ 5/8" x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

**TYPICAL GROUND BAR DETAIL**

SCALE: NTS

①



**TYPICAL ANTENNA GROUNDING DETAIL**

SCALE: NTS

②

**TILLMAN**  
**INFRASTRUCTURE**

**LCC**  
**TELECOM SERVICES**

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 ROSEMONT, IL 60018  
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*Michael L. Pinske* 8/05/2019  
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ISSUE PHASE	FINAL - REV 0	DATE ISSUED 08/05/2019

PROJECT TITLE:  
**TI-OPP-11894-B**

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54852  
 CALUMET COUNTY

SHEET TITLE:  
**TYPICAL GROUNDING DETAILS**

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: E-5



**PROJECT: NEW SITE BUILD**  
**VERIZON SITE NAME: HARRISON MENASHA RELO -B**  
**VERIZON LOCATION CODE: 539685**  
**SITE ADDRESS: N8842 KASTEN ROAD**  
**HARRISON, WI 54952**  
**SITE TYPE: 180' SELF SUPPORT**



**VICINITY MAP:**



**PROJECT INFORMATION:**

**SITE ADDRESS:**  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

**SITE ACQUISITION**  
 LCC TELECOM SERVICES  
 10700 HIGGINS ROAD, SUITE 240  
 ROSEMONT, IL 60018  
 CONTACT: JOHN WALLACE  
 PHONE: (847) 608-6300

**SITE COORDINATES:**  
 LATITUDE: 44.2111203  
 LONGITUDE: -88.3271361

**A&E FIRM**  
 RAMAKER & ASSOCIATES, INC.  
 855 COMMUNITY DRIVE  
 SAUK CITY, WI 53583  
 CONTACT: JASON FRAZIER  
 EMAIL: JFRAZIER@RAMAKER.COM  
 PHONE: (608) 643-4100

**MUNICIPAL ID:**  
 BLOCK: N/A  
 PARCEL #: 131-0000-0000000-000-0-201815-00-110B  
 ZONE: N/A

**FIBER PROVIDER**  
 T.B.D.

**PROPERTY OWNER:**  
 CLAUDETTE L. DIETZ

**POWER PROVIDER**  
 T.B.D.

**APPLICANT**  
 TILLMAN INFRASTRUCTURE  
 PHONE: (646) 578-8394

**APPROVALS:**

CONSTRUCTION MANAGER:  
 SITE ACQUISITION:  
 LANDLORD:

**SHEET INDEX**

SHEET NUMBER	SHEET DESCRIPTION
VZW-1	VERIZON COVER SHEET
VZW-2	VERIZON ANTENNA CONFIGURATION
VZW-3	VERIZON ANTENNA CONFIGURATION
VZW-4	VERIZON RFDS
VZW-5	VERIZON RFDS
VZW-6	VERIZON TOWER EQUIPMENT DETAILS
VZW-7	VERIZON GROUND EQUIPMENT LAYOUT
VZW-8	VERIZON EQUIPMENT ELEVATIONS
VZW-9	VERIZON CONCRETE PAD AND ICE BRIDGE DETAILS
VZW-10	VERIZON UTILITY PLAN

Certification & Seal:  
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Signature: *Michael L. Pinske* Date: 8/05/2019

**AERIAL MAP:**



**REFERENCE DOCUMENTS:**

RFDS DESIGN DATE: 07/11/2019  
 STRUCTURAL ANALYSIS DATE: TBD  
 MOUNT ANALYSIS DATE: TBD

**CODE COMPLIANCE:**

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

- 2015 INTERNATIONAL BUILDING CODE
- INTERNATIONAL MECHANICAL CODE
- ANSI/TIA-222 STRUCTURAL STANDARD
- NFPA 780 - LIGHTNING PROTECTION CODE
- NATIONAL ELECTRICAL CODE



MARK	DATE	DESCRIPTION
ISSUE PHASE	FINAL - REV 0	DATE ISSUED 08/05/2019

PROJECT TITLE  
**TI-OPP-11894-B**

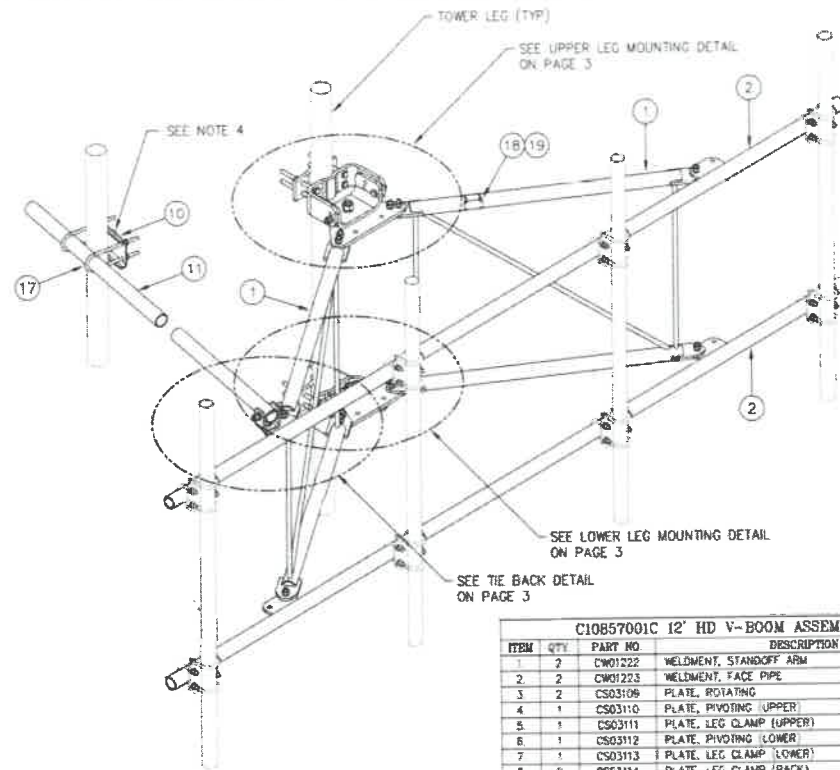
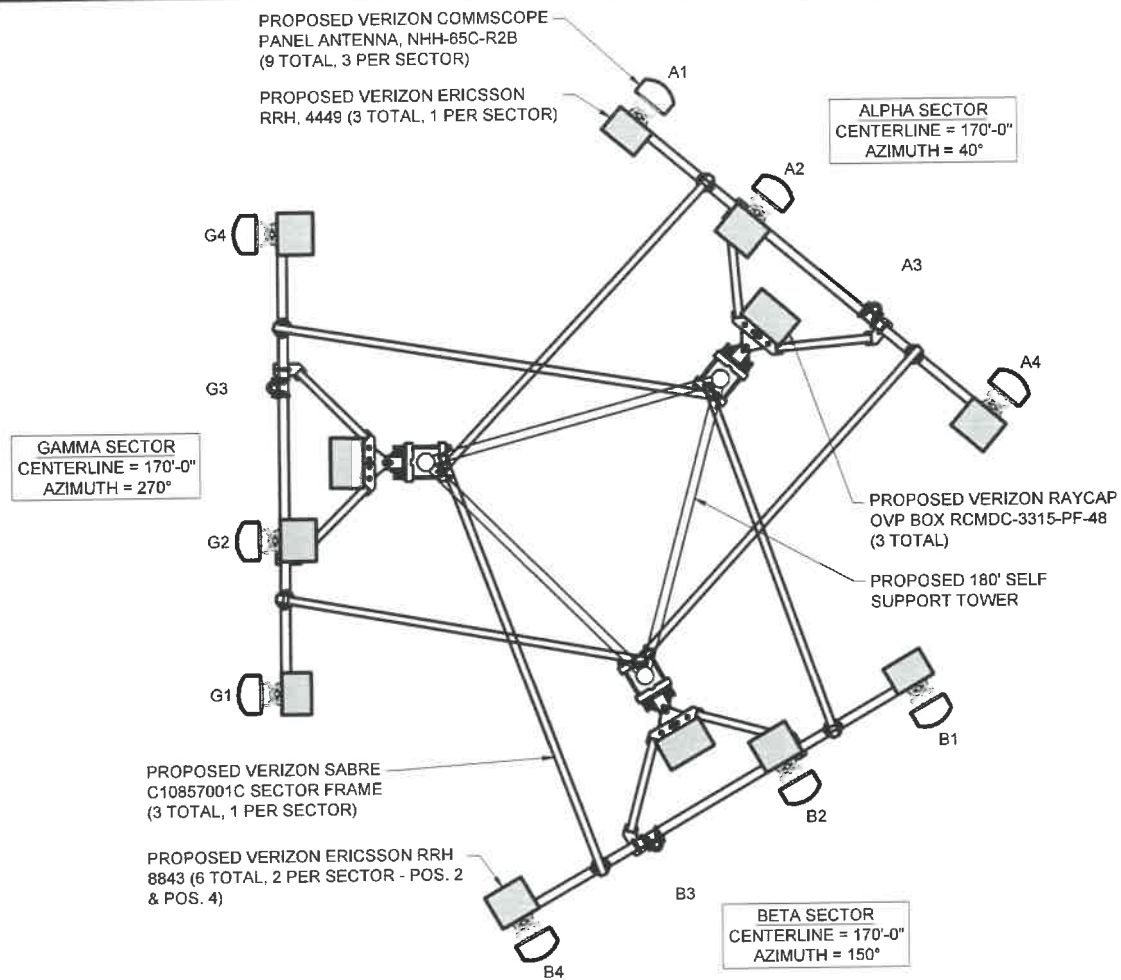
PROJECT INFORMATION  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**TITLE SHEET**

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: VZW-1





ITEM	QTY	PART NO	DESCRIPTION	WEIGHT
1	2	CW01222	WELDMENT, STANDOFF ARM	126
2	2	CW01223	WELDMENT, FACE PIPE	142
3	2	CS03109	PLATE, ROTATING	34
4	1	CS03110	PLATE, PIVOTING UPPER	16
5	1	CS03111	PLATE, LEG CLAMP (UPPER)	17
6	1	CS03112	PLATE, PIVOTING LOWER	14
7	1	CS03113	PLATE, LEG CLAMP (LOWER)	17
8	2	CS03114	PLATE, LEG CLAMP (BACK)	14
9	1	CS00098	PLATE, TIE BACK SWIVEL	3
10	1	CS03285	PLATE, TIE BACK CLAMP	4
11	1	CS03333	PIPE, TIE BACK	38
12	2	C40026073	BOLT ASSEMBLY, 1" X 3 A325	4
13	8	C40140004	BOLT ASSEMBLY, 5/8" X 8 A307	13
14	1	C40026033	BOLT ASSEMBLY, 5/8" X 4 1/2 A325	1
15	12	C40026025	BOLT ASSEMBLY, 5/8" X 2 1/2 A325	6
16	5	C40026024	BOLT ASSEMBLY, 5/8" X 2 1/4 A325	3
17	2	C40034183	U-BOLT ASSEMBLY, 1/2" X 2 9/16 C-C	3
18	1	Z30992501	MOUNT CLASSIFICATION TAG C10857001C	1
19	2	C40062103	STAINLESS STEEL SELF-LOCKING CABLE TIE	1
TOTAL WEIGHT				462

VERIZON EQUIPMENT SCHEDULE										
SECTOR	POSITION	ANTENNA MAKE/MODEL	AZIMUTH	CENTERLINE	RRH	ELEC DT	MECH DT	CABLE TYPE	CABLE LENGTH	JUMPER TYPE
ALPHA	1	COMMSCOPE / NHH-65C-R2B	40°	170°-0"	ERICSSON / 4449	6°	0°	(1) HYBRID (1-1/2")	SEE CHART BELOW	(6) 7/8"
	2	COMMSCOPE / NHH-65C-R2B	40°		ERICSSON / 8843	0°	0°	(HYBRID SHARED)		(6) 7/8"
	3	COMMSCOPE / NHH-65C-R2B	40°		ERICSSON / 8843	0°	0°	(2) COAX (1-5/8")		-
BETA	1	COMMSCOPE / NHH-65C-R2B	150°		ERICSSON / 4449	2°	0°	(1) HYBRID (1-1/2")		(6) 7/8"
	2	COMMSCOPE / NHH-65C-R2B	150°		ERICSSON / 8843	0°	0°	(HYBRID SHARED)		(6) 7/8"
	3	COMMSCOPE / NHH-65C-R2B	150°		ERICSSON / 8843	0°	0°	(2) COAX (1-5/8")		-
GAMMA	1	COMMSCOPE / NHH-65C-R2B	270°		ERICSSON / 4449	5°	0°	(1) HYBRID (1-1/2")		(6) 7/8"
	2	COMMSCOPE / NHH-65C-R2B	270°		ERICSSON / 8843	0°	0°	(HYBRID SHARED)		(6) 7/8"
	3	COMMSCOPE / NHH-65C-R2B	270°		ERICSSON / 8843	0°	0°	(2) COAX (1-5/8")		-

**PROPOSED VERIZON ANTENNA SCHEDULE**  
 SCALE: NTS

HYBRID / COAX CABLE LENGTH TO ALPHA SECTOR		HYBRID / COAX CABLE LENGTH TO BETA SECTOR		HYBRID / COAX CABLE LENGTH TO GAMMA SECTOR	
QUANTITY	1 HYBRID / 2 COAX	QUANTITY	1 HYBRID / 2 COAX	QUANTITY	1 HYBRID / 2 COAX
HORIZONTAL DISTANCE FROM PLATFORM SURGE PROTECTOR TO CABLE LADDER	±5	HORIZONTAL DISTANCE FROM PLATFORM SURGE PROTECTOR TO CABLE LADDER	±10	HORIZONTAL DISTANCE FROM PLATFORM SURGE PROTECTOR TO CABLE LADDER	±15
HORIZONTAL DISTANCE FROM EQUIPMENT TO BOTTOM OF CABLE LADDER	±15	HORIZONTAL DISTANCE FROM EQUIPMENT TO BOTTOM OF CABLE LADDER	±15	HORIZONTAL DISTANCE FROM EQUIPMENT TO BOTTOM OF CABLE LADDER	±15
APPROXIMATE VERTICAL DISTANCE	±180	APPROXIMATE VERTICAL DISTANCE	±190	APPROXIMATE VERTICAL DISTANCE	±190
TOTAL HYBRID / COAX CABLE LENGTH	±210	TOTAL HYBRID / COAX CABLE LENGTH	±215	TOTAL HYBRID / COAX CABLE LENGTH	±220

**PROPOSED VERIZON HYBRID / COAX LENGTHS**  
 SCALE: NTS

TILLMAN  
 INFRASTRUCTURE

LCC  
 TELECOM SERVICES  
 10700 HIGGINS ROAD, SUITE 240  
 ROSEMONT, IL 60018  
 OFFICE: (847) 393-4528

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Certification & Seal:  
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



Signature: *Michael L. Pinske* Date: 8/05/2019

MARK	DATE	DESCRIPTION
ISSUE	FINAL - REV 0	DATE ISSUED 08/05/2019

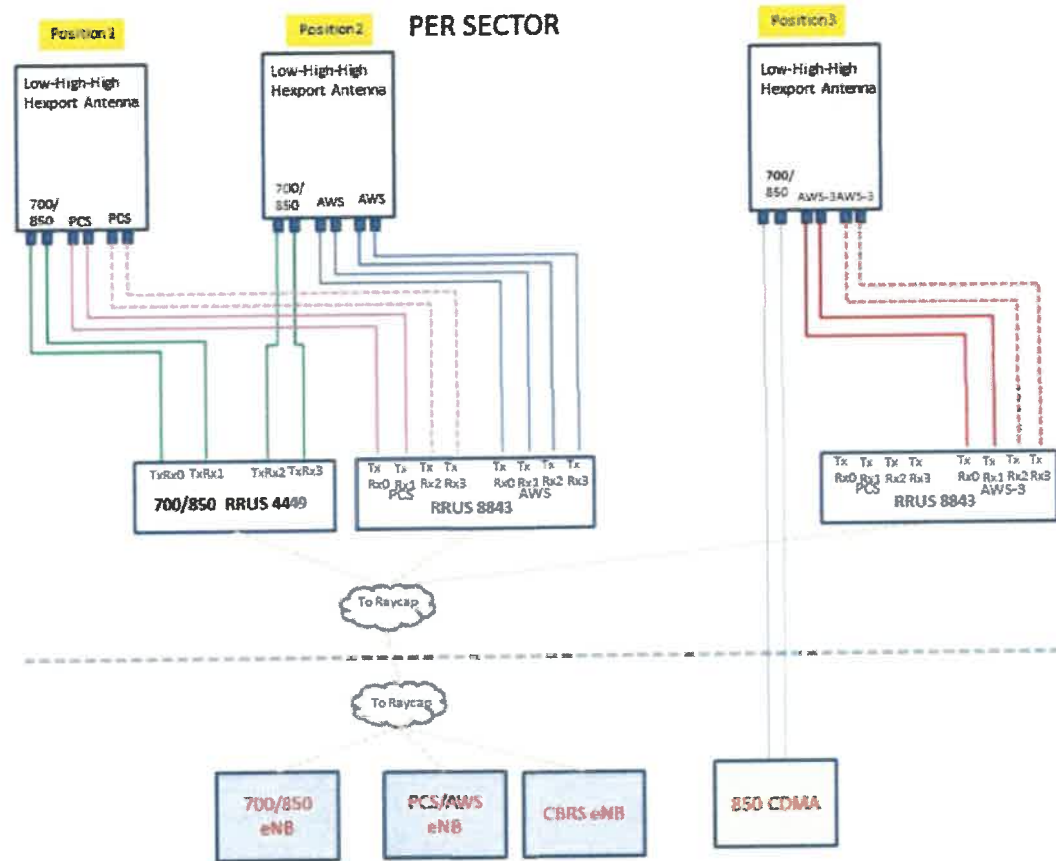
PROJECT TITLE  
 TI-OPP-11894-B

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
 VERIZON ANTENNA CONFIGURATION

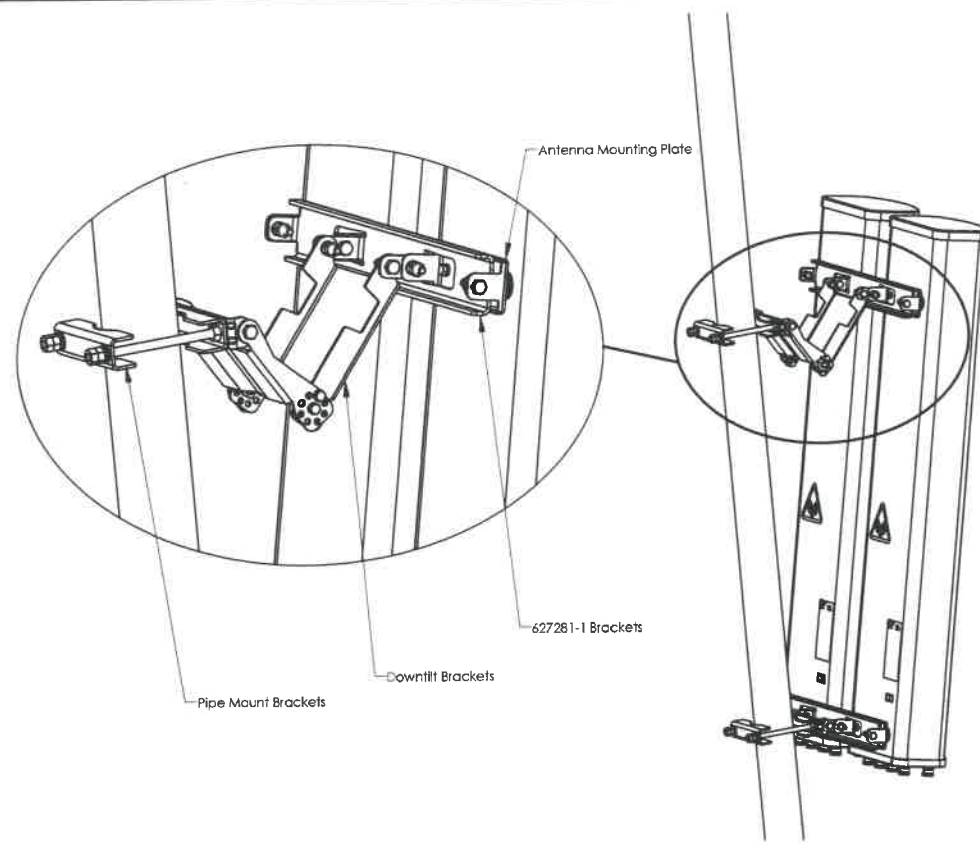
SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: VZW-2



**VERIZON PLUMBING DIAGRAM**  
 SCALE: NTS

1



Antenna Assembly Attached to Mast Using BSAMNT-SBS-1-2 Mounting Kits.

**VERIZON ANTENNA MOUNT DETAIL**

SCALE: NTS

2

Raycap Layout - Raycap Per Sector					
POWER					
3	700 RRU	6	700 RRU2/A2		
2	PCSLT RRU	5	PCSLT RRU2/A2		
1	AWS RRU	4	AWS RRU2/A2		
FIBER					
1	2	3	4	5	6
AWS RRU	AWS RRU2/A2	PCSLTE RRU	PCSLTE RRU/A2	700 RRU	700 RRU/A2
7	8	9	10	11	12

**VERIZON RAYCAP LAYOUT**

SCALE: NTS

3

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*Michael L. Pinsky* 8/05/2019  
 Signature Date

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PHASE	FINAL - REV 0	ISSUED 08/05/2019

PROJECT TITLE  
**TI-OPP-11894-B**

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 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**VERIZON ANTENNA CONFIGURATION**

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: VZW-3



Project Detail		Location Information	
Site Type		Siterra Site ID#	
Carrier Aggregation	false	Site Name	Harrison Menasha Relo - B
MPT Id		Siterra SR#	
eCIP-0	false	E-NodeB ID#	210947
Project Name	Full Relo	PSLC#	539685
RFDS Project ID	1495367	Switch Name	
Project ID	15310651	Tower Owner	
Site Traker Project ID		Tower Type	Self Support (Lattice Tower)
RFDS Project Scope		Street Address	N 8842 Kasten Rd.
		City	Harrison
		State	WI
		Zip Code	54952
		County	Calumet
		Latitude	44.210857 - 44° 12' 39.0852" N
		Longitude	-88.327202 - 88° 19' 37.9272" W

Added Antennas														
700 LTE	850 CDM A	850 LTE	1900 CDM A	1900 LTE	2100 LTE	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	QTY
YES		YES		YES	YES	COMMSCOPE	NHH-65C-R2B	170	174	40(D1),150(D2),270(D3)	false	false	PHYSICAL	6
	YES				YES	COMMSCOPE	NHH-65C-R2B	170	174	40(D1),150(D2),270(D3)	false	false	PHYSICAL	3

Removed Antennas														
700 LTE	850 CDM A	850 LTE	1900 CDM A	1900 LTE	2100 LTE	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	QTY

Retained Antennas														
700 LTE	850 CDM A	850 LTE	1900 CDM A	1900 LTE	2100 LTE	Make	Model	Centerline	Tip Height	Azimuth	RET	4xRx	Inst. Type	QTY

Added: 9      Removed: 0      Retained: 0

Added Non Antennas													
Equipment Type	700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Location	Make	Model	Cable Length	Cable Size	Inst. Type	Quantity
RRU	YES		YES				Tower	Ericsson	4449			PHYSICAL	3
RRU					YES	YES	Tower	Ericsson	8843			PHYSICAL	6
Hybrid Fiber	YES		YES		YES	YES	Tower	Andrew	HFT1206-2AS49-XXX		1.58"	PHYSICAL	3
OVP Box	YES		YES		YES	YES	Tower	Raycap	RCMDC-3315-PF-48			PHYSICAL	3
Coaxial Cables			YES				Tower				1.58"	PHYSICAL	6

Removed Non Antennas													
Equipment Type	700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Location	Make	Model	Cable Length	Cable Size	Inst. Type	Quantity

Retained Non Antennas													
Equipment Type	700 LTE	850 CDMA	850 LTE	1900 CDMA	1900 LTE	2100 LTE	Location	Make	Model	Cable Length	Cable Size	Inst. Type	Quantity

**Services**

798 MHz LTE			
Current Version:		Proposed Version:	
0002			
	D1	D2	D3
Sector	40	150	270
Azimuth	210947	210947	210947
Cell/E-Node B ID	NHH-65C-R2B-PORT 1 45-00DT-2110(1529408)	NHH-65C-R2B-PORT 1 45-00DT-0750(346339)	NHH-65C-R2B-PORT 1 45-00DT-0750(346333)
Antenna Model	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Make	170	170	170
Centerline(Ft)	0	0	0
Mechanical DT(Deg.)	0	2	5
Electrical DT	174	174	174
Tip Height			
TMA make			
TMA model			
RRU make	4449	4449	4449
RRU model	4.4	4.4	4.4
# of Tx, Rx Lines			
Position			

2186 MHz LTE			
Current Version:		Proposed Version:	
0002			
	D1	D2	D3
Sector	40	150	270
Azimuth	210947	210947	210947
Cell/E-Node B ID	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)
Antenna Model	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Make	170	170	170
Centerline(Ft)	0	0	0
Mechanical DT(Deg.)	0	0	0
Electrical DT	174	174	174
Tip Height			
TMA make			
TMA model			
RRU make	8843	8843	8843
RRU model	4.4	4.4	4.4
# of Tx, Rx Lines			
Position			

1998 MHz LTE			
Current Version:		Proposed Version:	
0002			
	D1	D2	D3
Sector	40	150	270
Azimuth	210947	210947	210947
Cell/E-Node B ID	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)
Antenna Model	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Make	170	170	170
Centerline(Ft)	0	0	0
Mechanical DT(Deg.)	0	0	0
Electrical DT	174	174	174
Tip Height			
TMA make			
TMA model			
RRU make	8843	8843	8843
RRU model	4.4	4.4	4.4
# of Tx, Rx Lines			
Position			

AWS			
Current Version:		Proposed Version:	
0002			
	D1	D2	D3
Sector	40	150	270
Azimuth	210947	210947	210947
Cell/E-Node B ID	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)	NHH-65C-R2B-PORT 3 45-00DT-2110(1529408)
Antenna Model	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Make	170	170	170
Centerline(Ft)	0	0	0
Mechanical DT(Deg.)	0	0	0
Electrical DT	174	174	174
Tip Height			
TMA make			
TMA model			
RRU make	8843	8843	8843
RRU model	4.4	4.4	4.4
# of Tx, Rx Lines			
Position			

898 MHz CDMA			
Current Version:		Proposed Version:	
0002			
	D1	D2	D3
Sector	40	150	270
Azimuth	210947	210947	210947
Cell/E-Node B ID	NHH-65C-R2B-PORT 1 45-00DT-0880(1529373)	NHH-65C-R2B-PORT 1 45-00DT-0880(1529373)	NHH-65C-R2B-PORT 1 45-00DT-0880(1529373)
Antenna Model	COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Make	170	170	170
Centerline(Ft)	0	0	0
Mechanical DT(Deg.)	0	0	0
Electrical DT	174	174	174
Tip Height			
TMA make			
TMA model			
RRU make	4449	4449	4449
RRU model	4.4	4.4	4.4
# of Tx, Rx Lines			
Position			



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*Michael L. Pinske*      8/05/2019  
 Signature      Date

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PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**VERIZON RFDS**

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: VZW-4



Current Version:		Proposed Version:		
		D1	D2	D3
Sector		40	150	270
Azimuth		219947	219947	219947
Cell/ENode B ID		NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)
Antenna Model		COMMSCOPE	COMMSCOPE	COMMSCOPE
Antenna Make		170	170	170
Centerline (ft)		0	0	0
Mechanical DT (Deg.)		6	2	5
Electrical DT		174	174	174
Tip Height				
TMA make				
TMA model				
RRU make		4449	4449	4449
RRU model		4.4	4.4	4.4
# of Tx Rx Lines				
Position				

**Callsigns Per Antenna - Proposed**

Sector	Make	Model	Centerline	Tip Height	Azimuth (T)	Elect. Tilt	Mech. Tilt	Gain	Horiz. BW	Regulatory Power	700 Callsigns	850 Callsigns	1900 Callsigns	2100 Callsigns	28 GHz Callsigns	31 GHz Callsigns	39 GHz Callsigns
D2	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	13.3 89	58.5	217.22		KNKA425					
D2	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	13.3 89	58.5	217.22		KNKA425					
D2	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	13.3 89	58.5	207.98		KNKA425					
D2	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	13.3 89	58.5	207.98		KNKA425					
D2	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	13.3 89	58.5	207.98		KNKA425					
D2	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	13.3 89	58.5	207.98		KNKA425					
D3	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	270	0	0	13.3 89	58.5	217.22		KNKA425					
D3	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	270	0	0	13.3 89	58.5	217.22		KNKA425					
D3	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	270	0	0	13.3 89	58.5	207.98		KNKA425					
D3	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	270	0	0	13.3 89	58.5	207.98		KNKA425					
D3	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	270	0	0	13.3 89	58.5	207.98		KNKA425					
D1	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	140	0	0	13.3 89	58.5	217.22		KNKA425					
D1	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	140	0	0	13.3 89	58.5	207.98		KNKA425					
D1	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	140	0	0	13.3 89	58.5	207.98		KNKA425					
D1	COMMS COPE	NHH-65C-R2B_PORT 1 45_00DT_0880 (1529373)	170ft/51.8 2m	174ft/53.0 4m	140	0	0	13.3 89	58.5	207.98		KNKA425					
D2	COMMS COPE	NHH-65C-R2B_PORT 1 45_02DT_0750 (1346343)	170ft/51.8 2m	174ft/53.0 4m	150	2	0	13.8 45	65.2	95.56	WQJQ691						
D2	COMMS COPE	NHH-65C-R2B_PORT 1 45_02DT_0750 (1346343)	170ft/51.8 2m	174ft/53.0 4m	150	2	0	13.8 48	61.2	387.16	KNKA425						

D3	COMMS COPE	NHH-65C-R2B_PORT 1 45_05DT_0750 (346355)	170ft/51.8 2m	174ft/53.0 4m	270	5	0	13.8 65	61.2	95.01	WQJQ691					
D3	COMMS COPE	NHH-65C-R2B_PORT 1 45_05DT_0850 (1529387)	170ft/51.8 2m	174ft/53.0 4m	270	5	0	13.8 85	61.2	390.02	KNKA425					
D1	COMMS COPE	NHH-65C-R2B_PORT 1 45_06DT_0750 (346359)	170ft/51.8 2m	174ft/53.0 4m	140	6	0	13.7 47	65	93.42	WQJQ691					
D1	COMMS COPE	NHH-65C-R2B_PORT 1 45_06DT_0850 (1529390)	170ft/51.8 2m	174ft/53.0 4m	140	6	0	13.6 26	61.2	385.2	KNKA425					
D2	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	15.9 21	61	168.56		KNLF240				
D2	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	15.9 21	61	168.56			WQPG211, WQQZ830			
D2	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	150	0	0	15.9 21	61	505.69			WQVN956			
D3	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	270	0	0	15.9 21	61	168.56			KNLF240			
D3	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	270	0	0	15.9 21	61	168.56			WQPG211, WQQZ830			
D3	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	270	0	0	15.9 21	61	505.69			WQVN956			
D1	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	140	0	0	15.9 21	61	168.56			KNLF240			
D1	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	140	0	0	15.9 21	61	168.56			WQPG211, WQQZ830			
D1	COMMS COPE	NHH-65C-R2B_PORT 3 45_00DT_2110 (1529408)	170ft/51.8 2m	174ft/53.0 4m	140	0	0	15.9 21	61	505.69			WQVN956			

**Callsigns**

Callsigns	Market	Radio Code	Market Number	Block	State	County	Licensee Name	Wholly Owned	Total MHz	Freq Range 1	Freq Range 2	Freq Range 3	Freq Range 4	Regulatory Power	Thresh (W)	POPs/Sq Mi	Status	Project Action
KNKA425	Appleton-Oshkosh-Neenah, WI	CL	CM41 25	B	WI	Calumet	Altel Corporation	Yes	25,000	835.000-845.000	880.000-890.000	846.500-849.000	891.500-894.000	390.02	100	153.9	Active	Added
KNLF240	Milwaukee	CH	MT40 20	B	WI	Calumet	Celco Partnership	Yes	30,000	1870.000-1885.000	1950.000-1965.000	000.000-000.000	000.000-000.000	168.56	1640	153.9	Active	Added
WQJQ691	Great Lakes	WU	RE40 03	C	WI	Calumet	Celco Partnership	Yes	22,000	746.000-757.000	776.000-787.000	000.000-000.000	000.000-000.000	95.56	1000	153.9	Active	Added
WQPG211	Appleton-Oshkosh-Neenah, WI	AW	BE40 60	B	WI	Calumet	Celco Partnership	Yes	20,000	1720.000-1730.000	2120.000-2130.000	000.000-000.000	000.000-000.000	168.56	1640	153.9	Active	Added
WQQZ830	Appleton-Oshkosh-Neenah, WI	AW	BE40 60	C	WI	Calumet	Celco Partnership	Yes	10,000	1730.000-1735.000	2130.000-2135.000	000.000-000.000	000.000-000.000	168.56	1640	153.9	Active	Added
WQVN956	Appleton-Oshkosh-Neenah, WI	AT	BE40 60	H	WI	Calumet	Celco Partnership	Yes	5,000	000.000-000.000	2160.000-2165.000	000.000-000.000	000.000-000.000	505.69	1640	153.9	Active	Added
WRBE268	Appleton, WI	UU	PEA15 5	4-A	WI	Calumet	Straight Path Spectrum, LLC	Yes	50,000	38750.000-38800.000	000.000-000.000	000.000-000.000	000.000-000.000			.0	Active	
WRBE269	Appleton, WI	UU	PEA15 5	4-B	WI	Calumet	Straight Path Spectrum, LLC	Yes	50,000	39450.000-39500.000	000.000-000.000	000.000-000.000	000.000-000.000			.0	Active	
WRBF578	Appleton, WI	UU	PEA15 5	9-A	WI	Calumet	Straight Path Spectrum, LLC	Yes	50,000	39000.000-39050.000	000.000-000.000	000.000-000.000	000.000-000.000			.0	Active	
WRBF579	Appleton, WI	UU	PEA15 5	9-B	WI	Calumet	Straight Path Spectrum, LLC	Yes	50,000	39700.000-39750.000	000.000-000.000	000.000-000.000	000.000-000.000			.0	Active	
WRBH778	Appleton, WI	UU	PEA15 5	12-A	WI	Calumet	Straight Path Spectrum, LLC	Yes	50,000	39150.000-39200.000	000.000-000.000	000.000-000.000	000.000-000.000			.0	Active	
WRBH779	Appleton, WI	UU	PEA15 5	12-B	WI	Calumet	Straight Path Spectrum, LLC	Yes	50,000	39850.000-39900.000	000.000-000.000	000.000-000.000	000.000-000.000			.0	Active	



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Certification # 561  
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Signature: *Michael L. Pinsky* Date: 8/05/2019

MARK DATE DESCRIPTION  
 ISSUE PHASE FINAL - REV 0 DATE ISSUED 08/05/2019

PROJECT TITLE

TI-OPP-11894-B

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 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

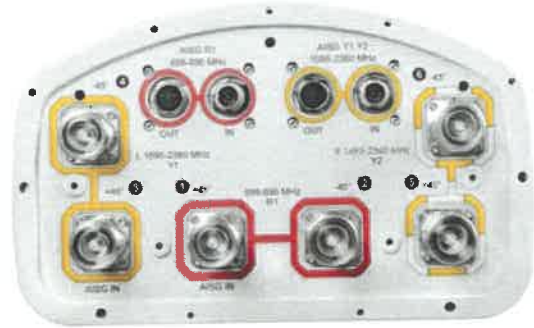
SHEET TITLE

VERIZON RFDS

SCALE: NONE

PROJECT NUMBER 42279  
 SHEET NUMBER VZW-5





COMMSCOPE PANEL ANTENNA  
 MODEL NUMBER: NHH-65C-R2B  
 96.00" (LENGTH) X 11.90" (WIDTH) X 7.10" (DEPTH)  
 WEIGHT: 51.60 LBS.

**COMMSCOPE NHH-65C-R2B PANEL ANTENNA** ①  
 SCALE: NTS



ERICSSON RRH  
 MODEL NUMBER: 8843  
 28.00" (LENGTH) X 15.00" (WIDTH) X 10.00" (DEPTH)  
 WEIGHT: 85.00 LBS.

**ERICSSON 8843 RRH** ②  
 SCALE: NTS



ERICSSON RRH  
 MODEL NUMBER: 4449  
 17.91" (LENGTH) X 13.19" (WIDTH) X 9.45" (DEPTH)  
 WEIGHT: 70.56 LBS.

**ERICSSON 4449 RRH** ③  
 SCALE: NTS



**RAYCAP RCMDC-3315-PF-48 OVP BOX** ④  
 SCALE: NTS

TILLMAN  
 INFRASTRUCTURE

**LCC**  
**TELECOM SERVICES**  
 10700 HIGGINS ROAD, SUITE 240  
 ROSEMONT, IL 60018  
 OFFICE: (847) 393-4528

**RAMAKER & ASSOCIATES, INC.**  
 100% EMPLOYEE-OWNED  
 855 Community Dr, Sauk City, WI 53583  
 608-643-4100 www.Ramaker.com  
 Sauk City, WI • Willmar, MN  
 Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:  
 I hereby certify that this plan, specification or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



*Michael L. Pinske* 8/05/2019  
 Signature: Date:

MARK	DATE	DESCRIPTION

ISSUE DATE 08/05/2019  
 PHASE FINAL - REV 0 DATE ISSUED

PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**VERIZON TOWER  
 EQUIPMENT DETAILS**

SCALE: NONE

PROJECT NUMBER 42279  
 SHEET NUMBER VZW-6



TILLMAN  
 INFRASTRUCTURE

**LCC**  
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*Michael L. Pinske* 8/05/2019  
 Signature Date

MARK	DATE	DESCRIPTION	DATE ISSUED
ISSUE PHASE	FINAL - REV 0		08/05/2019

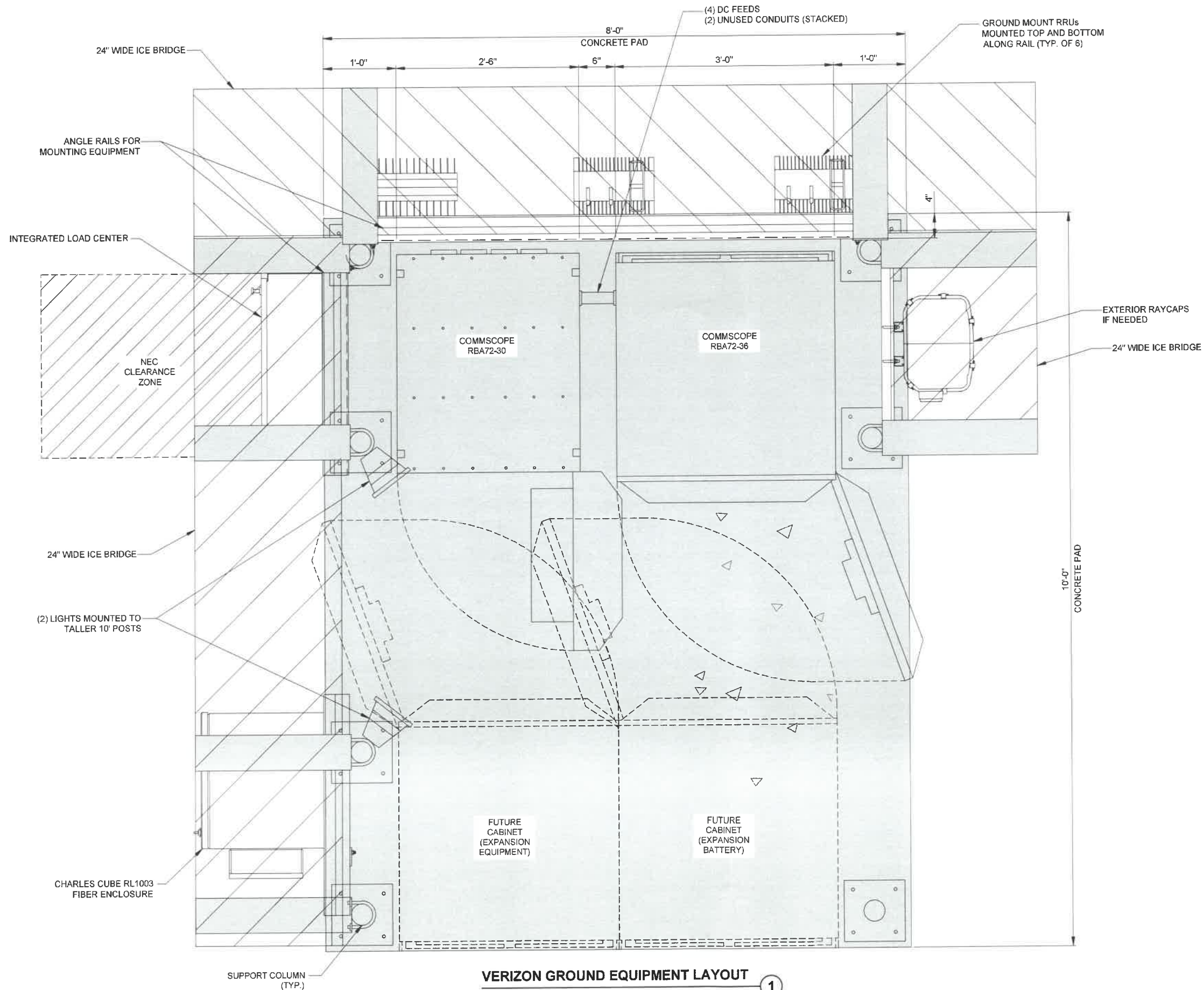
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**TI-OPP-11894-B**

PROJECT INFORMATION  
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 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**VERIZON GROUND EQUIPMENT LAYOUT**

SCALE: NONE

PROJECT NUMBER 42279  
 SHEET NUMBER VZW-7

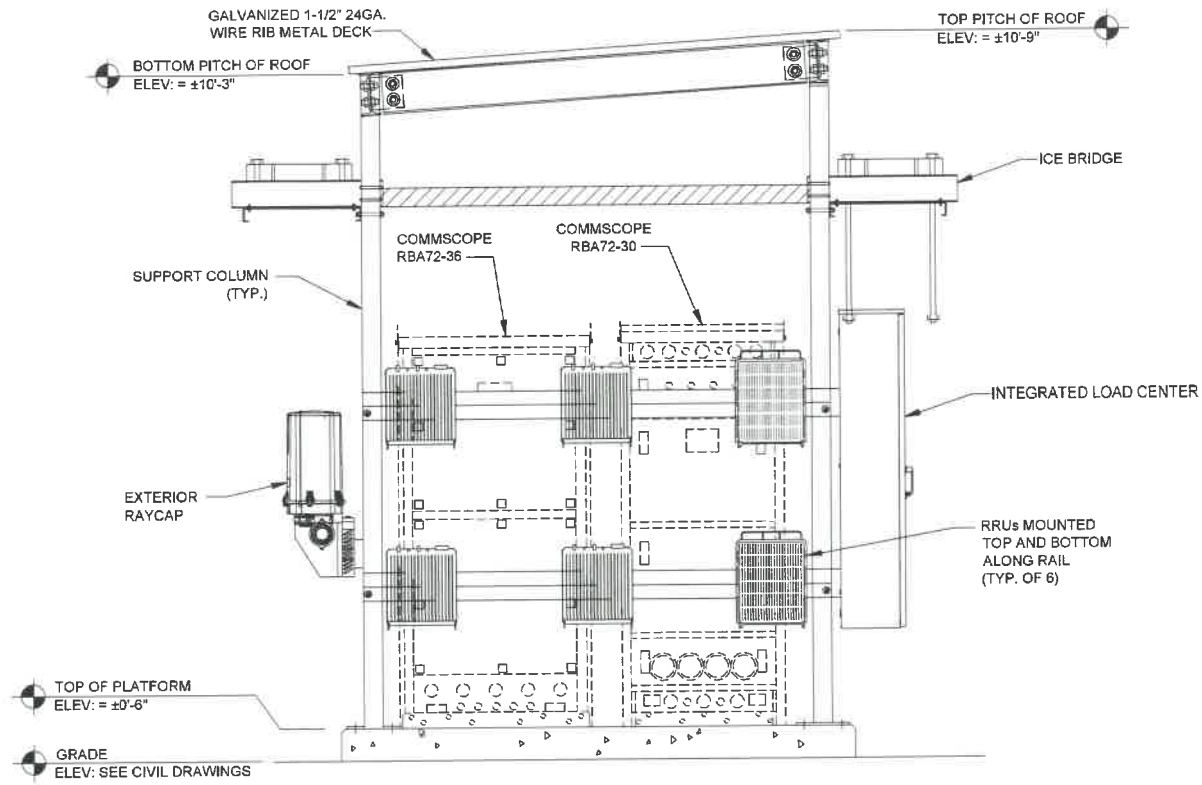
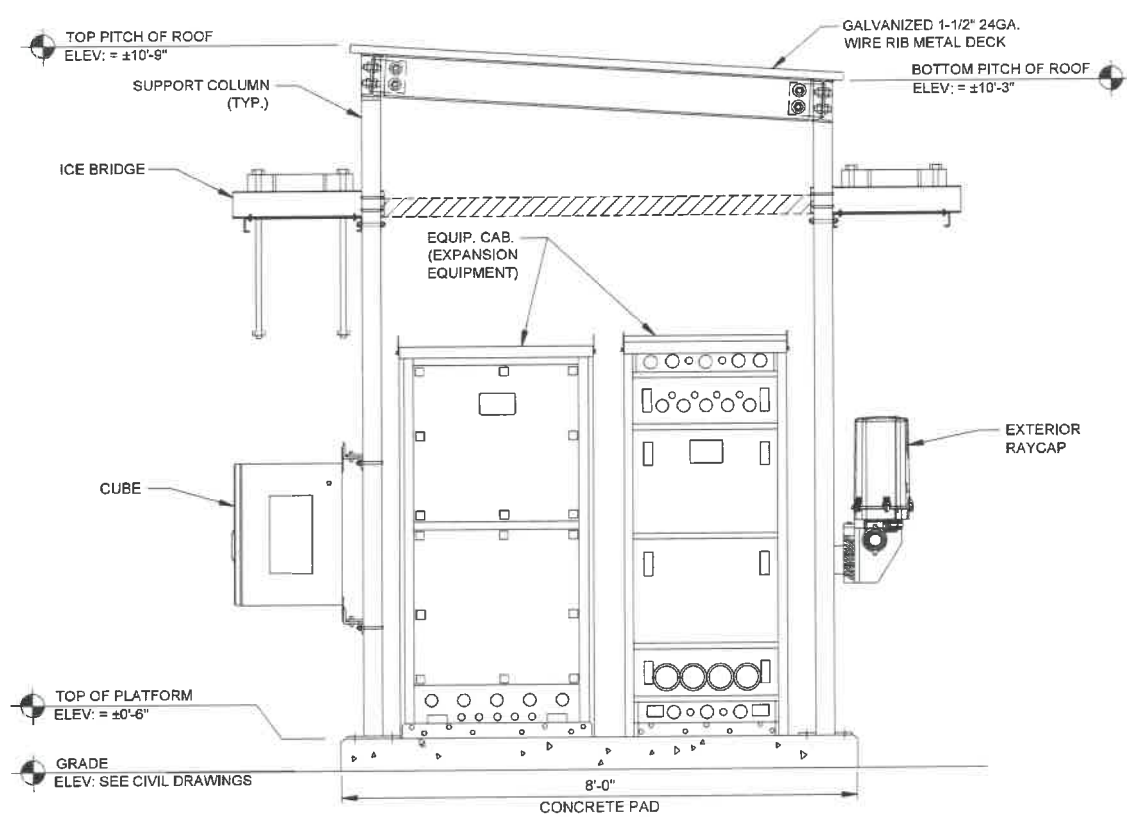


**VERIZON GROUND EQUIPMENT LAYOUT**

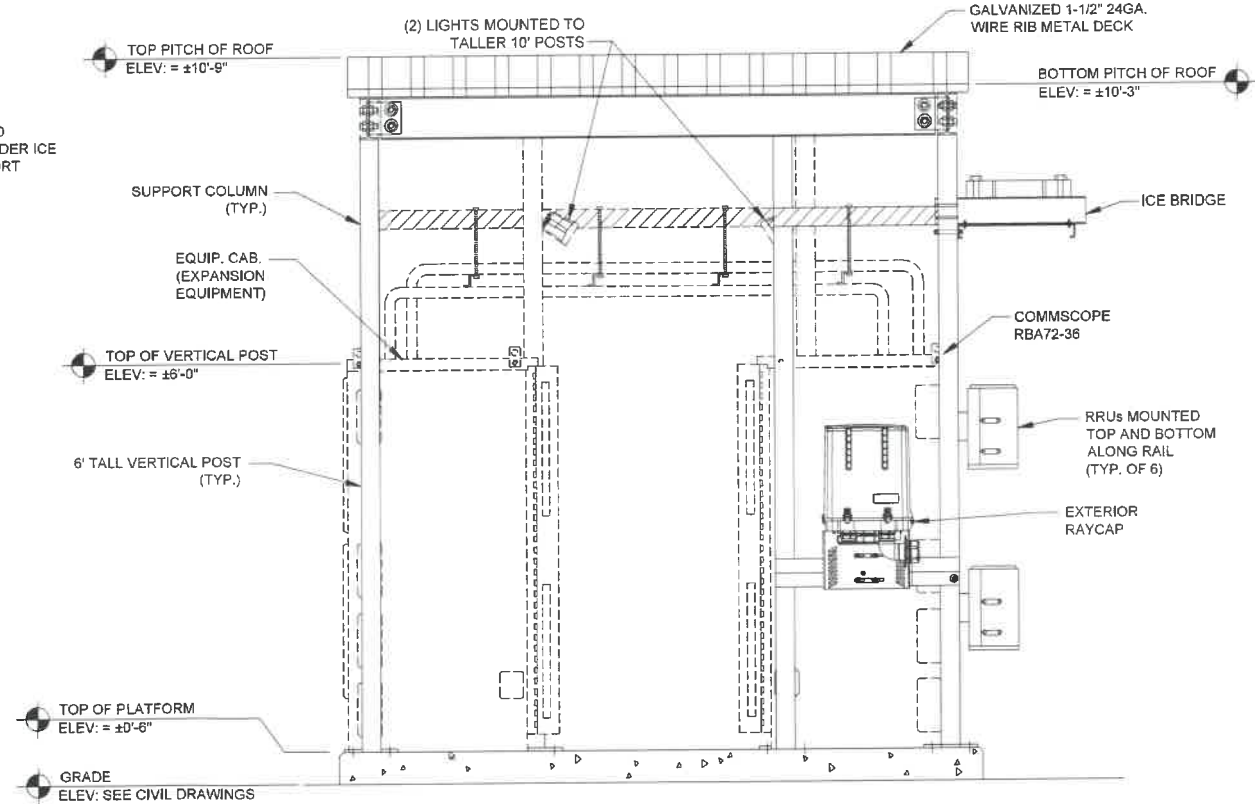
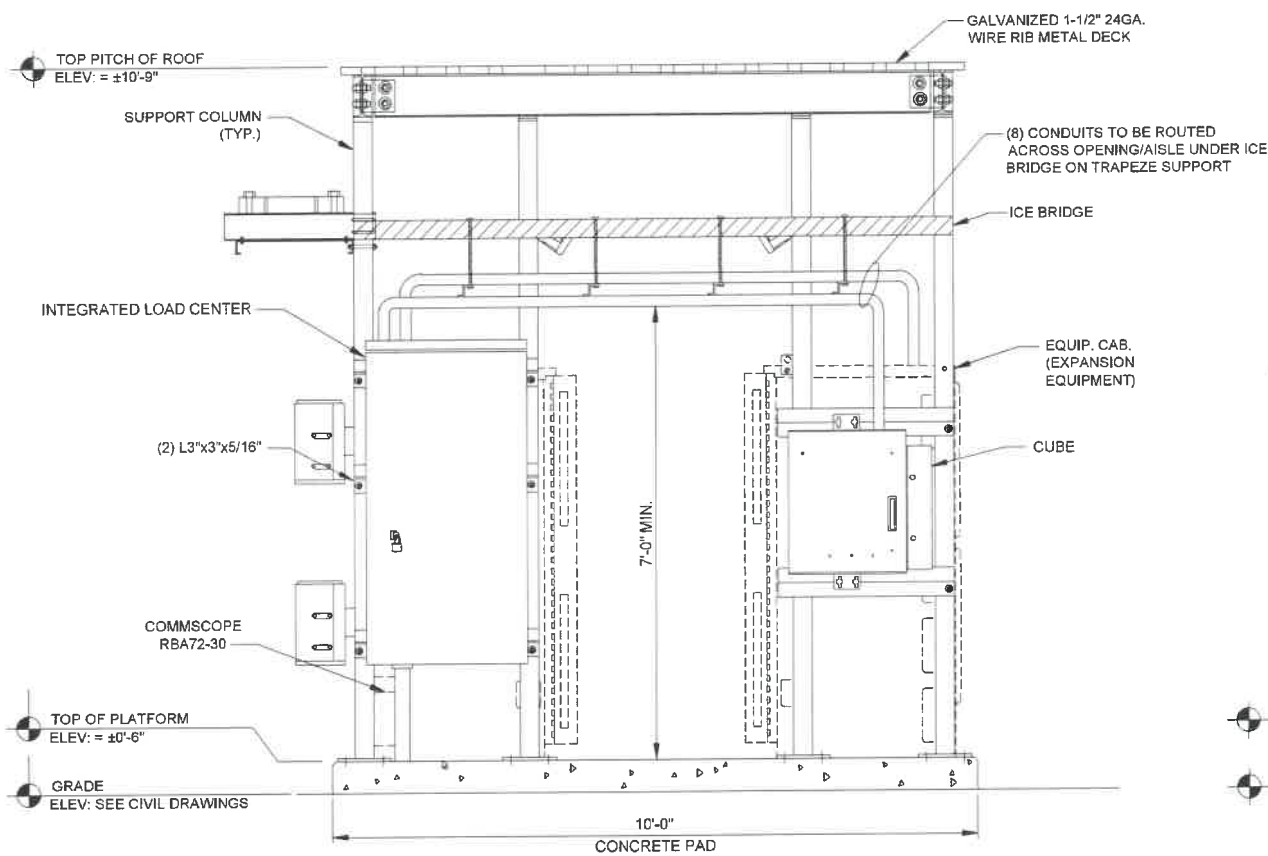
SCALE: NTS

1





CANOPY NOTE:  
 ELEVATIONS PROVIDED FOR CONVENIENCE.  
 CANOPY PROVIDED AS KIT BY SABRE, SABRE  
 DRAWING #: Z30199033 .VERIZON WIRELESS  
 CONTRACTOR IS TO SUPPLY CANOPY



**VERIZON GROUND EQUIPMENT ELEVATION**  
 SCALE: NTS

Certification & Seal:  
 I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Wisconsin.



Signature: *Michael L. Pinske* Date: 8/05/2019

MARK	DATE	DESCRIPTION
ISSUE	FINAL - REV 0	DATE ISSUED 08/05/2019

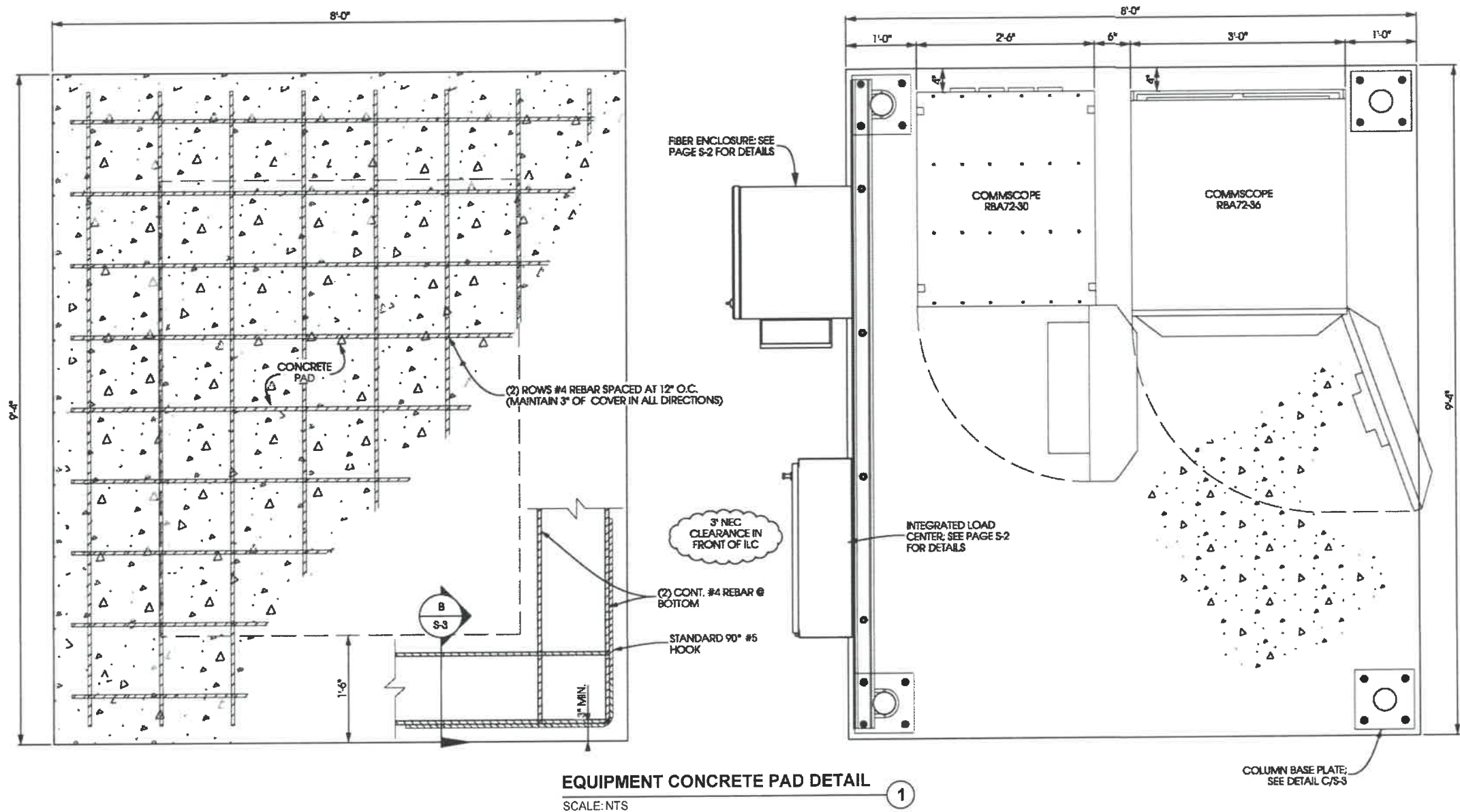
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**TI-OPP-11894-B**

PROJECT INFORMATION  
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 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

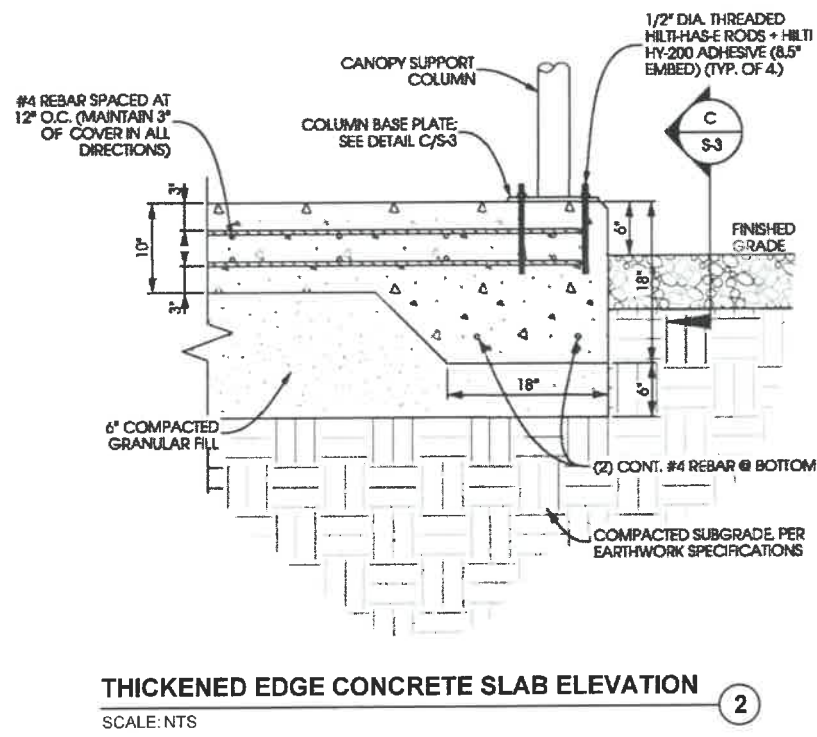
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SCALE: NONE

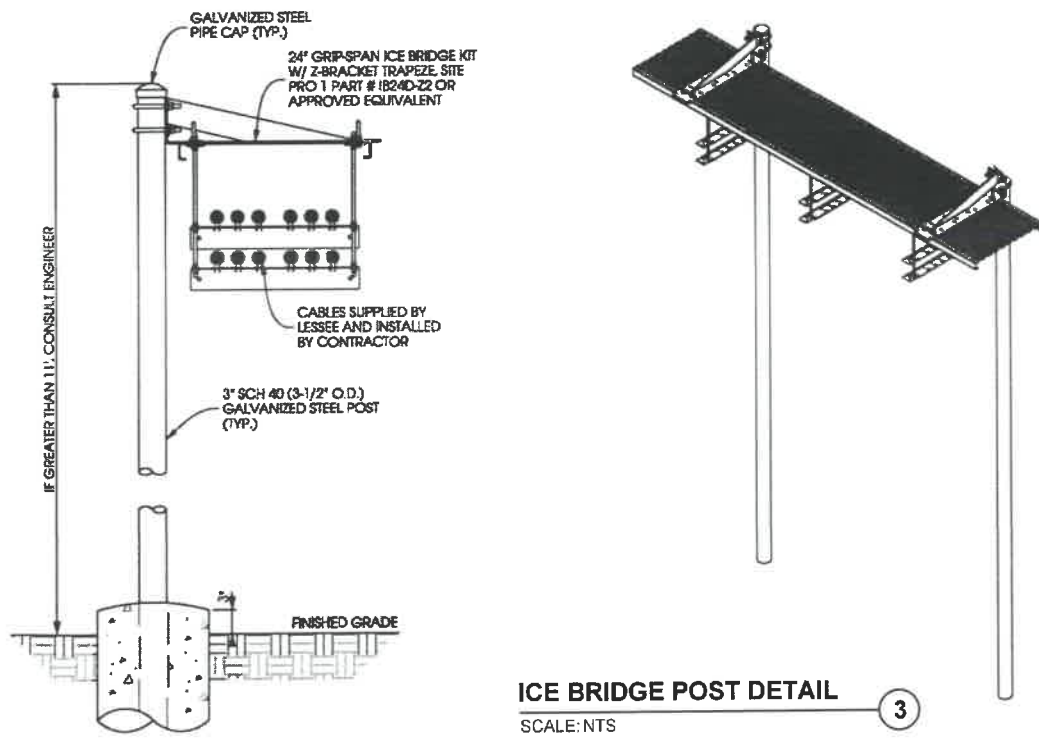
PROJECT NUMBER: 42279  
 SHEET NUMBER: VZW-8



**EQUIPMENT CONCRETE PAD DETAIL**  
 SCALE: NTS



**THICKENED EDGE CONCRETE SLAB ELEVATION**  
 SCALE: NTS



**ICE BRIDGE POST DETAIL**  
 SCALE: NTS

**TILLMAN**  
**INFRASTRUCTURE**

**LCC**  
**TELECOM SERVICES**

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 ROSEMONT, IL 60018  
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Signature: *Michael L. Pinske* Date: 8/05/2019

MARK	DATE	DESCRIPTION
ISSUE	FINAL - REV 0	DATE ISSUED 08/05/2019

PROJECT TITLE  
**TI-OPP-11894-B**

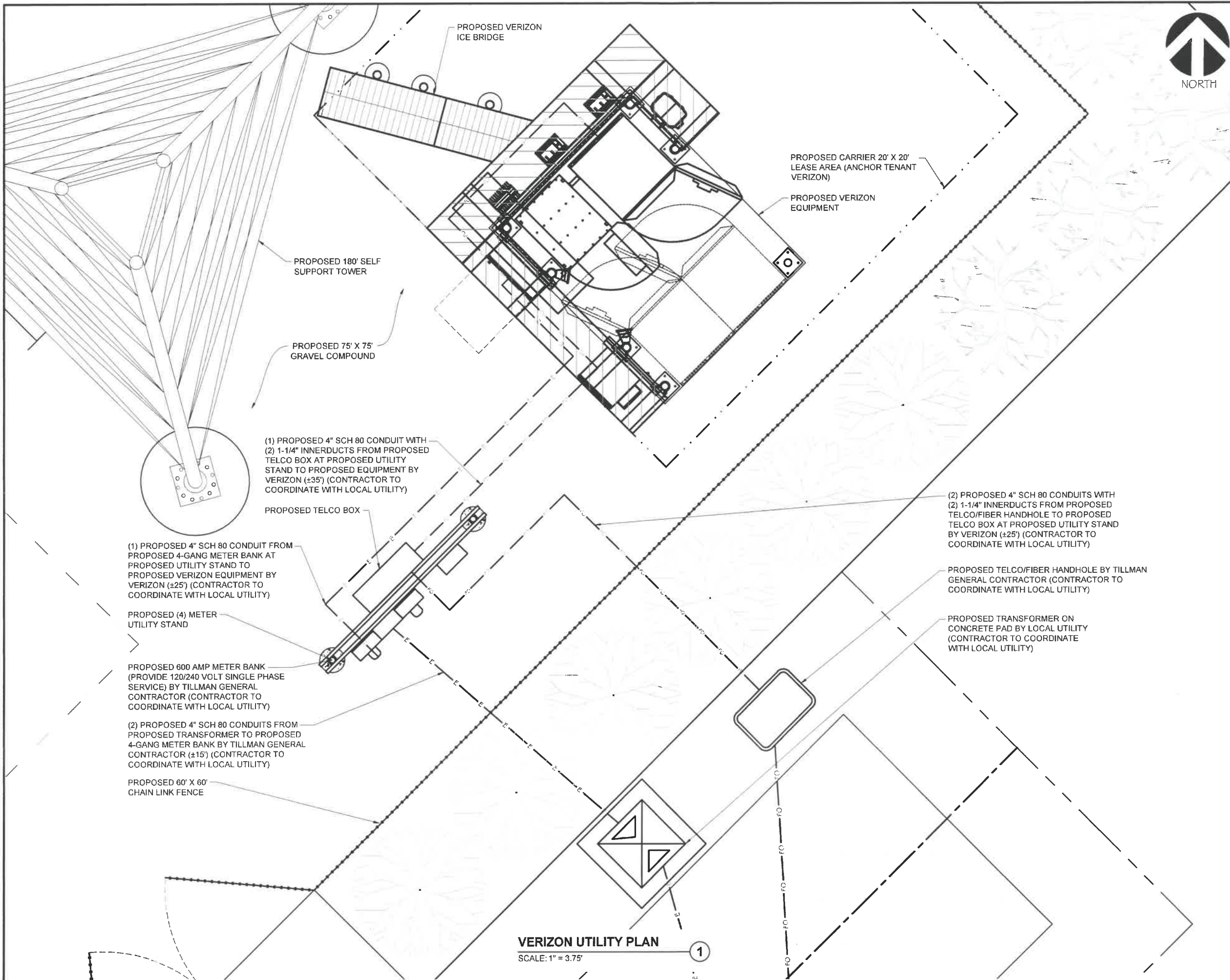
PROJECT INFORMATION:  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY

SHEET TITLE  
**VERIZON CONCRETE PAD & ICE BRIDGE DETAILS**

SCALE: NONE

PROJECT NUMBER: 42279  
 SHEET NUMBER: VZW-9





**TILLMAN**  
**INFRASTRUCTURE**

**LCC**  
**TELECOM SERVICES**

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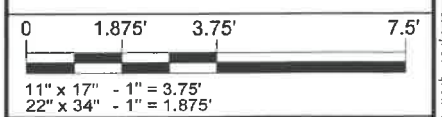
*Michael L. Pinske* 8/05/2019  
 Signature Date

MARK	DATE	DESCRIPTION
ISSUE	FINAL - REV 0	DATE ISSUED 08/05/2019

PROJECT TITLE  
**TI-OPP-11894-B**

PROJECT INFORMATION  
 131-0000-0000000-000-0-201815-00-110B  
 N8842 KASTEN ROAD  
 HARRISON, WI 54952  
 CALUMET COUNTY  
 SHEET TITLE:

**VERIZON UTILITY PLAN**



**VERIZON UTILITY PLAN**  
 SCALE: 1" = 3.75'

1

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**PLAN COMMISSION MEETING**

**From:**

Mark J. Mommaerts, AICP, Planner

---

**VILLAGE OF HARRISON**

**Meeting Date:**

November 26, 2019

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**Title:**

Preliminary Plat for Kimberly Heights 4

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**Issue:**

Should the Plan Commission recommend approval of the Preliminary Plat for Kimberly Heights 4?

---

**Background and Additional Information:**

**Overview:**

The developers, Dercks DeWitt LLC, have submitted a preliminary plat for Kimberly Heights 4, a 37-lot subdivision. This subdivision is located along Schmidt Road, east of County N. The property is currently zoned Single-Family Residential (Suburban) [RS-1] which is consistent with the rest of the subdivision. This is phase 4 of the Kimberly Heights subdivision. Stormwater management is expected to be accomplished through a combination of using the Van's Road regional stormwater pond (off-site), other detention ponds within the subdivision may be required during the stormwater management plan review. There is a 50-foot strip of land designated Outlot 2 (OL 2). Outlot 2 is for future access to a future lot in the southeast corner to the subdivision. Access is planned for this route due to Schmidt Road being an access controlled roadway. A sewer and water easement between lots 146 & 147 is identified to extend utilities to the existing home and for a future home.

---

**Recommended Action:**

Staff recommends conditional approval of the Preliminary Plat of Kimberly Heights with the following conditions:

1. Please provide a proposed Drainage and Grading Plan and a Utility Plan for verification of the appropriate sizing and location for all easements.
2. The existing property on Schmidt Road appears to drain into the proposed subdivision near Lots 145-148. Please ensure that the Drainage and Grading Plan accounts for drainage from neighboring properties. A private drainage easement will be required for any offsite drainage that is routed through the subdivision from private properties.
3. Please provide storm sewer sizing calculations to ensure that storm water can be conveyed to the regional detention facility for treatment.

4. If driveways for Lots 115 and 151 are to be installed off of Schreiber Lane extended, a temporary cul-de-sac will be required at the end of the road. If a temporary cul-de-sac is required, please show a temporary cul-de-sac easement to encompass the entirety of the cul-de-sac bulb.
5. The Final Plat shall include the statement, "No improvements are allowed within the areas reserved for public utility and drainage easements. Improvements include, but are not limited to, building structures, driveways, parking areas, sheds, landscaping or fences. Any improvement shall be allowed only by special exception of the Village of Harrison Zoning Administrator."
6. Erosion Control Silt Fence shall be installed, in accordance with State Specifications, along the right-of-way line of all streets prior to roadway acceptance.
7. All lots shall have a storm sewer lateral provided for sump pump discharge.
8. All drainageways, drainage easement, and associated infrastructure shall be installed, graded and seeded prior to roadway acceptance.
9. All utilities, including but not limited to, sanitary sewer, water, storm sewer, gas, electric, cable, phone, shall be installed prior to roadway acceptance.
10. The Village Board shall accept the roadway in a graveled state prior to issuance of building permits and zoning permits.
11. All other improvements, including but not limited to, curb & gutter, concrete paving, sidewalks, shall be installed prior to issuance of building permits or zoning permits, unless the Village Board approves a Subdivision Development Agreement to allow for improvements to be installed at a later date.
12. All review comments from the Village staff shall be included in the Plan Commission discussion and decision.
13. Typical Street Section to be in accordance with the Village of Harrison Standard Specifications Manual for Concrete Streets.
14. High-back, integral concrete curb shall be utilized rather than the mountable curb.
15. If applicable, wetland determinations and/or studies shall be provided to the Village.
16. Location of all sidewalk curb ramps shall be approved by Harrison staff.
17. Final utility and street plans shall be reviewed and approved by the Village prior to approval of the Final Plat and prior to utility and street construction.
18. Benchmarks shall be established on all hydrant tag bolts.
19. All environmental corridors shall be clearly identified and setback lines to be indicated.
20. Grading/Drainage Plan shall identify elevations of ground at the foundation.

---

**Attachments:**

- Preliminary Plat
- Aerial Map



# Calumet County, WI

## Legend

- Address Point
- County Boundary
- Wisconsin Water
- Unincorporated Community
- Town Boundary
- Point of Interest
- Parcel Boundary
- Property Hook
- PLSS Section
- State Parks
- County Parks
- Lake
- River and Stream
- Major Roads
- Local Roads
- Municipal Streets
- Trail
- Railroad

- Color 2018
- Red: Band\_1
  - Green: Band\_2
  - Blue: Band\_3



**DISCLAIMER:** This map is not guaranteed to be accurate, correct, current, or complete and conclusions drawn are the responsibility of the user.

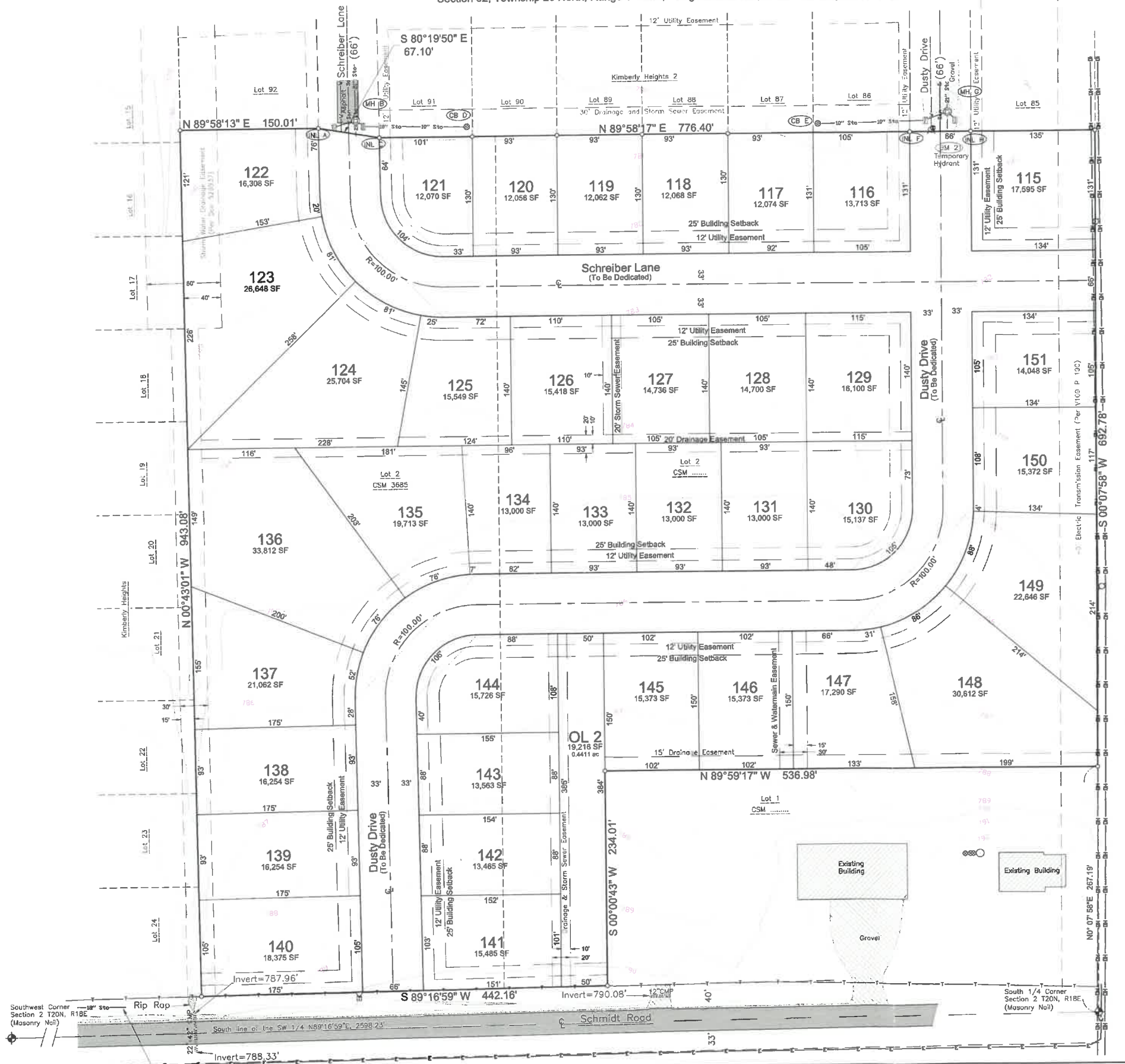
Author: Date Printed: 11/19/18 12:22 PM Source:	
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# Preliminary Plat of Kimberly Heights 4

All of Lot 2 Certified Survey Map 3685 and all of Lot 2 Certified Survey Map \_\_\_\_\_, located in part of the Southeast 1/4 of the Southwest 1/4 of Section 02, Township 20 North, Range 18 East, Village of Harrison, Calumet County, Wisconsin.



Storm Structures						
Structure #	Rim	Invt	Size	Material	Direction	
INL A	780.88	776.38	10"	PVC	E	
MH B	781.19	768.79	21"	RCP	N	
		768.79	21"	RCP	S	
		772.79	12"	PVC	SE	
INL C	780.84	773.19	12"	PVC	NW	
		773.29	10"	PVC	E	
CB D	778.49	774.49	10"	PVC	W	
CB E	778.56	774.76	10"	PVC	E	
INL F	780.82	773.42	12"	PVC	W	
		773.22	10"	PVC	E	
MH G	781.00	771.10	21"	RCP	N	
		771.10	21"	RCP	S	
		772.80	12"	PVC	SW	
		776.90	8"	PVC	SE	
INL H	780.73	777.13	8"	PVC	NW	



**BENCHMARKS (NAVD88)**

BM 0	Disk in Concrete (DE7729) N. R/W of Schmidt Rd. Elev 791.73
BM 10	Fire Hydrant, Tag Bolt Between Lot 88 & 89, Hoelzel Way R/W Elev 781.98'
BM 11	Fire Hydrant, Tag Bolt NE Corner Lot 86, Int Hoelzel Way & Dusty Drive Elev 783.16'
BM 21	Fire Hydrant, Tag Bolt (Temporary Hydrant) End of Stub Road @ Dusty Drive Elev 783.29'

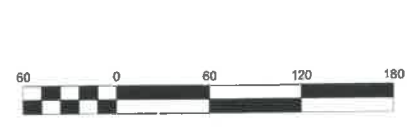
**SUPPLEMENTARY DATA**

Total Area = 790,752 SF 18.1532 acres  
 R/W Area = 157,542 SF 3.6167 acres  
 Net Area = 633,210 SF 14.5365 acres  
 Number of Lots = 37  
 Average lot size = 17,114 SF  
 Typical lot dimension = 130' x 132'  
 Lineal feet of street = 2,386 LF  
 Existing zoning = AG-General Agriculture  
 Proposed zoning = RS-1 Single Family Residential (Suburban)  
 Approving Authorities  
 Village of Harrison  
 Objecting Authorities  
 Department of Administration  
 Calumet County

Setbacks Per Code:  
 Front Yard: 25 feet  
 Side Yard: 7.5 feet  
 Rear Yard: 25 feet

**NOTES:**

Utility and Drainage Easements will be shown on Final Plat.  
 No Vehicular Access will be allow to Schmidt Road from Lots 140, 149 and OL 2  
 Outlot 2 is a not buildable until it is combined with land to meet zoning regulations  
 The purpose of Outlot 2 is to give access to Lot 1 of CSM \_\_\_\_\_



Bearings are referenced to the S/L of the SW 1/4 Section 2 T20N, R18E assumed to bear N89°16'59"E based on the Calumet County Coordinate System.

**LEGEND**

—OH—	Overhead Electric Lines	○	Sanitary MH / Tank / Base	⊕	Benchmark
—San—	Sanitary Sewer	⊕	Storm Manhole	⊕	3/4" Rebar Found
—Sto—	Storm Sewer	⊕	Inlet	⊕	Government Corner
—E—	Underground Electric	⊕	Catch Basin / Yard Drain	⊕	Asphalt Pavement
—T—	Underground Telephones	⊕	Hydrant	⊕	Gravel
—W—	Water Main	⊕	Utility Valve	⊕	
—C—	Culvert	⊕	Utility Pole	⊕	
—V—	Index Contour	⊕		⊕	
—	Intermediate Contour	⊕		⊕	

**SURVEYOR'S CERTIFICATE**

I, James R. Sehoff, hereby certify that this Preliminary Plat is a correct representation of all existing land divisions and features, and that I have complied with the preliminary plat requirements for the Village of Harrison.

James R. Sehoff, P.L.S. No. S-2692 Date

**RECEIVED**  
 NOV 09 2019  
 HARRISON PLANNING



**DAVEL ENGINEERING & ENVIRONMENTAL, INC.**  
 CIVIL ENGINEERING CONSULTANTS  
 1811 Racine Street Menasha, WI 54952  
 Ph: 920-991-1856 Fax: 920-830-8595  
 www.davel.pro



**Village of Harrison  
October-19 Zoning Permit Report**

	Current Year				Previous Year			
	Permits	YTD Permits	Estimated Value	YTD Estimate Value	Permits	YTD Permits	Estimated Value	YTD Estimate Value
<b>Residential</b>								
Single Family	5	56	\$ 1,475,000	\$ 16,658,005	12	71	\$ 3,363,000	\$ 19,061,445
Two Family (units)	0	0	\$ 0	\$ 0	0	0	\$ 0	\$ 0
Multi Family (units)	0	0	\$ 0	\$ 0	0	0	\$ 0	\$ 0
Additions	2	13	\$ 38,000	\$ 586,077	0	12	\$ 0	\$ 621,500
Acc. Structures	4	26	\$ 111,700	\$ 407,150	1	32	\$ 5,650	\$ 406,295
Miscellaneous	5	55	\$ 91,100	\$ 602,570	4	60	\$ 45,800	\$ 683,885
<b>Total Residential</b>	16	150	\$ 1,715,800	\$ 18,253,802	17	175	\$ 3,414,450	\$ 20,773,125
<b>Com./Ind.</b>								
New	0	2	\$ 0	\$ 5,400,000	0	0	\$ 0	\$ 0
Additions	0	0	\$ 0	\$ 0	1	1	\$ 50,000	\$ 50,000
Acc. Structures	0	0	\$ 0	\$ 0	0	0	\$ 0	\$ 0
Miscellaneous	1	4	\$ 4,500	\$ 70,750	1	6	\$ 0	\$ 49,150
<b>Total Com./Ind.</b>	1	6	\$ 4,500	\$ 5,470,750	2	7	\$ 50,000	\$ 99,150
<b>Combined Total</b>	17	156	\$ 1,720,300	\$ 23,724,552	19	182	\$ 3,464,450	\$ 20,872,275

Number of Vacant Lots Remaining 140