August 11, 2020

AGENDA

YANKTON COUNTY PLANNING COMMISSION

☐ Paul Harens	☐ Joe Healy	☐ Kristi Schultz
☐ Zane Williams	☐ Donna Freng	☐ Dennis Michael
☐ Dan Klimisch	☐ Doug Hevle	☐

7:00 P.M.

Call Meeting to Order
Roll Call
Approve Minutes from previous meetings
Items to be added to Agenda
Approval of Agenda
Conflict of Interest Declarations

7:05 P.M.

Jon & Kara Moser – Conditional Use Permit

Applicant is requesting a Conditional Use Permit for a swimming pool in a Moderate Density Residential District. Said property is legally described as N 300' of the S 633' of the E 196' of the W 656' of the SE1/4 of the NE1/4, Section 7, T93N R56W of the 5th PM, Yankton County, South Dakota less highways and roads hereinafter referred to as Utica South Township, County of Yankton, State of South Dakota. The E911 Address is 213 Firefly Dr, Yankton, SD.

7:10 P.M.

Connor Mulherin – Variance and Plat

Applicant is requesting a Variance of the Minimum Lot Requirement and a Variance of the Minimum Lot Width in an Agriculture District. The existing lot is 2.64+/- and the proposed lot increases the lot to +3.41 acres and increases the existing width to 270.00 feet. Said property is legally described as Proposed Lot 1 of Red Cedar Subdivision lying in the E1/2 of the SW1/4 of Section 32, T96N, R54W of the 5th P.M., Yankton County, South Dakota hereinafter referred to as Turkey Valley Township, County of Yankton, State of South Dakota. The E911 address is 44726 SD Hwy 46, Irene, SD.

7:15 P.M.

Wally Bakke – Conditional Use Permit

Applicant is requesting a Conditional Use Permit for an Open Sales Area and a Repair Shop, Motor Vehicle and Equipment. Said property is legally described as SW1/4 SE1/4, Section 31, T96N R54W Yankton County, South Dakota less highways and roads hereinafter referred to as Turkey Valley Township, County of Yankton, State of South Dakota. The E911 address is 44650 SD Hwy 46, Irene, SD.

7:20 P.M.

Velocitel/AT&T – Conditional Use Permit

Applicant is requesting a Conditional Use Permit for a Communications Tower. Said property is legally described as Kabeiseman's Tract 4, as platted in Book S10, page 22, excepting therefrom the E 590.30' of the S 590.30' of Kabeiseman's Tract 4 as shown on survey, located in the N1/2 and excepting the E 590.30' of the N 590.30' of Section 12, T93N, R57W of the 5th PM, Yankton County, South Dakota less highways and roads hereinafter referred to as Ziskov South Township, County of Yankton, State of South Dakota. The E911 address is 398 Wildflower Rd, Yankton, SD.

7:25 P.M.

Ehresmann Holdings, LLC – Conditional Use Permit

Applicant is requesting a Conditional Use Permit for a Training Tower. Said property is legally described as S1/2 SW1/4 Including Lots 1 and 3 in Lot A and the S 851.23' of the E 450' of Section 33, T94N R56W, Excluding Tract A and Lot 2 in Lot A as per plat recorded in Book S18, Page 4, and further excluding Luken's First Addition as per plat recorded in Book S10, Page 50 and further excluding Luken's Third Addition, Luken's Fourth Addition and Lukens's Fifth Addition as per plat recorded in Book S13, Page 45, and further excluding Lot H1 as per plat recorded in Book S9, Page 64, Yankton County, South Dakota, hereinafter referred to as Utica North Township, County of Yankton, State of South Dakota. The E911 address is 4400 West 31st St, Yankton, SD

7:30 P.M.

Jason Larsen – Conditional Use Permit

Applicant is requesting a Conditional Use Permit for a swimming pool. Said property is legally described as Lot 7 of Parcel 1 and Lot 8 of Parcel 1, all in Quarry Pines Addition, as per plat recorded in Book S20, page 79, Section 16, T93N R56W, Yankton County, South Dakota hereinafter referred to as Utica South Township, County of Yankton, State of South Dakota. The E911 address is 101 Quarry Pines Ln, Yankton, SD.

7:35 P.M.

RC Investments Co, LLC (Randy Golden) – Planned Unit Development Amendment

Applicant is requesting to amend their Planned Unit Development plan. Said property is legally described as Lot BP1 in the SE1/4 NE1/4, Section 15, T93N R56W of the 5th PM, Yankton County, South Dakota hereinafter referred to as Utica South Township, County of Yankton, State of South Dakota. The E911 address is 705 Timberland Dr., Yankton, SD.

7:40 P.M.

Plats

A replat of Tract 2 of Block 3, Missouri View Addition in the N1/2 of the NE1/4, Section 15, Township 93 North, Range 56 West of the 5th PM, in Yankton County, South Dakota

Plat of Lot 15 of Sundance Ridge, located in the W1/2 of Section 12, T93N, R57W, of the 5th PM, Yankton County, South Dakota

Plat of Lot 18, Whitetail Run, in the NE1/4 of the SE1/4 of Section 16, T93N, R56W, of the 5th PM, Yankton County, South Dakota

7:45 P.M.

Discussion on possible ordinance changes

Public Comment

Adjourn

MEETING (ENTITY): PLANNING COMMISSION REGULAR OR SPECIAL MEETING: REGULAR
DATE: 7/14/20 TIME: 7PM LOCATION: COMMISSION CHAMBERS

STAFF ATTENDANCE: ATKINSON, VETTER
ROLL CALL: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS
APPROVAL OF MINUTES: MOTION BY: Healy SECOND BY: Harens
PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

APPROVAL OF AGENDA: MOTION BY: Healy SECOND BY: Harens
PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS
Will proceed with agenda as is, stopping any Article 5 discussion at 7:15 to proceed with agenda and continue Article 5 discussion after other agenda items

Conflict of Interest: None

AGENDA ITEM: Possible recommendation of proposed amendments to Yankton County Ordinance 20 Article 5 Agricultural District.
ADDRESS/LEGAL:
COMMENTS:

PUBLIC COMMENT:

MOTION: Postpone until the conclusion of the Jim By Variance & Plat

APPROVAL: MOTION BY: Healy SECOND BY: Hansen
PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☐MICHAEL ☒SCHULTZ ☐WILLIAMS ☒HEALY ☒HARENS
7-2; Michael and Williams vote nay

AGENDA ITEM: **P.R. Olson III – Conditional Use Permit**
ADDRESS/LEGAL: Wubben's Second Addition in the NW1/4 of Section 6 T93N R56W of the 5th P.M., and in Government Lots 1 and 2 of the SW1/4 of Section 31, T94N, R56W, of the 5th P.M., Yankton County South Dakota less Lot H1 and Lot H1 and H2, hereinafter referred to as Utica South Township, County of Yankton, State of South Dakota. The E911 Address is 43425 SD Hwy 50, Yankton, SD
COMMENTS:

MOTION: Move to accept

APPROVAL: MOTION BY: Harens SECOND BY: Williams
PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS
9-0

AGENDA ITEM: **Shawny Schiltz (Tacke) – Variance**

ADDRESS/LEGAL: Proposed Shawny's Addition, in the SE1/4 of the SE1/4 of Section 22, T96N, R56W of the 5th P.M., Yankton County, South Dakota hereinafter referred to as Jamesville Township, County of Yankton, State of South Dakota.

COMMENTS: Tony Sees spoke for applicant

MOTION: Move approval of variance request

APPROVAL: MOTION BY: Klimisch SECOND BY: Harens

PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS 9-0

AGENDA ITEM: **Shawny Schiltz (Tacke) – Plat**

ADDRESS/LEGAL: Proposed Shawny's Addition, in the SE1/4 of the SE1/4 of Section 22, T96N, R56W of the 5th P.M., Yankton County, South Dakota hereinafter referred to as Jamesville Township, County of Yankton, State of South Dakota.

COMMENTS:

MOTION: Move approval of Shawny Schiltz plat

APPROVAL: MOTION BY: Healy SECOND BY: Klimisch

☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS 9-0

AGENDA ITEM: **Scott Walter – Conditional Use Permit**

ADDRESS/LEGAL: Lot 2, Block 2, Pioneer Hills Addition of Section 17, T93N, R56W, hereinafter referred to as Utica South Township, County of Yankton, State of South Dakota. The E911 address is 153 Clark Trail, Yankton, South Dakota.

COMMENTS:

MOTION: Move to accept

APPROVAL: MOTION BY: Harens SECOND BY: Healy

☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

9-0

AGENDA ITEM: **Neal Lange – Conditional Use Permit**

ADDRESS/LEGAL: E1/2 W1/2 N1/2 NW1/4 except the N 690' thereof and further excepting highway right-of-way of Section 15, T93N, R56W of the 5th P.M., Yankton County, South Dakota, hereinafter referred to as Utica South Township, County of Yankton, State of South Dakota. The E911 address is TBD West 8th St, Yankton, South Dakota.

COMMENTS:

MOTION: Approval of this conditional use permit with a 3 year time limit on building the fence and trees and to include no year-round residents

APPROVAL: MOTION BY: Williams SECOND BY: Klimisch

PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒ HARENS 9-0

AGENDA ITEM: **Jim Bye – Variance**

ADDRESS/LEGAL: Proposed Jim Bye Tract 1 being the N390.46' of the E390.46' of the NE1/4 of the NE1/4 of Section 27, T93N, R54W of the 5th P.M., Yankton County, South Dakota hereinafter referred to as Gayville Township, County of Yankton, State of South Dakota. The E911 address is TBD 450th Ave, Gayville, South Dakota.

COMMENTS:

MOTION: Motion to approve this variance

APPROVAL: MOTION BY: Klimisch SECOND BY: Hevle

PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☐HEALY ☒ HARENS 8-1; Healy vote nay

AGENDA ITEM: **Jim Bye – Plat**

ADDRESS/LEGAL: Proposed Jim Bye Tract 1 being the N390.46' of the E390.46' of the NE1/4 of the NE1/4 of Section 27, T93N, R54W of the 5th P.M., Yankton County, South Dakota hereinafter referred to as Gayville Township, County of Yankton, State of South Dakota. The E911 address is TBD 450th Ave, Gayville, South Dakota.

COMMENTS:

MOTION: So move

APPROVAL: MOTION BY: Harens SECOND BY: Klimisch
PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☐HEALY ☒HARENS
8-1; Healy vote nay

Motion to take a five minute break Klimisch Second: Williams

AGENDA ITEM: **Possible recommendation of proposed amendments to Yankton County Ordinance 20 Article 5 Agricultural District.**

ADDRESS/LEGAL:

COMMENTS:

PUBLIC COMMENT:
Mike Schurman
Paige Herrig
Jim Petrik
Garrett Kotalik
Karl Schenk II
Trevor Hansen
Kevin Huber
Dale Knode
Mary Jo Bauder
Sandy Williams
Louis Johnson
Bruce Heirigs
Brandon Van Osdel

MOTION: Move to accept amendments to Section 519 under AFO definitions

APPROVAL: MOTION BY: Harens SECOND BY: Hansen
☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS
9-0

AGENDA ITEM: **Possible recommendation of proposed amendments to Yankton County Ordinance 20 Article 5 Agricultural District.**

ADDRESS/LEGAL:

COMMENTS: Section 519 #9A - add language to state the plan is contingent on approval of permit

PUBLIC COMMENT:

MOTION: Motion under proposed changes to 519 9A move to have verbiage "specific to the applicable permit application" in the sentence that ends" completed prior to county permit application"

APPROVAL: MOTION BY: Healy SECOND BY: Harens
☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

9-0

AGENDA ITEM: **Possible recommendation of proposed amendments to Yankton County Ordinance 20 Article 5 Agricultural District.**

ADDRESS/LEGAL:

COMMENTS:

PUBLIC COMMENT:

MOTION: Move we recommend Article 5 to County Commission with changes

APPROVAL: MOTION BY: Harens SECOND BY: Hevle

☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☐WILLIAMS ☐HEALY ☒HARENS 7-2; Williams and Healy vote nay

Motion for 5 minute break Klimisch

AGENDA ITEM: Plat of Lot 7 in Baycliffe Estates, Located in the W1/2 of the South 12.91 Acres of the S1/2 of the SW1/4 of Section 7 and in the W1/2 of the W1/2 of Section 18 lying north of Highway 52 except platted areas known as Tramp's 7th Addition, and except Lots 1 and 2 of Parcel A and further excepting Parcels B and C, McVay Addition, all being in T93N, R56W, of the 5th PM, Yankton County, South Dakota

ADDRESS/LEGAL:

COMMENTS:

MOTION: Move approval of plat

APPROVAL: MOTION BY: Klimisch SECOND BY: Harens

PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

AGENDA ITEM: Plat of Lots 53 and 54, Crestview Homes Subdivision in the NE1/4 of Section 21, T93N, R56W of the 5th PM, Yankton, South Dakota

ADDRESS/LEGAL:

COMMENTS:

MOTION: Move approval

APPROVAL: MOTION BY: Healy SECOND BY: Klimisch

PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

AGENDA ITEM: Lots 1 and 2 of Pyn Addition in the SW1/4 of the SE1/4 of Section 6, T95N, R54W, of the 5th PM, Yankton County, South Dakota

ADDRESS/LEGAL:

COMMENTS:

MOTION: Move to accept

APPROVAL: MOTION BY: Harens SECOND BY: Healy

PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

AGENDA ITEM: Plat of Lots 28 and 29 Crestview Homes Subdivision in the NE1/4 of Section 21, T93N, R56W of the 5th PM, Yankton, South Dakota

ADDRESS/LEGAL:

COMMENTS:

MOTION: Move approval

APPROVAL: MOTION BY: Klimisch SECOND BY: Healy

PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

AGENDA ITEM: Re-Plat of Kaufman Tract 2 Except for Smidt Addition, Lot 1 of Kaufman Tract 2, and that portion of Kaufman Tract 1, all being in the N1/2, NE1/4 of Section 15, T93N, R57W of the 5th P.M., now to be known as Kasik's Addition in the N1/2, NE1/4 of Section 15, T93N, R57W of the 5th P.M., Yankton County, South Dakota

ADDRESS/LEGAL:

COMMENTS:

MOTION: Motion to approve

APPROVAL: MOTION BY: Klimisch SECOND BY: Harens

PLANNING: ☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

AGENDA ITEM: Plat of Lot 20 in Baycliffe Estates, Located in the W1/2 of the South 12.91 Acres of the S1/2 of the SW1/4 of Section 7 and in the W1/2 of the W1/2 of Section 18 lying north of Highway 52 except platted areas known as Tramp's 7th Addition, and except Lots 1 and 2 of Parcel A and further excepting Parcels B and C, McVay Addition, all being in T93N, R56W, of the 5th PM, Yankton County, South Dakota

ADDRESS/LEGAL:

COMMENTS:

MOTION: Move to accept

APPROVAL: MOTION BY: Harens SECOND BY: Klimisch

☒FRENG ☒ HANSEN ☒ HEVLE ☒KLIMISCH ☒MICHAEL ☒SCHULTZ ☒WILLIAMS ☒HEALY ☒HARENS

Public Comment: Sandy Williams
Shon Whitwood
Mary Jo Bauder

Adjourn: Williams Second: Healy

Yankton County Planning Commission
Yankton County Board of Adjustment

Date filed: 07/02/20

Applicant Moser – Conditional Use Permit

District type: ☐ AG ☐ R1-Low ☒ R2-Moderate ☐ R3-High ☐ C-Comm.

☐ LC – Lakeside Commercial ☐ RT-Rural Transitional

CUP needed:
☐ Section 507 ☐ Section 607 ☒ Section 707 ☐ Section 807

☒ Section 1805 ☐ Section 1905

NOTE:

Conditional Use Permit

Applicant is requesting a Conditional Use Permit for a swimming pool in a Moderate Density Residential District. Said property is legally described as N 300' of the S 633' of the E 196' of the W 656' of the SE1/4 of the NE1/4, Section 7, T93N R56W of the 5th PM, Yankton County, South Dakota less highways and roads hereinafter referred to as Utica South Township, County of Yankton, State of South Dakota.

PC:	Article 7 Section 707	Article 18 Section 1805
BOA:	Article 7 Section 707	Article 19 Section 1905

Planning Commission date: 08/11/20 Time: 7:05 PM
Board of Adjustment date: Time:

Permit Number: CUP-2020-9

Yankton County

_____ Variance _X_ Conditional Use _____ Rezoning

Owner: Jon and Kara Moser

Owners Address: 213 Firefly Dr., Yankton, SD 57078

Owners Phone: 605-660-9211

Applicants Name, if different from Owner: Jon and Kara Moser

Applicants Address: 213 Firefly Dr., Yankton, SD 57078

Job Address: 213 FIREFLY DR

Legal: N300 S633 E196 W656 SE4 NE4

Section, Township, Range: 7-93-56

Zoning Classification: R2

Affected Zoning Ordinance: 707 and 1805Section 1905707

Reason for Request: Swimming Pool

List Specific Hardships:

SCHEDULED FOR PLANNING COMMISSION ACTION (DATE): 08/11/2020 7:05

SCHEDULED FOR BOARD OF ADJUSTMENT ACTION (DATE):

Application Fee: $300.00 Check #: 1928 Receipt #:

Signature: Jon and Kara Moser Date: 07/10/2020

YANKTON COUNTY
APPLICATION # CUP-20-009

(Type or Print)
OWNER: Jon & Kara Moser

OWNERS ADDRESS: 213 Firefly Dr.

OWNERS DAYTIME PHONE#: 605-660-9211

___	Variance Application
X	Conditional Use Permit
___	Rezoning Permit

DATE OF BUILDING PERMIT REQUEST: 7-2-20

DESCRIPTION OF BUILDING PERMIT: Swimming Pool

REASON FOR BUILDING PERMIT DENIAL: _____

DATE OF DENIAL: _____

JOB ADDRESS: 213 Firefly Dr.

LEGAL: N300' S633' E196' W656' SE4 NE4

TOWNSHIP: 93 **SECTION:** 7

EXISTING USE OF PROPERTY: R2

PRESENT ZONING CLASSIFICATION: R2

PROPOSED ZONING CLASSIFICATION: _____

AFFECTED SECTION OF ZONING ORDINANCE: 707

REASON FOR REQUEST: _____

LIST SPECIFIC HARDSHIPS: _____

Applications will not be accepted nor acted upon until the following information has been provided by the applicant:

- **A)** **Detailed Site Plan (Refer to handout)**
- **B)** **Location and Use of Adjacent Structures**
- **C)** **Application Fee(s)**

SCHEDULED FOR PLANNING COMMISSION ACTION (Date): August 11, 2020
SCHEDULED FOR BOARD OF ADJUSTMENT ACTION (Date): September 1, 2020
***TENTATIVE DATE: Final date announced at Planning Commission Meeting:**

APPLICATION FEE: $300 **CHECK #:** 1928 **RECEIPT #:** 5252

The undersigned acknowledges/declares that all the facts and representations stated in this application are true and by signing, acknowledges the cost and the procedure for the processing of the application and certifies that the property described by the legal description is not delinquent.

Name of Applicant	Date	Signature of Applicant/Owner	Date
[signature]	7-2-20	[signature]	7-1-20

Beacon™ Yankton County, SD

Overview

Legend

- Townships
- Parcels
- City Limits
- Streets and Roads

City ETJ (Extra Territorial Jurisdictio

- <all other values>
- 0

Gayville Zoning

- AR Agricultural - Residential
- B-1 Business
- R-1 Residential

Parcel ID - 09.007.100.115
Address - 213 FIREFLY DR
Owner - MOSER, JONATHAN B (D)
MOSER, KARA K (D)

Disclaimer: Yankton County digital cadastral data are a representation of recorded plats and surveys for use within the Geographic Information System for purposes of data access and analysis. These and other digital data do not replace or modify land surveys, deeds, and/or other legal instruments defining land ownership or use.

Date created: 7/2/2020
Last Data Uploaded: 7/2/2020 8:17:53 AM

Developed by Schneider GEOSPATIAL

DRAFT YANKTON COUNTY
BUILDING PERMIT APPLICATION

Each building site must have a separate site plan

JOB ADDRESS	PARCEL ID
213 FIREFLY DR, YANKTON, SD 57078	09.007.100.115

LEGAL DESCRIPTION
N300' S633' E196' W656' SE4 NE4

OWNER NAME AND MALING ADDRESS	PHONE/CELL
MOSER, JONATHAN B | 213 FIREFLY DR | YANKTON SD 57078MOSER, KARA K	(605) 661-9324 / (605) 660-9211

CONTRACTOR	MAIL ADDRESS	PHONE
Self		

ARCHITECT OR DESIGNER	MAIL ADDRESS	PHONE
Self		

USE OF BUILDING:	SETBACKS
CLASS OF WORK: New	Front: 200 Rear: 66
DESCRIBE WORK: Deck	Side: 74 Side: 100
VALUATION OF WORK: $	Mobile/Manufactured Home Tax Affidavit:
SPECIAL CONDITIONS:	

App. Accepted By:	Site Plans Check By:	Approved for Issuance By:	**PERMIT FEE: $0.00 Check #**

NOTICE

THIS PERMIT WILL EXPIRE IF WORK OR CONSTRUCTION AUTHORIZED IS NOT COMMENCED WITHIN ONE HUNDRED EIGHTY (180) DAYS OR CONSTRUCTION IS NOT SUBSTANTIALLY COMPLETED WITHIN TWO (2) YEARS OF ISSUANCE.

I HEREBY CERTIFY THAT I HAVE READ AND EXAMINED THIS APPLICATION AND KNOW THE SAME TO BE TRUE AND CORRECT. ALL PROVISIONS OF LAWS AND ORDINANCES GOVERNING THIS TYPE OF WORK WILL BE COMPLIED WITH WHETHER SPECIFIED HEREIN OR NOT. THE GRANTING OF A PERMIT DOES NOT PRESUME TO GIVE AUTHORITY TO VIOLATE OR CANCEL THE PROVISIONS OF THE YANKTON COUNTY ZONING ORDINANCE OR ANY OTHER FEDERAL, STATE, OR LOCAL LAW REGULATING CONSTRUCTION ACTIVITIES OR THE USE OF ANY PROPERTY.

07/02/2020

Signature of Land Owner Date

BY THIS SIGNATURE, THE ZONING ADMINISTRATOR IS AUTHORIZED TO ENTER UPON THE PROPERTY DESCRIBED FOR THE PURPOSE OF INSPECTION

Type of Construction	**Sewer**	**Water**
Wood	Septic	B-Y Water

Total Square Feet	**Number of Stories**
450	

Zoning District	**Number of Accessory Buildings**
R2	Yes

Number of Dwelling Units	**Property/Parcel/Lot Size (Acres)**
	1

For County Officials Use Only

When properly validated (in this space), this is your permit.

The above application is hereby approved.

Building Permit Number:

Post Construction?

Date

From: Harry Redman [mailto:Harry.Redman@districtiii.org]
Sent: Monday, August 3, 2020 10:36 AM
To: Jessica Atkinson <jessica@co.yankton.sd.us>; Gary Vetter <gary@co.yankton.sd.us>
Subject: swimming pool safety barriers

Good morning,

I know I have had some discussions in the past with Gary on swimming pools and conditional use permits, but I was wondering does the county have a minimum safety specs for pools? Example some cities require two layers of fence or walls? I know that is extreme, but I didn't know if you had anything or if it's up to the county commission to require anything or is it your office that recommends barriers?

I ask because I received a letter regarding the Moser's pool. I know early this spring they said they have a "plan" for a barrier, so I thought I would do my own checking to see if they put anything on the permit. Or do you not require that type of information. There are about 14 little kids in the neighborhood so I just want to make sure some type of barrier is required on the conditional use permit.

I'm in favor of the pool, I just want to make sure there are safety measures in place.

Thanks
Harry

PLANNING & DEVELOPMENT DISTRICT III GIS

Harry Redman - GIS Coordinator

Planning & Development District III

1808 Summit St. Yankton, SD 57078

Phone (605) 665-4408

FINDINGS OF FACT – CONDITIONAL USE PERMIT

Jon Moser – CUP-2020-9

Are the requirements of Section 1723 met? (signed by owner unless there is a binding purchase agreement then signed by applicant, Variance accompanied by building permit (if applicable), site plan included with building permit,	Yes
Are the requirements of Section 1729 met? (all fees paid at time of application)	Yes
Section 1805:	
1. Did you specifically cite, in the application, the section of the Ordinance under which the conditional use is sought and state the grounds on which it is requested	Applicant is requesting a Conditional Use Permit for a swimming pool in a Moderate Density Residential District.
2. Was notice of public hearing given per Section 1803 (3-5)?	Mailed – 7/30/20 Published – 07/31/20
3. Attend the public hearing	08/11/20
4. Planning Commission: Make a recommendation to include: a. Granting of conditional use; b. Granting with conditions; or c. Denial of conditional use	
5. Planning Commission must make written findings certifying compliance with specific rules including: a. Ingress and Egress to proposed structures thereon with particular reference to automotive and pedestrian safety and convenience, traffic flow and control, and access in case of fire or catastrophe:	
b. Off right-of-way parking and loading areas where required; with particular attention to the items in (A) above and the economic, noise, glare or odor effects of the conditional use on adjoining properties and properties generally in the district;	
c. Refuse and service areas, with particular reference to the items in (A) and (B) above;	
d. Utilities, with reference to locations, availability, and compatibility;	
e. Screening and buffering with reference to type, dimensions, and character;	
f. Signs, if any, and proposed exterior lighting with reference to glare, traffic safety, economic effect;	
g. Required yards and other open spaces; and	
h. General compatibility with adjacent properties and other property in the district and that the granting of the conditional use will not adversely affect the public interest.	

AFFIDAVIT OF MAILING

I, Kara Moser, hereby certify that on the 30th day of July, 2020, I mailed by first class mail, postage prepaid, a true and correct copy of the Notice of Public Hearing to all owners of real property lying within a 1,320 feet radius of the proposed project to the most recent address of the recipient known to your Affiant.

A true and correct copy of the Notice of Public Hearing notification letters are attached as Exhibit #1 or #2.

A true and correct copy of the mailing list for owners of real property is attached as Exhibit #1A or #2A.

Dated the 3rd day of August, 2020.

Kara Moser
(Name)
Affiant

Subscribed and sworn to before me this 3rd day of August, 2020.

NANCY M BROCKMOLLER
Seal
Notary Public
South Dakota

Nancy M Brockmoller
Notary Public - South Dakota
My commission expires: 04/30/2025

(SEAL)

NOTIFICATION

July 31, 2020

Jon & Kara Moser
213 Firefly Dr
Yankton, SD 57078

Dear Yankton County Property Owner:

The Yankton County Zoning Ordinance requires written notification describing a specific action be sent to the owners of real property lying within 1,320 feet of the property on which the below described action is proposed. The notice shall be given to each owner of record by depositing such notice in the United States Post Office not less than 10 days prior to the hearing date. Therefore, you are hereby notified. Please take a moment to review the notice of public hearing described below.

NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing will be held before the Yankton County Planning Commission, Yankton County, South Dakota, at 7:05 P.M. on the 11th day of August, 2020 at the Yankton County Government Center, Commissioners Chambers, 321 West Third St., Yankton South Dakota.

Said hearing is to consider the following:
Applicant is requesting a Conditional Use Permit for a swimming pool in a Moderate Density Residential District. Said property is legally described as N 300' of the S 633' of the E 196' of the W 656' of the SE1/4 of the NE1/4, Section 7, T93N R56W of the 5th PM, Yankton County, South Dakota less highways and roads hereinafter referred to as Utica South Township, County of Yankton, State of South Dakota.

The application may be reviewed at the Zoning Administrators office, Yankton County Government Center, 321 West Third St., Yankton, S.D. or online at the Yankton County Website.

Sincerely,

Jon & Kara Moser
Petitioners

ARENS, JAMES L (D)
117 BIRD DOG DR.
YANKTON SD 57078

ARENS, JAMES L (D)
43487 KAISER RD
YANKTON SD 57078

BATCHELLER, JAY (D)
30967 436 AVE
YANKTON SD 57078

BRUNICK, LLOYD (D)
31012 435 AVE
YANKTON SD 57078

GILLEN, TYLER C (D)
912 S FAWN CT
SIOUX FALLS SD 57110

GRAHAM, BARRY REVOCABLE TRUST (I
PO BOX 18
YANKTON SD 57078

GREENEWAY, DAVID L (D)
31055 435 AVE
YANKTON SD 57078

GUBBELS, DAVID J (D)
108 MARINA PARK DR
YANKTON SD 57078

HENNING, ERIC (D)
202 FIRE FLY DR
YANKTON SD 57078

JAMES, MICAH (D)
43465 KAISER RD
YANKTON SD 57078

KABEISEMAN, WILLIAM J (D)
1210 DOUGLAS AVE
YANKTON SD 57078

KAISER, DIANE (D)
12317 HASCALL ST
OMAHA NE 68144

KNUDSEN, KEITH A (D)
107 7 ST
LAUREL NE 68745

KOUPAL, RICHARD G (D)
100 HORSESHOE HOLLOW DR
YANKTON SD 57078

KRIER, TREY J (D)
109 MARINA PARK DR
YANKTON SD 57078

LAW, ROBERT (D)
3812 SD HWY 314
YANKTON SD 57078

LOHFF, GARY W (D)
43472 KAISER RD
YANKTON SD 57078

LONG, AMY S (D)
102 MARINA PARK DR
YANKTON SD 57078

MCMENAMY, GAYLENE (D)
31051 435 AVE
YANKTON SD 57078

MCMENAMY, WM C (D)
31051 435 AVE
YANKTON SD 57078

MENTELE, ADAM (D)
103 MARINA PARK DR
YANKTON SD 57078

MOSER, JONATHAN B (D)
213 FIREFLY DR
YANKTON SD 57078

MYERS, RUSSELL L (D)
43474 KAISER RD
YANKTON SD 57078

NEUMAYR, JAMES R (D)
2504 BURLEIGH ST
YANKTON SD 57078

PAVLISH, JOSHUA W (D)
105 BIRD DOG DR
YANKTON SD 57078

PHILIPS, TIMOTHY H (D)
43473 KAISER RD
YANKTON SD 57078

RASMUSSEN, RANDY L (D)
43498 KAISER RD
YANKTON SD 57078

REDMAN, HARRY R (D)
223 FIRE FLY DR
YANKTON SD 57078

RICHMAN, KIM A (D)
834 BRIGGS AVE
HASTINGS NE 68901

ROBERTS, BRYCE B (D)
1303 WEST 19 ST #4
YANKTON SD 57078

SCHWEITZER, MELINDA A (D)
43486 KAISER RD
YANKTON SD 57078

SHUDAK, DAN REVOCABLE TRUST (D)
214 HORSESHOE HOLLOW DR
YANKTON SD 57078

SMIT, KENNETH (D)
215 FIREFLY DR
YANKTON SD 57078

STACH, GREGORY T (D)
31060 435 AVE
YANKTON SD 57078

WESTERMAN, MARK (D)
43481 KAISER RD
YANKTON SD 57078

WINTERRINGER, MARK (D)
148 MARINA DELL AVE
YANKTON SD 57078

YOUMANS, LUKE (D)
222 FIRE FLY DR
YANKTON SD 57078

Yankton County Planning Commission
Yankton County Board of Adjustment

Date filed: 06/02/20

Applicant Connor Mulherin – Variance

District type: ☒ AG ☐ R1-Low ☐ R2-Moderate ☐ R3-High ☐ C-Comm.

☐ LC – Lakeside Commercial ☐ RT-Rural Transitional

Variance needed:

☒ Section 513 ☐ Section 515 ☐ Section 705 ☐ Section 805 ☒ Section 1807

North Side/ Yard lot line: ____ feet or no closer than ____ feet to the ____ lot line.

East Side / Yard lot line: _____ feet or no closer than _____ feet to the _____lot line.

South Side / Yard lot line: _____feet or no closer than_____feet to the_____lot line.

West Side / Yard lot line ___feet or no closer than ____ feet to the _____lot line.

Accessory Building Size allowed:

Proposed building size:

Proposed sidewall height:

Affects Section:

NOTE:
Applicant is requesting a Variance of the Minimum Lot Requirement and a Variance of the Minimum Lot Width in an Agriculture District. The existing lot is 2.64+/- and the proposed lot increases the lot to +3.41 acres and increases the existing width to 270.00 feet. Said property is legally described as Proposed Lot 1 of Red Cedar Subdivision lying in the E1/2 of the SW1/4 of Section 32, T96N, R54W of the 5th P.M., Yankton County, South Dakota hereinafter referred to as Turkey Valley Township, County of Yankton, State of South Dakota. The E911 address is 44726 SD Hwy 46, Irene, South Dakota.

PC:	Article 5 Section 513	Article 18 Section 1807
BOA:	Article 5 Section 513	Article 19 Section 1907

Planning Commission date: 08/11/20 Time: 7:10 PM
Board of Adjustment date: Time:

CPMULTER1988@gmail.com

YANKTON COUNTY
APPLICATION #Var-20-005

(Type or Print)
OWNER: Connor Patrick Mulherin

OWNERS ADDRESS: 44726 SD Hwy 46 Irene, SD

OWNERS DAYTIME PHONE#: 804-314-8457

- [X] **Variance Application**
- [ ] **Conditional Use Permit**
- [ ] **Rezoning Permit**

DATE OF BUILDING PERMIT REQUEST: N/A

DESCRIPTION OF BUILDING PERMIT:

REASON FOR BUILDING PERMIT DENIAL: N/A

DATE OF DENIAL:

JOB ADDRESS: 44726 SD Hwy 46, Irene

LEGAL: N480' S555' W240 E2 S1/2 4

TOWNSHIP: 32-96-54 **SECTION:**

EXISTING USE OF PROPERTY: Ag residential

PRESENT ZONING CLASSIFICATION: Ag

PROPOSED ZONING CLASSIFICATION: N/A

AFFECTED SECTION OF ZONING ORDINANCE: 513

REASON FOR REQUEST: include treelines & power pole

LIST SPECIFIC HARDSHIPS: Increasing lot size which is currently non-conforming to include treeline and power pole

Applications will not be accepted nor acted upon until the following information has been provided by the applicant:

A) **Detailed Site Plan (Refer to handout)**
B) **Location and Use of Adjacent Structures**
C) **Application Fee(s)**

SCHEDULED FOR PLANNING COMMISSION ACTION (Date): 7/14/20
SCHEDULED FOR BOARD OF ADJUSTMENT ACTION (Date): 8/4/20
***TENTATIVE DATE: Final date announced at Planning Commission Meeting:**

APPLICATION FEE: 450 **CHECK #:** 5174 **RECEIPT #:** 5222

The undersigned acknowledges/declares that all the facts and representations stated in this application are true and by signing, acknowledges the cost and the procedure for the processing of the application and certifies that the property described by the legal description is not delinquent.

Connor Mulherin — 6/2/20 — [signature] — 6/2/20

Name of Applicant **Date** **Signature of Applicant/Owner** **Date**

Beacon™ Yankton County, SD

Overview

Legend

- Townships
- Sections
- Parcels
- City Limits
- Streets and Roads

County Zoning District

- <all other values>
- COMMERCIAL
- ETJ
- HIGH DENSITY RESIDENTIAL
- LAKE SIDE COMMERCIAL
- LOW DENSITY RESIDENTIAL
- MODERATE DENSITY RESIDENTIAL
- PLANNED UNIT DEVELOPMENT
- PUBLIC
- RURAL TRANSITIONAL

Floodplain

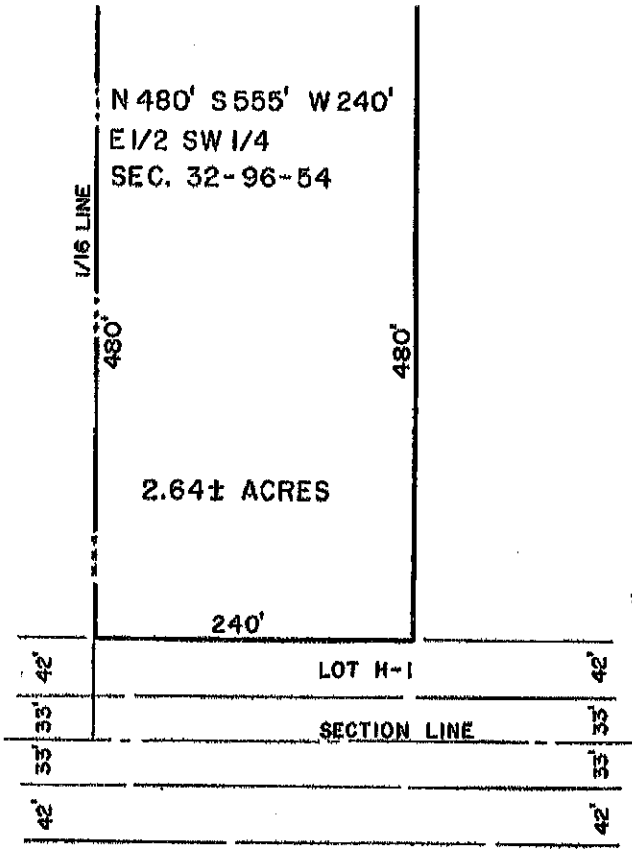
- 100 YEAR FLOOD NO BFE; 100 YEAR FLOOD WITH BFE
- 500 YEAR FLOOD

Parcel ID - 04.032.300.025
Address - 44726 SD HWY 46
Owner - GUSTAD, BRIAN D (D)

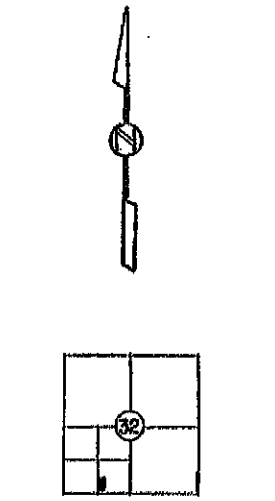
Disclaimer: Yankton County digital cadastral data are a representation of recorded plats and surveys for use within the Geographic Information System for purposes of data access and analysis. These and other digital data do not replace or modify land surveys, deeds, and/or other legal instruments defining land ownership or use.

Date created: 6/2/2020
Last Data Uploaded: 6/1/2020 11:51:28 PM

Developed by Schneider GEOSPATIAL



DETAIL SCALE: 1" = 100'



LOCATION NO SCALE

I, Ronald D Peterson, a Registered Professional Engineer and Land Surveyor of Wakonda, South Dakota, have, at the direction of the owners, prepared a legal description of the following described property

THE NORTH 480 FEET OF THE SOUTH 555 FEET OF THE WEST 240 FEET OF THE EAST ONE-HALF (E1/2) OF THE SOUTHWEST QUARTER (SW1/4) OF SECTION THIRTY-TWO (32), TOWNSHIP NINETY-SIX NORTH (T96N), RANGE FIFTY-FOUR WEST (R54W) OF THE 5TH PRINCIPAL MERIDIAN, YANKTON COUNTY, SOUTH DAKOTA (Containing 2 64 Acres, more or less)

I certify that the dimensions and locations shown on the accompanying detail are true and correct to the best of my knowledge and belief

I certify that I have executed the foregoing instrument this 5th day of July, 1997

Ronald D Peterson SEAL

PE & LS NO 2725

Prepared By Ronald D Peterson,
29714 455th Avenue
Wakonda, SD 57073
(605)263-3626

REGISTER OF DEEDS YANKTON COUNTY SOUTH DAKOTA SEAL

Num ✓ Plat ✓
Margin ✓ Tract
Paid 6864.3 Seal ✓

STATE OF SOUTH DAKOTA } ss
County of Yankton

FILED FOR RECORD AT 9:15 A.M.

JUN 03 2003

In Book 218 Pg 323

Lynette R Larson
Register of Deeds

REG PROFESSIONAL ENGINEER & LAND SURVEYOR
REG NO 2725
RONALD D PETERSON
SOUTH DAKOTA

FINDINGS OF FACT – VARIANCE

Connor Mulherin – Var-20-005

Are the requirements of Section 1723 met? (signed by owner unless there is a binding purchase agreement then signed by applicant, Variance accompanied by building permit (if applicable), site plan included with building permit,	Yes	
Are the requirements of Section 1729 met? (all fees paid at time of application)	Yes	
Section 1807:		
1. A. The strict application of the ordinance would produce undue hardship;		Applicant is requesting a Variance of the Minimum Lot Requirement and a Variance of the Minimum Lot Width in an Agriculture District. The existing lot is 2.64+/- and the proposed lot increases the lot to +3.41 acres and increases the existing width to 270.00 feet.
B. Such hardship is not shared generally by other properties in the same zoning district and the same vicinity;		
C. The authorization of such variance will not be of substantial detriment to adjacent property and the character of the district will not be changed by the grant of the variance; and		
D. The granting of such variance is based upon reasons of demonstrable and exceptional hardship as distinguished from variations for purposes of convenience, profit, and caprice.		
2. No variance shall be recommended for approval unless the Planning Commission finds the condition or situation of the property concerning or the intended use of the property concerned, or the intended use of the property is not of so general or recurring a nature as to make reasonably practicable the formulation of a general regulation to be adopted as an amendment of this ordinance.		
3. A. A written application for a variance is submitted demonstrating that special conditions and circumstances exist which are peculiar to the land, structure, or building involved and which are not applicable to other lands, structures, or buildings, in the same district;		
B. The literal interpretation of the provisions of this ordinance would deprive the applicant of rights commonly enjoyed by other properties in the same district under the terms of this ordinance;		
C. The special conditions and circumstances do not result from the actions of the applicant; and		
D. The granting of the variance requested will not confer on		

	the applicant any special privilege that is denied by this ordinance to other lands, structure, or buildings in the same district.	
E.	No nonconforming use of neighboring lands, structures, or buildings in the same district, and no permitted or nonconforming use of lands, structures or buildings in other districts shall be considered grounds for the issuance of a variance.	
F.	Notice of public hearing shall be given, as in Section 1803 (3-5).	Mailed – 07/27/20 Published – 07/31/20
G.	The public hearing shall be held. Any party may appear in person for by agent or by attorney.	Public hearing – 08/11/20
H.	The Planning Commission shall make findings that the requirements of this Section have been met by the applicant for a variance; the Commission shall further make a finding that the reasons set forth in the application justify the recommendation of granting the variance, and the variance is the minimum variance that will make possible the reasonable use of the land, building, or structure; the Planning Commission shall further make a finding that the granting of the variance will be in harmony with the general purpose and intent of this ordinance, and will not be injurious to the neighborhood, or otherwise detrimental to the public welfare.	
I.	In recommending approval of any variance, the Planning Commission may prescribe appropriate conditions and safeguards in conformity with this ordinance.	
J.	Under no circumstances shall the Planning Commission recommend granting a variance to allow a use not permissible under the terms of this ordinance in the district involved, or any use expressly or by implication prohibited by the terms of this ordinance in said district.	

AFFIDAVIT OF MAILING

I, Connor Mulhern, hereby certify that on the 27 day of July, 2020, I mailed by first class mail, postage prepaid, a true and correct copy of the Notice of Public Hearing to all owners of real property lying within a 2640 feet radius of the proposed project to the most recent address of the recipient known to your Affiant.

A true and correct copy of the Notice of Public Hearing notification letters are attached as Exhibit #1 or #2.

A true and correct copy of the mailing list for owners of real property is attached as Exhibit #1A or #2A.

Dated the 27 day of July, 2020.

(Name)
Affiant

Subscribed and sworn to before me this 27th day of July, 2020.

Notary Public - South Dakota
My commission expires: 2-10-2023

(SEAL)

NOTIFICATION

July 31, 2020

Connor Mulherin
44726 SD Hwy 46
Irene, South Dakota 57037

Dear Yankton County Property Owner:

The Yankton County Zoning Ordinance requires written notification describing a specific action be sent to the owners of real property lying within 2,640 feet of the property on which the below described action is proposed. The notice shall be given to each owner of record by depositing such notice in the United States Post Office not less than 10 days prior to the hearing date. Therefore, you are hereby notified. Please take a moment to review the notice of public hearing described below.

NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing will be held before the Yankton County Planning Commission, Yankton County, South Dakota, at 7:10 P.M. on the 11th day of August, 2020 at the Yankton County Government Center, Commissioners Chambers, 321 West Third St., Yankton South Dakota.

Said hearing is to consider the following:
Applicant is requesting a Variance of the Minimum Lot Requirement and a Variance of the Minimum Lot Width in an Agriculture District. The existing lot is 2.64+/- and the proposed lot increases the lot to +3.41 acres and increases the existing width to 270.00 feet. Said property is legally described as Proposed Lot 1 of Red Cedar Subdivision lying in the E1/2 of the SW1/4 of Section 32, T96N, R54W of the 5th P.M., Yankton County, South Dakota hereinafter referred to as Turkey Valley Township, County of Yankton, State of South Dakota. The E911 address is 44726 SD Hwy 46, Irene, South Dakota.

The application may be reviewed at the Zoning Administrators office, Yankton County Government Center, 321 West Third St., Yankton, S.D. or online at the Yankton County Website.

Sincerely,

Connor Mulherin
Petitioner

AKLAND, DAVID (D)
29667 448 AVE
IRENE SD 57037

BAKKE, WALLACE S (D)
44650 SD HWY 46
IRENE SD 57037

HAUGER, JEAN M LIVING TRUST (D)
29575 444 AVE
IRENE SD 57037

HAUGER, LOIS C (D)
812 JAMES PL
YANKTON SD 57078

HAUGER, RICHARD TRUST (D)
3209 W BITTERROOT ST
SIOUX FALLS SD 57108

HAUGER, RODNEY (D)
44677 SD HWY 46
IRENE SD 57037

HINSETH, JERALD (D)
44765 SD HWY 46
IRENE SD 57037

HINSETH, JERALD J (D)
44765 SD HWY 46
IRENE SD 57037

HOFMEISTER, KENNETH (LE) (D)
PO BOX 92
PARKER SD 57053

JANKLOW, FREDRIC (D)
PO BOX 211
IRENE SD 57037

MCDONALD, DARRELL J (D)
44327 296 ST
IRENE SD 57037

MULHERIN, CONNOR (D)
44726 SD HWY 46
IRENE SD 57037

VAN WYHE, CRYSTAL J LIV TRUST (D)
1301 S ELMWOOD AVE
SIOUX FALLS SD 57105

YOUNG, DAVID A (D)
22503 LAMBERT AVE
PACIFIC JUNCTION IA 51561

Please Check Plat Type:

☒ Final ☐ Amended ☐ Preliminary ☐ Revision

----------Development Information----------

Plat Name: Lot 1 of Red Cedar S/DIV lying in the S½ SW¼

Section No: 32 Township No: 96

Range : 54 Number of Lots/Tracts: 1

Number of Acres: ±3.41

How is the property currently being used? AG/residential

What is the proposed use of the property? AG/residential

----------Surveyor/Engineer Information----------

Firm Name: Stockwell / Brett Kennedy
Address: _____
City: _____ State: _____ Zip_____
Contact Person: _____
Phone: _____

----------Property Owner Information----------

Name: _____
Address: _____
City: _____ State: _____ Zip:_____
Contact person: _____
If the property owner is represented by an authorized agent, please provide the following:
Agent's name:_____
Agents Title: _____

You must provide the following:

The Yankton County Zoning Ordinance requires minimum lot sizes.

1.Does this lot/tract conform? ☐Yes ☑No
2.What is/are the lot size(s) 3.41
3. Is this (plat) an existing farmstead? ☐Yes ☑No
4. If a farmstead, how many acres are surrounding it? _____
5. The Yankton County Zoning Ordinance requires a variance from minimum lot sizes. Are you willing to apply for the variance, if necessary? ☑Yes ☐No
6. Is this property to have construction on it? ☐ Yes ☐ No
If yes :
Name, address and phone number of contractor(s)

_____
_____
_____
_____

----------Owner certification----------

This is to certify that _____ the undersigned is/are the sole owner(s) of the property described above on the date of this application, and that I/we have read and understand Section207 of the Yankton county Zoning Ordinance.

_____
Owner Signature

_____
Owner Signature

This is to certify that _____ acting by and through the undersigned, its duly authorized agent is/are the sole owner(s) of the property described above on the date of this application, and that I have read and understand Section 207 of the Yankton County Zoning Ordinance.

_____
Agent Signature

Planning Office Use Only: Planning Commission Date: _____
County Commission Date: _____

Some plats of subdivisions and additions may require a Perpetual Road Maintenance Agreement prior to consideration.

YANKTON COUNTY PLANNING

PLAT APPROVAL CHECKLIST

In order to insure prompt approval of your plat, please follow these steps:

☐ Plat has been approved by the City of Yankton, if within the ETJ or 3 mile buffer zone?

☑ 1. All required signatures notarized (owner(s), surveyor)?

☑ 2. Taxes paid at County Treasures?

☑ 3. County Treasurer's signature?

☑ 4. Ownership verified by Director of Equalization and signed?

☑ 5. Street authority signature (DOT, Highway, Township)?

☑ 6. $100.00 Fee Paid at Zoning Office?

☑ 7. Plat has been scheduled/approved by the Yankton County Planning Commission?

☐ 8. County Planning Commission Chair signature?

☐ 9. Plat has been scheduled/approved by the Yankton County Board of County Commissioners?

☐ 10. County Commission Chairs signature?

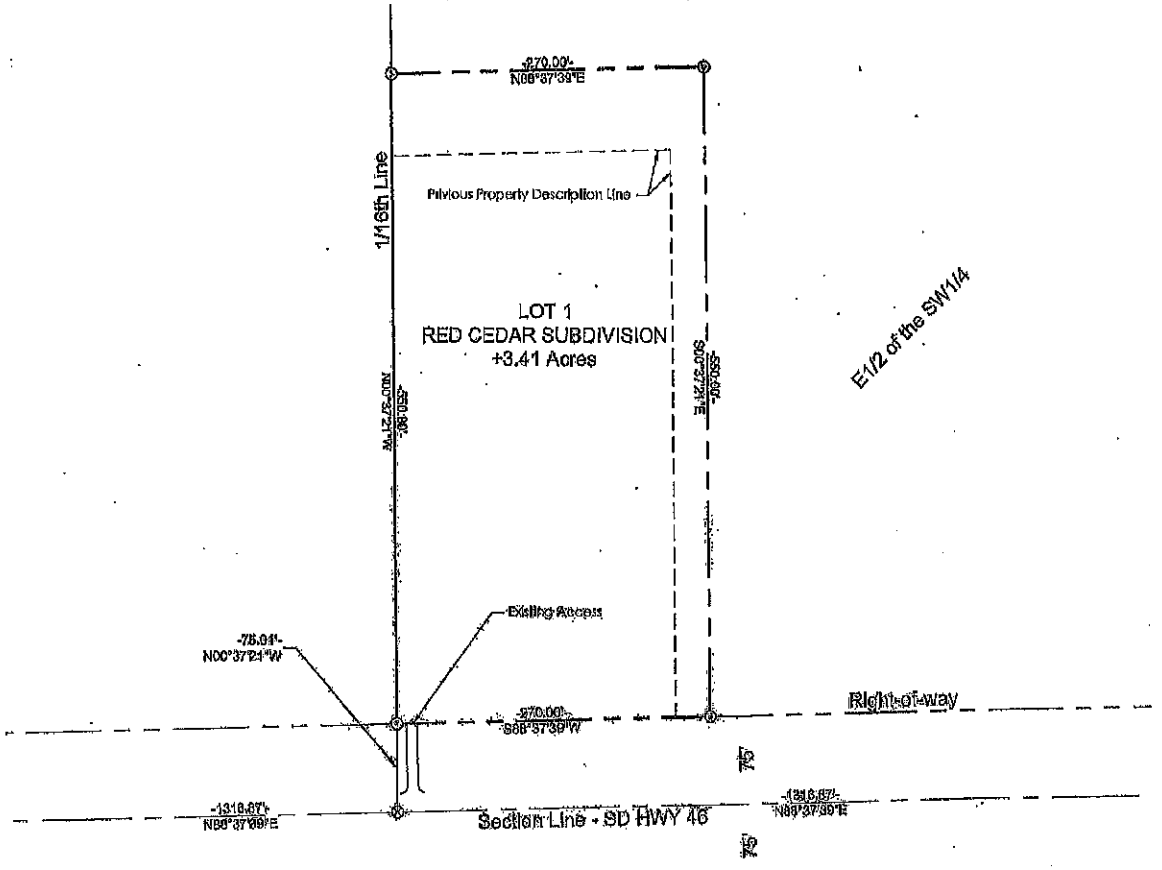
☐ 11. County Auditor's signature?

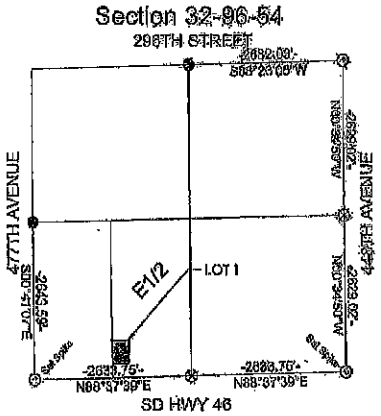
☐ 12. Plat has been filed with the Register of Deeds?

Planning Commission date: 7/14/20
Board of Adjustment date: 8/4/20

A PLAT OF LOT 1 OF RED CEDAR SUBDIVISION

LYING IN THE E1/2 OF THE SW1/4 OF SECTION 32, TOWNSHIP 96 NORTH, RANGE 54 WEST OF THE 5TH P.M., YANKTON COUNTY, SOUTH DAKOTA.



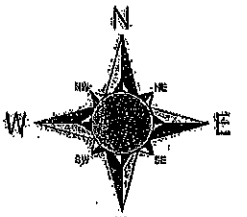


Location Map
1"=2000'

GRAPHIC SCALE

100 50 0 50 100 200

1 INCH = 100 FEET



BASIS OF CONTROL
NAD83 UTM 14

Legend

- Set 5/8" x 18" Rebar W/ Cap Stamped "KENNEDY LS 5350"
- Found Rebar W/ Cap Stamped "BRANDT LS 5349"
- Calculated Corner

SURVEYOR'S CERTIFICATE

I, Brett R. Kennedy, a Licensed Land Surveyor in the state of South Dakota, do hereby certify that at the request of Connor Mulherin, Wallace S. Bakke and Vivian J. Bakke as owners, and under their direction, did on or prior to May 7, 2020 survey the land described as follows:

A PLAT OF LOT 1 OF RED CEDAR SUBDIVISION LYING IN THE E1/2 OF THE SW1/4 OF SECTION 32, TOWNSHIP 96 NORTH, RANGE 54 WEST OF THE 5TH P.M., YANKTON COUNTY, SOUTH DAKOTA.

I also hereby certify that this plat is to the best of my knowledge and belief, in all respects, a true description of said property.

Dated this 28th day of May, 2020.

Brett R. Kennedy, LS 5350

REGISTERED PROFESSIONAL LAND SURVEYOR
REG. NO.
5350
BRETT R.
KENNEDY
SOUTH DAKOTA

PROJECT NUMBER:	20171
CREW CHIEF:	CBARUTT
DRAFTED BY:	BKENNEDY
REVIEWED BY:	JWHITLOCK
DRAWING:	20171 - Plat 32-T96N-R54W
LAYOUT:	Plat
SHEET NO. 1 OF 2 TOTAL SHEETS	

Prepared By:

STOCKWELL
STOCKWELL ENGINEERS, INC.
201 WALNUT STREET
YANKTON, SD 57078
PH: 605.665.6092
www.stockwellengineers.com

OWNER'S DEDICATION

We, the undersigned, hereby certify that we are the absolute and unqualified owners of the land included in this plat, this plat being entitled A PLAT OF LOT 1 OF RED CEDAR SUBDIVISION LYING IN THE E1/2 OF THE SW1/4 OF SECTION 32, TOWNSHIP 96 NORTH, RANGE 54 WEST OF THE 5TH P.M., YANKTON COUNTY, SOUTH DAKOTA, that the plat has been made at our request and under our direction for the purpose of defining and describing the property as shown by this plat, that the development of this land shall conform to all existing applicable zoning, subdivision and erosion and sediment control regulations and such development shall be accomplished in such a manner that all waters of the state on or adjacent to the subdivision shall be protected from pollution from sewage from such subdivision, and we hereby dedicate to the public, for public use forever as such, the streets and easements as shown and marked on this plat.

In witness whereof I have hereunto set my hand this 2 day of June, 2020.

By: _____
Connor Mulherin

COUNTY OF YANKTON)
STATE OF South Dakota)

On this, the 2nd day of June, 2020, before me, the undersigned, a Notary Public, personally appeared Connor Mulherin, known to me to be the person whose name is subscribed to the foregoing Dedication, and I hereby acknowledge that he/she executed the foregoing instrument.

In witness whereof, I hereunto set my hand and official seal.
My commission expires 04/30/2025
NANCY M BROCKMOLLER Seal Notary Public South Dakota
Notary Public

In witness whereof we have hereunto set our hands this 8 day of June, 2020.

By: _____
Wallace S. Bakke

By: _____
Vivian J. Bakke

COUNTY OF Yankton)
STATE OF South Dakota)

On this, the 8th day of June, 2020, before me, the undersigned, a Notary Public, personally appeared Wallace S. Bakke and Vivian J. Bakke, known to me to be the person whose name is subscribed to the foregoing Dedication, and I hereby acknowledge that he/she executed the foregoing instrument.

In witness whereof, I hereunto set my hand and official seal.
My commission expires 04/30/2025
NANCY M BROCKMOLLER Seal Notary Public South Dakota
Notary Public

CERTIFICATE OF PLANNING COMMISSION

I, _____, do hereby certify that the Planning Commission of Yankton County recommends approval of the foregoing Plat.

Dated this ____ day of _____, _____.

_____
Chairperson

COUNTY COMMISSION APPROVAL

Be it resolved that the PLAT OF LOT 1 OF RED CEDAR SUBDIVISION LYING IN THE E1/2 OF THE SW1/4 OF SECTION 32, TOWNSHIP 96 NORTH, RANGE 54 WEST OF THE 5TH P.M., YANKTON COUNTY, SOUTH DAKOTA, prepared by Brett A. Kennedy, a duly Licensed Land Surveyor in and for the State of South Dakota, was submitted to the Board of County Commissioners of Yankton County, South Dakota, and that after due consideration of the same Board, the Board, at its meeting held on the _____ day of _____, _____, approved said plat.

Board of County Commissioners

_____
Chairperson

APPROVAL OF HIGHWAY AUTHORITY

STATE OF SOUTH DAKOTA
COUNTY OF YANKTON

Access to SD HWY 46 is approved. This access approval does not replace the need for any permits required by Law to establish the precise access location.

Dated this 8 day of June, 2020.

_____
Highway or Street Authority

CERTIFICATION OF COUNTY AUDITOR

Whereas this plat has been submitted for the approval of the Yankton County Board of Commissioners by the owners of the within platted land and it appears that said lands are outside the boundaries of any municipality and that the system of streets conforms to the system of streets of existing plats and section lines of the County, that adequate provision is made for access to adjacent unplatted lands by public dedication or section lines where physically accessible, that all provisions of any subdivision regulations of the county have been complied with, that all taxes and special assessments upon the tract of subdivision have been fully paid and that the plat and survey thereof have been lawfully executed; therefore, be it resolved by the Yankton County Board of Commissioners that said plat is hereby approved.

I hereby certify that the foregoing resolution is a true and correct copy of the resolution adopted by the Yankton County Board of Commissioners on the date indicated.

Dated this ____ day of _____, _____.

_____
Yankton County Auditor

DIRECTOR OF EQUALIZATION

I, the undersigned, County Director of Equalization for Yankton County, South Dakota, do hereby certify that a copy of the above plat has been filed at my office.

Dated this 25 day of June, 2020.

_____
Director of Equalization Yankton County

CERTIFICATE OF COUNTY TREASURER

I, the undersigned, County Treasurer for Yankton County, South Dakota, do hereby certify that all taxes which are liens upon any of the land included in the above and foregoing plat, as shown by the records of my office, have been fully paid.

Dated this 8 day of June, 2020.

_____
Treasurer, Yankton County

CERTIFICATE OF REGISTER OF DEEDS

STATE OF SOUTH DAKOTA }
COUNTY OF YANKTON } SS

Filed for record this ____ day of _____, _____, at ____ o'clock ____ M. and recorded in Book _____ on Page _____ therein.

_____
Register of Deeds, Yankton County

PROJECT NUMBER: 20171
SHEET NO. 2 OF 2 TOTAL SHEETS

Yankton County Planning Commission
Yankton County Board of Adjustment

Date filed: 07/08/20

Applicant Bakke – Conditional Use Permit

District type: ☐ AG ☐ R1-Low ☒ R2-Moderate ☐ R3-High ☐ C-Comm.

☐ LC – Lakeside Commercial ☐ RT-Rural Transitional

CUP needed:

☒ Section 507 ☐ Section 607 ☐ Section 707 ☐ Section 807

☒ Section 1805 ☐ Section 1905

NOTE:

Conditional Use Permit

Applicant is requesting a Conditional Use Permit for an Open Sales Area and a Repair Shop, Motor Vehicle and Equipment. Said property is legally described as SW1/4 SE1/4, Section 31, T96N R54W Yankton County, South Dakota less highways and roads hereinafter referred to as Turkey Valley Township, County of Yankton, State of South Dakota. The E911 address is 44650 SD Hwy 46.

PC:	Article 5 Section 507 #28 and #37	Article 18 Section 1805
BOA:	Article 5 Section 507 #28 and #37	Article 19 Section 1905

Planning Commission date: 08/11/20 Time: 7:15 PM
Board of Adjustment date: Time:

Permit Number: CUP-2020-10

Yankton County

_____ Variance _X_ Conditional Use _____ Rezoning

Owner: Wally Bakke

Owners Address: 44650 SD Hwy 46, Irene, SD

Owners Phone: 605-661-0609

Applicants Name, if different from Owner: Wally Bakke

Applicants Address: 44650 SD Hwy 46, Irene, SD

Job Address: 44650 SD HWY 46

Legal: SW4 SE4 EXC LT H1

Section, Township, Range: 31-96-54

Zoning Classification: AG

Affected Zoning Ordinance: 507 and 1805Section 1905507

Reason for Request: Buy and sell used cars, pickups, tractors, trailors, farm equipment

List Specific Hardships:

SCHEDULED FOR PLANNING COMMISSION ACTION (DATE): 08/11/2020 7:15

SCHEDULED FOR BOARD OF ADJUSTMENT ACTION (DATE): _____

Application Fee: $300.00 Check #: 2585 Receipt #: _____

Signature: Date: 07/10/2020

Wally Bakke

YANKTON COUNTY
APPLICATION #CUP-20-010

wallybakke0609@gmail.com

(Type or Print)
OWNER: Wally Bakke

OWNERS ADDRESS: 44650 SD Hwy 46

OWNERS DAYTIME PHONE#: 605-661-0609

- ___ Variance Application
- ✓ Conditional Use Permit
- ___ Rezoning Permit

DATE OF BUILDING PERMIT REQUEST: N/A

DESCRIPTION OF BUILDING PERMIT: N/A

REASON FOR BUILDING PERMIT DENIAL: N/A

DATE OF DENIAL:

JOB ADDRESS: 44650 SD Hwy 46

LEGAL: SW4 SE4 Exc. Lt #1

TOWNSHIP: 96-54 **SECTION:** 31

EXISTING USE OF PROPERTY: AG

PRESENT ZONING CLASSIFICATION: AG

PROPOSED ZONING CLASSIFICATION: N/A

AFFECTED SECTION OF ZONING ORDINANCE: 507 # 28 & #37

REASON FOR REQUEST: Buy an Sell used cars pickups trucks trailer Farm EQ

LIST SPECIFIC HARDSHIPS:

Applications will not be accepted nor acted upon until the following information has been provided by the applicant:

A) Detailed Site Plan (Refer to handout)
B) Location and Use of Adjacent Structures
C) Application Fee(s)

SCHEDULED FOR PLANNING COMMISSION ACTION (Date): 8/11/20
SCHEDULED FOR BOARD OF ADJUSTMENT ACTION (Date): 9/1/20
***TENTATIVE DATE: Final date announced at Planning Commission Meeting:**

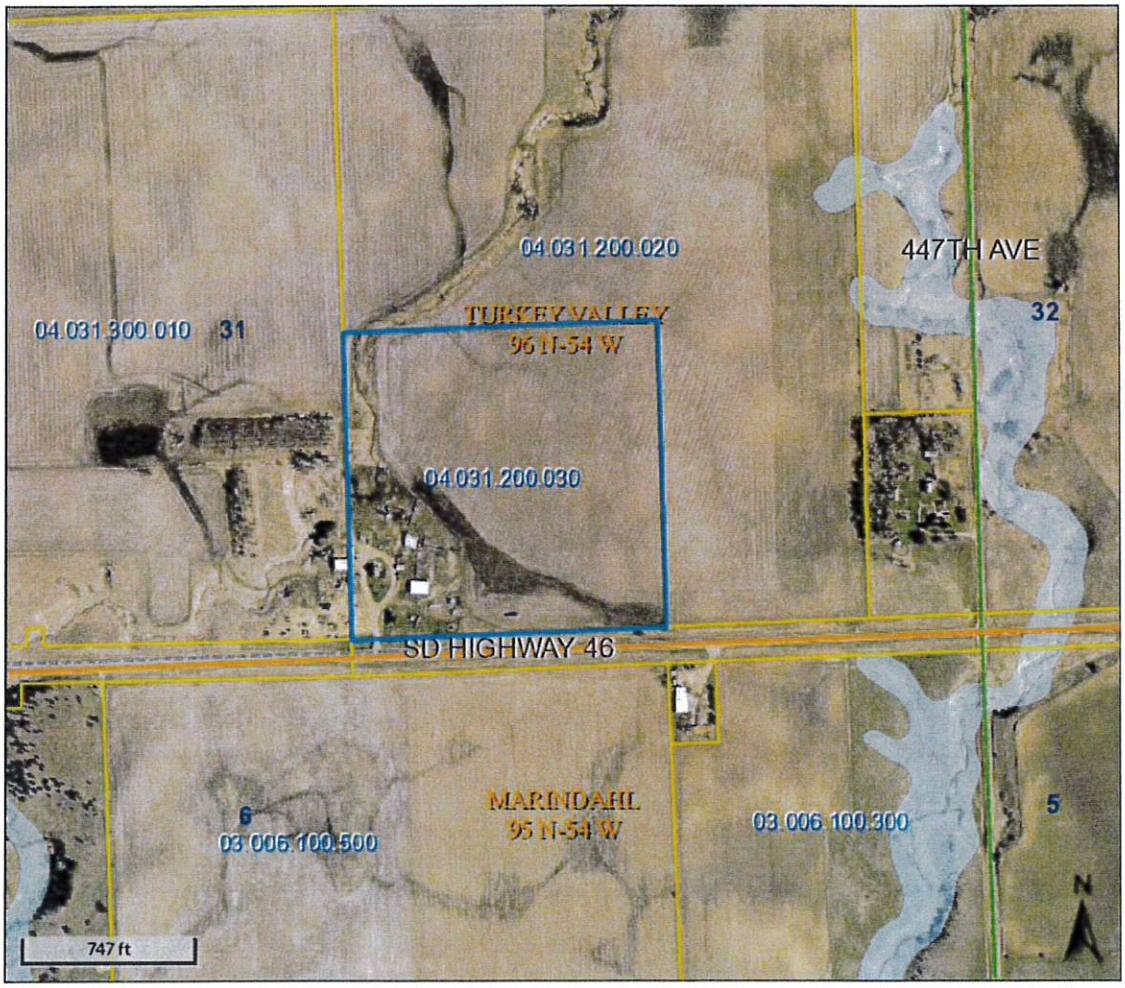
APPLICATION FEE: 300 **CHECK #:** 2585 **RECEIPT #:** 52590

The undersigned acknowledges/declares that all the facts and representations stated in this application are true and by signing, acknowledges the cost and the procedure for the processing of the application and certifies that the property described by the legal description is not delinquent.

Wally Bakke 7-8-20 Wally Bakke 7-8-20

Name of Applicant Date Signature of Applicant/Owner Date

Beacon™ Yankton County, SD



Overview

Legend

- Townships
- Sections
- Parcels
- City Limits
- Streets and Roads

County Zoning District

- <all other values>
- COMMERCIAL
- ETJ
- HIGH DENSITY RESIDENTIAL
- LAKE SIDE COMMERCIAL
- LOW DENSITY RESIDENTIAL
- MODERATE DENSITY RESIDENTIAL
- PLANNED UNIT DEVELOPMENT
- PUBLIC
- RURAL TRANSITIONAL

City ETJ (Extra Territorial Jurisdictio

- <all other values>
- 0

Floodplain

- 100 YEAR FLOOD NO BFE; 100 YEAR FLOOD WITH BFE
- 500 YEAR FLOOD

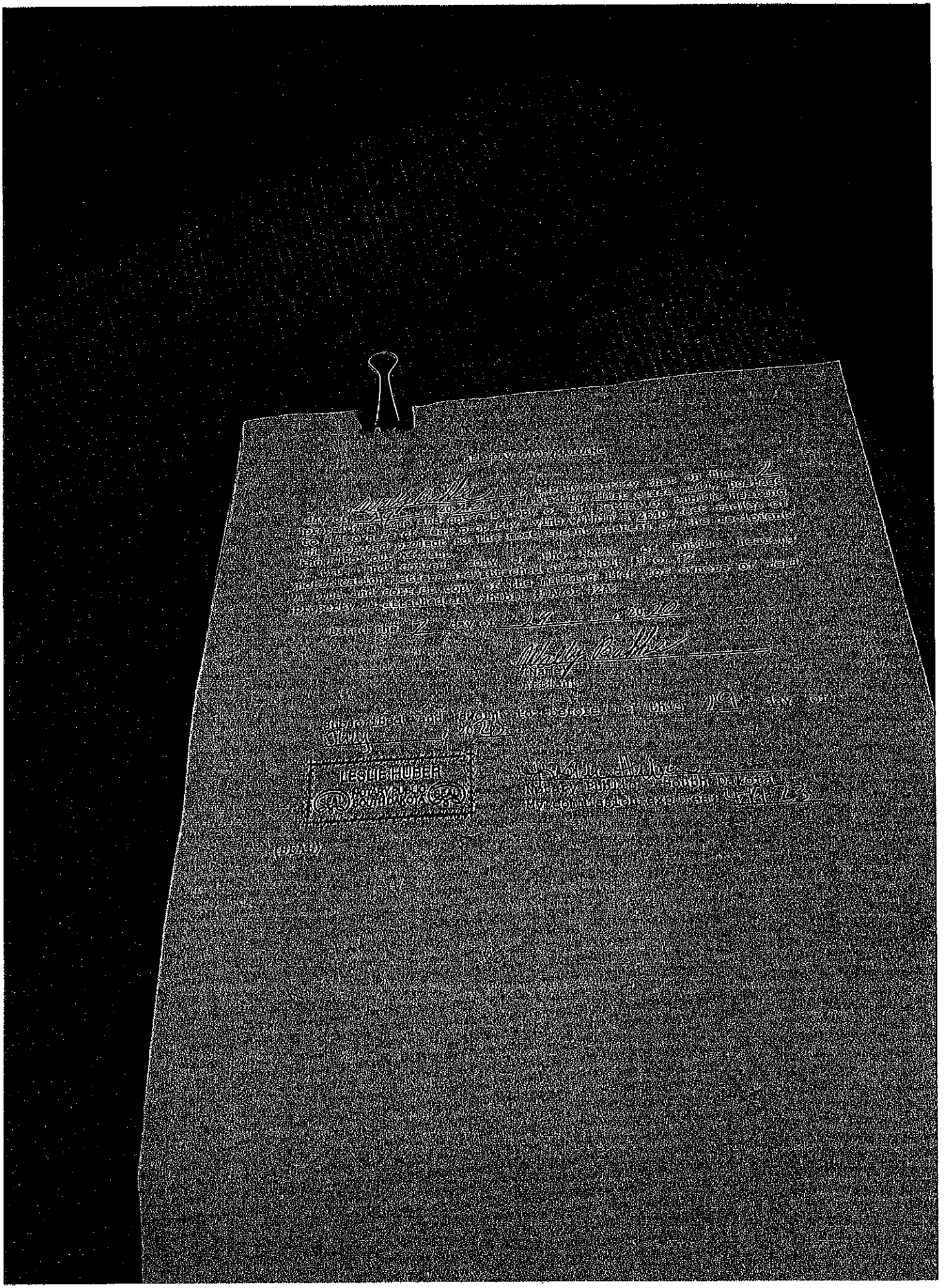
Parcel ID - 04.031.200.030
Address - 44650 SD HWY 46
Owner - BAKKE, WALLACE S (D)
BAKKE, VIVIAN J (D)
Acres - 37.75

Disclaimer: Yankton County digital cadastral data are a representation of recorded plats and surveys for use within the Geographic Information System for purposes of data access and analysis. These and other digital data do not replace or

FINDINGS OF FACT – CONDITIONAL USE PERMIT

Wally Bakke – CUP-2020-10

Are the requirements of Section 1723 met? (signed by owner unless there is a binding purchase agreement then signed by applicant, Variance accompanied by building permit (if applicable), site plan included with building permit,	Yes
Are the requirements of Section 1729 met? (all fees paid at time of application)	Yes
Section 1805:	
1. Did you specifically cite, in the application, the section of the Ordinance under which the conditional use is sought and state the grounds on which it is requested	Applicant is requesting a Conditional Use Permit for an Open Sales Area and a Repair Shop, Motor Vehicle and Equipment.
2. Was notice of public hearing given per Section 1803 (3-5)?	Mailed – 7/29/20 Published – 07/31/20
3. Attend the public hearing	08/11/20
4. Planning Commission: Make a recommendation to include: a. Granting of conditional use; b. Granting with conditions; or c. Denial of conditional use	
5. Planning Commission must make written findings certifying compliance with specific rules including: a. Ingress and Egress to proposed structures thereon with particular reference to automotive and pedestrian safety and convenience, traffic flow and control, and access in case of fire or catastrophe;	
b. Off right-of-way parking and loading areas where required; with particular attention to the items in (A) above and the economic, noise, glare or odor effects of the conditional use on adjoining properties and properties generally in the district;	
c. Refuse and service areas, with particular reference to the items in (A) and (B) above;	
d. Utilities, with reference to locations, availability, and compatibility;	
e. Screening and buffering with reference to type, dimensions, and character;	
f. Signs, if any, and proposed exterior lighting with reference to glare, traffic safety, economic effect;	
g. Required yards and other open spaces; and	
h. General compatibility with adjacent properties and other property in the district and that the granting of the conditional use will not adversely affect the public interest.	



NOTIFICATION

July 31, 2020

Wally Bakke
44650 SD Hwy 46
Irene, SD 57037

Dear Yankton County Property Owner:

The Yankton County Zoning Ordinance requires written notification describing a specific action be sent to the owners of real property lying within 2,640 feet of the property on which the below described action is proposed. The notice shall be given to each owner of record by depositing such notice in the United States Post Office not less than 10 days prior to the hearing date. Therefore, you are hereby notified. Please take a moment to review the notice of public hearing described below.

NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing will be held before the Yankton County Planning Commission, Yankton County, South Dakota, at 7:15 P.M. on the 11th day of August, 2020 at the Yankton County Government Center, Commissioners Chambers, 321 West Third St., Yankton South Dakota.

Said hearing is to consider the following:
Applicant is requesting a Conditional Use Permit for an Open Sales Area and a Repair Shop, Motor Vehicle and Equipment. Said property is legally described as SW1/4 SE1/4, Section 31, T96N R54W Yankton County, South Dakota less highways and roads hereinafter referred to as Turkey Valley Township, County of Yankton, State of South Dakota. The E911 address is 44650 SD Hwy 46.

The application may be reviewed at the Zoning Administrators office, Yankton County Government Center, 321 West Third St., Yankton, S.D. or online at the Yankton County Website.

Sincerely,

Wally Bakke
Petitioners

BAKKE, WALLACE S (D)
44650 SD HWY 46
IRENE SD 57037

BROCKMUELLER, JOHN D TRUST (D)
44619 295 ST
IRENE SD 57037

DSS EQUIPMENT & PROPERTY LLC (C)
29541 448 AVE
IRENE SD 57037

HAUGER, LOIS C (D)
812 JAMES PL
YANKTON SD 57078

HAUGER, RICHARD TRUST (D)
3209 W BITTERROOT ST
SIOUX FALLS SD 57108

HAUGER, RODNEY (D)
44677 SD HWY 46
IRENE SD 57037

HEALY, THOMAS G (D)
44219 294 ST
IRENE SD 57037

HOFMEISTER, KENNETH (LE) (D)
PO BOX 92
PARKER SD 57053

JANKLOW, FREDRIC (D)
PO BOX 211
IRENE SD 57037

MCDONALD, DARRELL J (D)
44327 296 ST
IRENE SD 57037

MULHERIN, CONNOR (D)
44726 SD HWY 46
IRENE SD 57037

SEES, JAMES D (D)
29967 444 AVE
VOLIN SD 57072

VAN WYHE, CRYSTAL J LIV TRUST (D)
1301 S ELMWOOD AVE
SIOUX FALLS SD 57105

YOUNG, DAVID A (D)
22503 LAMBERT AVE
PACIFIC JUNCTION IA 51561

Yankton County Planning Commission
Yankton County Board of Adjustment

Date filed: 01/20/20

Applicant Velocitel/AT&T – Conditional Use Permit

District type: ☐ AG ☐ R1-Low ☒ R2-Moderate ☐ R3-High ☐ C-Comm.

☐ LC – Lakeside Commercial ☐ RT-Rural Transitional

CUP needed:
☐ Section 507 ☐ Section 607 ☐ Section 707 ☒ Section 807

☒ Section 1805 ☐ Section 1905

NOTE:

Conditional Use Permit

Applicant is requesting a Conditional Use Permit for a Communications Tower. Said property is legally described as Kabeiseman's Tract 4, as platted in Book S10, page 22, excepting therefrom the E 590.30' of the S 590.30' of Kabeiseman's Tract 4 as shown on survey, located in the N1/2 and excepting the E 590.30' of the N 590.30' of Section 12, T93N, R57W of the 5th PM, Yankton County, South Dakota less highways and roads hereinafter referred to as Ziskov South Township, County of Yankton, State of South Dakota. The E911 address is 398 Wildflower Rd, Yankton, SD.

PC:	Article 8 Section 807	Article 18 Section 1805
BOA:	Article 8 Section 807	Article 19 Section 1905

Planning Commission date: 08/11/20 Time: 7:20 PM
Board of Adjustment date: Time:

YANKTON COUNTY
APPLICATION # CUP-2020-11

(Type or Print)
OWNER: Joseph and Teri A. Creager

OWNERS ADDRESS: 3012 Moon Meadows, Rapid City, SD 57702

OWNERS DAYTIME PHONE#: 605-660-0317

___	Variance Application
X	Conditional Use Permit
___	Rezoning Permit

DATE OF BUILDING PERMIT REQUEST: 1/20/2020

DESCRIPTION OF BUILDING PERMIT: New 199' tall communications monopole tower.

REASON FOR BUILDING PERMIT DENIAL: _____

DATE OF DENIAL: _____

JOB ADDRESS: 398 Wildflower Rd., Yankton, SD 57078

LEGAL: NE1/4 of Section 12, Township 93 North, Range 57 West, 5th P.M., Yankton County, South Dakota

TOWNSHIP: _____ **SECTION:** 12

EXISTING USE OF PROPERTY: Agricultural

PRESENT ZONING CLASSIFICATION: Agricultural

PROPOSED ZONING CLASSIFICATION: Same- Agricultural

AFFECTED SECTION OF ZONING ORDINANCE: Article 5 and all of Article 25

REASON FOR REQUEST: Construct a new 199' monopole communications tower to help AT&T achieve their coverage objective for their First Responder Network they are building.

LIST SPECIFIC HARDSHIPS: There are no existing towers within 2 miles that are tall enough or could be extended for AT&T to achieve their coverage requirement.

Applications will not be accepted nor acted upon until the following information has been provided by the applicant:

A) **Detailed Site Plan (Refer to handout)**
B) **Location and Use of Adjacent Structures**
C) **Application Fee(s)**

SCHEDULED FOR PLANNING COMMISSION ACTION (Date): _____
SCHEDULED FOR BOARD OF ADJUSTMENT ACTION (Date): _____
***TENTATIVE DATE: Final date announced at Planning Commission Meeting:**

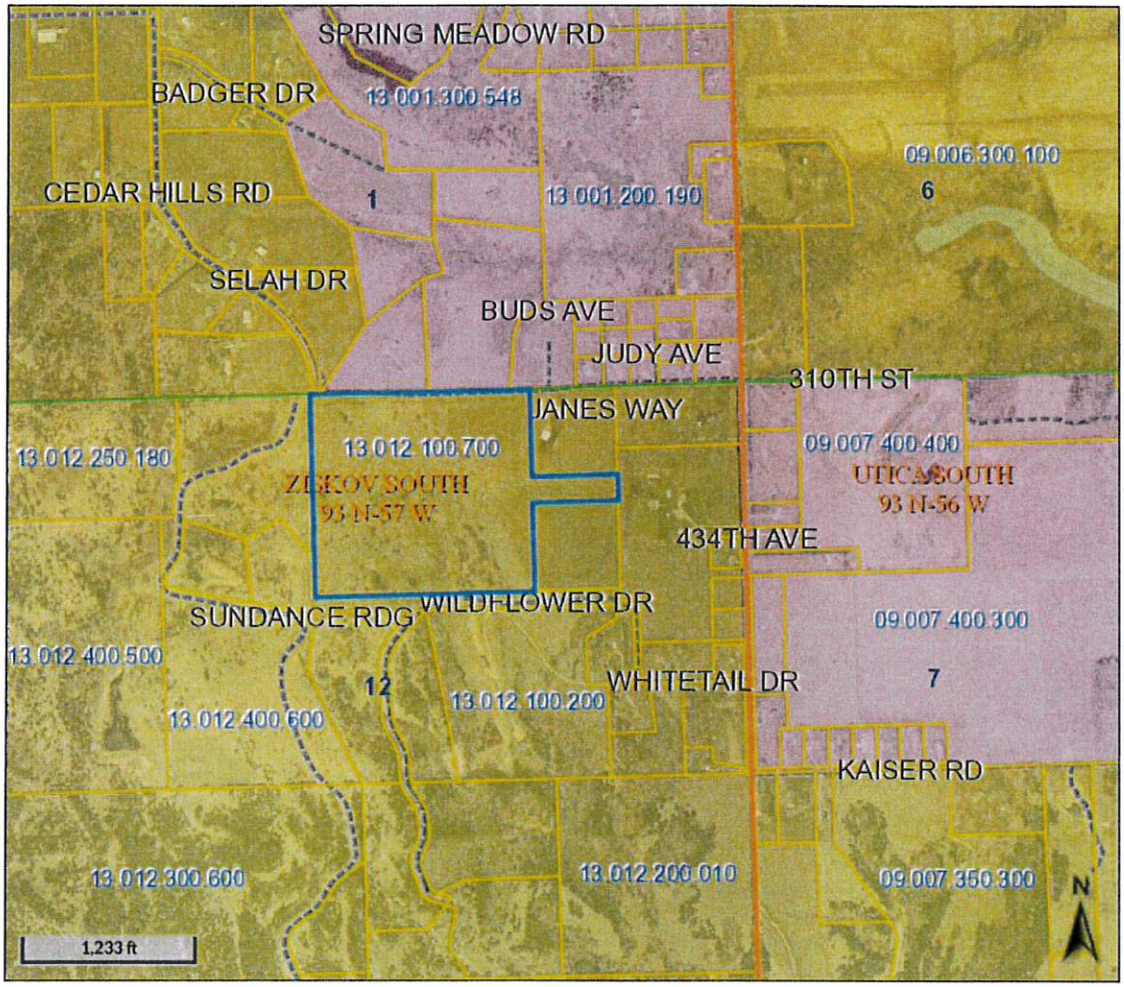
APPLICATION FEE: $5,000 **CHECK #:** 14391 **RECEIPT #:** _____

The undersigned acknowledges/declares that all the facts and representations stated in this application are true and by signing, acknowledges the cost and the procedure for the processing of the application and certifies that the property described by the legal description is not delinquent.

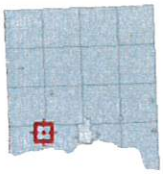
Brandon Peterson 01/20/20 — 01/20/20

Name of Applicant **Date** **Signature of Applicant/Owner** **Date**

Beacon™ Yankton County, SD



Overview



Legend

- Townships
- Sections
- Parcels
- City Limits
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County Zoning District

- <all other values>
- COMMERCIAL
- ETJ
- HIGH DENSITY RESIDENTIAL
- LAKE SIDE COMMERCIAL
- LOW DENSITY RESIDENTIAL
- MODERATE DENSITY RESIDENTIAL
- PLANNED UNIT DEVELOPMENT
- PUBLIC
- RURAL TRANSITIONAL

Floodplain

- 100 YEAR FLOOD NO BFE; 100 YEAR FLOOD WITH BFE
- 500 YEAR FLOOD

Parcel ID - 13.012.100.700
Address - 398 WILDFLOWER RD
Owner - CREAGER, JOSEPH (D)
CREAGER, TERI A (D)
Acres - 48.89

Disclaimer: Yankton County digital cadastral data are a representation of recorded plats and surveys for use within the Geographic Information System for purposes of data access and analysis. These and other digital data do not replace or modify land surveys, deeds, and/or other legal instruments defining land ownership or use.

Date created: 7/24/2020
Last Data Uploaded: 7/24/2020 10:58:50 AM

velocitel
complete wireless solutions

6100 W 110th Street
Bloomington, MN 55438

July 16, 2020

Yankton County
Planning and Zoning
321 West 3rd Street
#209
Yankton, SD 57078

RE: RE: Conditional Use Permit fee
AT&T Site: 14884311 Lewis & Clark

To Whom it May Concern.

Enclosed please find a Conditional Use Permit fee check #19276 for AT&T Mobility site 14884311 Lewis & Clark at location 398 Wildflower Road, Yankton, SD 57078

Should you have questions or concerns, please reach out to the site acquisition agent for this project:

Noura Elmanssy
(320) 640-4713 x 84713
nelmanssy@velocitel.com

Sincerely,

Shannon Leners
Leasing Administrator

6100 W 110th Street
Bloomington, MN 55438
Office (320) 640-4723 Ext. 84723
Fax 952.944.1506
sleners@velocitel.com

FINDINGS OF FACT – CONDITIONAL USE PERMIT

Velocitel/AT&T – CUP-2020-11

Are the requirements of Section 1723 met? (signed by owner unless there is a binding purchase agreement then signed by applicant, Variance accompanied by building permit (if applicable), site plan included with building permit,	Yes
Are the requirements of Section 1729 met? (all fees paid at time of application)	Yes
Section 1805:	
1. Did you specifically cite, in the application, the section of the Ordinance under which the conditional use is sought and state the grounds on which it is requested	Applicant is requesting a Conditional Use Permit for a Communications Tower.
2. Was notice of public hearing given per Section 1803 (3-5)?	Mailed – Published – 07/31/20
3. Attend the public hearing	08/11/20
4. Planning Commission: Make a recommendation to include: a. Granting of conditional use; b. Granting with conditions; or c. Denial of conditional use	
5. Planning Commission must make written findings certifying compliance with specific rules including: a. Ingress and Egress to proposed structures thereon with particular reference to automotive and pedestrian safety and convenience, traffic flow and control, and access in case of fire or catastrophe;	
b. Off right-of-way parking and loading areas where required; with particular attention to the items in (A) above and the economic, noise, glare or odor effects of the conditional use on adjoining properties and properties generally in the district;	
c. Refuse and service areas, with particular reference to the items in (A) and (B) above;	
d. Utilities, with reference to locations, availability, and compatibility;	
e. Screening and buffering with reference to type, dimensions, and character;	
f. Signs, if any, and proposed exterior lighting with reference to glare, traffic safety, economic effect;	
g. Required yards and other open spaces; and	
h. General compatibility with adjacent properties and other property in the district and that the granting of the conditional use will not adversely affect the public interest.	

AFFIDAVIT OF MAILING

I,_____, hereby certify that on the _____ day of _____, 20_____, I mailed by first class mail, postage prepaid, a true and correct copy of the Notice of Public Hearing to all owners of real property lying within a 2640 feet radius of the proposed project to the most recent address of the recipient known to your Affiant.

A true and correct copy of the Notice of Public Hearing notification letters are attached as Exhibit #1 or #2.

A true and correct copy of the mailing list for owners of real property is attached as Exhibit #1A or #2A.

Dated the _____ day of_____, 20_____.

_____
(Name)
Affiant

Subscribed and sworn to before me this _____ day of _____, 20_____.

_____
Notary Public - South Dakota
My commission expires: _____

(SEAL)

NOTIFICATION

July 31, 2020

Velocitel/AT&T
6100 W 110th Street
Bloomington, MN 55438

Dear Yankton County Property Owner:

The Yankton County Zoning Ordinance requires written notification describing a specific action be sent to the owners of real property lying within 2,640 feet of the property on which the below described action is proposed. The notice shall be given to each owner of record by depositing such notice in the United States Post Office not less than 10 days prior to the hearing date. Therefore, you are hereby notified. Please take a moment to review the notice of public hearing described below.

NOTICE OF PUBLIC HEARING

Notice is hereby given that a public hearing will be held before the Yankton County Planning Commission, Yankton County, South Dakota, at 7:20 P.M. on the 11th day of August, 2020 at the Yankton County Government Center, Commissioners Chambers, 321 West Third St., Yankton South Dakota.

Said hearing is to consider the following:
Applicant is requesting a Conditional Use Permit for a Communications Tower. Said property is legally described as Kabeiseman's Tract 4, as platted in Book S10, page 22, excepting therefrom the E 590.30' of the S 590.30' of Kabeiseman's Tract 4 as shown on survey, located in the N1/2 and excepting the E 590.30' of the N 590.30' of Section 12, T93N, R57W of the 5th PM, Yankton County, South Dakota less highways and roads hereinafter referred to as Ziskov South Township, County of Yankton, State of South Dakota. The E911 address is 398 Wildflower Rd, Yankton, SD.

The application may be reviewed at the Zoning Administrators office, Yankton County Government Center, 321 West Third St., Yankton, S.D. or online at the Yankton County Website.

Sincerely,

Velocitel/AT&T
Petitioners

ANDERSEN, CHARLES (D)
43420 KAISER RD
YANKTON SD 57078

AUSBORN, DARRELL L (D)
31041 434 AVE
YANKTON SD 57078

BACHMAN, JENNIFER R (D)
31021 434 AVE
YANKTON SD 57078

BAHM, RICHARD (D)
30965 434 AVE
YANKTON SD 57078

BALDWIN, ALAN (D)
13131 CHARLES ST
OMAHA NE 68154

BARTH, CHAD K (D)
PO BOX 237
YANKTON SD 57078

BESSERT, BARRY A (D)
3506 RED MOUNTAIN DR
FORT COLLINS CO 80525

BRAATEN, MARK A (D)
117 BADGER DR
YANKTON SD 57078

BRANDT, BRIAN R (D)
124 SPRING MEADOW RD
YANKTON SD 57078

BRUNICK, SHELDON (D)
43383 310 ST
YANKTON SD 57078

C&K LAND HOLDINGS LLC (D)
48129 266 ST
BRANDON SD 57005

CEDAR HILLS ROAD DISTRICT (D)
303 CEDAR HILLS RD
YANKTON SD 57078

CHRISTENSEN, JACOB (D)
109 JANES WAY
YANKTON SD 57078

CHRISTENSEN, WILLIAM D (D)
2913 W BITTERROOT ST
SIOUX FALLS SD 57108

CREAGER, JOSEPH (D)
3012 MOON MEADOWS
RAPID CITY SD 57702

CURRAN, THOMAS (D)
43403 KAISER RD
YANKTON SD 57078

DAUGHERTY, LISA J B (D)
122 WEST 3 ST
YANKTON SD 57078

DEHMER, WILHELM E (D)
43410 KAISER RD
YANKTON SD 57078

DELONG, PAUL F REV LIV TRST (D)
43416 KAISER RD
YANKTON SD 57078

DLK&M LLC (D)
130 MAIN ST
SCOTLAND SD 57059

DOPPENBERG, JOHN L (D)
30969 434 AVE
YANKTON SD 57078

EF RANCH NEW HOPE FARMS TRUST (D
31067 SKYLINE DR
YANKTON SD 57078

ELLIS, DAVID W (D)
123 SPRING MEADOW RD
YANKTON SD 57078

FISCHER, KATERINA J (D)
89039 562 AVE
HARTINGTON NE 68739

FOKKEN, DENIS L (D)
405 REGAL DR
YANKTON SD 57078

FRICK, CHRISTOPHER (D)
31033 434 AVE
YANKTON SD 57078

GALL, RODNEY (D)
31024 434 AVE
YANKTON SD 57078

GAUSE, JANELL D (D)
108 RICHARD ST
YANKTON SD 57078

GILMORE, TONJA A (D)
30972 434 AVE
YANKTON SD 57078

GOEDEN, BROOKS L (D)
31016 434 AVE
YANKTON SD 57078

GOEDEN, RYAN (D)
30963 434 AVE
YANKTON SD 57078

GRATE, EUGENE L (D)
31007 434 ST
YANKTON SD 57078

GRUBE, STEVEN J (D)
9801 WATERFORD ESTATES DR
LINCOLN NE 68527

GUITRON, MARIA D (D)
43454 310 ST
YANKTON SD 57078

GUSTMAN, FREDERICK C (D)
104 JUDYS AVE
YANKTON SD 57078

HACECKY FAMILY PROPERTIES LLC (D)
1500 WHITING DR
YANKTON SD 57078

HENDRICKSON, PAULA (D)
103 SELAH DR
YANKTON SD 57078

HEVLE, DOUG (D)
43371 310 ST
YANKTON SD 57078

HOLLAND, DANIEL C (D)
378 WILDFLOWER RD
YANKTON SD 57078

HUBER, TODD H (D)
31083 SUNDANCE RIDGE
YANKTON SD 57078

JANIS, HEATHER ANN (D)
30991 434 AVE
YANKTON SD 57078

JANSEN, DUANE (D)
43386 310 ST
YANKTON SD 57078

JENSEN, GLENN E (D)
43384 WHITETAIL DR
YANKTON SD 57078

JOHNSON, DENNIS D (D)
110 JUDYS AVE
YANKTON SD 57078

JONES, CHAD L (D)
285 CEDAR HILLS RD
YANKTON SD 57078

KABEISEMAN, WILLIAM J (D)
1210 DOUGLAS AVE
YANKTON SD 57078

KAISER, DIANE (D)
12317 HASCALL ST
OMAHA NE 68144

KATHOL, EARL L (D)
31044 434 AVE
YANKTON SD 57078

KERR, CHRIS (D)
43426 KAISER RD
YANKTON SD 57078

KNEIFL PROPERTIES LLC (D)
31072 434 AVE
YANKTON SD 57078

KOELLNER, BLAIR W (D)
104 JANES WAY
YANKTON SD 57078

KOLETZKY, KELLIE (D)
303 CEDAR HILLS RD
YANKTON SD 57078

KRAMER, DANIEL (D)
30985 434 AVE
YANKTON SD 57078

KRAMER, FRANCIS T (D)
265 CEDAR HILLS RD
YANKTON SD 57078

KUCHTA, JACKIE (D)
2201 GRANDVIEW BLVD
SIOUX CITY IA 51104

KUNKEL, MICHELE L (D)
103 JANES WAY
YANKTON SD 57078

LABER, BART (D)
40323 277 ST
DELMONT SD 57330

LABOUNTY, TERRY E (D)
206 CEDAR HILLS RD
YANKTON SD 57078

MAIBAUM, BILLY (D)
43348 310 ST
YANKTON SD 57078

MARSH, RUSSELL A (D)
43425 KAISER RD
YANKTON SD 57078

MARTIN, BARBARA A (D)
393 WILDFLOWER RD
YANKTON SD 57078

MASSEY, JAMES P REV TRUST (D)
42764 284 ST
OLIVET SD 57052

MATCHA, DAN REVOCABLE TRUST (D)
31018 434 AVE
YANKTON SD 57078

MCDERMOTT, LUCAS (D)
43409 KAISER RD
YANKTON SD 57078

MCDONALD, DONALD J (D)
30917 SD HWY 314
YANKTON SD 57078

MINES, JOHN (D)
43404 KAISER RD
YANKTON SD 57078

MOHNEN, COLE T (D)
112 SPRING MEADOW RD
YANKTON SD 57078

MOORE, ERIC E (D)
PO BOX 44
YANKTON SD 57078

MUNSTER, CHARLES G REV TRUST (D)
1011 FELTL CT #604
HOPKINS MN 55343

NEDVED, VIRGINIA I REV TRUST (D)
43285 308 ST
YANKTON SD 57078

NESJE, WAYNE R (D)
PO BOX 548
YANKTON SD 57078

NEUMAYR, SHARON (D)
43354 310 ST
YANKTON SD 57078

NIEMEYER, MARILYN (D)
43408 KAISER RD
YANKTON SD 57078

O'DONNELL, TYLER (D)
307 CEDAR HILLS RD
YANKTON SD 57078

OLIVIER, JUSTIN (D)
139 SPRING MEADOW RD
YANKTON SD 57078

PINKELMAN, JEROME A (D)
43383 WHITETAIL DR
YANKTON SD 57078

RIIBE, PATRICK H (D)
167 SPRING MEADOW RD
YANKTON SD 57078

RIIBE, PATRICK H LIVING TRUST (D)
167 SPRING MEADOW RD
YANKTON SD 57078

RUNESTAD, LEE P (D)
31014 434 AVE
YANKTON SD 57078

SCHILOUSKY, ADAM (D)
31038 SUNDANCE RIDGE
YANKTON SD 57078

SCHULZ, CHUCK (D)
138 SPRING MEADOW RD
YANKTON SD 57078

SCOTT, BJAYE (D)
213 CEDAR HILLS RD
YANKTON SD 57078

SCOTT, NOELLE FMLY TRST (THE) (D)
608 EAST 29 ST
YANKTON SD 57078

SCOTT, THOMAS D (D)
101 JUDYS AVE
YANKTON SD 57078

SIEKMEIER, JOHN (D)
321 CEDAR HILLS RD
YANKTON SD 57078

STARK, RICHARD A (D)
31049 434 AVE
YANKTON SD 57078

STARZL, NICHOLAS J (D)
43401 310 ST
YANKTON SD 57078

STECKLER, MARK T (D)
43425 310 ST
YANKTON SD 57078

STEFFEN, RANDALL D (D)
113 SPRING MEADOW RD
YANKTON SD 57078

STEINBRECHER, ROBERT REV TRST (D)
105 BUDS AVE
YANKTON SD 57078

STUCKY, JAMES K (D)
2807 ADKINS DR
YANKTON SD 57078

STUCKY, KENNETH D JR (D)
31017 434 AVE
YANKTON SD 57078

SUNDANCE DEVELOPMENT LLC (D)
31083 SUNDANCE RDG
YANKTON SD 57078

TAYLOR, LYNN (D)
30974 433 AVE
YANKTON SD 57078

TENNANT, TERRY J (D)
43381 WHITETAIL DR
YANKTON SD 57078

THORSON, JAMES P (D)
368 WILDFLOWER RD
YANKTON SD 57078

TORO, EDGARDO (D)
563 SUNSET ST
LAWTON OK 73507

TUCH, DARREN C (D)
202 CEDAR HILLS RD
YANKTON SD 57078

UGOFSKY, BROOKS C (D)
43394 310 ST
YANKTON SD 57078

VAN MAANEN, TODD (D)
30994 434 AVE
YANKTON SD 57078

VAN ROEKEL, MICHAEL J (D)
3230 380 ST
SIOUX CENTER IA 51250

VILLANUEVA, MICHAEL C REV TRST (D)
919 WEST 3 ST
YANKTON SD 57078

VOLDEN, PERRY A (D)
118 BADGER DR
YANKTON SD 57078

WARNOCK, DAVID M (D)
PO BOX 1055
YANKTON SD 57078

WEISS, DENNIS REVOCABLE TRUST (D)
43390 WHITETAIL DR
YANKTON SD 57078

WOOD, GARY L (D)
PO BOX 451
YANKTON SD 57078

YONKE, BLAKE I (D)
105 SPRING MEADOW RD
YANKTON SD 57078

Cover Letter for Submission

POWDER RIVER
Development Services, LLC

Powder River Development Services, LLC
4332 E. Park Ave
Gilbert, AZ 85234
(614) 389-3914 Office
(208) 938-8855 Fax
www.powderriverdev.com

June 23rd, 2020

Yankton County Planning & Zoning
321 West 3rd Street, Suite 209
Yankton, SD 57078

RE: Submission of CUP application – Proposed 199' Monopole Wireless Communications Facility located at 398 Wildflower Rd., Yankton, SD 57078. Parcel #13.012.100.700
Property Owners: Joseph & Teri A. Creager
Applicant: Powder River Development Services on behalf of AT&T
Contact: Brandon Peterson
Phone:(614) 389-3914
Email: brandon.peterson@powderriverdev.com
(Project reference: Lewis & Clark Rec/ FA# 10546696)
Latitude: N 42-53'-34.15" Longitude: W 97-31'-32.85"

Dear Yankton County,

Please accept this cover letter and enclosed documents as a formal application for a Conditional Use Permit request for a proposed Wireless Communications Facility (WCF) to serve the AT&T First Responder Network. The proposed WCF will include a 199' steel monopole tower within a 6' tall fenced compound and unmanned equipment shelter adjacent the base of the tower. A new 20'wide access road is also being proposed from 310th St. Below is a directory of all the exhibits required for a Conditional Use Permit along with any other required information letter.

- Exhibit 1: Final Survey, Zoning & Construction Drawings
- Exhibit 2: Geotechnical Report
- Exhibit 3: Stamped Foundation/Tower Design
- Exhibit 4: ~~Exhaust Report showing no available structures to collocate on~~ CLOC RF Engineer Interview
- Exhibit 5: SAC Project Letter and Maps – 5a, 5b, 5c
- Exhibit 6: Zoning Letter
- Exhibit 7: Pre-application signed by all parties and fee paid
- Exhibit 8: Zoning Application signed by all parties
- Exhibit 9: FAA Filing and/or approval
- Exhibit 10: Copy of Ground Lease
- Exhibit 11: NIER Report Completed
- Exhibit 12: RF Interference letter from AT&T
- Exhibit 13: FCC License
- Exhibit 14: FCC License
- Exhibit 15: FCC License

- Exhibit 16: FCC License
- Exhibit 17: FCC License
- Exhibit 18: FCC License
- Exhibit 19: FAA Airspace Report
- Exhibit 20: Viewshed Map, Photo Simulations and UAV Visual Impact Study
- Exhibit 21: SAC Letter & CUP Application
- Exhibit 21: Site Acquisition Written Description of Visual Impact Assessment
- Exhibit 22: Propagation Plots
- Exhibit 23: Full NEPA Report
- Exhibit 24: Article 25 Exhibit and Acknowledgement Report

Additional Items Supplied:

- CUP application fee - $5,000.00

Please feel free to contact me directly with questions or if any additional information is required.

Regards,

Brandon Peterson
Agent on behalf of AT&T Mobility
4332 E. Park Ave., Gilbert, AZ 85234
Brandon.peterson@powderriverdev.com
614-389-3914 O : 480-278-3926 C

Exhibit 1

SITE PHOTO

PROJECT INFORMATION

SITE ADDRESS:	43348 310TH ST YANKTON, SD 57078
COUNTY: SITE NAME: SITE NUMBER: FA NUMBER:	YANKTON LEWIS & CLARK REC SDL04845 14884311
PACE NUMBER:	MRUMW000950, MRUMW027191, MRUMW027303, MRUMW027274, MRUMW027300
PTN NUMBER:	3529A0FKE0, 3529A0HDPN, 3529A0HE5M, 3529A0HE77, 3529A0HE70
USID NUMBER: LATITUDE (NAD 83): LONGITUDE (NAD 83): GROUND ELEVATION: ZONING JURISDICTION:	243430 N 42°53'34.15" (42.89281825°) W -97°31'32.65" (-97.52579153°) 1523.47' AMSL YANKTON COUNTY
TOWER OWNER:	TILLMAN INFRASTRUCTURE 152 WEST 57TH ST 27TH FLOOR NEW YORK, NY 10019
CONTACT	SUE BILLINGS 646.576.8368 sbillings@tillmaninfrastructure.com
GROUND OWNER:	JOSEPH & TERI A. CREAGER 3012 MOON MEADOWS RAPID CITY, SD 57702
LANDLORD CONTACT:	TERI CREAGER OR JOSEPH CREAGER 605.660.0318
E911:	TBD
POWER COMPANY:	BON HOME YANKTON
TELEPHONE COMPANY:	CENTURYLINK
OCCUPANCY GROUP:	UNMANNED
CONSTRUCTION TYPE:	NSB
POWDER RIVER PM:	BRIAN HUME 208.928.6844 brian.hume@powderriverdev.com
VELOCITEL SITE ACQUISITION MANAGER:	JACQUELINE CASTRICHINI 484.370.3242 jcastrichini@velocitel.com
CIVIL VENDOR:	NEXIUS JARED CAMPBELL 814.502.5773 jcred.ccampbell@nexius.com

AT&T MOBILITY

AT&T SITE ACQUISITION:
CONTACT: TOM HAMLIN
PHONE: 218.454.0511
EMAIL: th002a@att.com

AT&T C/E PROJECT MANAGER:
CONTACT: SARAH LANGE
PHONE: 952.229.9725
EMAIL: s7988@att.com

at&t

PROJECT: NSB (LTE 1C-5C)
SITE NAME: LEWIS & CLARK REC
AT&T SITE ID: SDL04845
AT&T FA #: 14884311
PACE #: MRUMW000950, MRUMW027191, MRUMW027303, MRUMW027274, MRUMW027300
PTN #: 3529A0FKE0, 3529A0HDPN, 3529A0HE5M, 3529A0HE77, 3529A0HE70
SITE ADDRESS: 43348 310TH ST
YANKTON, SD 57078
COUNTY: YANKTON

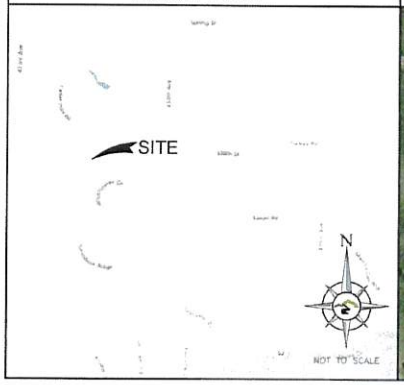
APPLICABLE CODES

ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES:
- 2015 INTERNATIONAL BUILDING CODE
- TIA/EIA-222-G

SOW

INSTALL THE FOLLOWING EQUIPMENT AT 190' ON THE PROPOSED 195' MONOPOLE: (3) VFA12-M3-WLL MOUNTS, (6) ANTENNAS, (9) RRHS, (6) DC TRUNK, (1) FIBER LINE, AND (3) SQUID

VICINITY MAP



LOCATION MAP

DRIVING DIRECTIONS

DIRECTIONS FROM AT&T OFFICE

7900 XERXES AVE S, BLOOMINGTON, MN 55431

DEPART XERXES AVE S / CR-31 TOWARD AMERICAN BLVD W. TURN RIGHT ONTO AMERICAN BLVD W. TURN RIGHT ONTO FRANCE AVE S / CR-17 N. TAKE RAMP RIGHT AND FOLLOW SIGNS FOR I-494 WEST. AT EXIT 10A, TAKE RAMP RIGHT AND FOLLOW SIGNS FOR US-169 SOUTH. KEEP STRAIGHT ONTO MN-60 W. KEEP STRAIGHT ONTO MN-30 W / MN-60 W. KEEP STRAIGHT ONTO MN-60 W. KEEP STRAIGHT ONTO US-71 S / MN-60 S. KEEP STRAIGHT ONTO MN-60 W / 2ND AVE S. TAKE RAMP RIGHT AND FOLLOW SIGNS FOR I-90 WEST. AT EXIT 400, TAKE RAMP RIGHT AND FOLLOW SIGNS FOR I-229 SOUTH. AT EXIT 1A, TAKE RAMP LEFT AND FOLLOW SIGNS FOR I-29 SOUTH. AT EXIT 47, TAKE RAMP RIGHT FOR SD-46 TOWARD BERESFORD / IRENE. TURN RIGHT ONTO SD-46. KEEP STRAIGHT ONTO SD-19 / SD-46 / 29TH ST. TURN LEFT ONTO US-81. TURN RIGHT ONTO SD-50 / W 21ST ST. TURN LEFT ONTO 434TH AVE. TURN RIGHT ONTO 310TH ST. ARRIVE AT 310TH ST ON THE LEFT. 43348 310TH ST, YANKTON, SD 57078, US

DRAWING INDEX

SHEET NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	4
1 OR 4-4 OF 4	EXISTING SURVEY (BY OTHERS)	
C-1	OVERALL SITE PLAN	4
C-2	COMPOUND PLAN	4
C-3	SHELTER PLAN	4
C-4	SHELTER DETAILS	4
C-5	PLATFORM DETAILS	4
C-6	SITE DETAILS	4
C-7	SITE DETAILS	4
C-8	FENCE DETAILS	4
C-9	SIGNAGE DETAILS	4
A-1	TOWER ELEVATIONS	4
A-2	ANTENNA CONFIGURATION	4
A-3	ANTENNA MOUNTING & RRH REQUIREMENTS	4
A-4	COAX COLOR CODING	4
A-4.1	COAX COLOR CODING	4
A-5	TOWER EQUIPMENT DETAILS	4
A-6	SYSTEM CONFIGURATION	4
A-7	ANTENNA MOUNT DETAIL	4
E-1	ELECTRICAL PLAN	4
E-2	ELECTRICAL SHELTER PLANS	4
E-2.1	ELECTRICAL SHELTER NOTES	4
E-3	ELECTRICAL DETAILS	4
E-4	DC CIRCUIT DIAGRAM	4
E-5	TELCO INTERFACE	4
E-6	ELECTRICAL AC ONE-LINE DIAGRAM	4
E-7	LOAD CENTER SCHEDULE	4
E-8	RET SCHEMATIC	4
G-1	GROUNDING SITE PLAN	4
G-2	ANTENNA GROUNDING PLAN	4
G-3	GROUNDING DETAILS	4
G-4	GROUNDING DETAILS	4
G-5	GROUNDING DETAILS	4
GN-1	GENERAL NOTES	4
GN-2	GENERAL NOTES	4
GN-3	GENERAL NOTES	4

STRUCTURAL REVIEW NOTE

TOWER STRUCTURAL ANALYSIS COMPLETED BY OTHERS. CONTRACTOR TO REVIEW STRUCTURAL REPORT IN ITS ENTIRETY. ANY DISCREPANCIES OR DISAGREEMENTS BETWEEN THE REPORT AND THESE PLANS SHOULD BE RESOLVED PRIOR TO CONSTRUCTION.

CALL BEFORE YOU DIG

811 Know what's below. Call before you dig. www.call811.com

TO OBTAIN LOCATION OF PARTICIPANTS UNDERGROUND FACILITIES BEFORE YOU DIG

TOLL FREE 1.800.252.1166
FAX A LOCATE 1.800.236.4967

REQUIRES MIN OF 48 HOURS NOTICE BEFORE YOU EXCAVATE.

APPLICANT/LESSEE:
at&t
7900 XERXES AVE S, 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:
POWDER RIVER
Development Services, LLC

velocitel
COMPLETE WIRELESS SOLUTIONS
1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

REV	DATE	DESCRIPTION	INT
4	03/02/20	REVISIONS	JPN
3	01/24/20	REVISIONS	JPN
2	12/06/19	REVISIONS	JPN
1	09/23/19	REVISIONS	JED
0	03/18/19	100% CONSTRUCTION	JED
B	12/19/18	ISSUED FOR REVIEW 90%	JED
A	10/25/18	ISSUED FOR REVIEW 90%	JPN

REVIEWED BY: MAW

THESE PLANS AND SPECIFICATIONS, AS INSTRUMENTS OF SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF POWDER RIVER DEVELOPMENT SERVICES, LLC WHETHER THE PROJECT FOR WHICH THEY ARE MADE ARE EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANY PERSON OR ENTITY ON OTHER PROJECTS WITHOUT PRIOR WRITTEN CONSENT OF THE ENGINEER.

SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

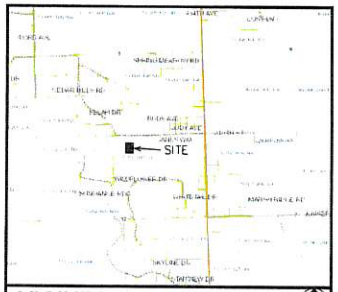
AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
TITLE SHEET

SHEET NUMBER:
T-1

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.



VICINITY MAP NTS

NOTES:

1. PLAN PREPARED WITH THE BENEFIT OF A TITLE REPORT; FILE NO.: 62003-SD1810-5030 EFFECTIVE DATE: 12/6/2018

2. PLAN DOES NOT REPRESENT AN ALTA/NSPS LAND TITLE SURVEY.

3. BEARINGS ARE GEODETIC AT THE PROPOSED TOWER CENTER. COORDINATES ARE REFERENCED TO THE SOUTH DAKOTA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM (NAD83/2011) BASED ON DIFFERENTIAL GPS OBSERVATIONS PERFORMED ON FEBRUARY 1, 2019; TIED TO THE NATIONAL SPATIAL REFERENCE SYSTEM VIA CORS AND EXPRESSED IN U.S. SURVEY FEET.

4. VERTICAL INFORMATION BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) AND EXPRESSED IN U.S. SURVEY FEET.

5. THIS PLAN DOES NOT REPRESENT AN ACTUAL BOUNDARY SURVEY OF THE PARENT PARCEL. BOUNDARY LINES ARE DRAWN FROM FIELD LOCATIONS OF FOUND MONUMENTS SHOWN ON PLAT S10, PAGE 22, PLAT S19, PAGE 132 AND PLAT S19, PAGE 151.

6. PROPERTY LOCATED IN ZONE X (AREA OF MINIMAL FLOOD HAZARD) OF THE SPECIAL FLOOD HAZARD AREA, PURSUANT TO FEMA FLOOD MAP PANEL NO. 46135X0300D, EFFECTIVE 7/6/2010.

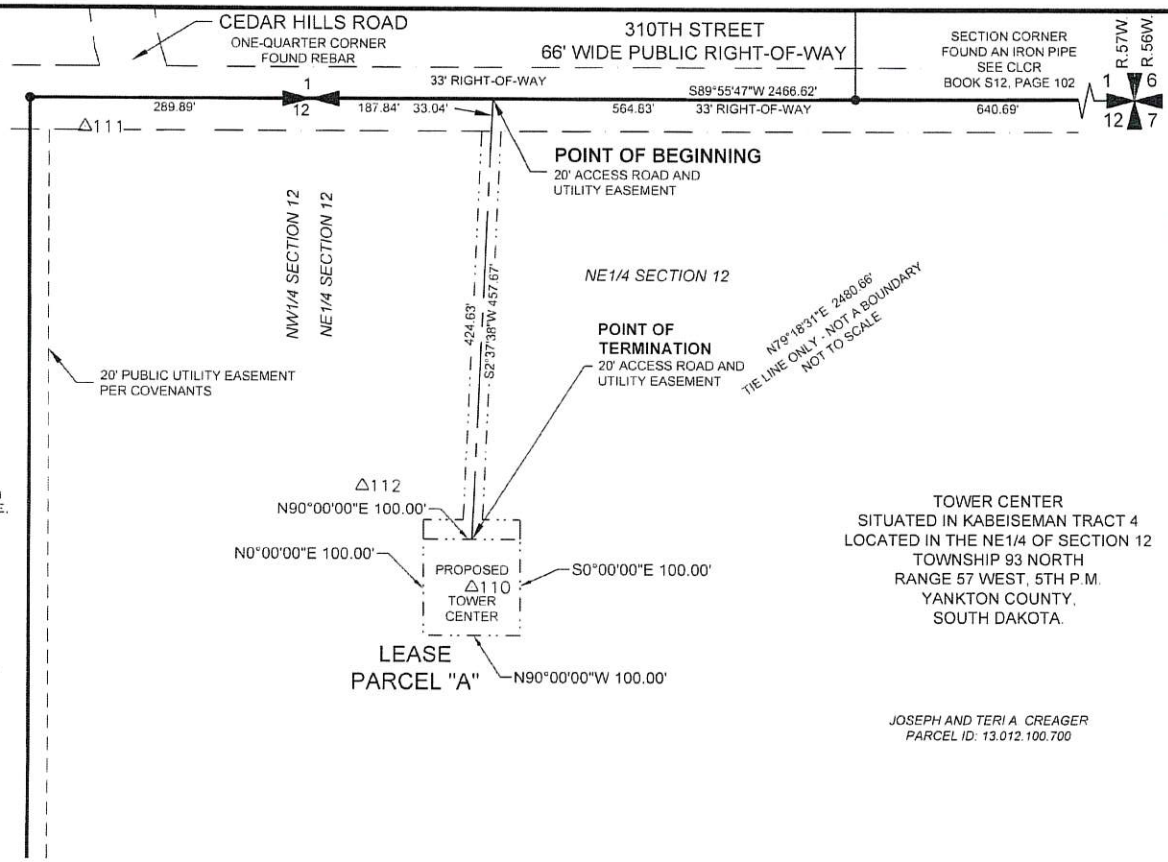
7. LESSEE INFORMATION:
POWDER RIVER DEVELOPMENT SERVICES, LLC.
219 S. WOODDALE
EAGLE, ID 83616

8. PROPERTY INFORMATION:
JOSEPH AND TERI CREAGER
3012 MOON MEADOWS
RAPID CITY, SD 57702

1A CERTIFICATE

LATITUDE: N 42° 53' 34.15" (NAD '83)
LONGITUDE: W 97° 31' 32.85" (NAD '83)

GROUND ELEV. (AMSL): 1523.47'± (NAVD '88)



TOWER CENTER
SITUATED IN KABEISEMAN TRACT 4
LOCATED IN THE NE1/4 OF SECTION 12
TOWNSHIP 93 NORTH
RANGE 57 WEST, 5TH P.M.
YANKTON COUNTY,
SOUTH DAKOTA.

SDL04845 LEWIS AND CLARK REC
HORIZONTAL DATUM: NAD 83(2011); VERTICAL DATUM: NAVD 88 (GEOID 12A)
SOUTH DAKOTA STATE PLANE: SOUTH ZONE
CONTROL POINT 100 CSF: 0.99991765 CONVERGENCE: 1°56'12"

POINT NUMBER	LATITUDE	LONGITUDE	ELEVATION	GRID NORTHING	GRID EASTING	DESCRIPTION
110	N42° 53' 34.15"	W97° 31' 32.85"	1523.47	216633.4910	2720730.8160	CP TOWER CENTER
111	N42° 53' 38.85"	W97° 31' 38.22"	1525.67	217096.3300	2720315.5050	CP REBAR
112	N42° 53' 35.19"	W97° 31' 34.37"	1528.52	216735.1790	2720614.2960	CP REBAR

LEGEND

- BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- ROAD RIGHT-OF-WAY
- PROPOSED EASEMENT
- PROPOSED LEASE
- △ CONTROL POINT
- ● FOUND SURVEY MONUMENT

0 120 240
SCALE IN FEET

SITE SURVEY
SCALE: 1" = 120'

PREPARED FOR:
POWDER RIVER
219 S. WOODDALE
EAGLE, ID 83616

PROJECT INFORMATION:
LEWIS AND CLARK REC
SDL04845
398 WILDFLOWER ROAD
YANKTON, SD 57078
(YANKTON COUNTY)

PREPARED BY:
TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603-3530
(919) 661-6351

PREPARED BY:
Boers Land Surveying and Mapping, Inc.
P.O. Box 3531 Bozeman, Montana 59772
www.boerslandsurveying.com
(406) 600-3790

SURVEYOR'S CERTIFICATION

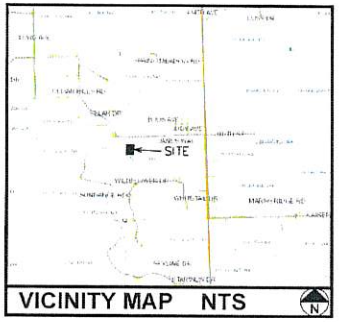
I, DANIEL J. BOERS, SOUTH DAKOTA REGISTERED LAND SURVEYOR, LICENSE NO. 9818, HEREBY CERTIFY THAT I PERFORMED THIS SURVEY FROM FEBRUARY TO

REGISTERED LAND SURVEYOR
REG. NO.
9818
DANIEL JOSEPH
BOERS
SOUTH DAKOTA

DANIEL J. BOERS, R.L.S., CFedS
BOERS LAND SURVEYING
AND MAPPING, INC.

SHEET TITLE:
SITE SURVEY

DATE: 11/22/2019	REVISION: 0
SHEET #: 1 OF 4	TEP #: XXXXXX



VICINITY MAP NTS

NOTES:

1. PLAN PREPARED WITH THE BENEFIT OF A TITLE REPORT; FILE NO.: 62003-SD1810-5030 EFFECTIVE DATE: 12/6/2018

2. PLAN DOES NOT REPRESENT AN ALTA/NSPS LAND TITLE SURVEY.

3. BEARINGS ARE GEODETIC AT THE PROPOSED TOWER CENTER. COORDINATES ARE REFERENCED TO THE SOUTH DAKOTA STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NORTH AMERICAN DATUM (NAD83/2011) BASED ON DIFFERENTIAL GPS OBSERVATIONS PERFORMED ON FEBRUARY 1, 2019; TIED TO THE NATIONAL SPATIAL REFERENCE SYSTEM VIA CORS AND EXPRESSED IN U.S. SURVEY FEET.

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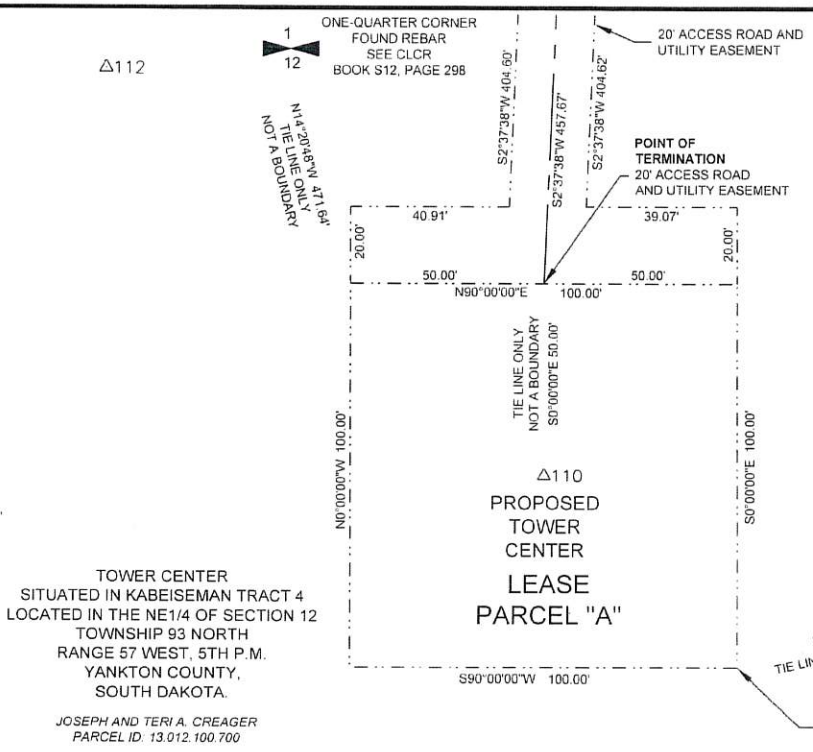
7. LESSEE INFORMATION:
POWDER RIVER DEVELOPMENT SERVICES, LLC.
219 S. WOODDALE
EAGLE, ID 83616

8. PROPERTY INFORMATION:
JOSEPH AND TERI CREAGER
3012 MOON MEADOWS
RAPID CITY, SD 57702

1A CERTIFICATE	
LATITUDE:	N 42° 53' 34.15" (NAD '83)
LONGITUDE:	W 97° 31' 32.85" (NAD '83)
GROUND ELEV. (AMSL):	1523.47'± (NAVD '88)



TOWER CENTER
SITUATED IN KABEISEMAN TRACT 4
LOCATED IN THE NE1/4 OF SECTION 12
TOWNSHIP 93 NORTH
RANGE 57 WEST, 5TH P.M.
YANKTON COUNTY,
SOUTH DAKOTA.

JOSEPH AND TERI A. CREAGER
PARCEL ID: 13.012.100.700

R.57W. R.56W.
1 6
12 7
SECTION CORNER
FOUND AN IRON PIPE
SEE CLCR
BOOK S12, PAGE 102

SDL04845 LEWIS AND CLARK REC
HORIZONTAL DATUM: NAD 83(2011); VERTICAL DATUM: NAVD 88 (GEOID 12A)
SOUTH DAKOTA STATE PLANE: SOUTH ZONE
CONTROL POINT 100 CSF: 0.99991765 CONVERGENCE: 1°56'12"

POINT NUMBER	LATITUDE	LONGITUDE	ELEVATION	GRID NORTHING	GRID EASTING	DESCRIPTION
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111	N42° 53' 38.85"	W97° 31' 38.22"	1525.67	217096.3300	2720315.5050	CP REBAR
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LEGEND

- BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- ROAD RIGHT-OF-WAY
- PROPOSED EASEMENT
- PROPOSED LEASE
- △ CONTROL POINT
- ● FOUND SURVEY MONUMENT

SITE SURVEY

SCALE: 1" = 30'

0 30 60
SCALE IN FEET

PREPARED FOR:
POWDER RIVER
219 S. WOODDALE
EAGLE, ID 83616

PROJECT INFORMATION:
LEWIS AND CLARK REC
SDL04845
398 WILDFLOWER ROAD
YANKTON, SD 57078
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PREPARED BY:
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P.O. Box 3531 Bozeman, Montana 59772
www.boerslandsurveying.com
(406) 600-3790

SURVEYOR'S CERTIFICATION

I, DANIEL J. BOERS, SOUTH DAKOTA REGISTERED LAND SURVEYOR, LICENSE NO. 9818, HEREBY CERTIFY THAT I PERFORMED THIS SURVEY FROM FEBRUARY TO NOVEMBER OF 2019.

REGISTERED LAND SURVEYOR
REG. NO. 9818
DANIEL JOSEPH BOERS
SOUTH DAKOTA

DANIEL J. BOERS, R.L.S., CFedS
BOERS LAND SURVEYING
AND MAPPING, INC.

SHEET TITLE:
SITE SURVEY

DATE: 11/22/2019	REVISION: 0
SHEET #: 2 OF 4	TEP #: XXXXXX

U.S. TITLE SOLUTIONS
REPORT OF TITLE
FILE NO: 62003-SD1810-5030
REFERENCE NO.: 10546696 -V2
DATE: DECEMBER 6, 2018

1 DATE OF THIS REPORT 12/6/2018
EXAMINED FROM 12/22/1959
EXAMINED THRU 11/14/2018

2 THE ESTATE OR INTEREST IN THE LAND DESCRIBED OR REFERRED TO IN THIS REPORT IS: Fee Simple

3 TITLE TO SAID ESTATE OR INTEREST IN THE LAND DESCRIBED OR REFERRED TO IN THIS REPORT IS AT THE EFFECTIVE DATE HEREOF VESTED IN: Joseph Creager and Teri A. Creager, husband and wife as joint tenants with right of survivorship and not as tenants in common.

SOURCE OF TITLE:
Warranty Deed made by JK & LM, Inc., a South Dakota Corporation dated July 11, 2006 recorded on Jul 11, 2006 in book 464 page 253.

4 THE LAND REFERRED TO IN THIS REPORT IS DESCRIBED AS FOLLOWS: A survey is required for actual metes and bounds.

SCHEDULE B
1. Taxes, tax liens, tax sales, water rates, sewer and assessments set forth in schedule herein.
2. Mortgages returned herein. (-0-). See Separate Mortgage Schedule.
3. Any state of facts which an accurate survey might show or survey exceptions set forth herein.
4. Rights of tenants or person in possession.

(Judgments, Liens and UCC)
5 None within period searched

(Covenants/Restrictions)
6. Patent Record between United States and Francis Kadlec dated as of 1/20/1880 recorded 10/9/1885 in book 26 page 320. *This patent reserves water rights, canals and ditches, and affects the parent parcel.*
7. Patent Record between United States Of America and Albert Kornig dated as of 9/14/1889 recorded 4/5/1917 in book 89 page 544. *This patent reserves water rights, canals and ditches, and affects the parent parcel.*
8. Warranty Deed between The State Of South Dakota, acting by and through its Rural Credit Board and Ralph H. Allen dated as of 3/6/1941 recorded 4/3/1941 in book 170 page 331. This deed cites the W1/2NW1/4, which is adjacent to the parent parcel.

(Easements and Rights of Way)
9. Easement For Construction And Maintenance Of Pipeline And Use Of Well And Water by John R. Kabeiseman, William J. Kabeiseman, and Phyllis A. Mach to James Koletzky, dated 5/28/1976 recorded 11/4/1976 in book 276 page 98. *This easement describes a well and water line serving parcels in the E1/2NE1/4. Water appurtenances were located during this survey, however this document does not provide enough information to show graphically. This document may affect the parent parcel and proposed lease and easement areas.*

10. Easement For Construction And Maintenance Of Pipeline And Use Of Well And Water by John R. Kabeiseman, William J. Kabeiseman, and Phyllis A. Mach to Ronald Koletzky, dated 11/21/1977 recorded 7/5/1978 in book 290 page 76. *This easement describes a well and water line serving parcels in the E1/2NE1/4. Water appurtenances were located during this survey, however this document does not provide enough information to show graphically. This document may affect the parent parcel and proposed lease and easement areas.*

11. Right of Way by JK & LM, Inc., a South Dakota Corp. to By Water District, a public entity, dated 6/9/1998 recorded 8/4/2000 in book 414 page 261.
This easement describes a water line easement, 30 feet wide, 15 feet on either side of the centerline as constructed, the centerline being 15 feet inside, on the grantor's side, of the fence. Water appurtenances were located during this survey, however this document does not provide enough information to show graphically. This document may affect the parent parcel and proposed lease and easement areas.

12. Right of Way by JK & LM, Inc. to B-Y Water District, dated 8/3/2005 recorded 8/8/2005 in book 457 page 175.
This easement is 15 feet wide for a water line. The legal description is inadequate to place the easement location with any certainty. Water appurtenances were located during this survey, however this document does not provide enough information to show graphically. This document may affect the parent parcel and proposed lease and easement areas.

13. Right of Way by JK & LM, Inc. to B-Y Electric, dated 8/3/2005 recorded 8/8/2005 in book 457 page 176.
This easement is 15 feet wide for a water line. The legal description is inadequate to place the easement location with any certainty. This easement includes an exhibit, of poor visual quality, that appears to place the easement on the adjacent parcel, south of the parent parcel. This document likely has no affect on the parent parcel and proposed lease and easement areas.

14. Right of Way by Joseph M. Creager to B-Y Water District, dated 7/11/2006 recorded 3/26/2007 in book 469 page 295.
This easement describes a water line easement, 30 feet wide, 15 feet on either side of the centerline as constructed, the centerline being 15 feet inside, on the grantor's side, of the fence. Water appurtenances were located during this survey, however this document does not provide enough information to show graphically. This document may affect the parent parcel and proposed lease and easement areas.

(Other Filed Documents)
15. Survey Plat Of Kabeiseman Tract 4 And Kabeiseman Tract 5 In The N1/2 Of Sec. 12, T93N, R57W Of 5th PM, Yankton Co., So. Dak. recorded 7/8/1980 in book S10 page 22.
This document is of poor visual quality. This survey identifies the original Kabeiseman Tract 4.

16. Contract For Deed between William J. Kabeiseman and Rose E. Kabeiseman; Francis G. Mach and Phyllis A. Mach; John R. Kabeiseman and Leona M. Kabeiseman and Yankcom, a Co-Partnership dated 7/18/1980 recorded 8/26/1980 in book 304 page 429.
This document is of poor visual quality and does not appear to be survey related.

17. Kabeiseman Tract 4 N.1/2, Section 12-93-57 recorded 7/11/2006 in book S19 page 132.
This survey segregates a tract of land, 8.00 acres in area from the southeasterly corner of the Kabeiseman Tract 4.

18. Kabeiseman Tract 4 N.1/2, Section 12-93-57 recorded 10/17/2006 in book S19 page 151.
This survey segregates a tract of land, 8.00 acres in area from the northeasterly corner of the Kabeiseman Tract 4.

TITLE INFORMATION

PREPARED FOR:
POWDER RIVER
219 S. WOODDALE
EAGLE, ID 83616

PROJECT INFORMATION:
LEWIS AND CLARK REC
SDL04845
398 WILDFLOWER ROAD
YANKTON, SD 57078
(YANKTON COUNTY)

PREPARED BY:
TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603-3530
(919) 661-6351

PREPARED BY:
Boers Land Surveying and Mapping, Inc.
P.O. Box 3531 Bozeman, Montana 59772
www.boerslandsurveying.com
(406) 600-3790

SURVEYOR'S CERTIFICATION

I, DANIEL J. BOERS, SOUTH DAKOTA REGISTERED LAND SURVEYOR, LICENSE NO. 9818, HEREBY CERTIFY THAT I PERFORMED THIS SURVEY FROM FEBRUARY TO NOVEMBER OF 2019.

REGISTERED LAND SURVEYOR
REG. NO.
9818
DANIEL JOSEPH BOERS
SOUTH DAKOTA

DANIEL J. BOERS, R.L.S., CFedS
BOERS LAND SURVEYING AND MAPPING, INC.

SHEET TITLE:
TITLE INFORMATION

DATE: 11/22/2019	REVISION: 0
SHEET #: 3 OF 4	TEP #: XXXXX

DEED CHAIN

1. Warranty Deed made by Leo C. Kabeiseman and Katherine Kabeiseman, husband and wife to Reta A. Kabeiseman, Karl W. Kabeiseman, Ruth E. (Kabeiseman) Petrillo, Phyllis A. (Kabeiseman) Mach, Elizabeth J. (Kabeiseman) McDonald, William J. Kabeiseman, and John R. Kabeiseman their heirs and assigns dated 12/22/1959 recorded on 12/30/1959 in book 216 page 188.

2. Warranty Deed made by Elizabeth J. (Kabeiseman) McDonald and Donald McDonald, her husband to Reta A. Kabeiseman, Karl W. Kabeiseman, Ruth E. (Kabeiseman) Petrillo, Phyllis A. (Kabeiseman) Mach, William J. Kabeiseman and John R. Kabeiseman dated 12/30/1960 recorded on 7/6/1961 in book 218 page 563.

3. Warranty Deed made by Reta A. Kabeiseman, a single woman to William J. Kabeiseman and Rose Kabeiseman, husband and wife; Francis G. Mach and Phyllis A. Mach, husband and wife; John R. Kabeiseman and Leona M. Kabeiseman, a/k/a Leona W. Kabeiseman, husband and wife, an undivided one sixth interest dated 12/6/1974 recorded on 1/21/1975 in book 265 page 209.

4. Warranty Deed made by Karl W. Kabeiseman and Mary Kabeiseman, husband and wife to William J. Kabeiseman and Rose E. Kabeiseman, husband and wife; Francis G. Mach aka Francis Mach and Phyllis A. Mach aka Phyllis A. (Kabeiseman) Mach, husband and wife; John R. Kabeiseman and Leona M. Kabeiseman aka Leona W. Kabeiseman, husband and wife, an undivided 1/6 interest dated 10/21/1974 recorded on 1/21/1975 in book 265 page 210.

5. Warranty Deed made by Paul C. Petrillo and Ruth E. (Kabeiseman) Petrillo, husband and wife to William J. Kabeiseman and Rose E. Kabeiseman, husband and wife; Francis G. Mach aka Francis Mach and Phyllis A. Mach aka Phyllis A. (Kabeiseman) Mach, husband and wife; John R. Kabeiseman and Leona M. Kabeiseman aka Leona W. Kabeiseman, husband and wife, an undivided one-sixth interest dated 10/22/1974 recorded on 1/21/1975 in book 265 page 211.

6. Warranty Deed made by John R. Kabeiseman and Leona M. Kabeiseman, husband and wife; William J. Kabeiseman and Rose E. Kabeiseman, husband and wife; Francis G. Mach and Phyllis A. Mach, husband and wife to American State Bank, a South Dakota banking corporation dated 1/18/1983 recorded on 2/9/1983 in book 313 page 324.

7. Warranty Deed made by American State Bank, a South Dakota Corporation to Yankcom, a co-partnership dated 1/7/1987 recorded on 1/7/1987 in book 330 page 318.

8. Warranty Deed made by Yankcom, a partnership to JK & LM, Inc. dated 7/5/1991 recorded on 7/12/1991 in book 352 page 125.

9. Warranty Deed made by JK & LM, Inc., a South Dakota Corporation to Joseph Creager and Teri A. Creager, husband and wife as joint tenants with right of survivorship and not as tenants in common dated 7/11/2006 recorded on 7/11/2006 in book 464 page 253. Notes: Covenants stated in Exhibit A and Road Maintenance Agreement stated in Exhibit B of deed.

10. Warranty Deed made by JK & LM, Inc., a South Dakota Corporation to Doug Hevle and Valerie L. Hevle, husband and wife, as joint tenants dated 7/10/2006 recorded on 7/11/2006 in book 464 page 255. Notes: Outsale

11. Warranty Deed made by Joseph Creager and Teri A. Creager, husband and wife to Doug Hevle dated 8/24/2006 recorded on 9/1/2006 in book 465 page 372.
Notes: Outsale

12. Warranty Deed made by Doug Hevle and Valerie Hevle, husband and wife to Joseph Creager and Teri A. Creager, husband and wife dated 8/8/2006 recorded on 10/16/2006 in book 466 page 289.
Notes: Outsale - same land as Deed Book 464 Page 255

MORTGAGE SCHEDULE

None within period searched

TAX SEARCH

TAX ID :13.012.100.700
Land Assessment: $1,400.00 Building Assessment: $72,067.00
Total Assessed Value:$73,467.00
Period :2017 Payment Status: Paid
Tax Amount : $653.32

LEGAL DESCRIPTION OF THE 20' ACCESS AND UTILITY EASEMENT:

A strip of land, situated in the residual of the Kabeiseman Tract 4, located in the Northeast One-quarter (NE1/4) of Section 12, Township 93 North, Range 57 West, 5th P.M., Yankton County, South Dakota, being twenty feet (20') wide, ten feet (10') on each side of the following described centerline:

Commencing at an iron pipe at the Corner to Sections 1, 6, 7 and 12, Township 93 North, Range 56 and 57 West, 5th P.M., Yankton County, South Dakota; thence S.89°55'47"W. for 2466.62 feet to a point on the line between Section 1 and Section 12, the **POINT OF BEGINNING**, from which a rebar at the One-quarter Corner between Section 1 and Section 12, Township 93 North, Range 57 West, bears S.89°55'47"W., 187.84 feet distant; thence S.2°37'38"W. for 33.04 feet to a point on the south right-of-way of 310th Street; thence continuing S.2°37'38"W. for 424.63 feet to a point on the north line of Lease Parcel "A", described herewith, the **POINT OF TERMINATION**, from which the point for the Proposed Tower Center, bears S.0°00'00"E., 50.00 feet distant. The strip of land contains an additional strip of land, 20 feet wide, parallel and perpendicular to the north line of Lease Parcel "A", and contains 10,092 square feet, more or less. The sidelines are lengthened or shortened as necessary to intersect the beginning and terminating lines, as described.

LEGAL DESCRIPTION OF THE LEASE PARCEL "A":

A parcel of land, 100 feet by 100 feet square, situated in the residual of the Kabeiseman Tract 4, located in the Northeast One-quarter (NE1/4) of Section 12, Township 93 North, Range 57 West, 5th P.M., Yankton County, South Dakota, further described as follows:

Commencing at an iron pipe at the Corner to Sections 1, 6, 7 and 12, Township 93 North, Range 56 and 57 West, 5th P.M., Yankton County, South Dakota; thence S.77°03'25"W. for 2501.14 feet to the southeast corner of Lease Parcel "A", the **POINT OF BEGINNING**; thence S.90°00'00"W. for 100.00 feet to the southwest corner of Lease Parcel "A"; thence N.0°00'00"W. for 100.00 feet to the northwest corner of Lease Parcel "A", from which a rebar at the One-quarter Corner between Section 1 and Section 12, Township 93 North, Range 57 West, bears N.14°20'48"W., 471.64 feet distant; thence N.90°00'00"E. for 100.00 feet to the northeast corner of Lease Parcel "A"; thence S.0°00'00"E. for 100.00 feet to the **POINT OF BEGINNING**. The parcel as described contains 10,000 square feet.

SURVEYOR'S CERTIFICATION

I, DANIEL J. BOERS, REGISTERED LAND SURVEYOR, LICENSE NO. 9818, HEREBY CERTIFY THAT I PERFORMED THIS SURVEY FROM FEBRUARY TO NOVEMBER OF 2019.

DANIEL J. BOERS, R.L.S., CFedS
BOERS LAND SURVEYING AND MAPPING, INC.

TITLE INFORMATION AND LEGAL DESCRIPTIONS

PREPARED FOR:

POWDER RIVER
Development Services LLC

POWDER RIVER
219 S. WOODDALE
EAGLE, ID 83616

PROJECT INFORMATION:

LEWIS AND CLARK REC
SDL04845
398 WILDFLOWER ROAD
YANKTON, SD 57078
(YANKTON COUNTY)

PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603-3530
(919) 661-6351

PREPARED BY:

Boers Land Surveying and Mapping, Inc.
P.O. Box 3531 Bozeman, Montana 59772
www.boerslandsurveying.com
(406) 600-3790

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SOUTH DAKOTA

DANIEL J. BOERS, R.L.S., CFedS
BOERS LAND SURVEYING AND MAPPING, INC.

SHEET TITLE:

TITLE INFORMATION LEGAL DESCRIPTIONS

DATE: 11/22/2019	REVISION: 0
SHEET #: 4 OF 4	TEP #: XXXXXX

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT, PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE.

THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

PROPOSED-SITE:
INSTALL (1) 80'x80' VERTV WIC EQUIPMENT SHELTER
INSTALL (1) ICE-BRIDGE W/ SUPPORT POSTS (APPROX. 18'-0")
INSTALL (1) GENERATOR
INSTALL (1) H-FRAME W/ (1) SINGLE METER PANEL AND (1) HOFFMAN BOX

PROPOSED-TOWER:
INSTALL (3) SITE PRO VALMONT VFA12-M3-WLL SECTOR FRAMES, 1 PER SECTOR
INSTALL (3) AIRSCALE DUAL RRH 4T4R B12/14 320W AHLBA, 1 PER SECTOR
INSTALL (3) AIRSCALE RRH 4T4R B5 160W AHCA, 1 PER SECTOR
INSTALL (3) AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIB, 1 PER SECTOR
INSTALL (6) COMMSCOPE NNH4-65C-R6, 2 PER SECTOR
ENTITLE (3) FUTURE ANTENNAS, 1 PER SECTOR
INSTALL (3) RAYCAP DCB-48-60-18-8C-EV SURGE PROTECTION UNIT
INSTALL (6) DC POWER CABLES
INSTALL (1) FIBER CABLE

PROPOSED-SHELTER:
INSTALL (1) POWER BAY
INSTALL (1) BATTERY STACK
INSTALL (2) 23" RIF RACKS
INSTALL (1) LTE GPS UNIT

AT&T TO VERIFY REQUIRED SHELTER EQUIPMENT

PROJECT DESCRIPTION 2

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED LTE GPS ANTENNA AND TRANSMITTING ANTENNAS.
3. PROPERTY LINES ARE APPROXIMATIONS ONLY.
4. ANTENNAS & MOUNTS OMITTED FOR CLARITY.
5. FOR FIBER TRUNK REF AT&T LTE GUIDE LINES REV. 1.9, PAGE 13, TABLE 2.1.2.
6. FOR DC POWER CABLE TRUNK REF AT&T LTE GUIDE LINES REV. 1.9, PAGE 14, TABLE 2.1.3.

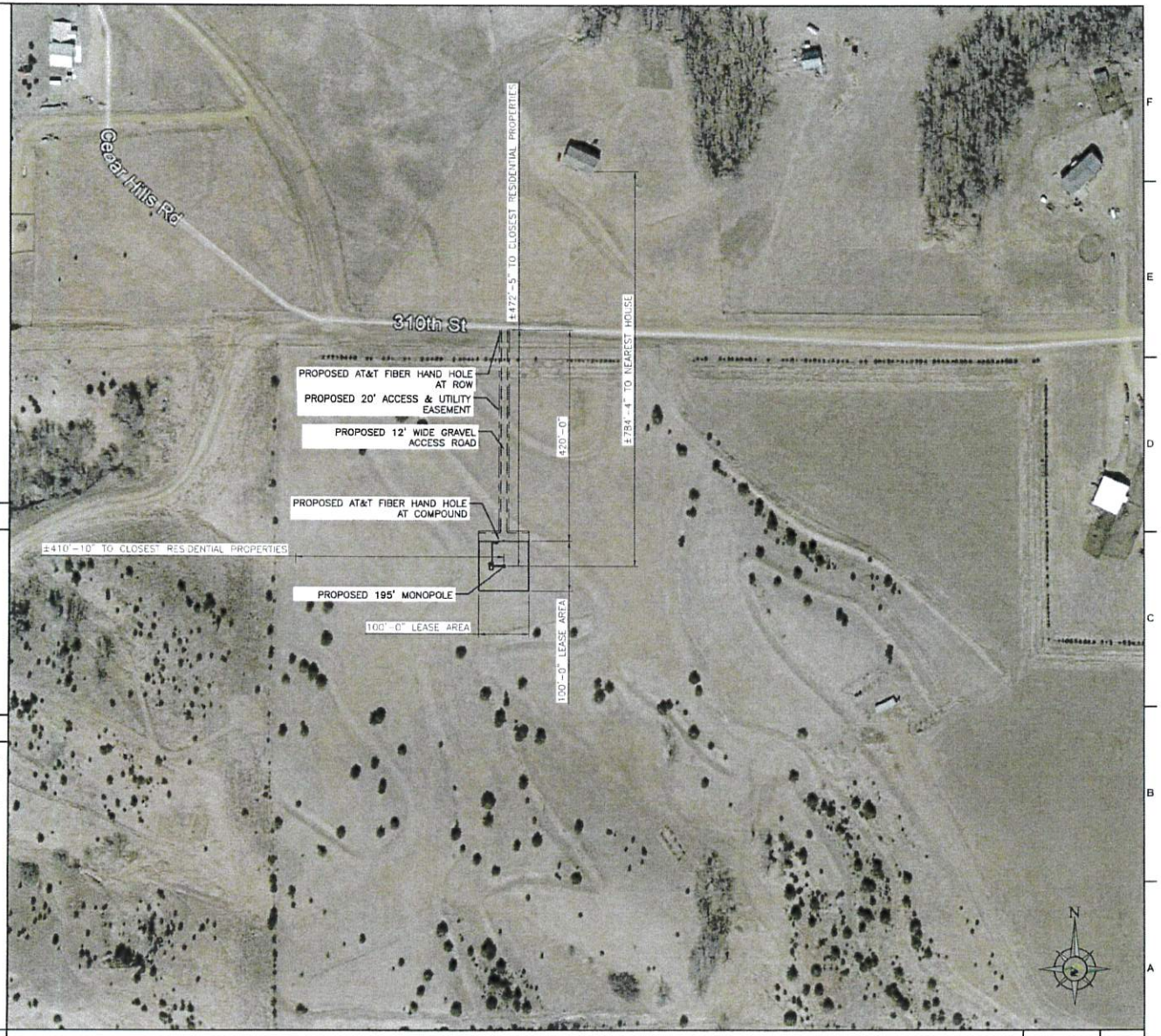
NOTES 3

WOOD FENCE

CHAIN-LINK FENCE

LEASE AREA

LEGEND 4



OVERALL SITE PLAN — SCALE: N.T.S. 1

APPLICANT/LESSEE:

at&t

7900 XERXES AVE S., 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

REV	DATE	DESCRIPTION	INT
4	03/02/20	REVISIONS	JPN
3	01/24/20	REVISIONS	JPN
2	12/06/19	REVISIONS	JPN
1	09/23/19	REVISIONS	JED
0	03/18/19	100% CONSTRUCTION	JED
B	12/19/18	ISSUED FOR REVIEW 90%	JED
A	10/25/18	ISSUED FOR REVIEW 90%	JPN

REVIEWED BY: MAW

THESE PLANS AND SPECIFICATIONS, AS INSTRUMENTS OF SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF POWDER RIVER DEVELOPMENT SERVICES, LLC WHETHER THE PROJECTS FOR WHICH THEY ARE MADE, ARE EXECUTED OR NOT. THESE DRAWING AND SPECIFICATIONS SHALL NOT BE USED BY ANY PERSON OR ENTITY ON OTHER PROJECTS WITHOUT PRIOR WRITTEN CONSENT OF THE ENGINEER.

SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

OVERALL SITE PLAN

SHEET NUMBER:

C-1

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THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT, PART OR ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE.

THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

PROPOSED-SITE:
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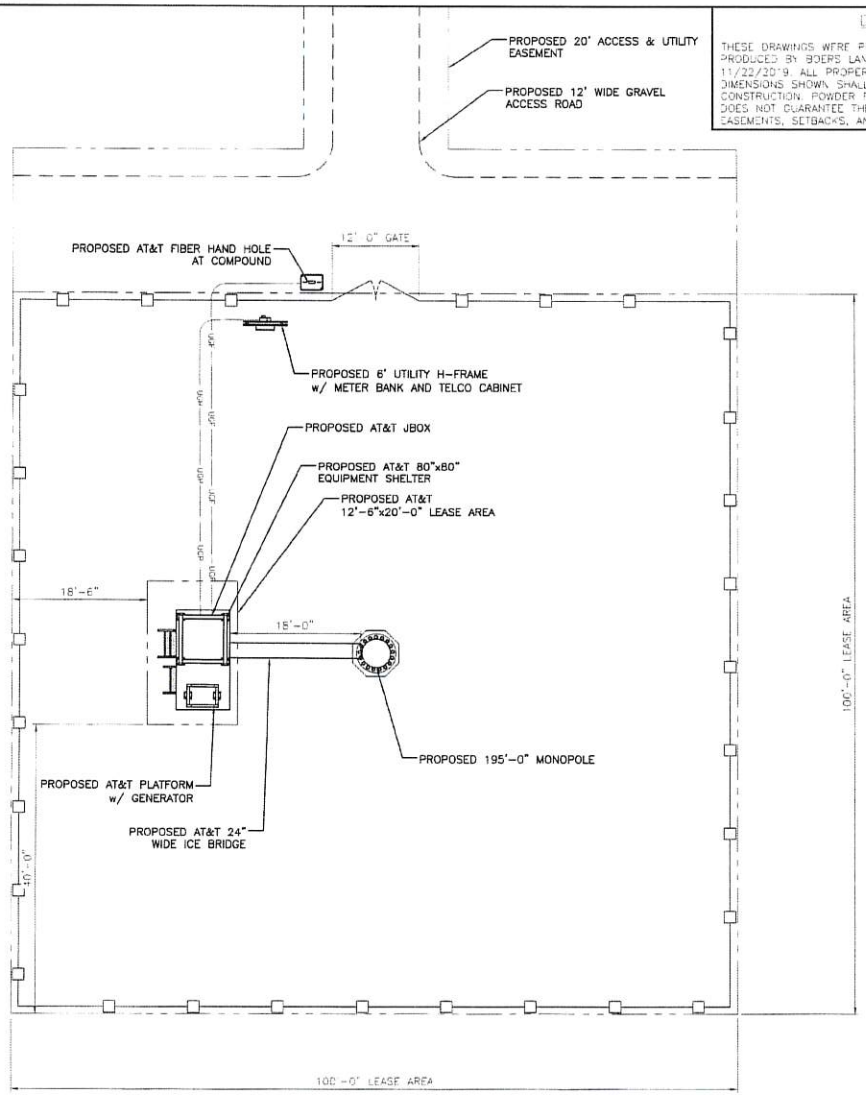
NOTES 3

WOOD FENCE
CHAIN-LINK FENCE
LEASE AREA

LEGEND 4



DISCLAIMER:

THESE DRAWINGS WERE PRODUCED BASED ON A SURVEY PRODUCED BY BOERS LAND SURVEYING AND MAPPING INC. DATED 11/22/2019. ALL PROPERTY LINES, EASEMENTS, SETBACKS, AND DIMENSIONS SHOWN SHALL BE VERIFIED PRIOR TO START OF CONSTRUCTION. POWDER RIVER DEVELOPMENT SERVICES, LLC. DOES NOT GUARANTEE THE ACCURACY OF SAID PROPERTY LINES, EASEMENTS, SETBACKS, AND DIMENSIONS SHOWN.

COMPOUND PLAN — SCALE 1/16" = 1'-0" (11x17) 1

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APPLICANT/LESSEE:
at&t
7900 XERXES AVE S., 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:
POWDER RIVER
Development Services, LLC

velocitel
1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

REV	DATE	DESCRIPTION	INT
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2	12/06/19	REVISIONS	JPN
1	09/23/19	REVISIONS	JSD
0	03/18/19	100% CONSTRUCTION	JSD
B	12/19/18	ISSUED FOR REVIEW 90%	JSD
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REVIEWED BY: MAW

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SITE INFORMATION:
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NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

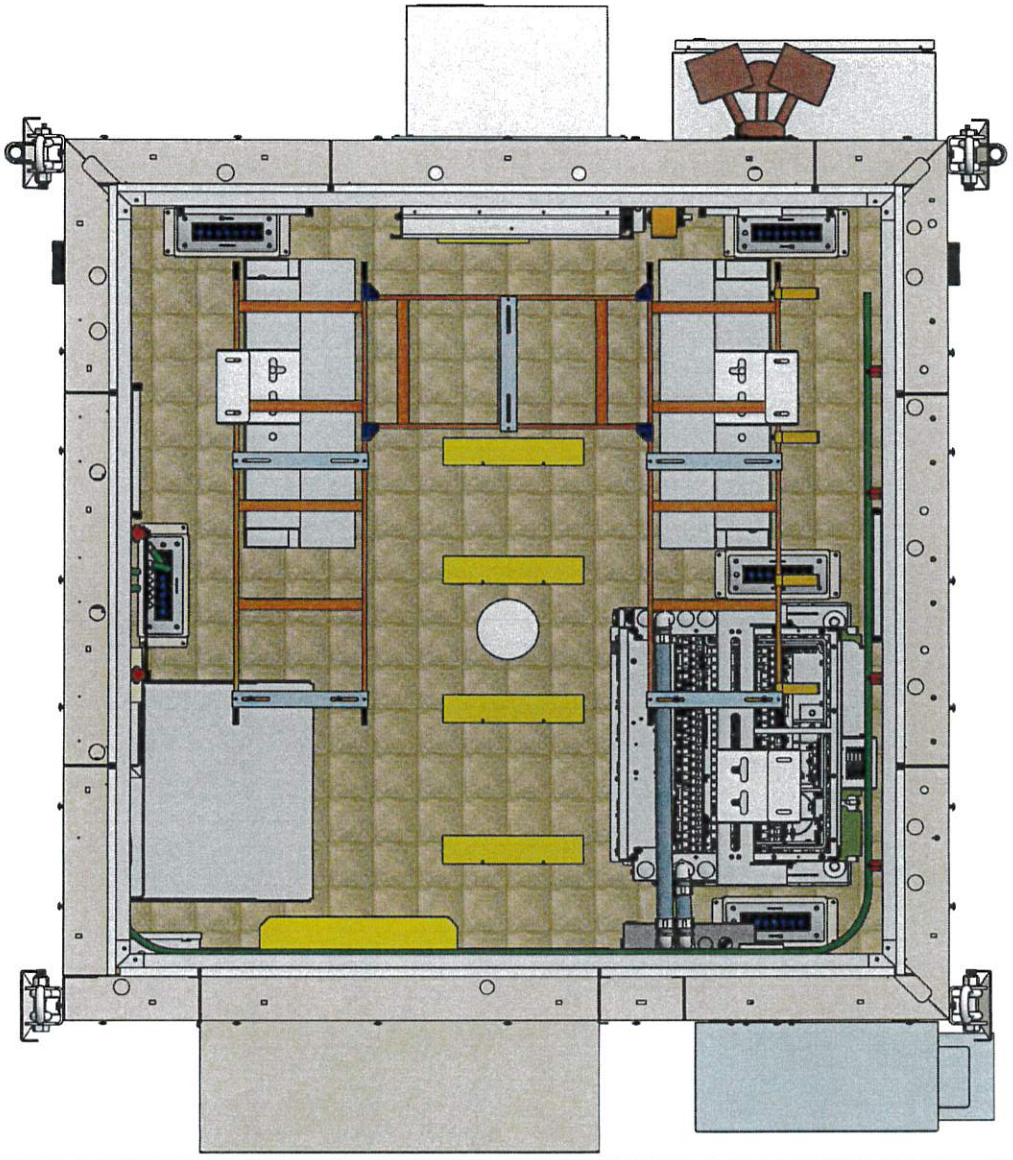
SHEET TITLE:
COMPOUND PLAN

SHEET NUMBER:
C-2

1. DETAIL INCLUDED FOR REFERENCE ONLY. SHELTER DESIGN, ANCHORAGE, AND FOUNDATION DESIGNS BY OTHERS. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.

2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS ANTENNAS AND TRANSMITTING ANTENNAS.

AT&T TO VERIFY REQUIRED SHELTER EQUIPMENT



NOTES | 2 | VERTIV - AT&T WIC SHELTER PLAN | SCALE N.T.S | 1

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APPLICANT/LESSEE

at&t

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PREPARED BY:

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A	10/25/18	ISSUED FOR REVIEW 90%	JPN

REVIEWED BY: MAW

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SITE INFORMATION:

PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

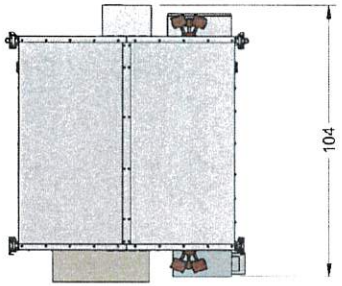
43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

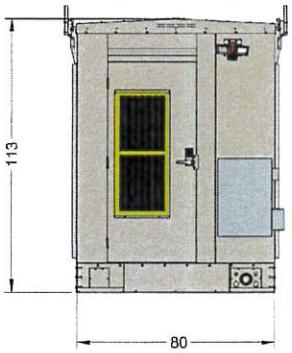
SHELTER PLAN

SHEET NUMBER:

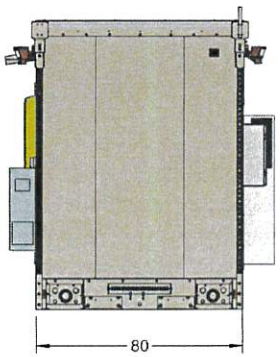
C-3



SHELTER ELEVATION KEY | SCALE N.T.S | 6



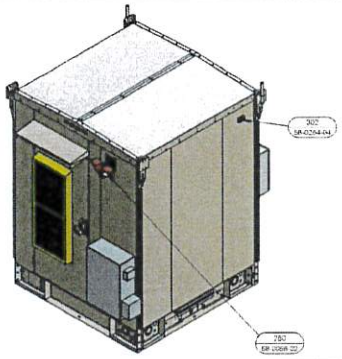
SHELTER ELEVATION | SCALE N.T.S | 5



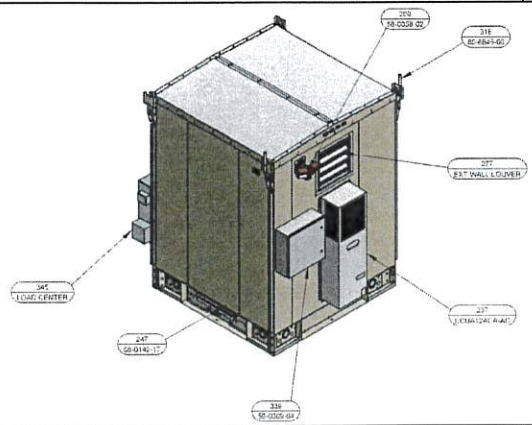
SHELTER ELEVATION | SCALE N.T.S | 4

1. DETAILS INCLUDED FOR REFERENCE ONLY. SHELTER DESIGN, ANCHORAGE, AND FOUNDATION DESIGNS BY OTHERS. INSTALL IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
2. ALL HATCH PORTS ARE SHIPPED WITH BLANK COVER PLATES. COAX HATCH PLATE IS SHIPPED LOOSE WITH SHELTER AND INSTALLED BY GENERAL CONTRACTOR.
3. GROUND BAR AND CANOPY ARE SHIPPED LOOSE WITH SHELTER AND INSTALLED BY GENERAL CONTRACTOR.

NOTES | 3



SHELTER ELEVATION | SCALE N.T.S | 2



SHELTER ELEVATION | SCALE N.T.S | 1

APPLICANT/LESSEE:

at&t

7900 XERXES AVE S, 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

REV	DATE	DESCRIPTION	INT
4	03/02/20	REVISIONS	JPN
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B	12/19/18	ISSUED FOR REVIEW 90%	JED
A	10/25/18	ISSUED FOR REVIEW 90%	JPN

REVIEWED BY: MAW

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AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

SHELTER DETAILS

SHEET NUMBER:

C-4

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NOTE:
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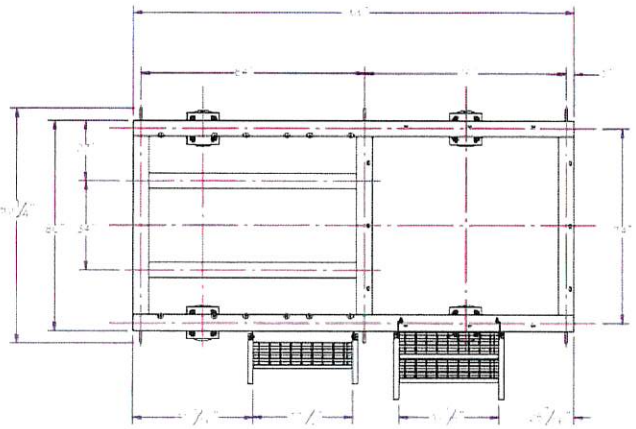
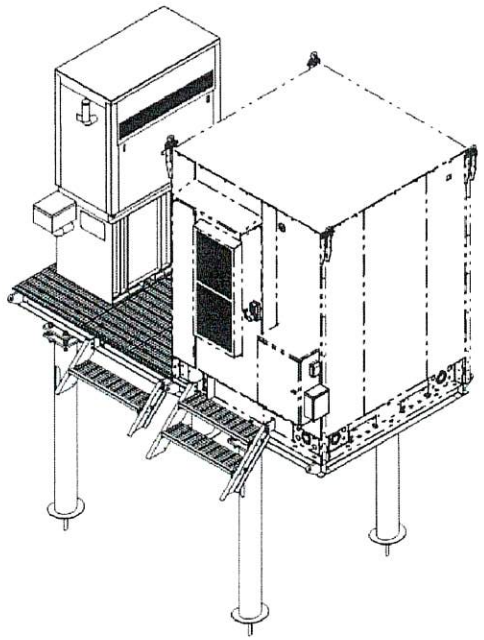
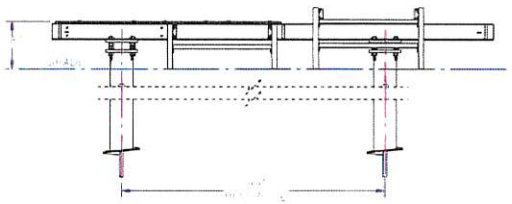
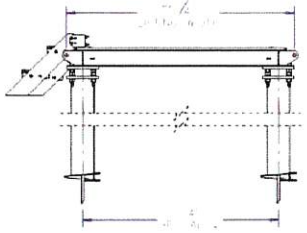
AT&T'S PROPOSED EQUIPMENT TO BE INSTALLED 1' ABOVE THE BASE FLOOD ELEVATION OF 892'. ALL EQUIPMENT FINISHED FLOOR ELEVATION WILL NEED TO BE A MINIMUM ELEVATION OF 893'

PERMIT









PLATFORM DETAILS

SCALE N.T.S

1

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APPLICANT/LESSEE:

at&t

7900 XERXES AVE S, 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
COMPLETE WIRELESS SOLUTIONS

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

REV	DATE	DESCRIPTION	INT.
4	03/02/20	REVISIONS	JRN
3	01/24/20	REVISIONS	JRN
2	12/06/19	REVISIONS	JRN
1	09/23/19	REVISIONS	JED
0	07/18/19	100% CONSTRUCTION	JED
B	12/19/18	ISSUED FOR REVIEW 90%	JED
A	10/25/18	ISSUED FOR REVIEW 50%	JRN

REVIEWED BY: MAW

FOR REFERENCE ONLY

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AT&T SITE ID:
SDL04845

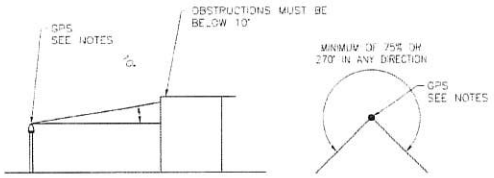
43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

PLATFORM DETAILS

SHEET NUMBER

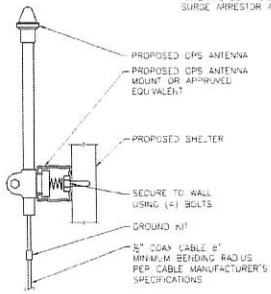
C-5



NOTES:
1. IT IS CRITICAL THAT THE GPS ANTENNA IS MOUNTED SUCH THAT IT IS WITHIN 2 DEGREES OF VERTICAL AND THE BASE OF THE ANTENNA IS WITHIN 2 DEGREES OF LEVEL.
2. DO NOT SWEEP TEST GPS ANTENNA.
3. PLACE PROPOSED GPS ANTENNA A MIN. OF 10' HORIZONTALLY FROM ANY GPS ANTENNA AND ALL TRANSMITTING ANTENNAS

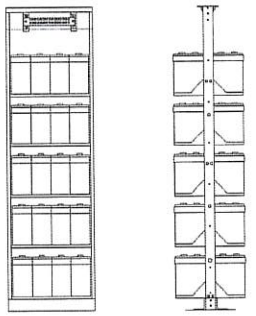
GPS SPECIFICATIONS DETAIL — SCALE N.T.S. — 6

NOTE:
1. COLOR CODE GPS COAX WITH ONE BAND OF GREEN AT ANTENNA, BOTH SIDES OF ENTRY PORT, BOTH SIDES OF SURGE ARRESTOR AND AT PIF RACK.



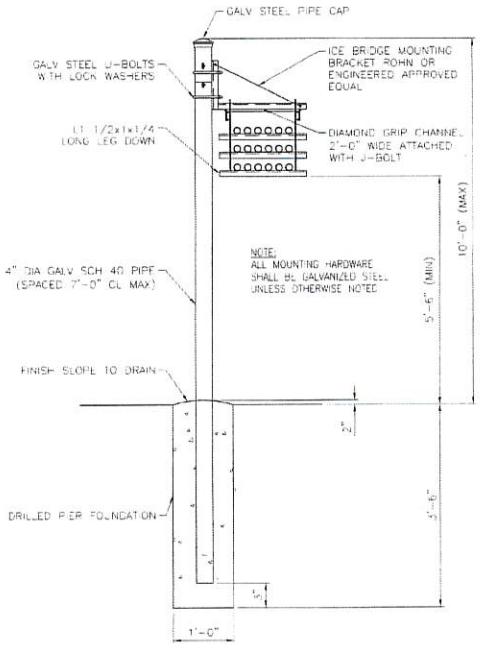
LTE GPS ANTENNA DETAIL — SCALE N.T.S. — 4

EMERSON NETSURE 24BA1200-23
DIMENSIONS, HxWxD: 84"x24"x23"
LOAD RATING: 1200 LBS
COLOR: GRAY
FINISH: POWDER COAT



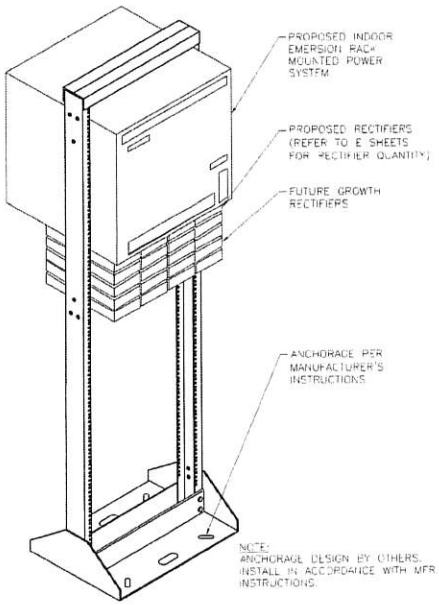
NOTE:
ANCHORAGE DESIGN BY OTHERS. INSTALL IN ACCORDANCE WITH MFR. INSTRUCTIONS.

BATTERY RACK SPECIFICATIONS — SCALE N.T.S. — 2



ICE BRIDGE DETAIL — SCALE N.T.S. — 5

EMERSION POWER BAY NOTE
CONTRACTOR TO ADD ALRAM WIRING FROM EMERSION POWER BAY TO ALARM ON TELCO BOARD.



*MAXIMUM WEIGHT CAPACITY: 1200 LBS

INDOOR EMERSON POWER BAY — SCALE N.T.S. — 3

MINIMUM BENDING RADIUS

SIZE	VENDOR	MODEL	MINIMUM SINGLE BEND (IN)	MINIMUM REPEAT BEND (IN)
7/8"	ANDREW	AVA5-50	5	10
	ANDREW	VLX5-50	3.5	5
	COMMSCOPE	CR 1070	8	N/A
	COMMSCOPE	FXL 1070-1	5	N/A
	RFS	LCF78-50JA	5	10
1 1/4"	ANDREW	LDF6-50	6	15
	ANDREW	VXL6-50	5	8
	COMMSCOPE	CR 1480	11	N/A
	COMMSCOPE	FXL 1480-1	8	N/A
	RFS	LCF114-50JA		
1 5/8"	ANDREW	AVA7-50	8	1
	ANDREW	VXL7-50	7.5	15
	COMMSCOPE	CR 1873	15	N/A
	COMMSCOPE	FXL 1873	11	N/A
	RFS	LCF158-50JA	8	20
2 1/4"	ANDREW	LDF12-50	9.5	22
	RFS	LCF214-50JA	11	22
AWG #6			8	8

BENDING RADIUS — 1

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APPLICANT/LESSEE:
at&t
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BLOOMINGTON, MN 55431

PREPARED BY:
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Development Services, LLC

velocitel
complete wireless solutions
1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

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PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

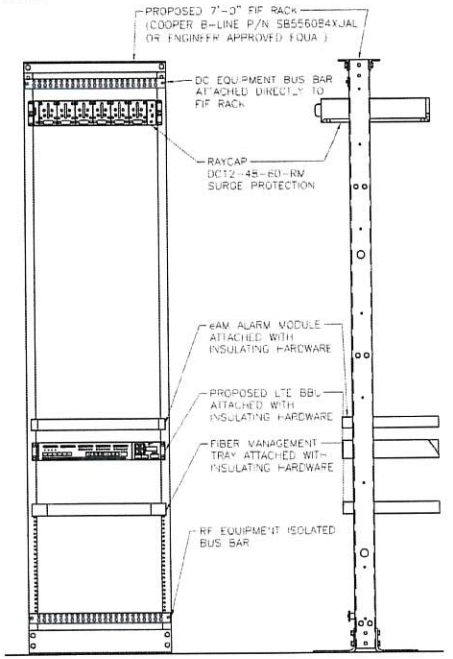
43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
SITE DETAILS

SHEET NUMBER:
C-6

NOTE

1. MINIMUM SPACING BETWEEN EQUIPMENT WITHIN THE RACK SHALL BE ONE RACK UNIT (OR APPROXIMATELY 3").
2. ANCHORAGE DESIGN BY OTHERS. INSTALL IN ACCORDANCE WITH MFR. INSTRUCTIONS.



*MAXIMUM WEIGHT CAPACITY: 1200 LBS

LTE 23" FIF RACK DETAIL — SCALE: N.T.S — 2

RAYCAP DC6-48-60-RM

DIMENSIONS, WxDxH: 16.4x16.0x3.4 in (416.6x406.1x33.3 mm)

NOMINAL OPERATING VOLTAGE: 48 VDC

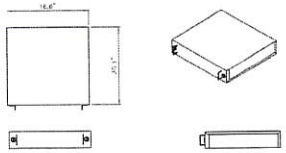
NOMINAL DISCHARGE CURRENT: 20 kA (8/20µs)

MAXIMUM DISCHARGE CURRENT: 60 kA (8/20µs)

MAXIMUM CONTINUOUS OPERATING VOLTAGE: 75 VDC

VOLTAGE PROTECTION RATING: 400 V

TOTAL WEIGHT: 20 lbs



DC SURGE SUPPRESSOR DETAIL

DC SURGE SUPPRESSOR DETAIL — SCALE: N.T.S — 1

NOT USED — 6

NOT USED — 5

NOT USED — 4

NOT USED — 3

APPLICANT/LESSEE:

at&t

7900 XERXES AVE S. 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

REV	DATE	DESCRIPTION	INIT
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NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

SITE DETAILS

SHEET NUMBER:

C-7

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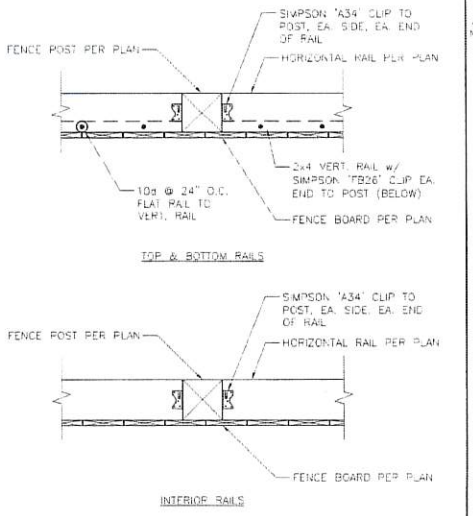
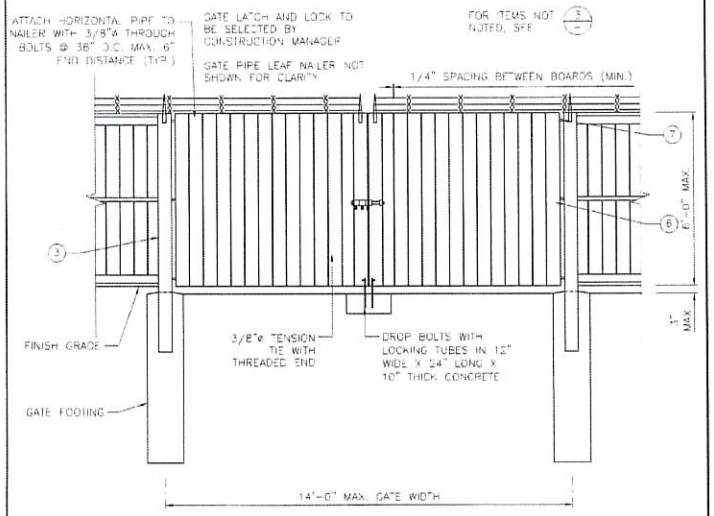


FENCE ATTACHMENT DETAIL | SCALE: N.T.S. | 6



GATE ELEVATION | SCALE: N.T.S. | 4

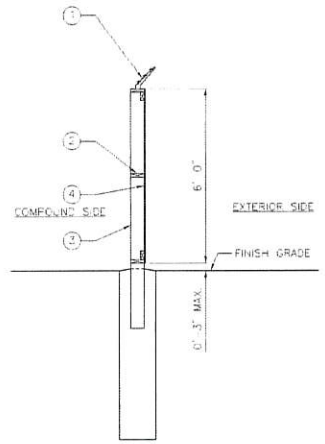
FENCE NOTES

1. GATES SHALL SWING FREELY AND UNOBSTRUCTED IN THE DIRECTION SHOWN ON CONSTRUCTION DRAWINGS TO THE FULL OPEN POSITION.
2. BOTTOM OF CONCRETE BASE SHALL BE SET BELOW FROST LINE (SEE LOCAL CODE). FENCE POST POLE FOOTING SHALL BE EMBEDDED IN SOIL CLASS GW, GP, SW, SP, SM, SC, GM OR GC (V.U.F.).
3. ALL HARDWARE TO BE HOT DIPPED GALVANIZED.
4. ALL LUMBER SHALL BE CLEAN, #2 CONSTRUCTION GRADE SOUTHERN PINE OR DOUGLAS FIR-LARCH.
5. ALL LUMBER SHALL BE STRAIGHT, SOUND, AND FREE OF SPLINTS, WARPS, CRACKS, LARGE KNOTS AND OTHER DEFECTS.

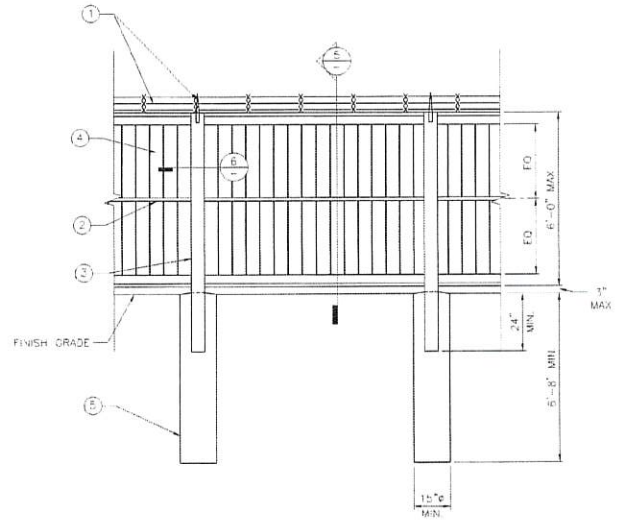
KEYNOTE LEGEND

1. BARBED WIRE: GALVANIZED, ASTM A121, CLASS 3, "THREE 14 GAUGE MINIMUM STEEL WIRES WITH 4 POINT ROUND 14 GAUGE BARBS SPACED 4" APART.
2. 2x6 HORIZONTAL RAIL
3. 6x6 P.T. FENCE POST, (TYP.)
4. 1x6 FENCE BOARDS w/ (2) 8d NAILS TO HORIZONTAL RAILS
5. FENCE POST POLE FOOTING
6. 3" STD. SCH. 40 TYP. STEEL PIPE FRAME FOR GATE LEAF PERIMETER. PROVIDE NAILER TYP. BOTH SIDE OF GATE.
7. ROUND BOLT ON GATE HINGES TO CONNECT FROM POST TO STEEL PIPE GATE LEAF

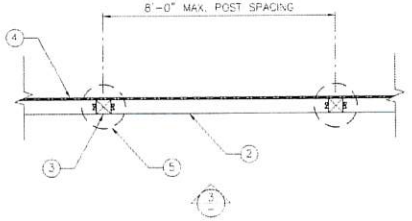
FENCE NOTES | 2



FENCE SECTION | SCALE: N.T.S. | 5



FENCE ELEVATION | SCALE: N.T.S. | 3



FENCE PLAN | SCALE: N.T.S. | 1

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FENCE DETAILS

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C-8

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NOTICE

Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC General Population Exposure Limits.

Follow all posted signs and site guidelines for working in a RF environment

at&t

CAUTION

Beyond This Point you are entering a controlled area where RF emissions *may exceed* the FCC Occupational Exposure Limits.

Obey all posted signs and site guidelines for working in a RF environment

at&t

ALERTING SIGNS | 8

WARNING!

DANGER DO NOT TOUCH TOWER

SERIOUS "RF" BURN HAZARD

MAINTAIN AN ADEQUATE CLEARANCE BETWEEN TOWER SUPPORTS AND GUY WIRES

at&t

PROPERTY OF AT&T

at&t

AUTHORIZED PERSONNEL ONLY

IN CASE OF EMERGENCY, OR PRIOR TO PERFORMING MAINTENANCE ON THIS SITE, CALL 800-638-2822 AND REFERENCE CELL SITE NUMBER_____

ALERTING SIGN | 10 | INFO SIGN #4 | 7

INFORMATION

INFORMACION

at&t

INFO SIGN #1 | 9

INFORMATION

ACTIVE ANTENNAS ARE MOUNTED

☐ 1ST (BLUE AND/OR GREEN)

☐ SECOND (RED PANEL)

☐ 3RD (GREEN OR BLUE)

STAY BACK A MINIMUM OF 3 FEET FROM THESE ANTENNAS

at&t

INFO SIGN #2 | 6

ALERTING SIGN (BATTERIES) | 5

ALERTING SIGN (DIESEL FUEL) | 3

ALERTING SIGN (PROPANE) | 2

STAY BACK 3 FEET FROM ANTENNA

at&t

INFO SIGN #3 | 4

GENERAL SIGNAGE GUIDELINES

Structure Type	INFO SIGN #1	INFO SIGN #2	INFO SIGN #3	INFO SIGN #4	Striping	NOTICE SIGN	CAUTION SIGN
Towers							
Monopole/Monopine/Monopalm	entrance gates, shelter doors OR on the outdoor cabinets	climbing side of the Tower	On backside of Antennas	entrance gates, shelter doors OR on the outdoor cabinets			At the height of the first climbing step, min. 9ft above ground
SCE Towers/ Towers with high voltage	entrance gates, shelter doors OR on the outdoor cabinets	climbing side of the Tower	On backside of Antennas	entrance gates, shelter doors OR on the outdoor cabinets			At the height of the first climbing step, min. 9ft above ground
Light Poles / Flag Poles	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no less than 9ft above ground	On backside of Antennas	entrance gates, shelter doors OR on the outdoor cabinets			
Utility Wood Poles (JPA)	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no less than 9ft above ground	On backside of Antennas	entrance gates, shelter doors OR on the outdoor cabinets		If GP max value of MPE at antenna level is: 0-99%: Notice sign; over 99%: Caution sign at no less than 3ft below antenna and 9ft above ground	
Microcells mounted on non-JPA poles	entrance gates, shelter doors OR on the outdoor cabinets	on the pole, no less than 3ft below the Antenna and no less than 9ft above ground	On backside of Antennas	entrance gates, shelter doors OR on the outdoor cabinets		Notice or Caution sign at no less than 9ft above ground: only if the exposure exceeds 90% of the General Public exposure at 6ft above ground or at outside surface of adjacent buildings	
Roof Tops							
At all access points to the roof	X			X			
On Antennas	X		X	X			
Concealed Antennas	X	X		X			
Antennas mounted facing outside the building	X	X		X			
Antennas on support structure	X	X		X			
Roofview Graph:							
Radiation area is within 3ft from antenna	X	adjacent to each antenna		X		either Notice or Caution sign (based on Roofview results) at antennas/barrier	
Radiation area is beyond 3ft from antenna	X	adjacent to each antenna		X	diagonal yellow striping as to Roofview graph		
Church Steeples	Access to steeple	adjacent to antenna if antennas are concealed	On backside of Antennas	Access to steeple			Caution sign at the antennas
Water Stations	Access to ladder	adjacent to antenna if antennas are concealed	On backside of Antennas	Access to ladder			Caution sign beside Info sign #1, min. 9ft above ground

Notes for Rooftop Sites
1. Either NOTICE or CAUTION signs need to be posted at each sector as close as possible to: the outer edge of the striped off area or the outer antennas of the sector.
2. If Roofview shows: only blue = Notice Sign, blue and yellow = Caution Sign, only yellow = Caution Sign to be installed.
3. Should the required striping area interfere with any structures or equipment (A/C, vents, roof hatch, doors, other antennas, dishes, etc.),
please notify AT&T to modify the striping area, prior to starting the work.

SIGNAGE GUIDELINES CHART | 1

APPLICANT/LESSEE:

at&t

7900 XERXES AVE S., 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

REV.	DATE	DESCRIPTION	INT.
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0	03/18/19	100% CONSTRUCTION	JED
B	12/19/18	ISSUED FOR REVIEW 90%	JED
A	10/25/18	ISSUED FOR REVIEW 90%	JPN

REVIEWED BY: MAW

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

SIGNAGE DETAILS

SHEET NUMBER:

C-9

THIS IS NOT AN ALL INCLUSIVE LIST. CONTRACTOR SHALL UTILIZE SPECIFIED EQUIPMENT PART OF ENGINEER APPROVED EQUIVALENT. CONTRACTOR SHALL VERIFY ALL NEEDED EQUIPMENT TO PROVIDE A FUNCTIONAL SITE.

THE PROJECT GENERALLY CONSISTS OF THE FOLLOWING:

PROPOSED-SITE:
INSTALL (1) 80"x80" VERTV WIC EQUIPMENT SHELTER
INSTALL (1) ICE-BRIDGE W/ SUPPORT POSTS (APPROX. 18'-0")
INSTALL (1) GENERATOR
INSTALL (1) H-FRAME W/ (1) SINGLE METER PANEL AND (1) HOFFMAN BOX

PROPOSED-TOWER:
INSTALL (3) STC PRO VALMONT VFA12-M3-WLL SECTOR FRAMES, 1 PER SECTOR
INSTALL (3) AIRSCALE DUAL RRH 4T4R B12/14 320W AHLBA, 1 PER SECTOR
INSTALL (3) AIRSCALE RRH 4T4R B5 160W AHCA, 1 PER SECTOR
INSTALL (3) AIRSCALE DUAL RRH 4T4R B25/66 320W AHFIR, 1 PER SECTOR
INSTALL (6) COMMSCOPE NNH4-65C-R6, 2 PER S-CTOR ENTITLE (3) FUTURE ANTENNAS, 1 PER SECTOR
INSTALL (3) RAYCAP DCB-48-60-18-8C-EV SURGE PROTECTION UNIT
INSTALL (6) DC POWER CABLES
INSTALL (1) FIBER CABLE

PROPOSED-SHELTER:
INSTALL (1) POWER BAY
INSTALL (1) BATTERY STACK
INSTALL (2) 23" RIF RACKS
INSTALL (1) LTE OPS UNIT

AT&T TO VERIFY REQUIRED SHELTER EQUIPMENT

PROJECT DESCRIPTION 5

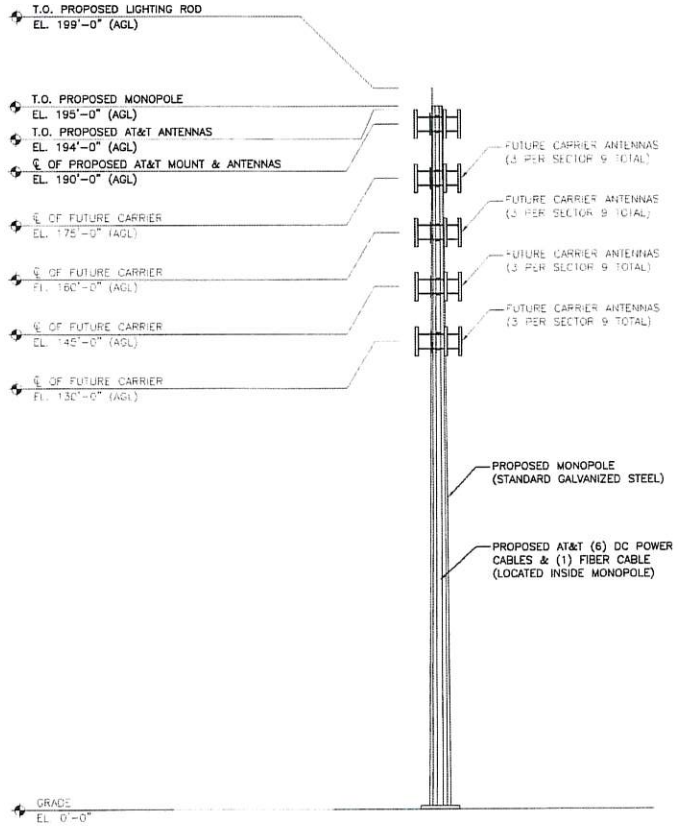
1. FENCE NOT ENTIRELY SHOWN FOR CLARITY.
2. WHEN STACKING CABLES 3 OR MORE DEEP, USE STACKABLE SNAP-HTS, TALLEY PART NUMBER SSH-158-3 (OR ENGINEER APPROVED EQUAL)
3. IF PROPOSED ALU-LTE ANTENNA NOT AVAILABLE DURING INITIAL INSTALLATION, UMTS ANTENNA TO BE INSTALLED ON ALU-LTE MOUNT PIPE IN INTERIM AND MOVE TO POSITION SHOWN UPON ALU-LTE ANTENNA INSTALLATION. RRU'S TO REMAIN AS SHOWN.

NOTES 4

NOTES:

POWDER RIVER DEVELOPMENT SERVICES, LLC HAS NOT PERFORMED STRUCTURAL ANALYSES FOR THE NEW EQUIPMENT MOUNTS, NOR THE SUPPORTING STRUCTURE, AND ASSUMES NO RESPONSIBILITY FOR ITS ABILITY TO SUPPORT THE PROPOSED MODIFICATIONS. PRIOR TO CONSTRUCTION, STRUCTURAL ANALYSIS (BY OTHERS) SHALL BE PERFORMED FOR ALL TOWERS, ROOFTOPS, FLAGPOLES, LIGHT POLES AND ASSOCIATED EQUIPMENT MOUNTS.

STRUCTURAL NOTES 3



PROPOSED TOWER ELEVATION

SCALE: N.T.S 1

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APPLICANT/LESSEE:
at&t
7900 XERXES AVE S, 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:
POWDER RIVER
Development Services, LLC

velocitel
COMPLETE WIRELESS SOLUTIONS
1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

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REVIEWED BY: MAW

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
TOWER ELEVATIONS

SHEET NUMBER:
A-1

NOTE:
1. ALL CONNECTIONS FOR HANGERS, SUPPORTS, BRACING ECT. SHALL BE INSTALLED PER TOWER MANUFACTURER'S STANDARD DETAILS.
2. SEE ANTENNA & TRANSMISSION CABLE REQUIREMENTS SHEET A-3 FOR ANTENNA POSITION.

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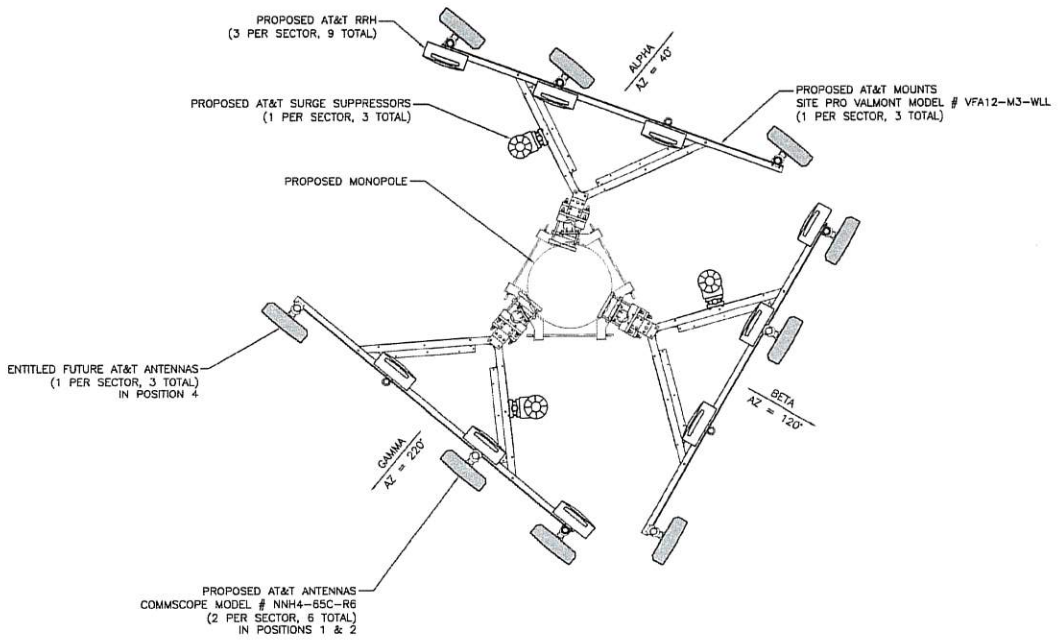

PROPOSED ANTENNA PLAN

SCALE N.T.S

1

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APPLICANT/LESSEE:

at&t

7900 XERXES AVE S, 3RD FLOOR
BLOOMINGTON MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

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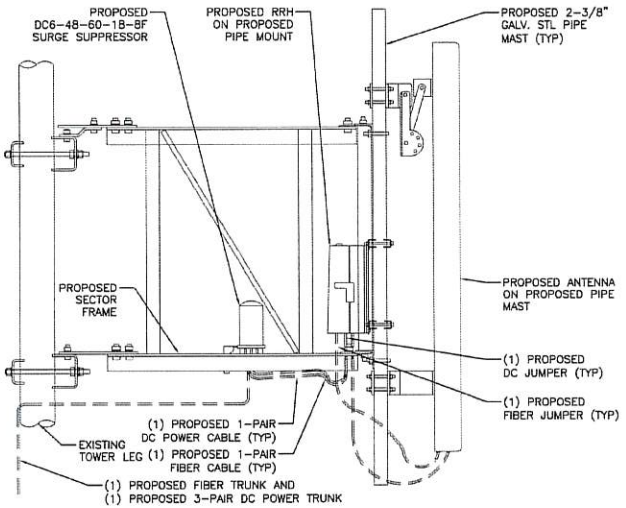
SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
ANTENNA CONFIGURATION

SHEET NUMBER:
A-2



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ANTENNA MOUNTING DETAIL | SCALE: N.T.S | 3

NOTES

NOTE:
1. CONTRACTOR IS TO REFER TO AT&T'S MOST CURRENT RADIO FREQUENCY DATA SHEET (RFDS) PRIOR TO CONSTRUCTION.
2. CABLE LENGTHS WERE DETERMINED BASED ON A VISUAL INSPECTION DURING SITE WALK. CONTRACTOR TO VERIFY ACTUAL LENGTH DURING PRE-CONSTRUCTION WALK.
3. CONTRACTOR TO USE ROSENBERGER FIBER LINE HANGER COMPONENTS (OR ENGINEER APPROVED EQUAL).

2

ANTENNA SCHEDULE

SECTOR	RAD CENTER	POSITION	ANTENNA TILT		AZIMUTH	ANTENNA MODEL	TECHNOLOGY	RRH / TMA	SURGE & DISTRIBUTION	
			MECH	ELEC					MODEL	CABLES (QTY) TYPES
A	190'	1	-	-	40°	COMMSCOPE NNH4-65C-R6	LTE 1C-5C	700, PCS, 850, WCS	(3) RAYCAP DC6-48-60-18-8C-EV	(6) DC POWER (1) FIBER
		2	-	-	40°	COMMSCOPE NNH4-65C-R6	LTE 1C-5C	700, PCS, 850, WCS		
		3	-	-	-	-	-	-		
		4	-	-	-	-	-	-		
B	190'	1	-	-	120°	COMMSCOPE NNH4-65C-R6	LTE 1C-5C	700, PCS, 850, WCS		
		2	-	-	120°	COMMSCOPE NNH4-65C-R6	LTE 1C-5C	700, PCS, 850, WCS		
		3	-	-	-	-	-	-		
		4	-	-	-	-	-	-		
C	190'	1	-	-	220°	COMMSCOPE NNH4-65C-R6	LTE 1C-5C	700, PCS, 850, WCS		
		2	-	-	220°	COMMSCOPE NNH4-65C-R6	LTE 1C-5C	700, PCS, 850, WCS		
		3	-	-	-	-	-	-		
		4	-	-	-	-	-	-		

PROPOSED ANTENNA AND EQUIPMENT REQUIREMENTS | 1

APPLICANT/LESSEE:
at&t
7900 XERXES AVE S., 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:
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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
ANTENNA MOUNTING & RRH REQUIREMENTS

SHEET NUMBER:
A-3

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AT&T Coax and Jumper Color Code Chart for MNP

AT&T Main Line Coax and Jumper Color Code Chart for MNP

Sector	Technology	Frequency	TX / RX	Sector Color/ Main Line	Freq Color
Alpha (α)	GSM	850	TXM / RXM	1 Red	1 Orange
Alpha (α)	GSM	850	TXD / RXD	1 Red	1 Orange
Alpha (α)	GSM	1900	TXM / RXM	1 Red	1 Violet
Alpha (α)	GSM	1900	TXD / RXD	1 Red	1 Violet
Alpha (α)	UMTS	850	TXM / RXM	2 Red	1 Orange
Alpha (α)	UMTS	850	TXD / RXD	2 Red	1 Orange
Alpha (α)	UMTS	1900	TXM / RXM	2 Red	1 Violet
Alpha (α)	UMTS	1900	RXD / RXD	4 Red	1 Violet

Any line that has main line coax will be marked with sector color first and frequency second (typically GSM/ UMTS)

AT&T LTE/UMTS RRH at top of tower Jumper Color Code Chart for MNP

Sector	Technology	Frequency	TX / RX	Freq Color	Sector Color
Alpha (α)	LTE	700B/C	TXM / RXM	1 Green	2 Red
Alpha (α)	LTE	700B/C	TXD / RXD	2 Green	2 Red
Alpha (α)	LTE	700D/E	TXM / RXM	3 Green	2 Red
Alpha (α)	LTE	700D/E	TXD / RXD	4 Green	2 Red
Alpha (α)	LTE	850	TXM / RXM	1 Orange	2 Red
Alpha (α)	LTE	850	TXD / RXD	4 Orange	2 Red
Alpha (α)	UMTS	850	TXM / RXM	1 Orange	2 Red
Alpha (α)	UMTS	850	RXD / RXD	2 Orange	2 Red
Alpha (α)	LTE	1900 PCS	TXM / TXM	1 Violet	2 Red
Alpha (α)	LTE	1900 PCS	TXD / TXD	2 Violet	2 Red
Alpha (α)	LTE	1900 PCS	RXM / RXM	3 Violet	2 Red
Alpha (α)	LTE	1900 PCS	RXD / RXD	4 Violet	2 Red
Alpha (α)	UMTS	1900	TXM / RXM	1 Violet	2 Red
Alpha (α)	UMTS	1900	RXD / RXD	2 Violet	2 Red
Alpha (α)	LTE	2300 AWS	TXM / TXM	1 Grey	2 Red
Alpha (α)	LTE	2300 AWS	TXD / TXD	2 Grey	2 Red
Alpha (α)	LTE	2300 AWS	RXM / RXM	3 Grey	2 Red
Alpha (α)	LTE	2300 AWS	RXD / RXD	4 Grey	2 Red
Alpha (α)	LTE	2500 WCS	TXM / RXM	1 Yellow	2 Red
Alpha (α)	LTE	2500 WCS	TXD / RXD	2 Yellow	2 Red
Alpha (α)	LTE	2500 WCS	TXM / RXM	3 Yellow	2 Red
Alpha (α)	LTE	2500 WCS	TXD / RXD	4 Yellow	2 Red

Color coding of jumpers that have RRHs on top of tower will have the frequency color first then the sector color. Color coding for LTE/UMTS with RRHs on top of tower will only happen on coax from LTE RRH to antenna. Power and fiber lines will be color coded with alternating gray/white (add a stripe for multiple runs) from ground to distro box (DC-6/FC-12) then tagged with written tags to RRH. If DC 2s are in line then you tag all breakout points appropriately.

AT&T Main Line Coax and Jumper Color Code Chart for MNP

Sector	Technology	Frequency	TX / RX	Sector Color/ Main Line	Freq Color
Beta (γ)	GSM	850	TXM / RXM	1 White	1 Orange
Beta (γ)	GSM	850	TXD / RXD	1 White	1 Orange
Beta (γ)	GSM	1900	TXM / RXM	1 White	1 Violet
Beta (γ)	GSM	1900	TXD / RXD	1 White	1 Violet
Beta (γ)	UMTS	850	TXM / RXM	2 White	1 Orange
Beta (γ)	UMTS	850	TXD / RXD	4 White	1 Orange
Beta (γ)	UMTS	1900	TXM / RXM	2 White	1 Violet
Beta (γ)	UMTS	1900	RXD / RXD	4 White	1 Violet

Any line that has main line coax will be marked with sector color first and frequency second (typically GSM/ UMTS)

AT&T LTE/UMTS RRH at top of tower Jumper Color Code Chart for MNP

Sector	Technology	Frequency	TX / RX	Freq Color	Sector Color
Beta (γ)	LTE	700B/C	TXM / RXM	1 Green	2 White
Beta (γ)	LTE	700B/C	TXD / RXD	2 Green	2 White
Beta (γ)	LTE	700D/E	TXM / RXM	3 Green	2 White
Beta (γ)	LTE	700D/E	TXD / RXD	4 Green	2 White
Beta (γ)	LTE	850	TXM / RXM	1 Orange	2 White
Beta (γ)	LTE	850	TXD / RXD	4 Orange	2 White
Beta (γ)	UMTS	850	TXM / RXM	1 Orange	2 White
Beta (γ)	UMTS	850	RXD / RXD	2 Orange	2 White
Beta (γ)	LTE	1900 PCS	TXM / TXM	1 Violet	2 White
Beta (γ)	LTE	1900 PCS	TXD / TXD	2 Violet	2 White
Beta (γ)	LTE	1900 PCS	RXM / RXM	3 Violet	2 White
Beta (γ)	LTE	1900 PCS	RXD / RXD	4 Violet	2 White
Beta (γ)	UMTS	1900	TXM / RXM	1 Violet	3 White
Beta (γ)	UMTS	1900	RXD / RXD	3 Violet	4 White
Beta (γ)	LTE	2300 AWS	TXM / TXM	1 Grey	2 White
Beta (γ)	LTE	2300 AWS	TXD / TXD	2 Grey	2 White
Beta (γ)	LTE	2100 AWS	RXM / RXM	3 Grey	2 White
Beta (γ)	LTE	2300 AWS	RXD / RXD	4 Grey	2 White
Beta (γ)	LTE	2500 WCS	TXM / RXM	1 Yellow	2 White
Beta (γ)	LTE	2500 WCS	TXD / RXD	2 Yellow	2 White
Beta (γ)	LTE	2500 WCS	TXM / RXM	3 Yellow	2 White
Beta (γ)	LTE	2500 WCS	TXD / RXD	4 Yellow	2 White

Color coding of jumpers that have RRHs on top of tower will have the frequency color first then the sector color. Color coding for LTE/UMTS with RRHs on top of tower will only happen on coax from LTE RRH to antenna. Power and fiber lines will be color coded with alternating gray/white (add a stripe for multiple runs) from ground to distro box (DC-6/FC-12) then tagged with written tags to RRH. If DC 2s are in line then you tag all breakout points appropriately.

AT&T Main Line Coax and Jumper Color Code Chart for MNP

Sector	Technology	Frequency	TX / RX	Sector Color/ Main Line	Freq Color
Gamma (Z)	GSM	850	TXM / RXM	1 Blue	1 Orange
Gamma (Z)	GSM	850	TXD / RXD	1 Blue	1 Orange
Gamma (Z)	GSM	1900	TXM / RXM	1 Blue	1 Violet
Gamma (Z)	GSM	1900	TXD / RXD	1 Blue	1 Violet
Gamma (Z)	UMTS	850	TXM / RXM	2 Blue	1 Orange
Gamma (Z)	UMTS	850	TXD / RXD	4 Blue	1 Orange
Gamma (Z)	UMTS	1900	TXM / RXM	2 Blue	1 Violet
Gamma (Z)	UMTS	1900	RXD / RXD	4 Blue	1 Violet

Any line that has main line coax will be marked with sector color first and frequency second (typically GSM/ UMTS)

AT&T LTE/UMTS RRH at top of tower Jumper Color Code Chart for MNP

Sector	Technology	Frequency	TX / RX	Freq Color	Sector Color
Gamma (Z)	LTE	700B/C	TXM / RXM	1 Green	2 Blue
Gamma (Z)	LTE	700B/C	TXD / RXD	2 Green	2 Blue
Gamma (Z)	LTE	700D/E	TXM / RXM	3 Green	2 Blue
Gamma (Z)	LTE	700D/E	TXD / RXD	4 Green	2 Blue
Gamma (Z)	LTE	850	TXM / RXM	1 Orange	2 Blue
Gamma (Z)	LTE	850	TXD / RXD	4 Orange	2 Blue
Gamma (Z)	UMTS	850	TXM / RXM	1 Orange	2 Blue
Gamma (Z)	UMTS	850	RXD / RXD	2 Orange	2 Blue
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Gamma (Z)	LTE	1900 PCS	TXD / TXD	2 Violet	2 Blue
Gamma (Z)	LTE	1900 PCS	RXM / RXM	3 Violet	2 Blue
Gamma (Z)	LTE	1900 PCS	RXD / RXD	4 Violet	2 Blue
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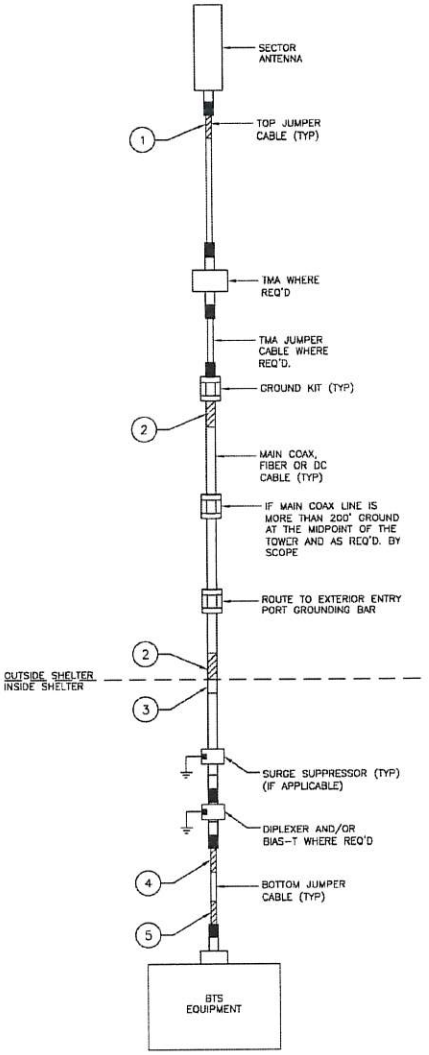
Gamma (Z)	UMTS	1900	RXD / RXD	3 Violet	2 Blue
Gamma (Z)	LTE	2300 AWS	TXM / TXM	1 Grey	2 Blue
Gamma (Z)	LTE	2300 AWS	TXD / TXD	2 Grey	2 Blue
Gamma (Z)	LTE	2100 AWS	RXM / RXM	3 Grey	2 Blue
Gamma (Z)	LTE	2300 AWS	RXD / RXD	4 Grey	2 Blue
Gamma (Z)	LTE	2500 WCS	TXM / RXM	1 Yellow	2 Blue
Gamma (Z)	LTE	2500 WCS	TXD / RXD	2 Yellow	2 Blue
Gamma (Z)	LTE	2500 WCS	TXM / RXM	3 Yellow	2 Blue
Gamma (Z)	LTE	2500 WCS	TXD / RXD	4 Yellow	2 Blue

Color coding of jumpers that have RRHs on top of tower will have the frequency color first then the sector color. Color coding for LTE/UMTS with RRHs on top of tower will only happen on coax from LTE RRH to antenna. Power and fiber lines will be color coded with alternating gray/white (add a stripe for multiple runs) from ground to distro box (DC-6/FC-12) then tagged with written tags to RRH. If DC 2s are in line then you tag all breakout points appropriately.

CABLE COLOR CHART | 4



CABLE MARKING LOCATIONS DIAGRAM | 3

NOTE:
1. THE ANTENNA SYSTEM COAX SHALL BE LABELED WITH VINYL TAPE.
2. THE STANDARD IS BASED ON EIGHT COLORED TAPES–RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE AND VIOLET. THESE TAPES MUST BE ¾" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR CONTRACTOR ON SITE
3. USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLE BY SECTOR AND CABLES NUMBER AS SHOWN ON "CABLE COLOR CHART"
4. WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN TECHNOLOGIES IS ENCOUNTERED, THE CONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING STANDARD. IN THE ABSENCE OF AN EXISTING COLOR CODING AND TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY
5. ALL COLOR CODE TAPE SHALL BE 3M–35 AND SHALL BE INSTALLED USING A MINIMUM OF (3) THREE WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING
6. ALL COLOR BANDS INSTALLED AT THE TOP OF THE TOWER SHALL BE A MINIMUM OF 3" WIDE, AND SHALL HAVE A MINIMUM OF 3" O- SPACE BETWEEN EACH COLOR.
7. ALL COLOR CODES SHALL BE INSTALLED SO AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE–TO–SIDE
8. IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE NEW TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED

CABLE COLOR CODING & INDENTIFICATION NOTES | 2

ALL RF AND DC CABLE SHALL BE MARKED AS PER CABLE MARKING LOCATIONS TABLE BELOW

CABLE MARKING LOCATIONS TABLE

NO	LOCATIONS
1	EACH TOP–JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS NEAR THE TOP–JUMPER CONNECTION AND WITH (1) SET OF ¾" WIDE COLOR BANDS JUST PRIOR TO ENTERING THE BTS OR TRANSMITTER BUILDING
3	CABLE ENTRY PORT ON THE INTERIOR OF THE SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF ¾" WIDE BANDS ON EACH OF THE BOTTOM JUMPER
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF ¾" WIDE BANDS ON EACH OF THE BOTTOM JUMPER

CABLE MARKING LOCATINS TABLE | 1

APPLICANT/LESSEE:
at&t
7900 XERXES AVE S. 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:
POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions
1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

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0	02/18/19	100% CONSTRUCTION	JEC
B	12/19/18	ISSUED FOR REVIEW 90%	JEC
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REVIEWED BY: MAW

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SITE INFORMATION
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
COAX COLOR CODING

SHEET NUMBER
A-4

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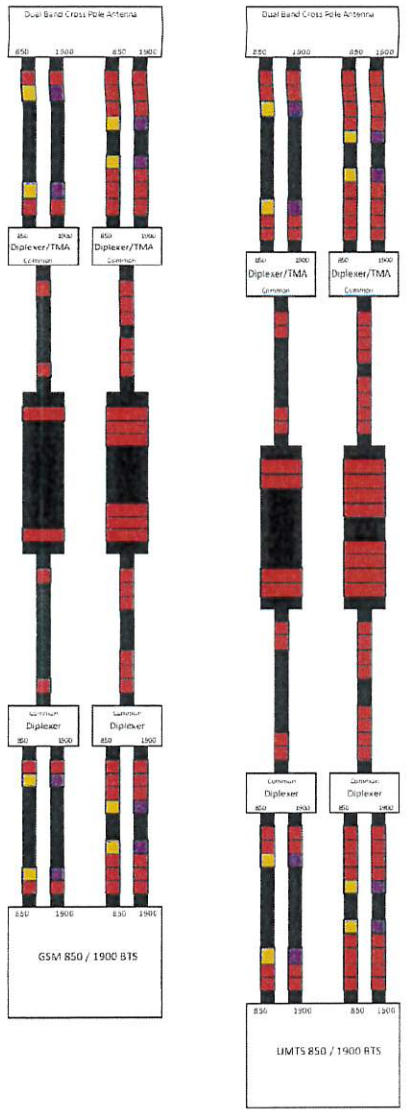
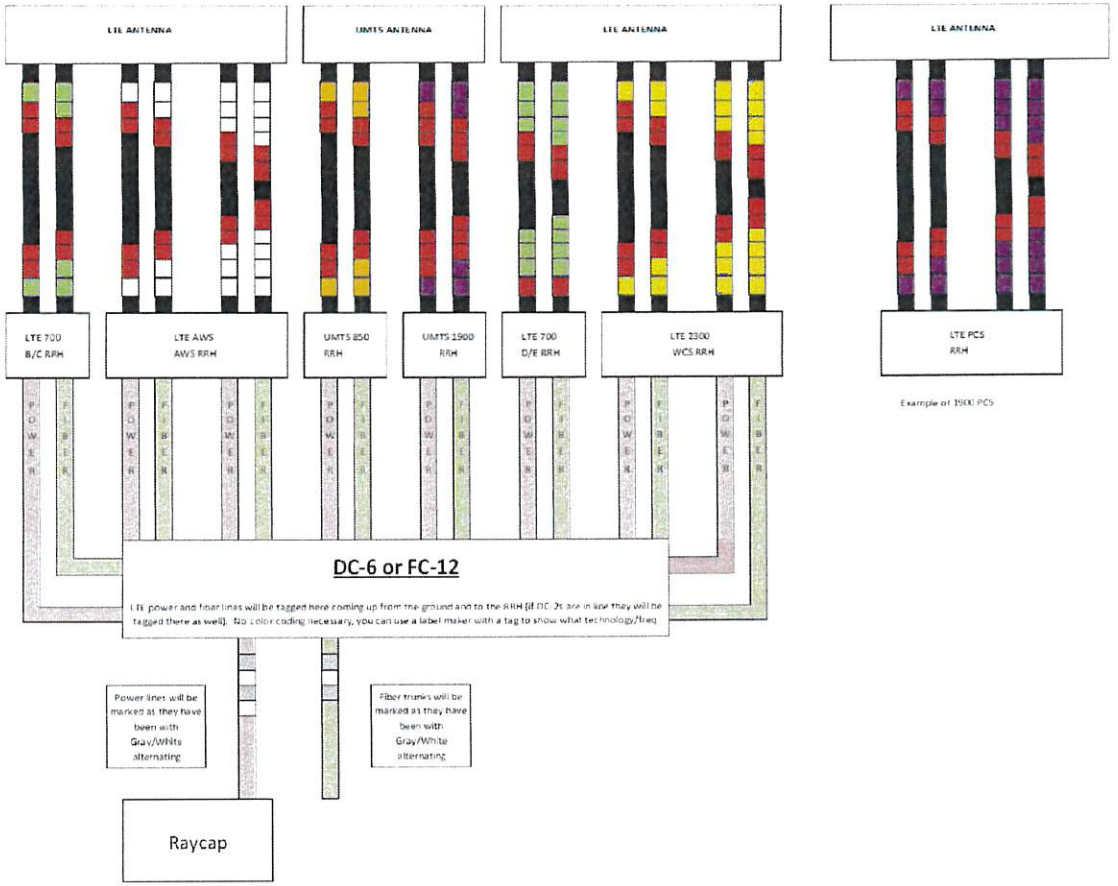


TMA SPECIFICATIONS DETAIL | 2



ANTENNA / RRU MOUNT DETAIL | 1

APPLICANT / LESSEE:

at&t

7900 XERXES AVE S., 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

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Development Services, LLC

velocitel
complete wireless solutions

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AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

COAX COLOR CODING

SHEET NUMBER:

A-4.1

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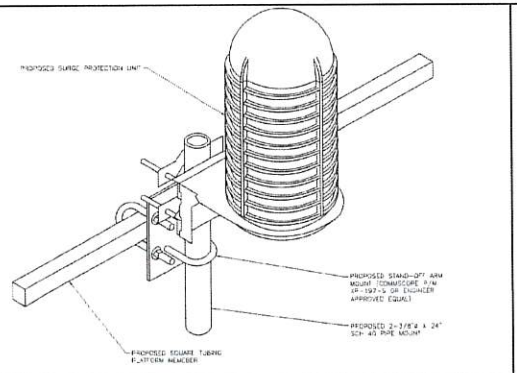
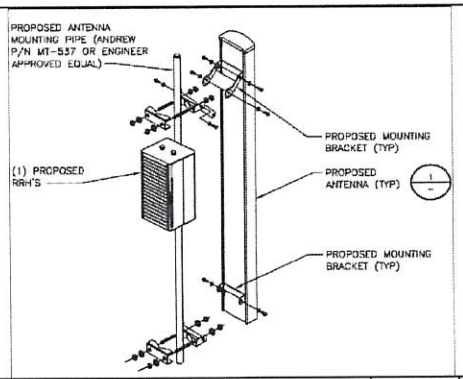
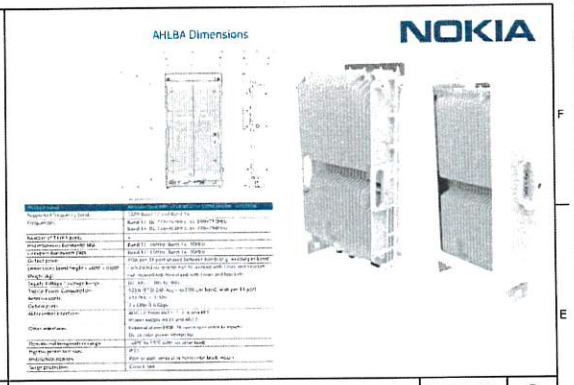


DC SURGE SUPPRESSION MOUNTING DETAIL | SCALE NTS | 9



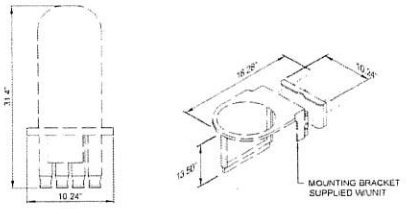
RRU MOUNTING DETAIL | SCALE NTS | 6



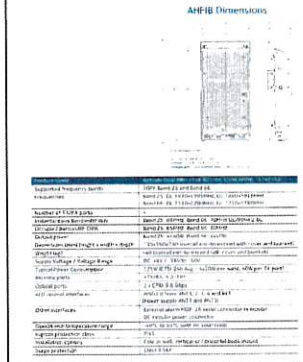
RADIO INFORMATION | SCALE NTS | 3

RAYCAP DC6-48-60-18-8C-EV

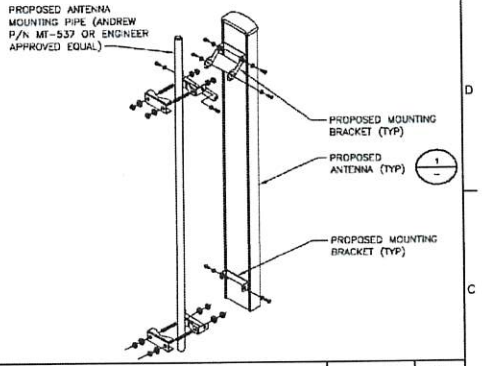
NUMBER OF RADIOS PROTECTED	6
SUPPRESSION CONNECTION METHOD	COMPRESSION LUG 2 HOLE, #10 5/8" PITCH #12 - #4 AWG
ENVIRONMENTAL RATING	IP 68 7M 72 HRS
WEIGHT	26.2 LBS



DC SURGE SUPPRESSION DETAIL | SCALE NTS | 8

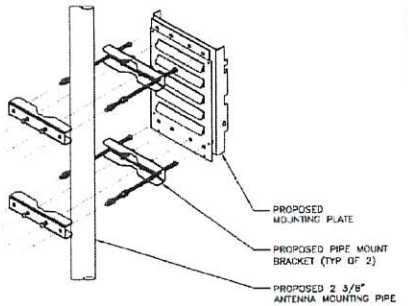


RADIO INFORMATION | SCALE NTS | 5



ANTENNA MOUNTING DETAIL | SCALE NTS | 2

NOTE:
ANTENNA NOT SHOWN FOR CLARITY



MOUNTING PLATE DETAIL | SCALE NTS | 7

AHCA AirScale RRH 4T4R B5 160W

AHCA AirScale RRH 4T4R B5 160W	
Supported Frequency bands	3GPP band 5
Frequencies	DL 869-894MHz UL 824-849MHz
Number of TX/RX paths/pipes	4x4
Instantaneous Bandwidth IBW	25MHz
Occupied Bandwidth OBW	25MHz
Output Power	4T4R 40 W 2T4R 60W
Dimensions (mm) Height x width x depth	336x295x166
Volume	16.5 l
Weight	16 kg / 35.2 lbs
Supply Voltage / Voltage Range	DC-48V / -36V to -60V
Typical Power Consumption	200 W (ETSI 24h weighted load mix for nominal power) 642W (4x40W), 40HW (2x60W) [100% RF load]
Antenna Ports	4 TX/4RX, 4.3-10+
Optical Ports	2x CPRI 9.8 Gbps/ FR3_01 sharing
ALD Control Interfaces	AISG3.0 from ANT1 2, 3, 4 and RET (Power supply ANT1 and ANT3)
Other Interfaces	External Alarm Connector (up to 4 inputs)
Operational Temperature Range	-40°C to 55°C

NOKIA

RADIO INFORMATION | SCALE NTS | 4

MANUFACTURER: COMMSCOPE
MODEL: NNH4-65C-R6-V3
WEIGHT: 102.5 LBS
DIMENSIONS: HxWxD: 96.0" x 19.6" x 7.8"
FREQUENCY: 1695MHz-2360MHz
698MHz-896MHz
CONNECTION: (12) 4.3-10 FEMALE

ANTENNA INFORMATION | SCALE NTS | 1

APPLICANT/LESSEE:

at&t

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PREPARED BY:

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Development Services, LLC

velocitel
complete wireless solutions

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BUSINESS LICENSE #: N/A

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REVIEWED BY: MAW

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
TOWER EQUIPMENT DETAILS

SHEET NUMBER:
A-5

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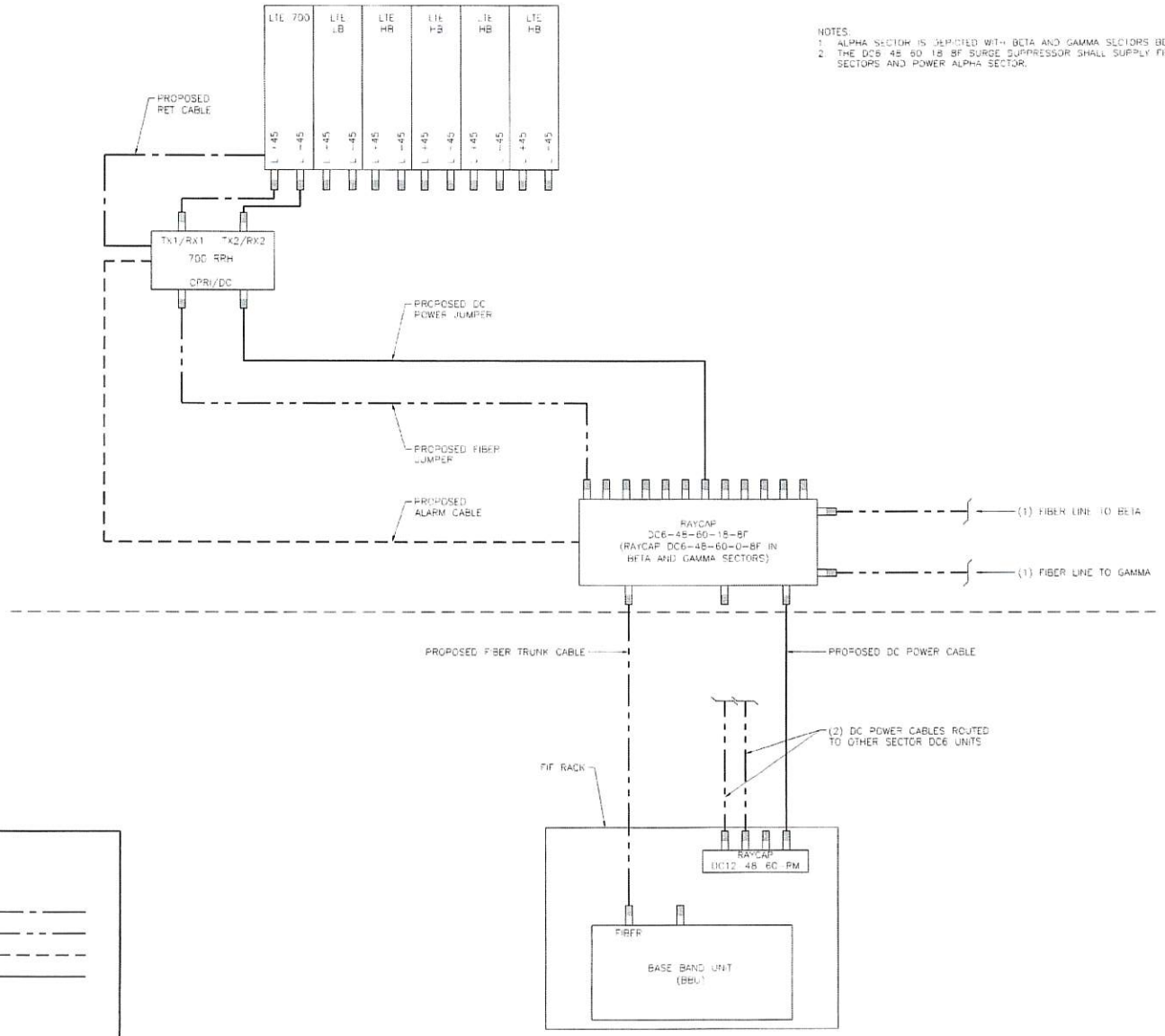

NOTES:
1. ALPHA SECTOR IS DEPICTED WITH BETA AND GAMMA SECTORS BEING SIMILAR
2. THE DC6 48 60 18 8F SURGE SUPPRESSOR SHALL SUPPLY FIBER TO ALL SECTORS AND POWER ALPHA SECTOR.

DIN MALE
DIN FEMALE
1/2" COAX JUMPER
FIBER CABLE
ALARM CABLE
DC POWER CABLE

LEGEND | SYSTEM CONFIGURATION | SCALE N.T.S | 1

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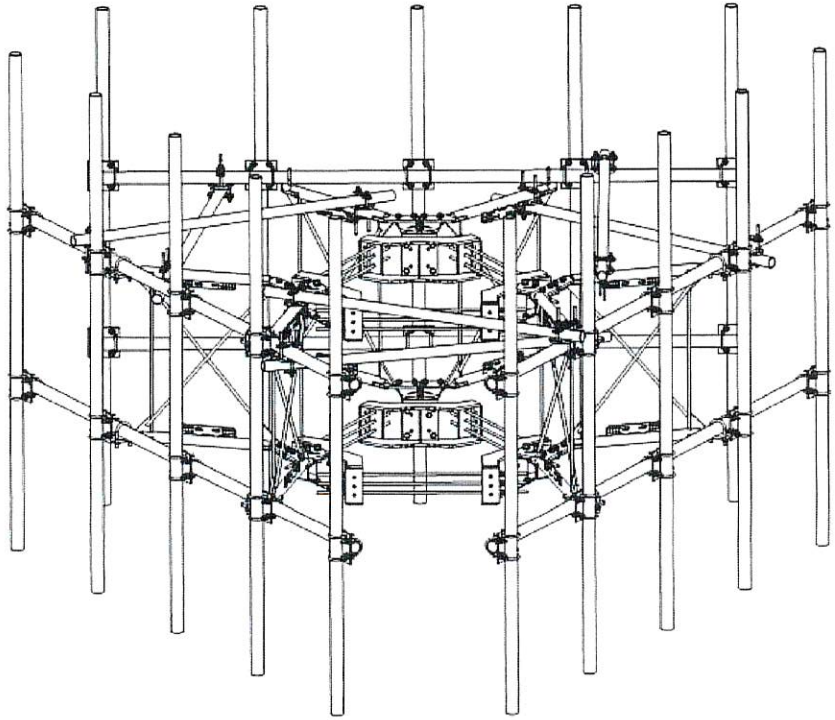
AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
SYSTEM CONFIGURATION

SHEET NUMBER
A-6



PARTS LIST						
ITEM	QTY	PART NO	PART DESCRIPTION	LENGTH	UNIT WT	NET WT
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	6	X-RMBP	RING MOUNT BENT PLATE CONNECTION	15 1/2 in	17.02	102.13
3	6	X-VFAPL4	VFA-HD PIVOT PLATE	12 in	15.88	95.30
4	6	X-VFAW	SUPPORT ARM		71.41	428.44
5	30	SCX2	CROSSOVER PLATE	7 in	4.80	143.89
6	6	P264	2-3/8" X 84" SCH 40 GALVANIZED PIPE	84 in	26.91	161.47
7	15	P30120	2-7/8" x 120" (2-1/2" SCH. 40) GALVANIZED PIPE	120 in	58.07	870.99
8	6	P30150	2-7/8" X 150" (2-1/2" SCH. 40) GALVANIZED PIPE	150 in	76.94	461.62
9	12	X-127594	FLAT DISK CLAMP PLATE 4" CENTERS (GALV.)		2.51	30.08
10	24	X-100064	CLAMP (4" V-CLAMP) GALVANIZED		0.92	22.12
11	12	A34212	3/4" x 2-1/2" UNC HEX BOLT (A325)	2 1/2 in	0.48	5.75
12	18	G34FW	3/4" HDG USS FLATWASHER		0.06	1.06
13	12	G34LW	3/4" HDG LOCKWASHER		0.04	0.51
14	12	G34NUT	3/4" HDG HEAVY 2H HEX NUT		0.21	2.55
15	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
16	12	X-UB6300	5/8" X 3" X 5-1/4" X 2-1/2" U-BOLT (HDG.)		1.15	13.79
17	24	A582112	5/8" x 2-1/2" HDG A325 HEX BOLT	2 1/2 in	0.33	8.02
18	24	A582114	5/8" x 2-1/4" HDG A325 HEX BOLT	2 1/4 in	0.31	7.50
19	108	G58LW	5/8" HDG LOCKWASHER		0.03	2.82
20	108	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	14.03
21	120	X-UB1300	1/2" X 3" X 5" X 2" GALV U-BOLT		0.74	88.64
22	24	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	9.83
23	24	G1204	1/2" x 4" HDG HEX BOLT GR5 FULL THREAD	4 in	0.27	6.48
24	288	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.82
25	288	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	4.00
26	288	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	20.63
					TOTAL WT. #	2999.58

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES (± 0.030")
DRILLED AND GAS CUT HOLES (± 0.030") - NO CONING OF HOLES
LASER CUT EDGES AND HOLES (± 0.010") - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING (± 0.030")
ALL OTHER ASSEMBLY (± 0.060")

PROPRIETARY NOTE:
THE DATA AND TECHNIQUES CONTAINED IN THIS DRAWING ARE PROPRIETARY INFORMATION OF VALMONT INDUSTRIES AND CONSIDERED A TRADE SECRET. ANY USE OR DISCLOSURE WITHOUT THE CONSENT OF VALMONT INDUSTRIES IS STRICTLY PROHIBITED.

DESCRIPTION
THREE SECTORS HEAVY WLL FRAME
AND MONOPOLE ATTACHMENT HARDWARE
WITH FIVE MOUNTING PIPES

SITE PRO 1 — Engineering Support Team 1-800-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX
Valmont COMMAV

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
	CEK 10/26/2018		VFA12-M3-WLL	1 OF 4
CLASS 81 / SUB 02	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 10/29/2018	DWG. NO. VFA12-M3-WLL	

ANTENNA MOUNT DETAIL — SCALE: N.T.S — 1

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APPLICANT/LESSEE:
at&t
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BLOOMINGTON, MN 55431

PREPARED BY:
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velocitel
complete wireless solutions
1701 AMERICAN BLVD EAST
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BUSINESS LICENSE #: N/A

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REVIEWED BY: MAW

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PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
ANTENNA MOUNT DETAIL

SHEET NUMBER:
A-7

1. THE CONDUIT ROUTING IS DIAGRAMMATICALLY SHOWN ON THE PLANS AND ARE ONLY APPROXIMATIONS. THE EXACT LOCATION AND ROUTING SHALL BE FIELD VERIFIED.

2. ALL ELECTRICAL EQUIPMENT AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED LAMICOID NAMEPLATES, INDICATING THE CIRCUITS ORIGINATION AND ALL EQUIPMENT TERMINATIONS.

3. CONTRACTOR SHALL PROVIDE STRAIN-RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES, COAX CABLES, AND RET CONTROL CABLES. CABLE STRAIN-RELIEFS, CABLE SUPPORTS SHALL BE APPROVED FOR THE PURPOSE. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

4. CONTRACT SHALL PROVIDE ALL BREAKERS, CONDUITS, HAND HOLES AND CIRCUIT CONDUCTORS, AS REQUIRED FOR A COMPLETED SYSTEM AND SHALL BE IN COMPLIANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

5. ALL CONDUIT SHALL BE INSTALLED IN COMPLIANCE WITH THE 2011 NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION, WHICHEVER IS THE MOST STRINGENT.

6. PROPOSED POWER IN PROPOSED 2 1/2" SCH 40 PVC CONDUIT. CONTRACTOR TO COORDINATE CONNECTION WITH LOCAL UTILITY COMPANY. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED PER NEC ARTICLE 314. (FIELD VERIFY LOCATION)

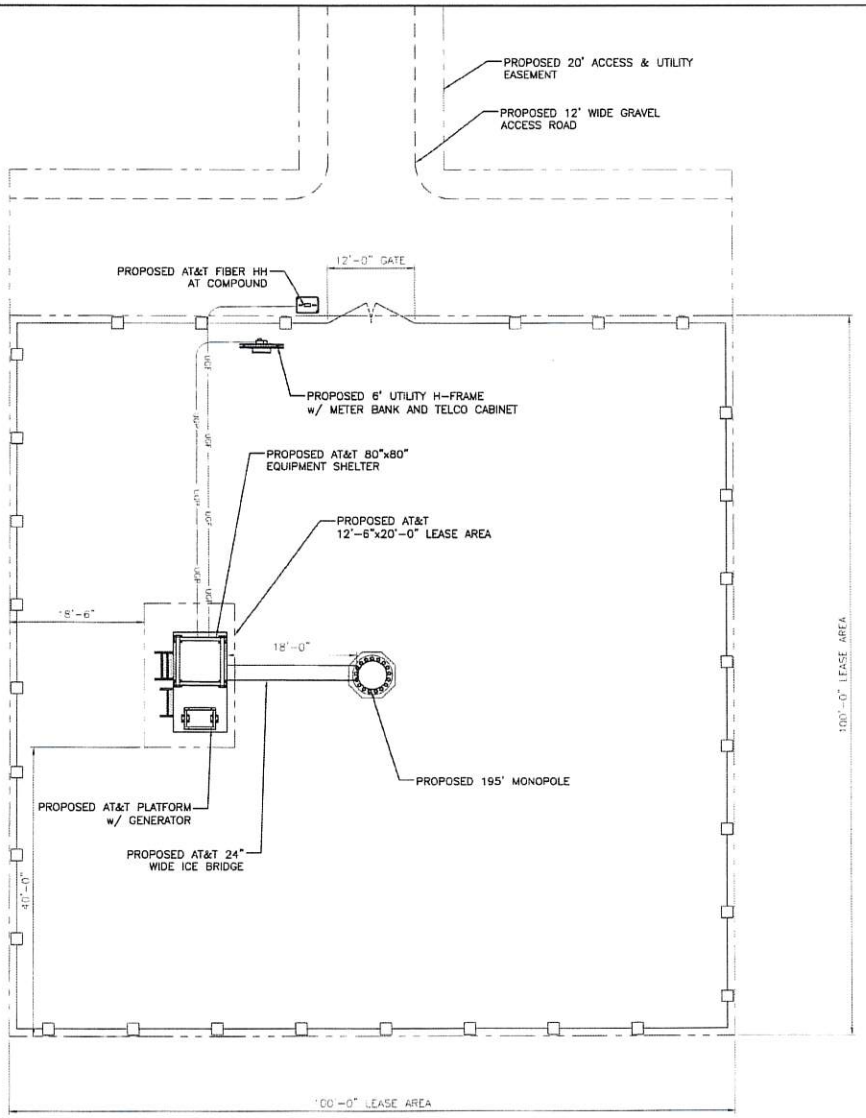
7. PROPOSED TELCO WITH 25 PAIR ICKY-PICK CAT 5 CONDUCTOR IN PROPOSED 3-1/4" INNERDUCT. CONTRACTOR TO COORDINATE CONNECTION WITH LOCAL TELEPHONE COMPANY. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED PER NEC ARTICLE 314.

8. ANY CONDUIT EXTRUDING FROM THE GROUND IS TO CHANGE CONDUIT TO RMC AT VERTICAL CONNECTION POINT TO TERMINATION. (FIELD VERIFY LOCATION)

NOTES 2

WOOD FENCE	
CHAIN-LINK FENCE	-X-
LEASE AREA	
OVERHEAD POWER	OHP
UNDERGROUND POWER	UGP
OVERHEAD FIBER	OHF
UNDERGROUND TELCO	UGT

LEGEND 3



OVERALL SITE PLAN

SCALE 1/16" = 1'-0" (11x17) 1

APPLICANT/LESSEE:

at&t

7900 XERXES AVE S., 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

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B	12/19/18	ISSUED FOR REVIEW 90%	JED
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REVIEWED BY: MAW

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SITE INFORMATION:

PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

ELECTRICAL PLAN

SHEET NUMBER:

E-1

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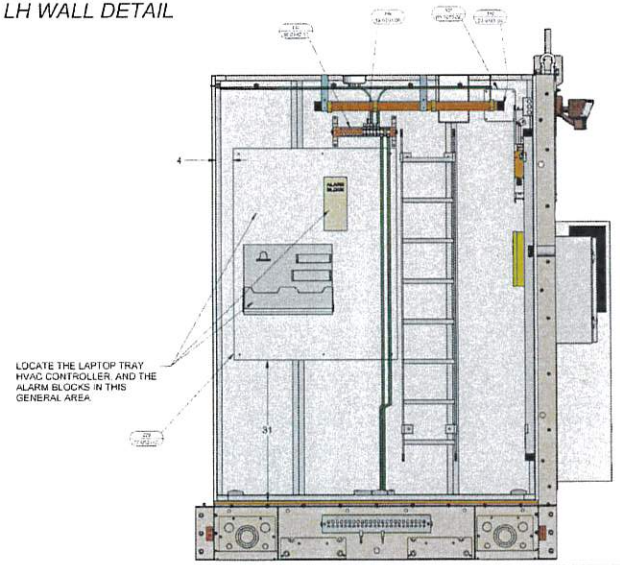
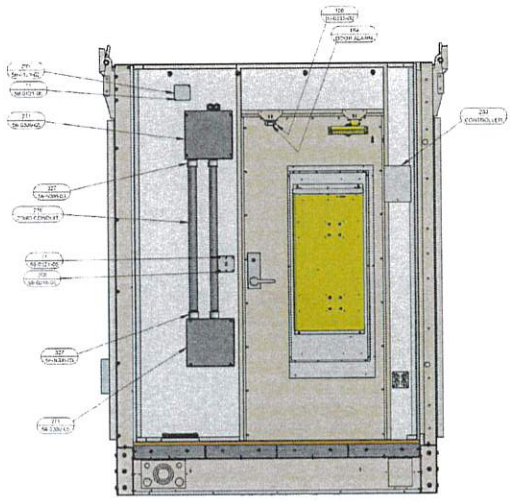
LH WALL DETAIL



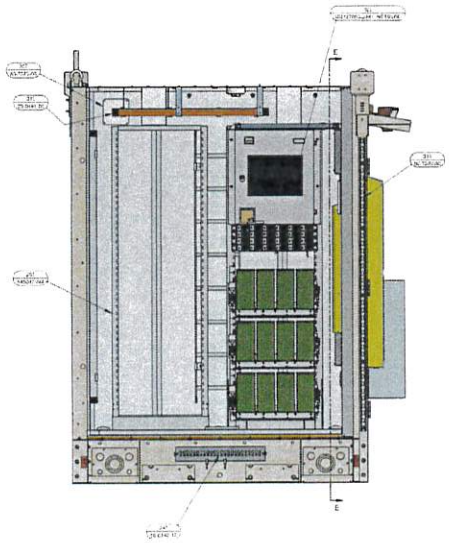
LEFT WALL DETAIL — SCALE N.T.S — 4

FRONT WALL DETAIL

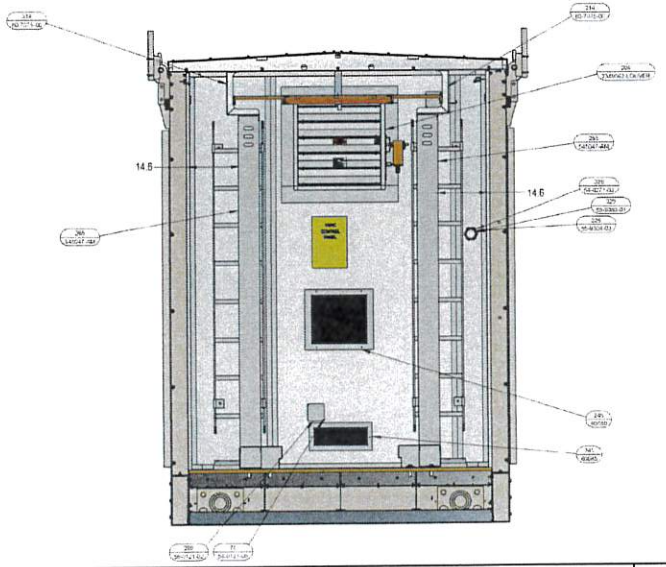


FRONT WALL DETAIL — SCALE N.T.S — 2

RIGHT HAND WALL DETAIL



RIGHT WALL DETAIL — SCALE N.T.S — 3



BACK WALL DETAIL — SCALE N.T.S — 1

8 7 6 5 4 3 2 1

F E D C B A

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AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE

ELECTRICAL SHELTER PLANS

SHEET NUMBER

E-2

ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	50-2024-00	80x80 BASE
7	1	80-4919-00	SHELTER WALL PANEL
8	1	80-7228-00	SHELTER WALL PANEL
9	1	80-7223-00	SHELTER WALL PANEL
10	13	55-6010-02	CARRIAGE BOLT SS 5/16-18 X 1
11	181	55-2002-03	NUT HEX FLANGED SS 5/16
12	1	72-0624-00	LH SUB FLOOR
13	1	72-0625-00	RH SUB FLOOR
16	4	80-4941-00	LIFTING EYE
17	168	55-6010-03	CARRIAGE BOLT SS 5/16-18 X 3/4
18	9	55-2019-00	5/16-18 NUTSERT - SEALING
19	12	55-6006-06	3/8-16 x 1.25 SS HHCS
20	1	55-6006-10	3/8-16 x 1.00 SS HHCS
21	100	55-8002-06	WASHER FLAT SS 3/8
22	45	55-2000-03	NYLOCK NUT SS 3/8-16
24	1	72-0634-00	MELAMINE PANEL
25	1	72-0633-00	MELAMINE PANEL
28	1	72-0626-00	MELAMINE PANEL
32	1	TILE FLOOR-ATT	TILE FLOOR
39	4	55-8001-00	WASHER SPLIT RING SS 1/4
45	2	80-7232-00	CEILING PANEL
46	1	80-7235-00	SHELTER CEILING PANEL
47	6	55-2033-00	NUTSERT AHS4-420-165
48	1	50-1809-00	80x80 ROOF ASSY
52	1	30-0013-02	
59	8	58-0049-05	LADDER RACK HORIZONTAL TEE
61	5	80-4879-00	LADDER RACK BRKT
71	5	58-0121-06	4S BOX, DBL GANG, 2-1/8" DEEP W/DIMPLE
76	1	80-7236-00	SHELTER CEILING PANEL
79	4	556731-LIGHT	4 LED LIGHT ASSY
86	7	TRIM-1	
87	8	80-4914-00	SHELTER CORNER TRIM
88	12	TRIM-3	
89	4	TRIM-4	
94	4	55-9044-00	ANCHOR SHACKLE
98	1	80-7240-00	36" THRESHOLD
99	1	80-4896-NP	AWNING - SHELTER
105	8	55-6009-01	SCREW TEK SS #12 X 3/4
113	4	55-2008-06	7/8-14 ZN NYLOCK
114	4	55-5001-14	7/8-14 X 5.00 HHCS
120	1	72-0304-01	MELAMINE PANEL
126	4	55-8001-09	WASHER SPLIT RING SS 3/8
132	1	58-0142-11	.25 X 2 X 14 GRD BAR
158	1	80-6595-00	DOOR ALARM BRKT
159	1	DOOR ALARM	
179	1	TRIM-16.725	
203	1	80-7233-00	SHELTER CEILING PANEL
204	1	80-7234-00	SHELTER CEILING PANEL
208	1	58-0218-00	LIGHT SWITCH COVER 4" SQ
209	1	80-7222-00	SHELTER WALL CORNER
211	1	80-7225-00	WALL CORNER
212	1	80-7224-00	SHELTER WALL PANEL
213	4	80-7226-00	CORNER SUPPORT
214	1	80-7227-00	WALL CORNER
217	1	80-7230-00	TOP DOOR SEAL CHNL
218	2	80-6941-00	SIDE DOOR DEAL CHNL
219	32	12-24 CAGE NUT	12-24 CAGE NUT
220	20	55-5104-00	SCREW FHPH SS 12-24 X 1"
221	2	58-0191-14	COMP LUG 10AWG, 2 HOLE, 10 STUD, 5/8 CTR
222	4	55-6006-03	SCREW HHCS SS 1/4-20 x3/4
223	1	72-0627-00	MELAMINE HDR PANEL
224	1	72-0628-00	MELAMINE PANEL
225	1	72-0629-00	MELAMINE PANEL
226	2	72-0630-00	MELAMINE PANEL
228	4	55-2036-00	AHS4-616-150BS NUTSERT
229	1	72-0631-00	TELCO BOARD - WHITE
233	1	CONTROLLER	
236	1	58-9058-00	FOLD DOWN DESK
237	1	ECUA12ACA-AC	SLIMPAC 1
238	1	50-2017-00	36" DOOR FRAME
240	4	80-7237-00	A/C WALL SUPPORT
241	2	80-7238-00	A/C WALL SUPPORT
242	2	80-7239-00	A/C WALL SUPPORT
243	26	53-0012-00	RIVET POP SS/SS .187 x .126-.250 CE
244	1	50-2019-00	36" DOOR ASSEMBLY
245	1	80685	SUPPLY GRILL
246	1	80680	RETURN GRILL
247	2	58-0142-17	ROSENBERGER GRB-ATTG0424PUNI
253	1	58-0122-04	1/2" RAISED GFCI COVER 4" SQ
254	2	58-0224-07	20A RECEPT
265	2	545047-AM	
267	5	80-7217-00	ROXTEC MNT PLATE
268	2	72-0632-00	MELAMINE PANEL
269	1	2349062-LOUVER	FRAME: TOP & BOTTOM
271	2	58-0309-05	12X12X4 PULL BOX
276	2	2"x60 CONDUIT	2" EMT
277	1	EXT WALL LOUVER	
278	1	HVAC CONTROL BOX	
280	2	58-0058-02	EXT LED MOTION LIGHT
281	12	25-0005-00	HALO STANDOFF CLAMPS - 1"
282	1	GROUND LOOP	
288	4	58-0057-02	1" INCH 90 DEGREE LIGUIDTIGHT NON-METALLIC FITTING
289	1	1X3 CARFLEX	
290	1	1X26 CARFLEX	
293	2	INT-EXT GRD CABLE	
296	4	80-7072-00	GPS MOUNT
297	4	55-6025-06	3/8-16 X 4.5 SS HHCS
298	4	55-2002-07	NUT HEX SS 3/8-16
299	3	58-0121-02	COVER F/4" SQ BOX
302	2	58-0264-04	ROXTEC EZENTRY 4/4
306	1	72-0635-00	MELAMINE PANEL
307	2	80-7073-00	COVER PLATE
310	2	23-0181-00	FLEXIBLE PLASTIC PLUG 1-1/2"
313	1	ALARM BLOCK-ATT	
314	3	80-7075-00	RACK BRACE
315	4	80-7070-00	PAINTED UNISTRUT
316	32	55-5061-00	HHCS ZN 3/8-16x1 1/4
318	2	80-6845-00	GPS PIPE MOUNT
319	4	U-BOLT	
320	4	58-0049-32	AUX CABLE RACK BRKY
321	1	SMOKE DETECTOR	
322	1	582127000zz041 - SETSURE	
326	1	55-9304-03	2" X 7" PIPE NIPPLE
327	4	58-9008-03	2" EMT BOX CONNECTOR
328	2	58-0271-02	2" LOCK RING
329	2	55-9383-01	2" PLASTIC PIPE BUSHING
335	9	55-6006-34	1/2-13 X 2.5 SS HHCS
337	9	55-8001-12	.50 SS LOCK WASHER
338	9	80-6847-00	1/2" ID X 2" OD SS WASHER
339	1	58-0309-04	SCE-24EL240BLP
340	7	58-0191-09	COMP LUG #2, 2 HOLES, STRNDED, 3 HOLE SHRT
341	5	58-0264-03	ROXTEC EXENTRY 16/16
343	2	80-7038-00	SIDE AC SEAL
344	1	80-7039-00	TOP AC SEAL
345	1	LOAD CENTER	
346	2	80-7035-00	LIGHT MNT PLATE
347	1	80-7036-00	WALL SLEEVE
348	2	58-0027-00	RECEPTACLE BOX GFCI W/MOUNTING EARS
349	16	55-2033-01	1/4-20 NUTSERT - CLOSED END
350	16	90-0017-00	1/4-20x1.00 SS SECURITY BOLT
351	16	55-9212-00	1/4" SEALING WASHER
352	24	58-0049-44	2" CABLE RACK END CAPS
353	16	58-0049-45	WALL BRKT F/2" CABLE RACK
354	4	58-0049-46	LADDER RACK 2" X 57/58" SOLID
355	2	58-0049-47	LADDER RACK 2" X 47/48" SOLID
356	1	58-0049-48	LADDER RACK 2" X 25" SOLID

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ELECTRICAL SHELTER NOTES

APPLICANT/LESSEE:

at&t

7900 XERXES AVE S, 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

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Development Services, LLC

velocitel
complete wireless solutions

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BUSINESS LICENSE #: N/A

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SITE INFORMATION:
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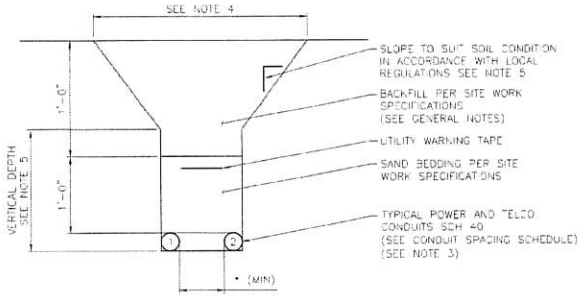
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
ELECTRICAL SHELTER NOTES

SHEET NUMBER:
E-2.1



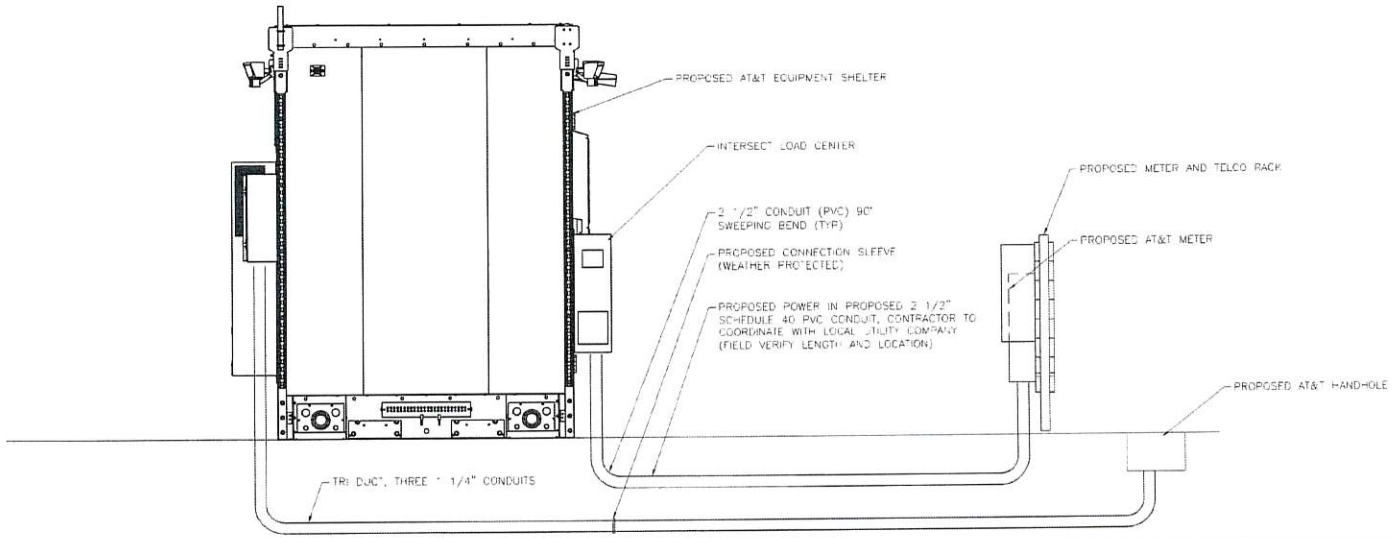
CONDUIT SPACING SCHEDULE		
CONDUIT #1	MINIMUM CONDUIT SEPARATION	CONDUIT #2
POWER	* = 6 INCHES	POWER
POWER	* = 12 INCHES	TELCO COMMUNICATIONS & CONTROL CIRCUITS
TELCO COMMUNICATIONS & CONTROL CIRCUITS	* = 6 INCHES	TELCO COMMUNICATIONS & CONTROL CIRCUITS

TYPICAL UNDERGROUND TRENCH DETAIL — SCALE: N.T.S — 3

NOTE:

1. ALL UNDERGROUND CONDUITS SHALL BE SCH 40 PVC, EXCEPT THAT ELBOWS AND RISERS SHALL BE RMC. ALL UNDERGROUND ELBOWS SHALL BE SWEEPING BENDS. 2'-0" MINIMUM SHALL BE REQUIRED.
2. THE TELEPHONE SERVICE CABLES SHOULD BE INSTALLED IN RIGID METAL CONDUIT, (10'-0") TEN FEET IN LENGTH BEFORE ENTERING A SHELTER OR BUILDING PER AT&T STANDARD ATT-TP 264'6.
3. TWO CONDUITS ARE SHOWN IN DETAIL 3, ALTHOUGH MULTIPLE CONDUITS CAN BE PLACED IN THE SAME TRENCH. A MINIMUM SEPARATION IS REQUIRED PER THE LOCAL JURISDICTIONS AND UTILITY COMPANIES. IN ALL OTHER CASES, USE THE CONDUIT SPACING SCHEDULE TO MAINTAIN MINIMUM SPACING BETWEEN THE EXTERIOR WALL TO EXTERIOR WALL SEPARATION OF CONDUITS.
4. CONTRACTOR SHALL RESTORE THE TRENCH TO ITS ORIGINAL CONDITIONS BY EITHER SEEDING OR SODDING GRASS AREAS, OR REPLACING ASPHALT OR CONCRETE AREAS TO ITS ORIGINAL CROSS SECTION.
5. TRENCHING SAFETY, INCLUDING, BUT NOT LIMITED TO, SOIL CLASSIFICATION, SLOPING, AND SHORING, SHALL BE GOVERNED BY THE CURRENT OSHA TRENCHING AND EXCAVATION SAFETY STANDARDS.
6. ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE NATIONAL ELECTRIC CODE (NEC) OR AS REQUIRED BY THE LOCAL JURISDICTION

NOTES — 2



POWER RISER DIAGRAM — SCALE: N.T.S — 1

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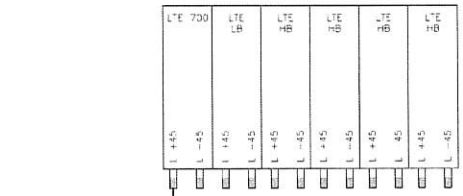
43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
ELECTRICAL DETAILS

SHEET NUMBER:
E-3



NOTES:
1. DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR IDENTIFYING +24V AND -48V CONDUCTORS. RED MARKINGS SHALL IDENTIFY +24v AND BLUE MARKINGS SHALL IDENTIFY -48V. REFER TO ATT-002-290-701.
2. NON-LTE DC POWER WIRING SIZE 14 AWG TO 10 AWG SHALL BE TELCOFLEX III. DC POWER WIRING 8 AWG AND LARGER SHALL BE TELCOFLEX V.
3. LTE POWER WIRING SHALL BE IN ACCORDANCE WITH ATT-002-290-531.

DC CIRCUIT SCHEDULE

NO	FROM	TO	CONFIGURATION
1	-48VDC DISTRIBUTION PANEL	LTE BASE BAND UNIT	(1) 2-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
2	-48VDC DISTRIBUTION PANEL	RAYCAP SURGE PROTECTION DC12-48-60-RM	(4) 2-#10 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
3	RAYCAP SURGE PROTECTION DC12-48-60-RM	RAYCAP SURGE PROTECTION DC6-48-60-18/C-8F	(1) 6-#8 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
4	RAYCAP SURGE PROTECTION RAYCAP DC6-48-60-18/D-8F	RRH REMOTE RADIO HEAD	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE
5	RRH	ANTENNA	(1) 2-#12 THHN/THWN/VW-1 TYPE TC-ER DC CABLE

DC CIRCUIT DIAGRAM (PER SECTOR)

SCALE NTS | 1

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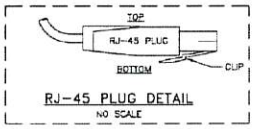
YANKTON, SD 57078
YANKTON

SHEET TITLE:
DC CIRCUIT DIAGRAM

SHEET NUMBER:
E-4

1. TVSS WILL BE PRE-INSTALLED ON THE TELCO BOARD IN SHELTER. USE APPROPRIATE STAINLESS STEEL BOLTS WITH FLAT WASHERS AND A LOCK WASHER ON THE NUT SIDE.
2. ATTACH RING TERMINAL FROM SUPPLIED GROUNDING CONDUCTOR TO TVSS GROUND NO. STUD SECURELY FASTEN WITH SUPPLIED WASHER AND NUT. REFER TO MANUFACTURER'S INSTRUCTIONS FOR PROPER PERFORMANCE. THE GROUNDING CONDUCTOR LENGTH SHOULD BE LIMITED WITH NO SHARP BENDS OR COILS.
3. TELCO CABLE TO H-FRAME TO BE 25 PAIR ICKY-PICK CAT 5, 24 SOLID CONDUCTOR, RJ45 CONNECTOR ON ONE END (FACTORY ASSEMBLED).
4. CONTRACTOR TO LAND CONNECTION AT NIU (CAT 5 OUTDOOR RATED).
5. AC DATA SYSTEMS MODEL TJ1010B SURGE SUPPRESSOR.
6. KEEP TWIST IN PAIR $\frac{1}{2}$" TO DIN CONNECTION.
7. INSTALL BRIDGING CLIPS ON 66 BLOCK.
8. 1 1/2" LENGTH HEAT SHRINK OVER BOTH ENDS OF CABLE.
9. CONDOMEX FTP 25 PAIR ICKY-PICK 24 AWG TYPE CMR (UL) C (UL) CMC E-107389 VERIFIED (UL CAT 5 OR ETL VERIFIED TO TIA/EIA-568-B.2 CAT 5).
10. LEAVE 10" SERVICE LOOP AT BOTH ENDS OF CABLE.
11. SERVICE LOOP TO BE SECURED TO BACKBOARD OF HOFFMAN BOX USING PLASTIC "C CLIPS"

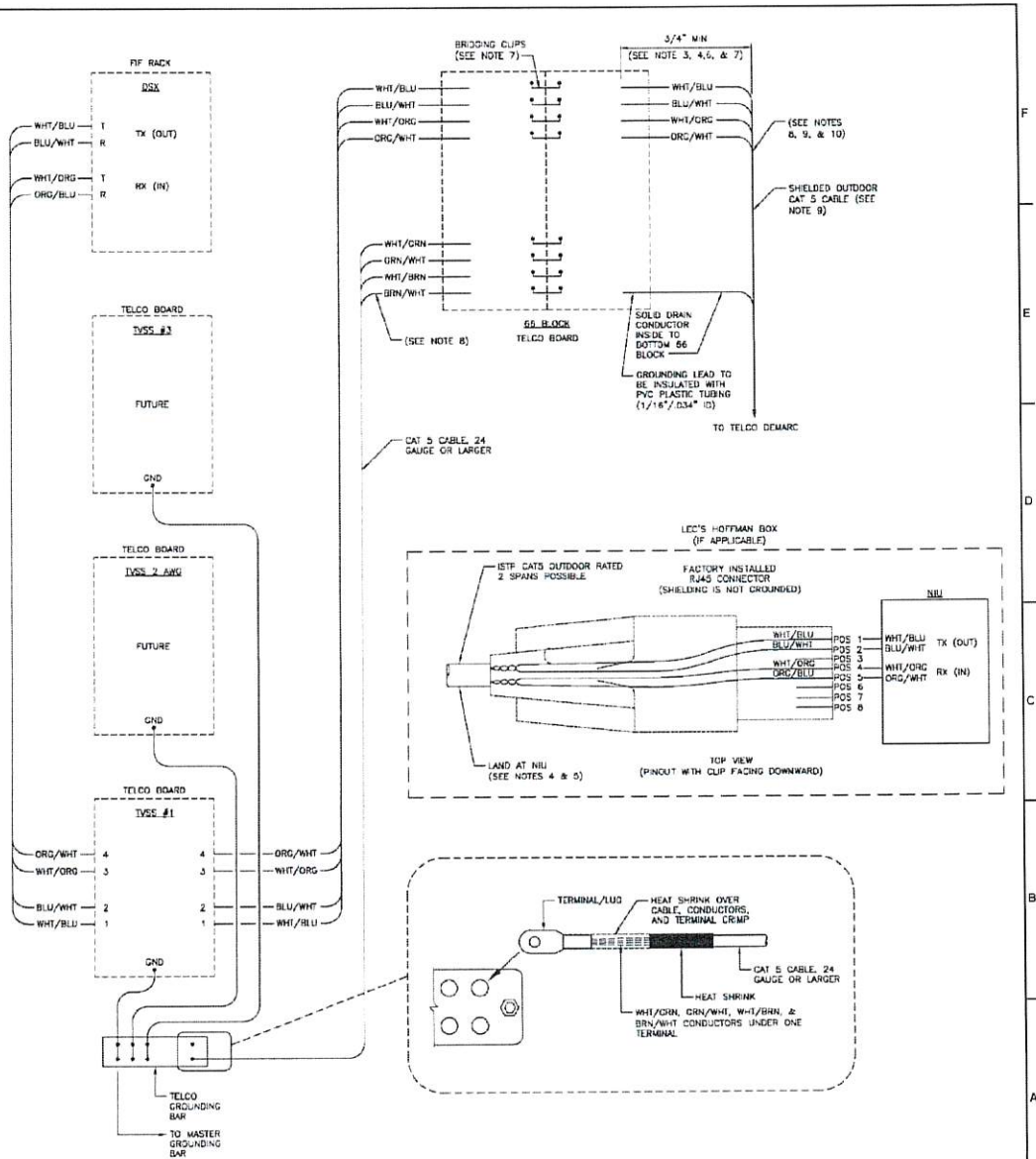
NOTES | 3



RJ-45 PLUG DETAIL
NO SCALE

1 NC	INTRUSION ALARM	BL/W 51 NC	TWR PHOTOCELL FAILURE
2 C		W/BL 52 C	
3 NC	HIGH TEMP ALARM	O/W 53 NC	HIGH HUMIDITY
4 C		W/O 54 C	
5 NC	HIGH HUMIDITY ALARM	G/W 55 NC	DEHYDRATOR
6 C		W/G 56 C	
7 NC	SURGE ARRESTOR ALARM	BR/W 57 NC	PCU FAIL MAJOR
8 C		W/BR 58 C	
9 NC	SMOKE ALARM	S/W 59 NC	PCU CONV FAIL MAJOR
10 C		W/S 60 C	
11 NO	COMMON POWER FAILURE	BL/R 61 NC	HIGH VOLTAGE
12 C		R/BL 62 C	
13 NC	#1 HVAC FAILURE ALARM	R/O 63 NC	FIF FUSE ALARM
14 C		O/R 64 C	
15 NC	#2 HVAC FAILURE ALARM	G/R 65 NC	FIRE SYSTEM TROUBLE
16 C		R/G 66 C	
W/B 17 NC	LOW TEMPERATURE ALARM	BR/R 67 NC	FIRE SUPPRESSION DISCHARGE
B/W 18C		R/BR 68C	
W/O 19 NC	HYDROGEN GAS ALARM	S/R 69 NC	SIAD
O/W 20C		R/S 70C	
W/G 21 NC	TECHNICIAN ON SITE	BL/BK 71 NC	M/W MAJOR 1
G/W 22 C		BK/BL 72 C	
W/BR 23 NC	EMERGENCY CALL	O/BK 73 NC	M/W MINOR 1
BR/W 24 C		BK/O 74 C	
W/S 25 NC	POSITIVE REPORTING TL - ON	G/BK 75 NC	M/W MAJOR 2
S/W 26 C		BK/G 76 C	
O/B 27 NC	PP FUSE ALARM	BR/BK 77 NC	M/W MINOR 2
R/O 28 C		BK/BR 78 C	
R/U 29 NC	PP MAJOR	S/BK 79 NC	M/W MAJOR 3
U/R 30 C		BK/S 80 C	
R/G 31 NC	PP MINOR	BL/Y 81 NC	M/W MINOR 3
G/R 32 C		Y/BL 82 C	
R/BR 33 NC	PP BATT DISCH (LOW VOLTAGE)	O/Y 83 NC	M/W MAJOR 4
BR/R 34 C		Y/O 84 C	
R/S 35 NC	48V RECT CRITICAL	G/Y 85 NC	M/W MINOR 4
S/R 35 C		Y/G 86 C	
BL/B 37 NC	48V RECT MAJOR	BR/Y 87 NC	LOW TEMP
B/BL 38 C		Y/BR 88 C	
W/B 39 NC	48V RECT MINOR	S/Y 89 NC	TRANSFER SWITCH
B/W 40 C		Y/S 90 C	
W/B 41 NC	48V PDU ALARM	BL/Y 91 NC	GENERATOR RUN
B/W 42 C		Y/BL 92 C	
43 NC	TWA FAIL	O/Y 93 NC	GENERATOR FAIL
44 C		Y/O 94 C	
45 NC	TWR BEACON LIGHTS FAILURE	G/Y 95 NC	GEN BATT/CHG FAIL
46 C		Y/G 96 C	
47 NC	TWR STROBE LIGHTS FAILURE	BR/Y 97 NC	LOW HUMIDITY
48 C		Y/BR 98 C	
49 NC	TWR SIDE LIGHTS FAILURE	99 NC	TOWER 4
50 C		100 C	

MARCONI-SIEMENS CONFIGURATION SHELTER PUNCHDOWN BLOCK | 2



TELCO INTERFACE SCHEMATIC | SCALE: NTS | 1

APPLICANT/LESSEE:

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BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
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1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

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1	09/23/19	REVISIONS	JCD
C	03/18/19	100% CONSTRUCTION	JCD
B	12/19/18	ISSUED FOR REVIEW 90%	JED
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REVIEWED BY: MAW

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
TELCO INTERFACE

SHEET NUMBER:
E-5

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE AND FOR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

1. CONTRACTOR SHALL INSPECT THE EXISTING CONDITIONS PRIOR TO SUBMITTING A BID. ANY QUESTIONS ARISING DURING THE BID PERIOD IN REGARDS TO THE CONTRACTOR'S FUNCTIONS, THE SCOPE OF WORK, OR ANY OTHER ISSUE RELATED TO THIS PROJECT SHALL BE BROUGHT UP DURING THE BID PERIOD WITH THE PROJECT MANAGER FOR CLARIFICATION, NOT AFTER THE CONTRCAY HAS BEEN AWARDED.

2. ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH CURRENT NATIONAL ELECTRICAL CODES AND ALL STATE AND LOCAL CODES, LAWS, AND ORDINANCES. PROVIDE ALL COMPONENTS AND WIRING SIZES AS REQUIRED TO MEET NEC STANDARDS.

3. LOCATION OF EQUIPMENT, CONDUIT AND DEVICES SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SHALL BE COORDINATED WITH FIELD CONDITIONS PRIOR TO CONSTRUCTION.

4. CONDUIT ROUGH-IN SHALL BE COORDINATED WITH THE MECHANICAL EQUIPMENT TO AVOID LOCATION CONFLICTS. VERIFY WITH THE MECHANICAL EQUIPMENT CONTRACTOR AND COMPLY AS REQUIRED.

5. CONTRACTOR SHALL PROVIDED ALL BREAKERS, CONDUITS AND CIRCUITS AS REQUIRED FOR A COMPLETE SYSTEM.

6. CONTRACTOR SHALL PROVIDE PULL BOXES AND JUNCTION BOXES AS REQUIRED BY THE NEC ARTICLE 314.

7. CONTRACTOR SHALL PROVIDE ALL STRAIN RELIEF AND CABLE SUPPORTS FOR ALL CABLE ASSEMBLIES. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

8. ALL DISCONNECTS AND CONTROLLING DEVICES SHALL BE PROVIDED WITH ENGRAVED PHENOLIC NAMEPLATES INDICATION EQUIPMENT CONTROLLED, BRANCH CIRCUITS INSTALLED ON, AND PANEL FIELD LOCATIONS FED FROM.

9. INSTALL AN EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS PER THE SPECIFICATIONS AND NEC 250. THE EQUIPMENT GROUNDING CONDUCTORS SHALL BE BONDED AT ALL JUNCTION BOXES, PULL BOXES, AND ALL DISCONNECT SWITCHES, AND EQUIPMENT CABINETS.

10. ALL NEW MATERIAL SHALL HAVE A U.L. LABEL.

11. PANEL SCHEDULE LOADING AND CIRCUIT ARRANGEMENTS REFLECT POST-CONSTRUCTION EQUIPMENT.

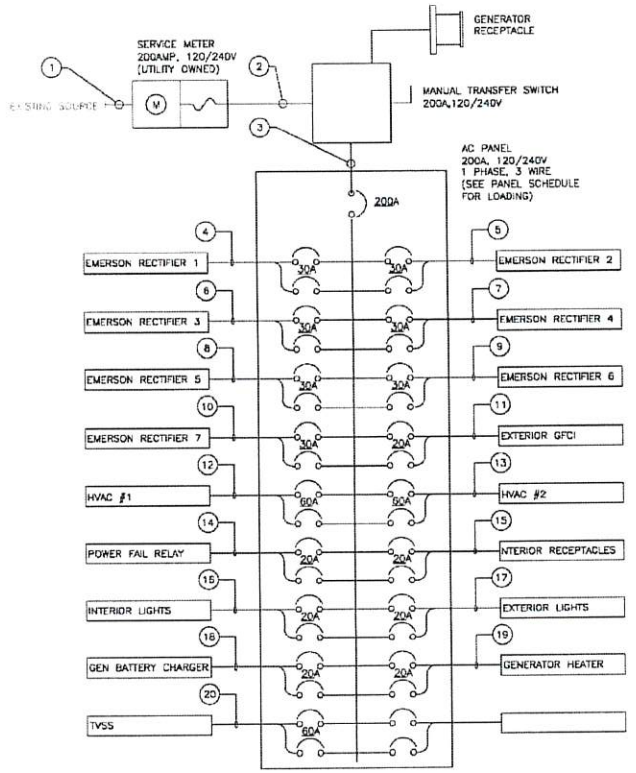
12. CONTRACTOR SHALL BE RESPONSIBLE FOR AS-BUILT PANEL SCHEDULE AND SITE DRAWINGS.

13. DC POWER WIRING SHALL BE COLOR CODED AT EACH END FOR INDENTIFYING +24V AND -48V CONDUCTOR WIRING. RED MARKINGS SHALL IDENTIFY +24V, BLUE MARKINGS SHALL IDENTIFY -48V. REFER TO ATT-002-290-701.

14. DC POWER WIRING SIZE 14 AWG TO 10 AWG SHALL BE TELCOFLEX II. DC POWER WIRING 8 AWG AND LARGER SHALL BE TELCOFLEX IV. REFER TO ATT-002-290-701.

15. LTE POWER WIRING SHALL BE ACCORDANCE WITH ATT-002-290-531.

NOTES | 3



AC ONE-LINE SCHEMATIC | 2

NO	FROM	TO	CONFIGURATION
1	TRANSFORMER	UTILITY METER	(3) 3/0, (1) #4 GND
2	SERVICE DISCONNECT	TRANSFER SWITCH	(3) 3/0, (1) #4 GND
3	TRANSFER SWITCH	AC LOAD CENTER	(3) 3/0, (1) #4 GND
4	AC LOAD CENTER	EMERSON RECTIFIER #1	(2) #10, (1) #10 GND
5	AC LOAD CENTER	EMERSON RECTIFIER #2	(2) #10, (1) #10 GND
6	AC LOAD CENTER	EMERSON RECTIFIER #3	(2) #10, (1) #10 GND
7	AC LOAD CENTER	EMERSON RECTIFIER #4	(2) #10, (1) #10 GND
8	AC LOAD CENTER	EMERSON RECTIFIER #5	(2) #10, (1) #10 GND
9	AC LOAD CENTER	EMERSON RECTIFIER #6	(2) #10, (1) #10 GND
10	AC LOAD CENTER	EMERSON RECTIFIER #7	(2) #10, (1) #10 GND
11	AC LOAD CENTER	EXTERIOR GFCI	(1) #12 BLK, (1) #12 WHT, (1) #12 GND

NO	FROM	TO	CONFIGURATION
12	AC LOAD CENTER	HVAC #1	(1) #8 THHN/THWN, (1) #10 AWG GND
13	AC LOAD CENTER	HVAC #2	(1) #8 THHN/THWN, (1) #10 AWG GND
14	AC LOAD CENTER	POWER FAIL RELAY	(2) #12 THHN/THWN, (1) #12 NUEY, (1) #12 AWG GND
15	AC LOAD CENTER	INTERIOR RECEPTACLES	(3) #12 BLK, (3) #12 WHT, (1) #12 AWG GND
16	AC LOAD CENTER	INTERIOR LIGHTS	(3) #12 BLK, (3) #12 WHT, (1) #12 AWG GND
17	AC LOAD CENTER	EXTERIOR LIGHTS	(3) #12 BLK, (3) #12 WHT, (1) #12 AWG GND
18	AC LOAD CENTER	GEN BATTERY CHARGER	(3) #12 BLK, (3) #12 WHT, (1) #12 AWG GND
19	AC LOAD CENTER	GENERATOR HEATER	(3) #12 BLK, (3) #12 WHT, (1) #12 AWG GND
20	AC LOAD CENTER	TVSS	(2) #6 BLK, (3) #6 WHT, (1) #10 AWG GND

AC CIRCUIT SCHEDULE | 1

APPLICANT/LESSEE:

at&t

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BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

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REVIEWED BY: MAW

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
ELECTRICAL AC ONE-LINE DIAGRAM

SHEET NUMBER:
E-6

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Site Name:						MODEL NUMBER:	TBD											
Site Number:						PHASE:	1			WIRE:			3					
Vol TAGE:	240 /120	Volts AC				BUSS RATING:	200	AMPS		AIC:								
MAIN BREAKER	200 AMPS					NEUTRAL BAR:	YES											
MOUNT:	SURFACE					N to GROUND BOND:	TBD											
ENCLOSURE TYPE:	NEMA 3R					INTERNAL TVSS:	TBD											
PANEL STATUS:	PROPOSED																	

CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	Demand Factor	USAGE FACTOR	PHASE A VA	PHASE B VA	USAGE FACTOR	Demand Factor	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	EMERSON RECTIFIER #1	30	2	NEW	1600	1.00	1.00	4240		1.00	1.00	5280	NEW	2	60	HVAC #1	2
3					1600	1.00	1.00		4240	1.00	1.00	5280					4
5	EMERSON RECTIFIER #2	30	2	NEW	1600	1.00	1.00	4240		1.00	1.00	5280	NEW	2	60	HVAC #2	6
7					1600	1.00	1.00		4240	1.00	1.00	5280					8
9	EMERSON RECTIFIER #3	30	2	NEW	1600	1.00	1.00	1610		1.00	1.00	10	NEW	2	20	POWER FAIL	10
11					1600	1.00	1.00		1610	1.00	1.00	10					12
13	EMERSON RECTIFIER #4	30	2	NEW	1600	1.00	1.00	2680		1.00	1.00	1080	NEW	1	20	INTERIOR RECEPTACLES	14
15					1600	1.00	1.00		2040	1.00	1.00	440	NEW	1	20	INTERIOR LIGHTS	16
17	EMERSON RECTIFIER #5	30	2	NEW	1600	1.00	1.00	1800		1.00	1.00	200	NEW	1	20	EXTERIOR LIGHTS	18
19					1600	1.00	1.00		1960	1.00	1.00	360	NEW	1	20	GEN. BATTERY CHARGER	20
21	EMERSON RECTIFIER #6	30	2	NEW	1600	1.00	1.00	3100		1.00	1.00	1500	NEW	1	20	GENERATOR HEATER	22
23					1600	1.00	1.00		1600	1.00	1.00	0			--	----	24
25	EMERSON RECTIFIER #7	30	2	NEW	1600	1.00	1.00	1600		1.00	1.00	0			--	----	26
27					1600	1.00	1.00		1600	1.00	1.00	0			--	----	28
29	----	--			0	1.00	1.00	0		1.00	1.00	0			--	----	30
31	----	--			0	1.00	1.00		0	1.00	1.00	0			--	----	32
33	----	--			0	1.00	1.00	0		1.00	1.00	0			--	----	34
35	----	--			0	1.00	1.00		0	1.00	1.00	0			--	----	36
37	----	--			0	1.00	1.00	0		1.00	1.00	0			--	----	38
39	----	--			0	1.00	1.00		0	1.00	1.00	0	NEW	2	30	TVSS	40
41	EXTERIOR GFCI	20	1	NEW	180	1.00	1.00	180		1.00	1.00	0					42
								PHASE A	PHASE B								
								19450	17290	VA							
									TOTAL	KVA	36.74						
										AMPS	153.08	80% OF MAIN BREAKER					

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LOAD CENTER SCHEDULE

1

APPLICANT/LESSEE:

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BLOOMINGTON, MN 55431

PREPARED BY:

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1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

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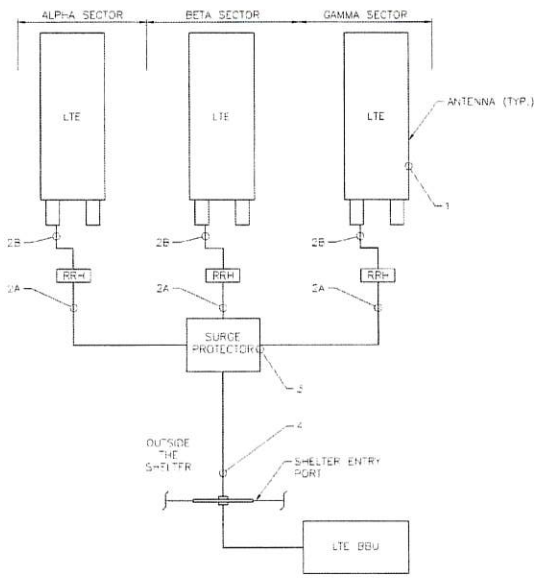
SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
LOAD CENTER SCHEDULE

SHEET NUMBER:
E-7



BILL OF MATERIAL						
ITEM #	ITEM DESCRIPTION	SECTOR			TOTAL QUANTITY	APPLICATION
		A	B	C		
1	DUAL BAND ANTENNA	1	1	1	3	DUAL BAND
2A	FIBER JUMPER	1	1	1	3	DUAL BAND
2B	RET CABLE	1	1	1	3	DUAL BAND
3	RAYCAP DC6-48-60-18-8F	-			1 (AS REQ'D.)	REQUIRED
4	FIBER TRUNK CABLE	-			1 (AS REQ'D.)	REQUIRED

1. LIMIT OVERALL RET CABLE RUN TO LESS THAN 400 FT.
2. SUPPORT RET AISG COMM CABLE IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
3. USE #6 AWG STRANDED COPPER THHN-2 GREEN INSULATED GROUNDING CONDUCTOR UNLESS OTHERWISE NOTED. CONNECT THE PCU TO EXISTING TELCO RACK GROUND BAR.
4. ROUTE CIRCUITS IN CABLE TRAY OR EMT CONDUITS TO THE EXISTING +24VDC PDU OR -48VDC PCU PANELS. PROVIDE THE APPROPRIATE SIZE OF OVERCURRENT PROTECTION AND FOLLOW THE TERMINATION PROCEDURES IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.
5. TOWER MOUNT APPLICATION WILL DICTATE THE LENGTH OF CABLE TO BE USED.
6. AISG CABLES PROVIDE CONTROL AND POWER TO ELECTRICAL DOWN TILT DRIVES ON THE ANTENNAS.
7. THE CABLES ARE FACTORY ASSEMBLED WITH ONE MALE AND ONE FEMALE CONNECTOR ON EACH END. SUPPORT EVERY 18" USING TIE WRAPS SUITABLE FOR OUTDOOR USE. INSTALL DRIP LOOPS AT EVERY LOCATION WHERE WATER MAY ACCUMULATE.
8. NO TESTING OF THE CABLE IS REQUIRED.
9. SEE DETAIL ON SECTOR CONFIGURATION SHEETS FOR AISG BIAS-T PLACEMENT.
10. DURING INSTALLATION, RECORD THE FOLLOWING INFORMATION FOR USE DURING THE COMMISSIONING PHASE:
    - RET ACTUATOR/MOTOR SERIAL NUMBER
    - ANTENNA SERIAL NUMBER
    - LOCATION (SECTOR IN WHICH THE ANTENNA WILL OPERATE)
11. ANTENNA CONFIGURATION IS SHOWN DIAGRAMMATICALLY ONLY AS A REPRESENTATION.
12. IF A JUNCTION BOX WILL NOT BE A USED AT THE TOP OF THE RET SYSTEM, IT IS RECOMMENDED THAT AN ADDITIONAL LIGHTNING PROTECTION UNIT BE INSTALLED AT THE TOWER TOP.
13. FOR RET CABLES 165 FEET OF LESS, THE AISG CABLE GROUNDING KIT IS NOT REQUIRED AT THE SHELTER END.
14. USE THIS DRAWING FOR RET GROUNDING SPECIFICATIONS. SEE DRAWING G-1 FOR GENERAL REQUIREMENTS.

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LTE RET SCHEMATIC DIAGRAM | SCALE: N.T.S | 2 | NOTES | 1

APPLICANT/LESSEE
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BLOOMINGTON, MN 55431

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
RET SCHEMATIC

SHEET NUMBER:
E-8

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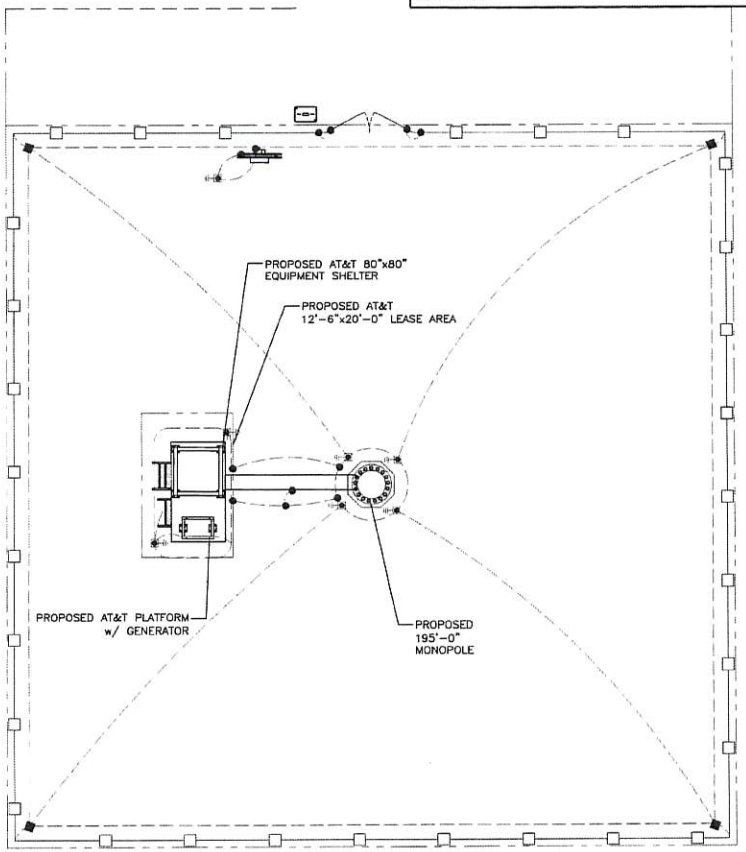
LEGEND

EXOTHERMIC TYPE CONNECTION	●
COMPRESSION TYPE CONNECTION	■
CHEMICAL, ELECTROLYTIC GROUNDING SYSTEM	☢
GROUND ROD WITH INSPECTION SLEEVE	⊢●
TEST GROUND ROD WITH INSPECTION SLEEVE	⊢●T
EXOTHERMIC WITH INSPECTION SLEEVE	●
GROUNDING CONDUCTOR	----------

3



GROUNDING SITE PLAN

SCALE 1/16" = 1'-0" (11x17)

4

KEY NOTES

A. TOWER GROUNDING RING: EXTEND TWO (2) #2 AWG TINNED CU CONDUCTOR FROM NEW BURIED GROUNDING RING TO EXISTING TOWER GROUNDING RING AND MAKE AN EXOTHERMIC CONNECTION.

B. GROUNDING BAR: EXTEND TWO (2) #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING UP TO THE HATCH-PLATE GROUNDING BAR AND MAKE A MECHANICAL CONNECTION.

C. GROUNDING OF INTERNAL GROUNDING RING: EXTEND TWO (2) #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING THROUGH 4" PVC SLEEVE INTO EQUIPMENT SHELTER FOR CONNECTION TO INTERIOR HALO GROUNDING RING. (4) FOUR CONNECTIONS TYPICAL AT EACH SHELTER CORNERS.

D. GROUND ROD: COPPER CLAD STEEL 5/8" (10) TEN FEET LONG. ALL GROUNDING RODS MAY BE INSTALLED WITH INSPECTION SLEEVES.

E. ICE BRIDGE SUPPORT POST GROUNDING: EXTEND #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING TO ALL ICE BRIDGE SUPPORT POSTS AND EXOTHERMICALLY WELD.

F. FENCE GROUNDING: IF FENCE IS WITHIN 6' OF GROUNDING RING, EXTEND #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING TO FENCE POSTS EXOTHERMICALLY WELDED. FENCING FABRIC SHALL BE GROUNDED AT ADJACEENT CORNER POST. (2) REQ'D FROUND INTERMEDIATE POST TO MAINTAIN 25'-0" MAX SPACING.

G. HVAC GROUNDING: EXTEND #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING TO THE HVAC UNIT AND MAKE A MECHANICAL CONNECTION.

H. PROPOSED TOWER GROUNDING: EXTEND TWO (2) #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING AND CONNECT TO THE PROPOSED TOWER. FOLLOW MANUFACTURERS RECOMMENDATIONS FOR GROUNDING CONNECTIONS TO THE TOWER. (APPLICABLE TO NEW TOWERS ONLY.)

I. TELCO GROUNDING BAR: EXTEND TWO (2) #2 AWG TINNED CU CONDUCTORS TO MASTER GROUNDING BAR AND MAKE A MECHANICAL CONNECTION.

J. ANTENNA GROUNDING BAR: EXEND TWO (2) #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING AND CONNECT TO THE PROPOSED ANTENNA GROUNDING BAR. MOUNT GROUNDING BAR DIRECTLY TO TOWER. SECURE TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.

K. GATE GROUNDING: EXTEND #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING TO GATE POSTS AND EXOTHERMICALLY WELD.

L. TEST GROUND ROD WITH INSPECTION SLEEVE: COPPER CLAD STEEL 5/8" DIA. TEN (10) FEET LONG WITH INSPECTION SLEEVE.

M. MASTER GROUNDING BAR: EXTEND TWO (2) #2 AWG TINNED CU CONDUCTORS FROM BURIED GROUNDING RING UP TO MASTER GROUNDING BAR & MAKE A EXOTHERMIC CONNECTIONS.

N. GROUNDING BAR LOCK BOX: TESSCO PART # 351546; INSTALL PER MANUFACTURER REQUIREMENTS.

O. GROUNDING REINFORCEMENT: EXTEND TWO (2) #2 AWG CONDUCTORS FROM REINFORCING BARS IN CONCRETE SLAB OR FOOTINGS, ROUTE CONDUCTORS TO GROUNDING RING AND TERMINATING USING EXOTHERMIC WELDS. NEC 250.52(A)(3) OR HYDRAULIC COMPRESSION CONNECTIONS SUCH AS "BURNDY HYGROUND" MAY BE USED IN AN EXTERIOR APPLICATION FOR CONDUCTOR TO CONDUCTOR CONNECTIONS BELOW GRADE WHERE EXOTHERMIC WELDS ARE NOT PRACTICAL AND ON ROOFTOP SITES WHERE EXOTHERMIC WELDS MAY BE A FIRE HAZARD.

P. TIE INTO EXISTING GROUNDING RING: (2) REQ'D

Q. MCRIN GENERATOR INTERFACE PANEL (BY SHELTER MANUFACTURER)

R. 200A FUSIBLE SAFETY SWITCH

S. INTERIOR GROUND RING HALO

T. SHELTER DOOR FRAME GROUNDING

U. CANOPY GROUNDING

V. SHELTER GFCI RECEPTACLE GROUNDING

W. METAL GRATE STEPS: EXTEND #2 AWG TINNED CU CONDUCTOR FROM BURIED GROUNDING RING TO THE METAL GATE AND MAKE A MECHANICAL CONNECTION.

2

NOTES

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY. FOR GROUNDING DETAILS SEE DRAWINGS G-1 THROUGH G-4.

2. TESTING SHALL BE PERFORMED AT ALL SITES WHERE MODIFICATIONS OR ADDITIONS ARE MADE TO THE EXISTING GROUNDING SYSTEM AND SHALL BE IN ACCORDANCE WITH AT&T GROUNDING AND BONDING STANDARDS TP-76416. THE CONTRACTOR SHALL SUPPLY AT&T WITH RESULTS FROM PRE-CONSTRUCTION AND POST-CONSTRUCTION OHM TESTING (GROUNDING) RESULTS AND BE IN COMPLIANCE WITH AT&T GROUNDING AND BONDING STANDARDS TP-76416.

3. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A "FALL OF POTENTIAL" TEST ON THE PROPOSED SUPPLEMENTAL GROUNDING FIELD PRIOR TO FINAL CONNECTION OF THE GROUNDING SYSTEM TO EQUIPMENT. THE TEST SHALL BE PERFORMED BY A QUALIFIED AND CERTIFIED TESTING AGENT. PROVIDE INDEPENDENT TEST RESULTS TO THE PROJECT MANAGER FOR REVIEW. THE GROUNDING SYSTEM RESISTANCE TO EARTH GROUNDING SHALL NOT EXCEED (5) OHMS. IF THE GROUNDING TEST EXCEEDS THE MAXIMUM OF (5) OHMS, THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADDITIONAL GROUNDING RODS AND CONNECTIONS AS REQUIRED TO MEET THE (5) OHMS MAXIMUM.

4. THE INSPECTOR HAVING JURISDICTION SHALL INSPECT ALL GROUNDING CONNECTIONS FOR TIGHTNESS. EXOTHERMIC WELDED CONNECTIONS SHALL BE APPROVED BEFORE BEING PERMANENTLY CONCEALED.

5. FOR ALL CONNECTIONS TO THE GROUNDING RING, SEE THE SHELTER MANUFACTURER'S DRAWINGS.

6. WHEN AN EXISTING METER RACK IS BEING UTILIZED AND A NEW METER IS INSTALLED IN THE METER RACK, THE GROUNDING RODS, AND GROUNDING CONDUCTORS OF THE EXISTING GROUNDING RING, SHALL BE EXTENDED TO THE PROPOSED GROUNDING RING AND BECOME A COMPLETE GROUNDING SYSTEM.

7. CONTRACTOR SHALL GROUND ALL EQUIPMENT INCLUDING ANTENNAS, RET MOTORS, TMA'S, COAX CABLES AND RET CONTROL CABLES AS A COMPLETE SYSTEM. GROUNDING SHALL BE EXECUTED BY QUALIFIED WIREMEN IN COMPLIANCE WITH MANUFACTURER'S SPECIFICATIONS AND RECOMMENDATIONS.

8. WHEN A CANOPY IS INSTALLED, THE CANOPY SHALL BE EFFECTIVELY GROUNDED AS REQUIRED BY AT&T GROUNDING AND BONDING STANDARDS TP-76416.

9. FOR ROOFTOP INSTALLATIONS, ROUTE GROUNDING CONDUCTORS ON THE SHELTER'S EXTERIOR SUPPORTING STRUCTURE. WHEN A SUPPORT PLATFORM STRUCTURE IS EMPLOYED, ROUTE GROUNDING CONDUCTORS UNDERNEATH AND ON THE SUPPORTING MEMBERS, USING APPROVED STRAPS AS REQUIRED IN ARTICLE 6.4.1.7.

10. FOR GROUNDING INSTALLATIONS WHICH HAVE A LIMITED AREA AND IS BEING REQUIRED TO BE INSTALLED WITHIN THE LEASE AREA ONLY, THE GROUNDING RING CONDUCTORS CAN BE INSTALLED UNDER THE SHELTER'S FOOTINGS.

11. MAIN GROUNDING CONDUCTORS SHALL BE ROUTED AND BONDED TO ALL EFFECTIVE GROUNDING PATHS IN ACCORDANCE WITH AT&T GROUNDING AND BONDING SPECIFICATION 6.8.2 STATED IN TP-76416. THE NEW GROUNDING SYSTEM SHALL BE BONDED (2 PLACES) TO ALL EXISTING GROUNDING SYSTEMS, INCLUDING BUT NOT LIMITED TO BUILDING STEEL STRUCTURE, LIGHTNING PROTECTION SYSTEMS, BUILDING MAIN GROUNDING SYSTEM ABC/OR MAIN WATER SUPPLY IF APPLICABLE.

12. BUILDINGS AND/OR NEW TOWERS GREATER THAN 75 FEET IN HEIGHT AND THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONDUCTOR SHALL ROUTE TWO GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 AWG COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY). SEE AT&T GROUNDING AND BONDING STANDARDS TP-76416 SPECIFICATION 6.2.2.2.

1

8 7 6 5 4 3 2 1

F E D C B A

APPLICANT/LESSEE:

at&t

7900 XERXES AVE S, 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
COMPLETE WIRELESS SOLUTIONS

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

REV	DATE	DESCRIPTION	INT
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0	03/18/19	100% CONSTRUCTION	JED
B	12/19/18	ISSUED FOR REVIEW 90%	JED
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REVIEWED BY: MAW

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SITE INFORMATION:

PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

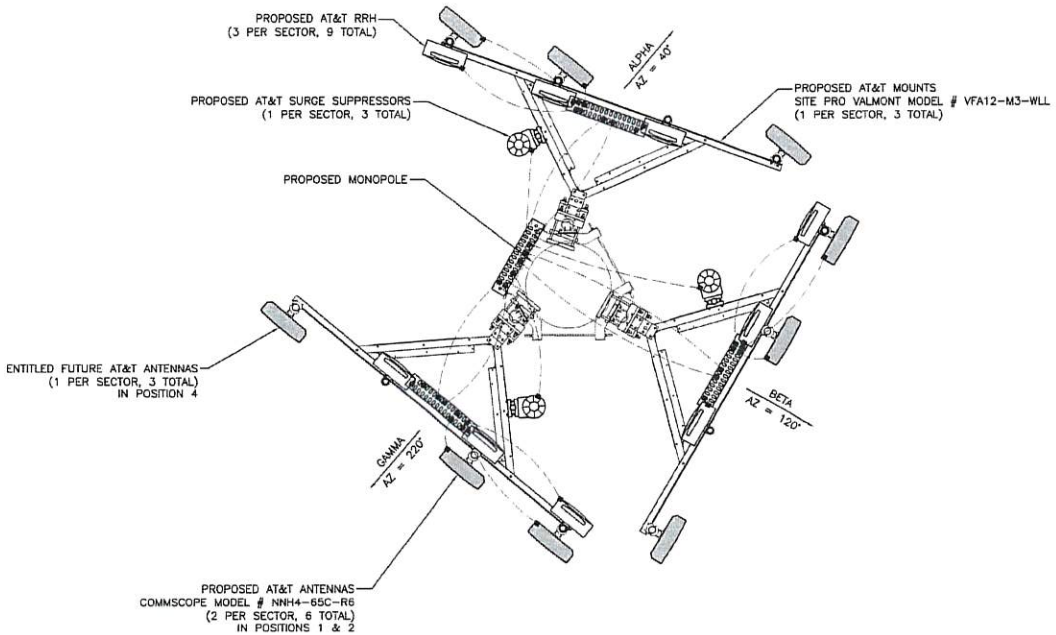
43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:

GROUNDING SITE PLAN

SHEET NUMBER:

G-1



ANTENNA GROUNDING PLAN

SCALE N.T.S

2

1. CONTRACTOR SHALL HAVE A COMPLETE UNDERSTANDING OF THE CONTENTS OF AT&T STANDARD TP-76416.
2. ALL INSTALLATIONS SHALL BE FIELD VERIFIED.
3. IF PROPOSED ALU-LTE ANTENNA IS NOT AVAILABLE DURING INITIAL INSTALLATION, UMTS ANTENNA SHALL BE INSTALLED ON ALU-LTE MOUNT PIPE IN INTERIM. THEN WILL BE MOVED TO POSITION SHOWN UPON ALU-LTE ANTENNA INSTALLATION FOR LOAD DISTRIBUTION. RRH'S TO REMAIN AS SHOWN. CONTRACTOR TO VERIFY. (TYP PER SECTOR.)

NOTES 2

A. TOWER GROUNDING BAR: EXTEND (2) #2 AWG TINNED CU WIRE FROM BURIED GROUND RING UP TO THE TOWER GROUND BAR AND MAKE A MECHANICAL CONNECTION. SECURE GROUND BAR DIRECTLY TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.

B. ANTENNA GROUNDING BAR: ANDREW CORPORATION PART #UGB6X1-0424-T MOUNT GROUND BAR DIRECTLY TO TOWER. SECURE TO TOWER WITH STAINLESS STEEL MOUNTING MATERIAL.

C. GROUNDING BAR: LOCATED CLOSE TO GRADE LOCK BOX TESSCO PART #351546: INSTALL PER MANUFACTURER GUIDELINES.

D. EXOTHERMIC OR COMPRESSION CONNECTION FOR PIPE MOUNT TO ANTENNA: ROUTE CONDUCTOR TO NEAREST GROUNDING BAR SO THE GROUNDING CONDUCTORS PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND. USE #2 AWG SOLID TINNED COPPER CONDUCTOR. GROUNDING CONNECTION SHALL BE LOCATED AT THE TOP 2" OF PIPE.

E. ALL GROUNDING CONDUCTORS SHALL BE #2 AWG COPPER TINNER UNLESS NOTED OTHERWISE.

F. ALL GROUNDING CONDUCTORS SHALL PROVIDE A STRAIGHT DOWNWARD PATH TO GROUND WITH GRADUAL BEND AS REQUIRED. GROUND WIRES SHALL NOT BE LOOPED OR SHARPLY BENT.

G. KOPR-SHIELD ANTI-OXIDATION COMPOUND SHALL BE USED ON ALL COMPRESSION GROUNDING CONNECTIONS.

H. ALL EXOTHERMIC CONNECTIONS SHALL BE INSTALLED UTILIZING THE PROPER CONNECTION/MOLD AND MATERIALS FOR THE PARTICULAR APPLICATION.

I. ALL BOLTED GROUNDING CONNECTIONS SHALL BE INSTALLED WITH AN EXTERNAL TOOTHED LOCK WASHER. GROUNDING BUS BARS MAY HAVE PRE-PUNCHED HOLES OR TAPPED HOLES. ALL HARDWARE SHALL BE SECURITY TORQUE HARDWARE 3/8" STAINLESS STEEL.

J. EXTERNAL GROUNDING CONDUCTOR SHALL NOT BE INSTALLED OR ROUTED THROUGH HOLES IN ANY METAL OBJECTS, CONDUITS, OR SUPPORTS TO PRECLUDE ESTABLISHING A MAGNETIC CHOKE POINT.

K. PLASTIC CLIPS SHALL BE USED TO FASTEN AND SUPPORT GROUNDING CONDUCTORS. FERROUS METAL CLIPS WHICH COMPLETELY SURROUND THE GROUNDING CONDUCTOR SHALL NOT BE USED.

L. IF COAX ON ICE BRIDGE IS MORE THAN 6' FROM THE GROUND BAR AT THE BASE OF THE TOWER, A SECOND GROUND BAR WILL BE NEEDED AT THE END OF THE ICE BRIDGE RUN TO GROUND THE COAX GROUND KIT AND THE IN-LINE SURGE ARRESTORS (SURGE ARRESTORS INSTALLED BY LUCENT ONLY HAVE 6' GROUND TAILS).

M. CONTRACTOR SHALL REPAIR/REPLACE EXISTING GROUNDING SYSTEM COMPONENTS DAMAGED DURING CONSTRUCTION AT THE CONTRACTOR'S EXPENSE.

GROUNDING NOTES 1

APPLICANT/LESSEE:

at&t

7900 XERXES AVE S, 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
COMPLETE WIRELESS SOLUTIONS

1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

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REVIEWED BY: MAW

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
ANTENNA GROUNDING PLAN

SHEET NUMBER:
G-2

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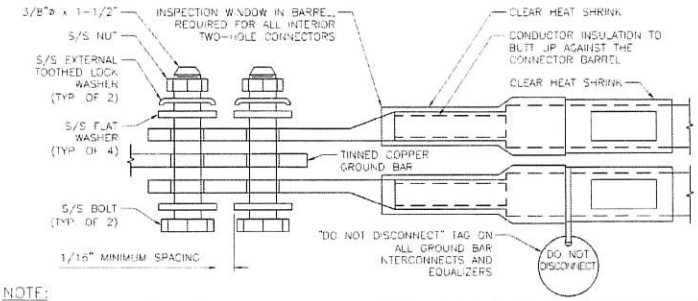
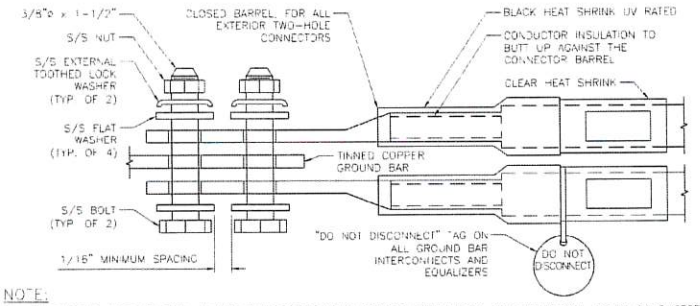


NOTE:

1. EXOTHERMIC WELD (2) TWO, #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL GROUND BARS SHALL BE STAMPED INTO THE METAL "IF STOLEN DO NOT RECYCLE". THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.
3. ALL HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. FOR GROUND BOND TO STEEL ONLY: INSERT A CADMIUM FLAT WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
5. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUND BUS.
6. NUT AND WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUND TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
7. SUPPLIED AND INSTALLED BY CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS)
10. BOLTS SHALL BE MADE "SNUG-TIGHT" PLUS 1/4 TURN.

INTERIOR TWO HOLE LUG DETAIL — SCALE N.T.S. — 4



NOTE:

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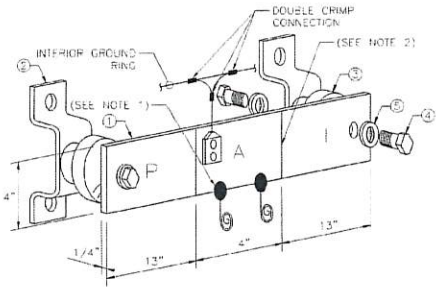
5. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUND BUS.
6. NUT AND WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE. INSTALL BLACK HEAT-SHRINKING TUBE, 600 VOLT INSULATION, ON ALL GROUND TERMINATIONS. THE INTENT IS TO WEATHERPROOF THE COMPRESSION CONNECTION.
7. SUPPLIED AND INSTALLED BY CONTRACTOR.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED, PROVIDING 50% SPARE CONNECTION POINTS.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS)
10. BOLTS SHALL BE MADE "SNUG-TIGHT" PLUS 1/4 TURN.

EXTERIOR TWO HOLE LUG DETAIL — SCALE N.T.S. — 2



NEWTON INSTRUMENT COMPANY, INC.
BUTNER, N.C.

NO.	REQUIRED	PART NUMBER	DESCRIPTION
①	1	1/4" X 4" X 30"	SOLID GROUND BAR
②	2	A-6056	WALL MOUNTING BRACKET
③	2	3061-4	INSULATORS
④	4	3012-1	5/8" - 11 x 1" H.H.C.S.
⑤	4	3015-8	5/8" LOCK WASHER

DETAIL NOTES:

1. EXOTHERMICALLY WELD #2 AWG BARE WIRE TINNED SOLID COPPER CONDUCTOR TO GROUND BAR. ROUTE CONDUCTOR TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. THE INSTALLER SHALL USE PERMANENT MARKER TO DRAW THE LINE BETWEEN SECTIONS AND LABEL EACH SECTION ("P", "A", "I") WITH 1" HIGH LETTERS.

EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PROTECTORS

(EC) CELL REFERENCE GROUND BAR (IF COLLOCATED)
(EC) GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
(EC) TELCO GROUND BAR (#2 AWG)
(EC) COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (3/0)
(EC) FIBER GROUND BAR (#2 AWG)
(EC) POWER ROOM REFERENCE GROUND BAR (#2 AWG)
(AT&T) RECTIFIER FRAMES

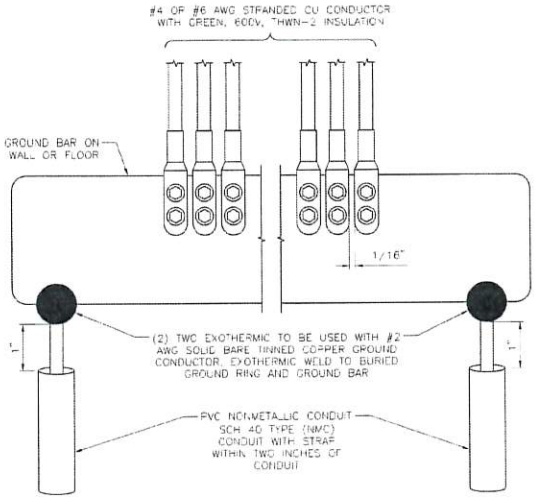
SECTION "A" - SURGE ABSORBERS

(EC) INTERIOR GROUND RING (#2 AWG)
(EC) EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (1/0 AWG)
(EC) METALLIC COLD WATER PIPE (IF AVAILABLE) (1/0 AWG)
(EC) BUILDING STEEL (IF AVAILABLE (1/0 AWG)

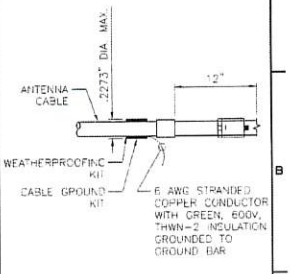
SECTION "I" - ISOLATED GROUND ZONE

(AT&T) ALL ISOLATED GROUND REFERENCE
(AT&T) GROUND WINDOW BAR

(MGB) REFERENCE GROUNDING BAR DETAIL — SCALE N.T.S. — 5



GROUNDING BAR DETAIL — SCALE N.T.S. — 3



CONNECTION OF CABLE GROUNDING KIT TO ANTENNA CABLE

SCALE N.T.S. — 1

APPLICANT/LESSEE:
at&t
7900 XERXES AVE S., 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:
POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions
1701 AMERICAN BLVD EAST
BLOOMINGTON, MN 55425

BUSINESS LICENSE #: N/A

REVISIONS

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REVIEWED BY: MAW

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER
G-3

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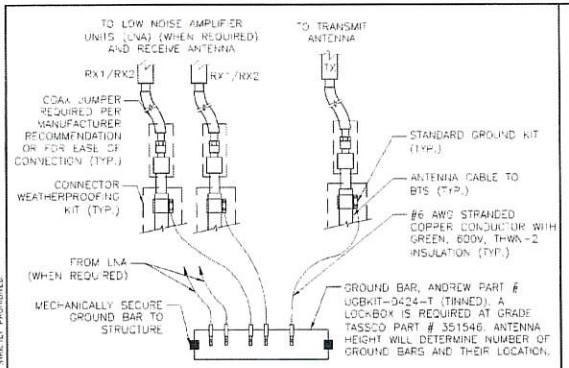
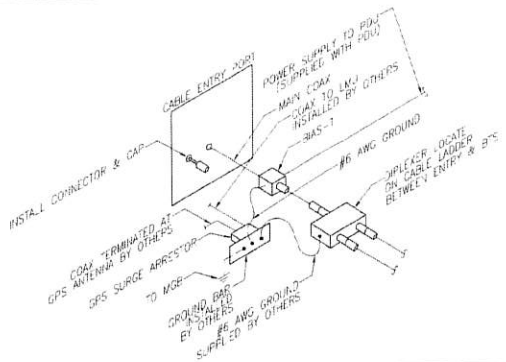
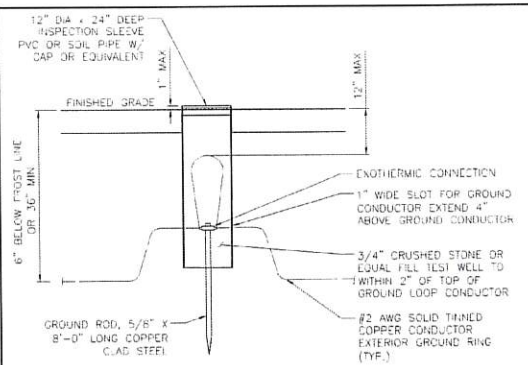


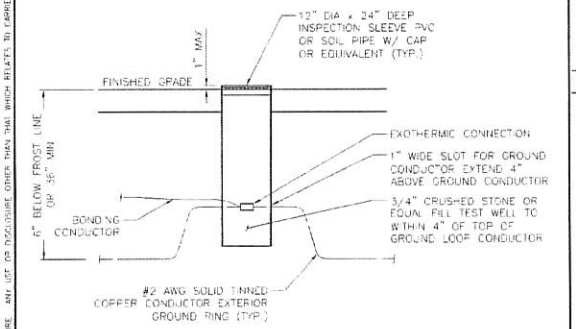
ANTENNA GROUNDING BAR DETAIL | SCALE N.T.S | 9



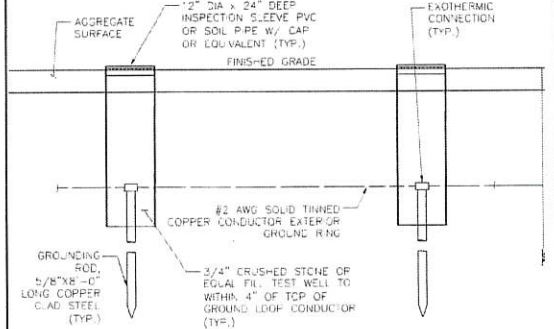
DIPLEXER GROUNDING DETAIL | SCALE N.T.S | 6



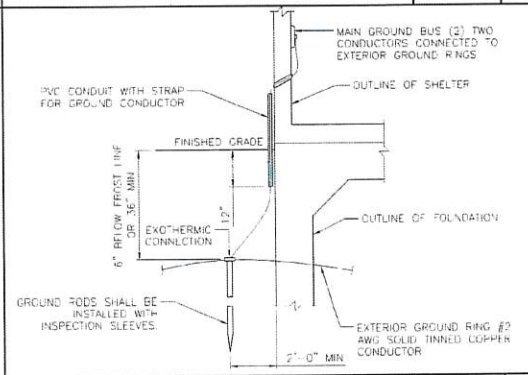
TEST GROUNDING ROD WITH INSPECTION SLEEVE DETAIL | SCALE N.T.S | 3



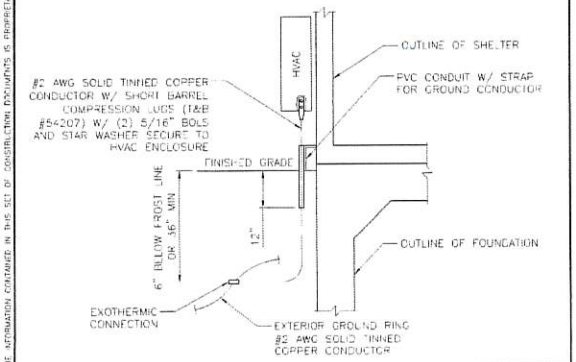
EXOTHERMIC WITH INSPECTION SLEEVE DETAIL | SCALE N.T.S | 8



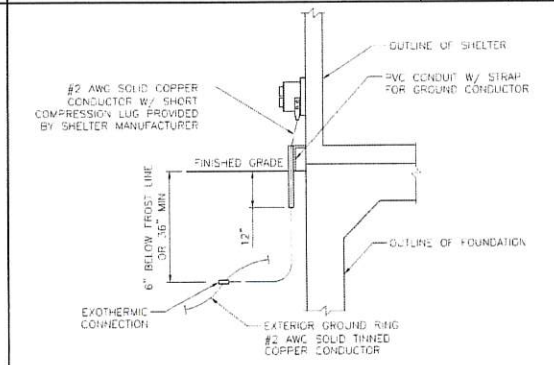
GROUNDING ROD WITH INSPECTION SLEEVE DETAIL | SCALE N.T.S | 5



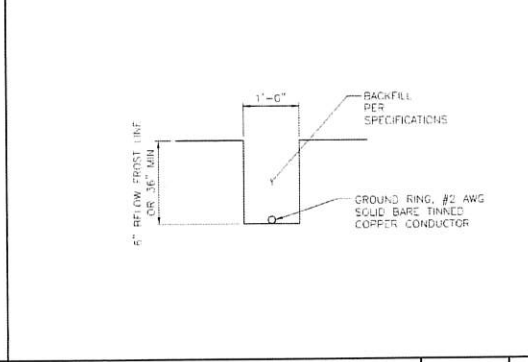
BUILDING GROUNDING DETAIL | SCALE N.T.S | 2



HVAC GROUNDING DETAIL | SCALE N.T.S | 7



EXTERIOR RECEPTACLE GROUNDING DETAIL | SCALE N.T.S | 4



GROUNDING RING TRENCH DETAIL | SCALE N.T.S | 1

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APPLICANT/LESSEE:

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7900 XERXES AVE S., 3RD FLOOR
BLOOMINGTON, MN 55431

PREPARED BY:

POWDER RIVER
Development Services, LLC

velocitel
complete wireless solutions

1701 AMERICAN BLVD EAST
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BUSINESS LICENSE #: N/A

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0	03/18/19	100% CONSTRUCTION	JED
B	12/19/18	ISSUED FOR REVIEW 90%	JED
A	10/25/18	ISSUED FOR REVIEW 90%	JPN

REVIEWED BY: MAW

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SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

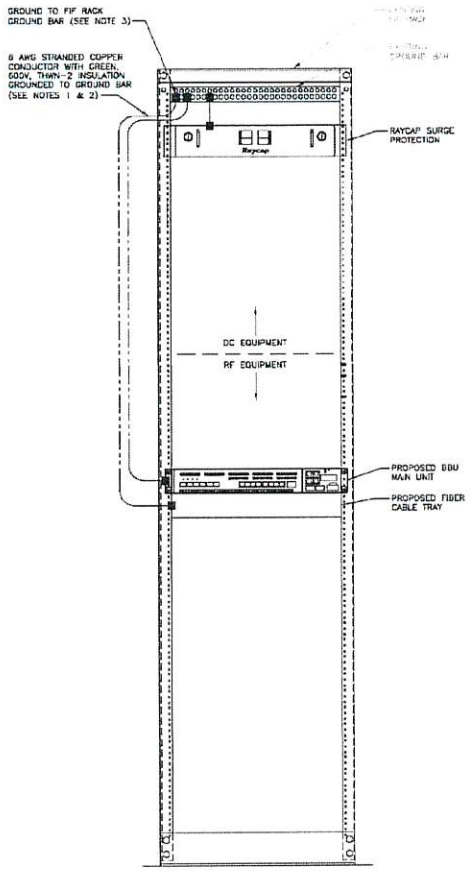
43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
GROUNDING DETAILS

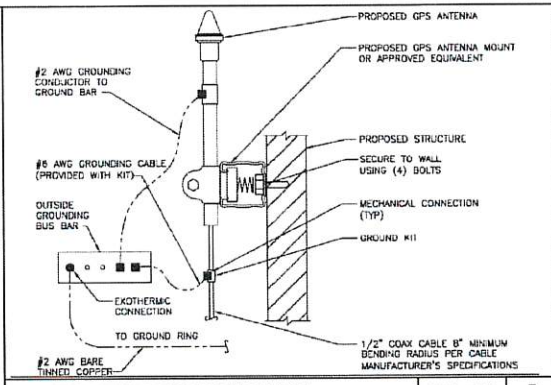
SHEET NUMBER:
G-4

NOTES

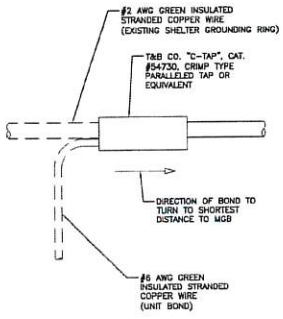
1. COMPRESSION CONNECTIONS (2), #2 AWG BARE TINNED SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL GROUND BARS SHALL BE STAMPED IN TO THE METAL "IF STOLEN DO NOT RECYCLE." THE CONTRACTOR SHALL USE PERMANENT MARKER TO DRAW THE LINES BETWEEN EACH SECTION AND LABEL EACH SECTION ("P", "A", "N", "I") WITH 1" TALL LETTERS.
3. THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENT'S METAL FRAMEWORK. BOND THE FRAME GROUND BUS TO THE "I" SECTION OF THE CELL REFERENCE GROUND BAR (ATT-TP-76416 7.8). IF THE FRAME GROUND BAR IS ISOLATED FROM THE FRAME, THEN THE FRAME SHOULD BE GROUNDED TO THE INTERIOR RING WITH A #6 AWG CONDUCTOR.



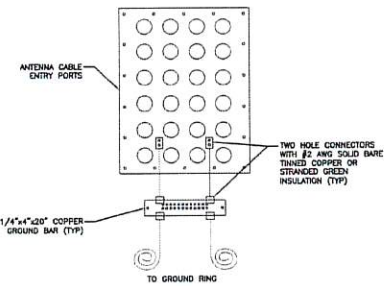
HVAC GROUNDING DETAIL | SCALE N.T.S | 6



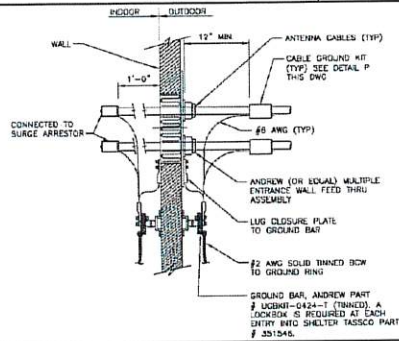
LTE GPS ANTENNA GROUNDING DETAIL | SCALE N.T.S | 5



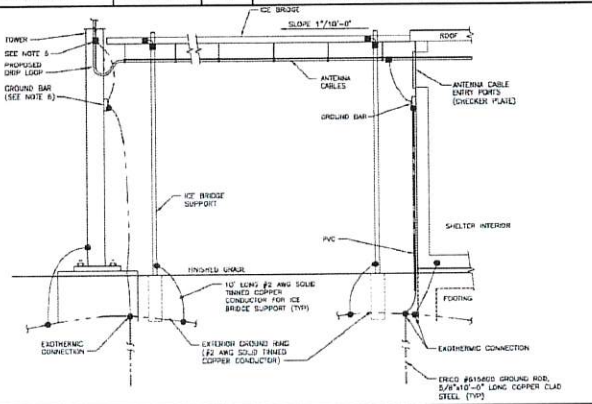
GROUNDING WIRE CONNECTION DETAIL | SCALE N.T.S | 3



HATCH PLATE GROUNDING AT SHELTER DETAIL | SCALE N.T.S | 4



HATCH PLATE GROUNDING BAR & FEED THROUGH WALL ASSEMBLY DETAIL | SCALE N.T.S | 2



ICE BRIDGE AND ANTENNA CABLE DETAIL | SCALE N.T.S | 1

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43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
GROUNDING DETAILS

SHEET NUMBER:
G-5

GENERAL NOTES

1. GENERAL NOTES AND TYPICAL DETAILS SHALL APPLY TO ALL PARTS OF THE JOB EXCEPT WHERE THEY MAY CONFLICT WITH DETAILS AND NOTES ON OTHER SHEETS. WHERE CONDITIONS ARE NOT SPECIFICALLY INDICATED BUT ARE OF SIMILAR CHARACTER TO DETAILS SHOWN, SIMILAR DETAILS OF CONSTRUCTION SHALL BE USED SUBJECT TO REVIEW BY THE ENGINEER.
2. WORK SHALL CONFORM TO THE REQUIREMENTS, AS AMENDED TO DATE, OF THE LATEST EDITION OF THE BUILDING CODE AND ALL OTHER LOCAL, STATE AND FEDERAL REGULATIONS.
3. OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH ANY WORK INVOLVED.
4. ALL INFORMATION SHOWN ON THE DRAWINGS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE, BUT WITHOUT GUARANTEE OF ACCURACY. WHERE ACTUAL CONDITIONS CONFLICT WITH THE DRAWINGS, THEY SHALL BE REPORTED TO THE ENGINEER SO THAT THE PROPER REVISION MAY BE MADE. MODIFICATIONS OF CONSTRUCTION DETAILS SHALL NOT BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
5. THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES, INCLUDING BUT NOT LIMITED TO BRACING, TEMPORARY SUPPORTS AND SHORING. OBSERVATION VISITS TO THE SITE BY FIELD REPRESENTATIVES OF THE ENGINEER SHALL NOT INCLUDE INSPECTIONS OF THE PROTECTIVE MEASURES OR THE CONSTRUCTION PROCEDURES. ANY SUPPORT SERVICES PERFORMED BY THE ENGINEER DURING THE CONSTRUCTION SHALL BE DISTINGUISHED FROM CONSTRUCTION AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. THESE SUPPORT SERVICES PERFORMED BY THE ENGINEER, WHETHER OF MATERIAL OR WORK, ARE FOR THE PURPOSE OF ASSISTING QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DOCUMENTS, BUT DO NOT GUARANTEE CONTRACTORS PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION. CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO MAINTAIN AND ENSURE THE INTEGRITY OF THE STRUCTURE DURING CONSTRUCTION. NEITHER THE OWNER NOR ENGINEER WILL ENFORCE SAFETY MEASURES OR REGULATIONS. CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
6. SAFETY: CONFORM TO ALL APPLICABLE OSHA CONSTRUCTION SAFETY REGULATIONS FOR ALL WORK PERFORMED DURING CONSTRUCTION. JOB SITE SAFETY IS STRICTLY THE RESPONSIBILITY OF THE CONTRACTOR AND NOT THE ENGINEER OR OWNER.
7. ANY PROPRIETARY COMPONENTS, MOUNTS, MATERIALS, CHEMICAL, EPOXY AND WEDGE ANCHORS, AND SHOT PINS SHALL BE EXACTLY AS CALLED FOR IN THESE DRAWINGS. ANY DEVIATIONS SHALL BE APPROVED OR DISAPPROVED BY THE ENGINEER AT THE EXPENSE OF THE ENTITY REQUESTING THE SUBSTITUTION PRIOR TO THE INSTALLATION.
8. THE CONTRACTOR'S SCOPE OF WORK SHALL INCLUDE ALL ITEMS DEFINED IN THE CONTRACT DOCUMENTS. THE CONTRACT DOCUMENTS INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: THE CONTRACT, SPECIFICATIONS AND CONSTRUCTION DRAWINGS.
9. THE CONTRACTOR SHALL BE ULTIMATELY RESPONSIBLE FOR COORDINATION AND ASSEMBLY OF ALL PARTS OF THE CONSTRUCTION DEPICTED HEREIN. THE CONTRACTOR SHALL PERFORM ANY CONSTRUCTABILITY REVIEW OR COORDINATION DRAWINGS NECESSARY TO IDENTIFY CONSTRUCTABILITY PROBLEMS PRIOR TO CONSTRUCTION.
10. THE CONTRACTOR SHALL VISIT THE JOB SITE TO REVIEW THE SCOPE OF WORK AND EXISTING JOB SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, MECHANICAL, ELECTRICAL SERVICE AND OVERALL COORDINATION. THE CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO SUBMITTING HIS B/D. ANY DISCREPANCIES, CONFLICTS OR OMISSIONS, ETC., SHALL BE REPORTED TO THE CARRIER CONSTRUCTION SUPERVISOR BEFORE PROCEEDING WITH THE WORK.
11. THE CONTRACTOR SHALL PROTECT ALL AREAS FROM DAMAGE WHICH MAY OCCUR DURING CONSTRUCTION. ANY DAMAGE TO NEW AND EXISTING STRUCTURES, LANDSCAPING OR EQUIPMENT SHALL BE IMMEDIATELY REPAIRED OR REPLACED TO THE SATISFACTION OF THE TENANT, BUILDING OWNER OR OWNER'S REPRESENTATIVE AT THE EXPENSE OF THE CONTRACTOR.
12. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES, WHETHER SHOWN HEREON OR NOT, AND TO PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR ALL EXPENSES FOR REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED IN CONJUNCTION WITH THE EXECUTION OF WORK.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE SITE WHILE THE JOB IS IN PROGRESS AND UNTIL THE JOB IS COMPLETED.
14. THE CONTRACTOR SHALL PROVIDE TEMPORARY WATER, POWER AND TOILET FACILITIES AS REQUIRED BY THE GOVERNING AGENCY.
15. THE CONTRACTOR AND ALL SUBORDINATE CONTRACTORS SHALL COMPLY WITH ALL LOCAL AND STATE AND FEDERAL REGULATIONS.
16. THE CONTRACTOR SHALL OBTAIN AND PAY FOR PERMITS, LICENSES AND INSPECTIONS NECESSARY FOR PERFORMANCE OF THE WORK AND INCLUDE THOSE IN THE COST OF THE WORK TO CARRIER.
17. CHECK ACCURACY OF ALL DIMENSIONS IN THE FIELD. UNLESS SPECIFICALLY NOTED, DO NOT FABRICATE ANY MATERIALS OFF SITE, NOR PERFORM ANY CONSTRUCTION ACTIVITIES UNTIL THE ACCURACY OF DRAWING DIMENSIONS HAVE BEEN VERIFIED AGAINST ACTUAL FIELD DIMENSIONS. IN ALL CASES WHERE A CONFLICT MAY OCCUR, SUCH AS BETWEEN ITEMS COVERED IN SPECIFICATIONS AND NOTES ON THE DRAWINGS OR BETWEEN GENERAL NOTES AND SPECIFIC PLANS OR DETAILS, THE ENGINEER SHALL BE NOTIFIED, AND HE/SHE WILL INTERPRET THE INTENT OF THE CONTRACT DOCUMENTS PRIOR TO THE INSTALLATION OF THAT PORTION OF WORK.
18. THE CONTRACTOR SHALL NOTIFY THE CARRIER CONSTRUCTION SUPERVISOR OF ANY CONFLICTS OR DISCREPANCIES IN THE CONTRACT DOCUMENTS OR FIELD CONDITIONS PRIOR TO EXECUTING THE WORK IN QUESTION.
19. THE CONTRACTOR SHALL NOTIFY THE CARRIER CONSTRUCTION SUPERVISOR IF DETAILS ARE CONSIDERED UNSOUND, UNSAFE, NOT WATERPROOF, OR NOT WITHIN CUSTOMARY TRADE PRACTICE. IF WORK IS PERFORMED, IT WILL BE ASSUMED THAT THERE IS NO OBJECTION TO THE DETAIL DETAILS ARE INTENDED TO SHOW THE END RESULT OF THE DESIGN. MINOR MODIFICATIONS MAY BE REQUIRED TO SUIT JOB CONDITIONS, AND SHALL BE INCLUDED AS PART OF THE WORK.
20. EXISTING ELEVATIONS AND LOCATIONS TO BE JOINED SHALL BE VERIFIED BY THE CONTRACTOR BEFORE CONSTRUCTION. IF THEY DIFFER FROM THOSE SHOWN ON THE PLANS, THE CONTRACTOR SHALL NOTIFY THE CARRIER CONSTRUCTION SUPERVISOR SO THAT MODIFICATIONS CAN BE MADE BEFORE PROCEEDING WITH THE WORK.
21. ALL SYMBOLS AND ABBREVIATIONS USED ON THE DRAWINGS ARE CONSIDERED CONSTRUCTION STANDARDS. IF THE CONTRACTOR HAS QUESTIONS REGARDING THEIR EXACT MEANING, THE ENGINEER SHALL BE CONTACTED FOR CLARIFICATION BEFORE PROCEEDING WITH THE WORK.
22. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BLOCKING, BACKING, FRAMING, HANGERS OR OTHER SUPPORT NOT OTHERWISE SHOWN HEREIN, ALL SUSPENDED MECHANICAL EQUIPMENT TO BE SWAY OR LATERALLY BRACED.
23. GOVERNING AGENCY-APPROVED PLANS SHALL BE KEPT IN A PLAN BOX AND SHALL NOT BE USED BY WORKMEN. ALL CONSTRUCTION SETS SHALL REFLECT SAME INFORMATION. AT ALL TIMES THESE ARE TO BE UNDER THE CARE OF THE JOB SUPERINTENDENT.
24. DESIGN DRAWINGS ARE DIAGRAMMATIC ONLY AND SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION CONDITIONS WILL PERMIT. ANY ERROR, OMISSION, OR DESIGN DISCREPANCY SHALL BE BROUGHT TO THE ATTENTION OF THE CARRIER CONSTRUCTION SUPERVISOR FOR CLARIFICATION OR CORRECTION BEFORE CONSTRUCTION.
25. AS-BUILT REQUIREMENTS: DO NOT USE RECORD DOCUMENTS FOR CONSTRUCTION PURPOSES. PROTECT RECORD DOCUMENTS FROM DETERIORATION AND LOSS IN A SECURE, FIRE-RESISTANT LOCATION. PROVIDE ACCESS TO RECORD DOCUMENTS FOR THE CARRIER CONSTRUCTION SUPERVISOR'S REFERENCE DURING NORMAL WORKING HOURS. MAINTAIN A CLEAN, UNDAMAGED SET OF BLUE OR BLACK LINE PRINTS OF CONTRACT DRAWINGS AND SHOP DRAWINGS. MARK THE SET TO SHOW THE ACTUAL INSTALLATION WHERE THE INSTALLATION VARIES SUBSTANTIALLY FROM THE WORK AS ORIGINALLY SHOWN. MARK WHICH DRAWINGS ARE MOST CAPABLE OF SHOWING CONDITIONS FULLY AND ACCURATELY. WHERE SHOP DRAWINGS ARE USED, RECORD A CROSS-REFERENCE AT THE CORRESPONDING LOCATION ON THE CONTRACT DRAWINGS. GIVE ATTENTION TO CONCEALED ELEMENTS THAT WOULD BE DIFFICULT TO MEASURE AND RECORD AT A LATER DATE. MARK RECORD SETS WITH RED ERASABLE PENCIL. USE OTHER COLORS TO DISTINGUISH BETWEEN VARIATIONS IN SEPARATE CATEGORIES OF THE WORK. MARK NEW INFORMATION THAT IS IMPORTANT TO THE OWNER BUT WAS NOT SHOWN ON THE CONTRACT DRAWINGS. DETAILS OR SHOP DRAWINGS. NOTE RELATED CHANGE ORDER NUMBERS WHERE APPLICABLE. NOTE RELATED RECORD DRAWING INFORMATION AND PRODUCT DATA. UPON COMPLETION OF THE WORK, SUBMIT ONE (1) COMPLETE SET OF RECORD DOCUMENTS TO THE CARRIER CONSTRUCTION SUPERVISOR FOR THE OWNER'S RECORDS.
26. A CLOSEOUT BOOK CONTAINING THE FOLLOWING, SHALL BE PROVIDED BY THE CONTRACTOR AS APPLICABLE.
    - A. AS BUILT DESIGN DRAWINGS
    - B. SWEEP TEST RESULTS
    - C. RESISTIVELY TEST
    - D. PHOTO DOCUMENTATION OF:
        - I. UNDERGROUND CONDUITS AND GROUND RING
        - II. ANTENNA, COAX, JUMPER ATTACHMENTS AND GROUND KIT ATTACHMENTS
        - III. ANTENNA DOWN TILT MEASUREMENT USING AN INCLINOMETER ON THE BACK PLANE OF THE ANTENNA
        - IV. GROUND BAR ATTACHMENTS
    - E. SIGNED OFF PERMIT CARDS
    - F. CERTIFICATE OF OCCUPANCY
    - G. RETURN OF KEYS AND/OR ACCESS AUTHORIZATION
    - H. ORIGINAL BUILDING PERMIT

SITE WORK NOTES

1. SCOPE: CLEARING, GRUBBING, STRIPPING, EROSION CONTROL, SURVEY, LAYOUT, SUB GRADE PREPARATION, FINISH GRADING AND SECURITY FENCE, AS REQUIRED BY CONSTRUCTION DRAWINGS AND DETAIL DRAWINGS.
2. REFERENCES:
    - A. DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS FOR THE STATE IN WHICH THE PROJECT IS LOCATED.
    - B. ASTM (AMERICAN SOCIETY FOR TESTING AND MATERIALS)
    - C. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
    - D. AASHTO (AMERICAN ASSOCIATION OF STATE TRANSPORTATION OFFICIALS)
3. INSPECTION AND TESTING:
    - A. FIELD TESTING OF EARTHWORK, AGGREGATE BASE COURSE, COMPACTION AND CONCRETE TESTING SHALL BE PERFORMED BY THE CONTRACTOR'S INDEPENDENT TESTING LAB.
    - B. ALL WORK SHALL BE INSPECTED AND RELEASED BY THE CARRIER CONSTRUCTION SUPERVISOR WHO SHALL CARRY OUT THE GENERAL INSPECTION OF THE WORK WITH SPECIFIC CONCERN TO PROPER PERFORMANCE OF THE WORK AS SPECIFIED AND/OR CALLED FOR ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO REQUEST TIMELY INSPECTIONS PRIOR TO PROCEEDING WITH FURTHER WORK THAT WOULD MAKE PARTS OF THE WORK INACCESSIBLE OR DIFFICULT TO INSPECT.
4. SITE MAINTENANCE AND PROTECTION:
    - A. PROVIDE ALL NECESSARY JOB SITE MAINTENANCE FROM COMMENCEMENT OF THE WORK UNTIL COMPLETION OF THE CONTRACT.
    - B. CONTACT THE ONE CALL UTILITY LOCATION SERVICE PRIOR TO ANY EXCAVATING ACTIVITIES TO HAVE LOCATIONS OF UNDERGROUND UTILITIES VERIFIED.
    - C. AVOID DAMAGE TO THE SITE INCLUDING EXISTING FACILITIES, STRUCTURES, TREES AND SHRUBS DESIGNATED TO REMAIN. TAKE PROTECTIVE MEASURES TO PREVENT EXISTING ITEMS THAT ARE NOT DESIGNATED FOR REMOVAL FROM BEING DAMAGED BY THE WORK.
    - D. KEEP SITE FREE OF ALL PONDING WATER.
    - E. CONTRACTOR SHALL PROVIDE ALL EROSION AND SEDIMENTATION CONTROL MEASURES AS REQUIRED BY LOCAL, CITY, COUNTY AND STATE CODES AND ORDINANCES TO PROTECT EMBANKMENTS FROM SOIL LOSS AND TO PREVENT ACCUMULATION OF SOIL AND SILT IN STREAMS AND DRAINAGE PATHS LEAVING THE CONSTRUCTION AREA. THIS MAY INCLUDE SUCH MEASURES AS SILT FENCES, STRAW BALE SEDIMENT BARRIERS AND CHECK DAMS.
    - F. PROVIDE AND MAINTAIN ALL TEMPORARY FENCING, BARRICADES, WARNING SIGNALS AND SIMILAR DEVICES NECESSARY TO PROTECT LIFE AND PROPERTY DURING THE ENTIRE PERIOD OF CONSTRUCTION. REMOVE ALL SUCH DEVICES UPON COMPLETION OF THE WORK.
5. BEFORE STARTING GENERAL SITE PREPARATION ACTIVITIES, INSTALL EROSION AND SEDIMENT CONTROL MEASURES. THE WORK AREA SHALL BE CONSTRUCTED AND MAINTAINED IN SUCH CONDITION THAT IN THE EVENT OF RAIN THE SITE WILL BE WELL DRAINED AT ALL TIMES.
6. ENSURE POSITIVE DRAINAGE DURING AND AFTER COMPLETION OF CONSTRUCTION.
7. PERFORM ALL SURVEY, LAYOUT, STAKING AND MARKING TO ESTABLISH AND MAINTAIN ALL LINES, GRADES, ELEVATIONS AND BENCHMARKS NEEDED FOR EXECUTION OF THE WORK.
8. CLEAR AND GRUB THE AREA WITHIN THE LIMITS OF THE SITE AND ONLY THE IMMEDIATE SURROUNDINGS NECESSARY TO COMPLETE THE WORK. REMOVE TREES, BRUSH, STUMPS, RUBBISH AND OTHER DEBRIS AND VEGETATION RESTING ON OR PROTRUDING THROUGH THE SURFACE OF THE SITE AREA TO BE CLEARED AND GRUBBED.
9. REMOVE FROM THE SITE AND DISPOSE IN AN AUTHORIZED LANDFILL ALL DEBRIS RESULTING FROM CLEARING AND GRUBBING OPERATIONS. BURNING IS NOT PERMITTED.
10. PRIOR TO EXCAVATING, THOROUGHLY EXAMINE THE AREA TO BE EXCAVATED AND/OR TRENCHED TO VERIFY THE LOCATIONS OF FEATURES INDICATED ON THE DRAWINGS, AND ASCERTAIN THE EXISTENCE AND LOCATION OF ANY STRUCTURE, UNDERGROUND STRUCTURE, CULVERT, STREAM CROSSING OR OTHER ITEM NOT SHOWN THAT MIGHT AFFECT OR INTERFERE WITH THE NEW CONSTRUCTION. NOTIFY THE CARRIER CONSTRUCTION SUPERVISOR OF ANY OBSTRUCTIONS THAT WILL PREVENT ACCOMPLISHMENT OF THE WORK AS INDICATED ON THE DRAWINGS.
11. SEPARATE AND STOCKPILE ALL EXCAVATED MATERIALS SUITABLE FOR BACK FILL. ALL EXCESS EXCAVATED, AND UNSUITABLE MATERIALS SHALL BE DISPOSED OF IN AN AREA DESIGNATED BY THE CARRIER CONSTRUCTION SUPERVISOR. (UNSUITABLE MATERIAL MAY BE REQUIRED TO BE REMOVED FROM THE SITE.)

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43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1

ELECTRICAL NOTES

1. THESE NOTES DESCRIBE THE MINIMUM REQUIREMENT FOR INSTALLATION OF ALL ELECTRICAL SYSTEMS. SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
2. THE PUBLICATIONS LISTED BELOW FORM PART OF THESE NOTES. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE THIS SPECIFICATION IS ISSUED FOR CONSTRUCTION, UNLESS NOTED OTHERWISE. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN, OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THIS SPECIFICATION SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS:
   A. ANSI (AMERICAN NATIONAL STANDARDS INSTITUTE)
   B. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS)
   C. NEC (NATIONAL ELECTRICAL CODE), LATEST EDITION
   D. NEMA (NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION)
   E. NFPA 70 (NATIONAL FIRE PROTECTION ASSOCIATION)
   F. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION), INCLUDING ALL APPLICABLE AMENDMENTS
   G. UL (UNDERWRITERS LABORATORIES)
   H. APPLICABLE LOCAL CODES AND ORDINANCES
3. THE CONTRACTOR SHALL INSTALL UNDERGROUND ELECTRICAL AND TELEPHONE CONDUITS AND CABLE AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS.
4. WHEN FINISHED, WORK SHALL BE IN A COMPLETE AND UNDAMAGED STATE, AS REQUIRED IN THE CONTRACT DOCUMENTS.
5. ITEMS SHALL BE NEW AND SHALL BE INSTALLED ONLY IF IN FIRST-CLASS CONDITION.
6. SUBSTITUTIONS FOR MATERIAL WILL BE PERMITTED ONLY BY WRITTEN APPROVAL OF THE CARRIER CONSTRUCTION SUPERVISOR AND BY THE ENGINEER.
7. THE CONTRACTOR SHALL PROVIDE ALL MATERIAL EXCEPT AS SPECIFIED IN THE CONTRACT DOCUMENTS. ALL MATERIAL SHALL BE APPROVED AND LISTED BY OR BEAR THE UL LABEL, AND WILL COMPLY WITH ANSI, IEEE AND NEMA STANDARDS WHERE APPLICABLE.
8. CONDUITS:
   A. ALL UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC , SIZED AS SHOWN ON THE CONSTRUCTION DRAWINGS.
   B. ALL EXTERIOR ABOVEGROUND CONDUIT SHALL BE PER LOCAL CODE REQUIREMENTS.
   C. ALL INTERIOR CONDUIT SHALL BE EMT WITH COMPRESSION-TYPE FITTINGS.
   D. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT SHALL BE USED FOR OUTDOOR LOCATIONS WHERE FLEXIBLE CONNECTION IS REQUIRED.
9. CABLES: CONDUCTORS FOR GENERAL WIRING SHALL BE NEC STANDARD ANNEALED COPPER WIRE WITH NEC 600-VOLT INSULATION.
   A. #8 AND LARGER-STRANDED TYPE, THHN OR THWN.
   B. #10 AND SMALLER-SOLID TYPE THHN OR THWN.
   C. CONDUCTORS IN CONDUIT IN OR ADJACENT TO HIGH HEAT SOURCE SHALL BE TYPE XHHW.
   D. CONDUCTORS IN CONDUITS ABOVE ROOF, ON TOP OF ROOF OR INSIDE BUILT-UP ROOFING MATERIAL SHALL BE TYPE XHHW.
10. CONVENIENCE OUTLET: UNLESS NOTED OTHERWISE, SURFACE MOUNTED OUTLETS FOR EXTERIOR LOCATIONS SHALL BE FERALOY, CAD/ZINC ELECTROPLATED WITH THREADED HUBS OR CONDUIT ENTRANCES DRILLED AND TAPPED. ALL COVERS SHALL BE SELF-CLOSING AND GASKETED. SURFACE MOUNTED OUTLETS FOR INTERIOR LOCATIONS SHALL BE GALVANIZED, PRESSED STEEL WITH COVER PLATE, SIERRA PLASTIC STYLE, IVORY COLOR.
11. COAXIAL CABLE SUPPORTS: 1. ALL WAVE GUIDE SUPPORTS SHALL BE MANUFACTURED TO MEET ALL CUAA MINIMUM BENDING REQUIREMENTS. SUPPORTS SHALL BE PROVIDED EVERY 3'-0" ON CENTER.
12. BEFORE LAYING OUT WORK, EXERCISE PROPER PRECAUTION TO VERIFY EACH MEASUREMENT.
13. USE EXTREME CAUTION BEFORE EXCAVATING IN EXISTING AREAS TO LOCATE EXISTING UNDERGROUND SERVICES.
14. A VISUAL CHECK OF ELECTRICAL AND TELEPHONE CABLES, CONDUITS AND OTHER ITEMS SHALL BE MADE BY A CARRIER CONSTRUCTION SUPERVISOR BEFORE THESE ITEMS ARE PERMANENTLY INSTALLED.
15. THE CONTRACTOR SHALL NOTIFY THE CARRIER CONSTRUCTION SUPERVISOR 24 HOURS PRIOR TO TRENCH BACK FILL.
16. TRENCHING, BACK FILLING, BEDDING AND COMPACTING SHALL COMPLY WITH SITE WORK SPECIFICATIONS.
17. DIG TRENCHES TO THE REQUIRED DEPTH AS SHOWN ON THE DRAWINGS WITHOUT POCKETS OR DIPS. REMOVE LARGE STONES FROM THE BOTTOM OF THE TRENCH AND FIRMLY TAMP LOOSE FILL IN THE BOTTOM BEFORE CONDUIT IS LAID.
18. INSTALL UNDERGROUND CONDUIT WITH A MINIMUM 3-INCH TO 100-FOOT SLOPE OR TO A SLOPE SHOWN ON THE DRAWINGS.
19. UNLESS SHOWN OTHERWISE ON THE DRAWINGS, TERMINATE AND CAP ALL STUB-UPS 12 INCHES ABOVE FINISHED GRADE ELEVATION.
20. WHEREVER CONDUITS CROSS UNDER ROADWAYS, USE GALVANIZED RIGID STEEL CONDUITS IN ALL CASES, EXTENDING 5 FEET BEYOND THE EDGE OF THE ROAD BED. MINIMUM DEPTH FOR CONDUIT SHALL BE 4 FEET BELOW ROADWAY GRADE.
21. MARK UNDERGROUND CONDUITS WITH A 6-INCH WIDE RED POLYETHYLENE TAPE BURIED 6 INCHES UNDER THE SURFACE DIRECTLY OVER THE CONDUITS. MARK THE TAPE THUS: CAUTION-BURIED ELECTRICAL CABLE.
22. FOR SEALING CONDUITS, USE ONLY NON-THERMOPLASTIC COMPOUNDS SUCH AS J.M. DUXSEAL, OR AN CARRIER-APPROVED SUBSTITUTE. THE COMPOUND SHALL HAVE NO EFFECT ON RUBBER OR RUBBER-LIKE INSULATIONS, LEAD, ALUMINUM OR FERROUS ALLOYS. IT SHALL BE INSOLUBLE IN WATER AND WITHSTAND MAXIMUM TEMPERATURE RANGES OF THE LOCALITY.
23. COAXIAL – REFER TO ANTENNA AND COAXIAL CABLE INSULATION PROCEDURES.
24. ANTENNA – REFER TO ANTENNA AND COAXIAL CABLE INSULATION PROCEDURES.
25. ENA/MHA – REFER TO ANTENNA AND COAXIAL CABLE INSULATION PROCEDURES.

GROUNDING NOTES

1. THIS SPECIFICATION PRESCRIBES THE REQUIREMENTS FOR FURNISHING, INSTALLATION AND TESTING OF THE GROUNDING CABLE, CONNECTORS AND ASSOCIATED COMPONENTS AS INDICATED ON THE DRAWINGS.
2. APPLICATIONS OF ELECTRICAL GROUNDING AND BONDING WORK SPECIFIED IN THIS SPECIFICATION INCLUDE THE FOLLOWING:
   A. FENCE AND GATE POSTS.
   B. ELECTRICAL POWER SYSTEMS
   C. GROUNDING ELECTRODES
   D. GROUND BUS BAR
   E. SERVICE EQUIPMENT
   F. ENCLOSURES
   G. MONOPOLE / LATTICE TOWER
   H. ICE BRIDGE
3. REFERENCES: THE PUBLICATIONS LISTED BELOW FORM PART OF THESE DRAWINGS. EACH PUBLICATION SHALL BE THE LATEST REVISION AND ADDENDUM IN EFFECT ON THE DATE THESE DRAWINGS ARE ISSUED FOR CONSTRUCTION, UNLESS NOTED OTHERWISE. EXCEPT AS MODIFIED BY THE REQUIREMENTS SPECIFIED HEREIN, OR THE DETAILS OF THE DRAWINGS, WORK INCLUDED IN THESE DRAWINGS SHALL CONFORM TO THE APPLICABLE PROVISIONS OF THESE PUBLICATIONS.
   A. ANSI (AMERICAN NATIONAL STANDARDS INSTITUTE)
   B. IEEE (INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS)
   C. NEC (NATIONAL ELECTRICAL CODE), LATEST EDITION
   D. NEMA (NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION)
   E. NESC (NATIONAL ELECTRICAL SAFETY CODE), LATEST EDITION
   F. OSHA (OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION)
   G. UL (UNDERWRITERS' LABORATORIES)
   H. APPLICABLE LOCAL CODES AND ORDINANCES
4. MATERIALS: EXCEPT AS OTHERWISE INDICATED, PROVIDE ELECTRICAL GROUNDING AND BONDING SYSTEMS INDICATED, WITH ASSEMBLY OF MATERIAL INCLUDING, BUT NOT LIMITED TO, GROUNDING ELECTRODES, BONDING JUMPER AND ADDITIONAL ACCESSORIES NEEDED FOR A COMPLETE INSTALLATION. WHERE MORE THAN ONE TYPE OF COMPONENT PRODUCT MEETS INDICATED REQUIREMENTS, SELECTION IS INSTALLER'S OPTION, WHERE MATERIALS OR COMPONENTS ARE NOT INDICATED, PROVIDE PRODUCTS WHICH COMPLY WITH NEC, UL, AND IEEE REQUIREMENTS AND WITH ESTABLISHED INDUSTRY STANDARDS FOR THOSE APPLICATIONS INDICATED.
   A. GROUNDING:
      I. THE EQUIPMENT SHALL BE GROUNDED AS FOLLOWS, AS SHOWN ON THE DRAWINGS AND IN COMPLIANCE WITH NEC ARTICLE 250 AND STATE AND LOCAL CODES.
      II. GROUND RODS AND QUANTITY SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL PERFORM A GROUND-RESISTANCE-TO-EARTH TEST. SHOULD THE INSTALLATION HAVE A RESISTANCE OF 5 OHMS OR MORE, CONTRACTOR SHALL INSTALL MORE GROUND RODS AS NECESSARY SO THAT THE OVERALL GROUND TO EARTHRESISTANCE IS LESS THAN 5 OHMS.
      III. INSTALL ELECTRICAL GROUNDING AND BONDING SYSTEMS AS INDICATED, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, NEC'S "STANDARD OF INSTALLATION," AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES TO ENSURE THAT PRODUCTS COMPLY WITH REQUIREMENTS.
      IV. COORDINATE WITH OTHER ELECTRICAL WORK AS NECESSARY TO INTERFACE INSTALLATION OF ELECTRICAL GROUNDING AND BONDING SYSTEMS.
      V. INSTALL GROUND CONDUCTORS A MINIMUM OF 36 INCHES BELOW FINISHED GRADE WHICH ENCIRCLE THE TOWER AND EQUIPMENT, AND ARE CONNECTED TO EACH DRIVEN GROUND ROD. GROUND TRENCH SHALL BE AT LEAST 24 INCHES AWAY FROM FOUNDATIONS.
      VI. TIGHTEN GROUNDING AND BONDING CONNECTORS, INCLUDING SCREWS AND BOLTS, IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED TORQUE TIGHTENING VALUE FOR CONNECTORS AND BOLTS. WHERE MANUFACTURER'S TORQUERIC REQUIREMENTS ARE NOT INDICATED, TIGHTEN CONNECTIONS TO COMPLY WITH TIGHTENING TORQUE VALUE SPECIFIED IN UL 486A TO ASSURE PERMANENT AND EFFECTIVE GROUNDING.
      VII. APPLY CORROSION-RESISTANT FINISH (NO-OX OR CARRIER-APPROVED EQUIVALENT) TO FIELD-CONNECTIONS, AT COPPER GROUND BARS AND PLACES WHERE FACTORY APPLIED PROTECTIVE COATING HAVE BEEN DESTROYED, OR ARE SUBJECTED TO CORROSIVE AND/OR OXIDATION PROCESS.
      VIII. ON EXISTING LATTICE TOWERS, WATER TOWERS AND ROOF TOPS, WHEN A NEW GROUNDING SYSTEM IS INSTALLED, THE CONTRACTOR SHALL TIE THE NEW GROUND SYSTEM TO THE EXISTING WATER TOWER, LATTICE TOWER STRUCTURAL STEEL OR BUILDING STRUCTURAL STEEL AS THE CASE MAY BE AT A MINIMUM OF ONE LOCATION SO THAT THEY ARE AT THE SAME VOLTAGE POTENTIAL.
      IX. ALL TOWER AND TOP GROUND WIRES SHALL BE SUPPORTED EVERY TWO FEET MAXIMUM.
   B. GROUND RODS:
      I. GROUND RODS SHALL BE 5/8" DIAMETER WITH 8'-0" EMBEDMENT MIN., COPPER CLAD DRIVEN ROD(S).
      II. GROUND ROD(S) SHALL BE LOCATED AT THE PERIMETER OF EQUIPMENT AS TO CREATE A GROUND RING AS SHOWN ON THE DRAWINGS.
      III. GROUND ROD(S) SHALL BE SPACED AT A MINIMUM OF 8'-0" AND A MAXIMUM SPACING OF 10'-0" ON CENTER.
      IV. GROUND RODS SHALL BE BURIED BELOW THE FROSTLINE, AT NO TIME SHALL THIS DEPTH BE LESS THAN 18" BELOW FINISHED GRADE.
      V. GROUND RODS WHICH CANNOT BE DRIVEN STRAIGHT DOWN THE ENTIRE 10'-0", SHALL BE DRIVEN AT AN ANGLE NOT GREATER THAN 45 DEGREES (NEC 250-83 AND 250-84).
      VI. GROUND ROD LOCATIONS SHALL BE NOTED ON THE AS-BUILT DRAWING COMPLETE WITH DIMENSIONS.
      VII. PROVIDE GROUND TEST WELLS SHOWN ON THE CONSTRUCTION DRAWINGS.
   C. GROUND CONDUCTOR:
      I. ALL DIRECT BURIED GROUND CONDUCTORS SHALL BE TINNED SOLID (#2 AWG) WIRE, BURIED GROUND CONDUCTOR SHALL BE INSTALLED AT MINIMUM DEPTH OF 36" BELOW GRADE.
      II. ALL SUB GRADE GROUND CONNECTIONS SHALL BE MADE USING EXOTHERMIC WELD PROCESS. CONNECTIONS SHALL INCLUDE ALL CABLE TO CABLE SPLICES, TEES AND ALL GROUND ROD CONNECTIONS. MOLD, WELD KITS, ETC., SHALL BE MANUFACTURED BY CADWELD AND SHALL BE INSTALLED AS PER THE MANUFACTURER'S INSTRUCTIONS.
      III. GROUND CONDUCTORS SHALL BE ROUTED IN THE SHORTEST AND STRAIGHTEST DISTANCES POSSIBLE TO MINIMIZE TRANSIENT VOLTAGE RISES. CONDUCTORS SHALL BE INSTALLED AS FOLLOWS:
      IV. ALL GROUND CONDUCTORS SHALL FOLLOW A CONTINUOUS DOWNWARD PATTERN TO THE GROUND SOURCE. (NEVER RUN GROUND CONDUCTOR IN AN UPWARD DIRECTION.)
      V. CONDUCTORS SHALL BE INSTALLED WITH A MINIMUM OF 12-INCH MINIMUM BENDING RADIUS.
      VI. WHEN THE MINIMUM BENDING RADIUS CANNOT BE ACHIEVED, GROUND CABLES SHALL BE ROUTED AT 90-DEGREE BENDS WITH THE USE OF EXOTHERMIC CONNECTIONS AT 90 DEGREES, WITH THE INTENT IS TO ELIMINATE THE CABLE BEND RADIUS AND REPLACE THE RADIUS WITH AN EXOTHERMIC CONNECTION.
5. PREPARATION:
   A. ALL SURFACES TO WHICH GROUND CONNECTIONS WILL BE MADE SHALL BE FREE OF PAINT, GALVANIZING DIRECT CORROSION, ETC.
   B. ALL METAL SURFACES EXPOSED ON GROUNDING SHALL BE EITHER COLD GALVANIZE, OR PAINTED TO MATCH ORIGINAL SURFACE.
6. EXAMINE AREAS AND CONDITIONS UNDER WHICH ELECTRICAL GROUNDING AND BONDING CONNECTIONS ARE TO BE MADE, AND NOTIFY CARRIER CONSTRUCTION SUPERVISOR AND ENGINEER OF RECORD IN WRITING OF CONDITIONS DETRIMENTAL TO PROPER COMPLETION OF WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. THE CONTRACTOR SHALL NOTIFY THE CARRIER CONSTRUCTION SUPERVISOR A MINIMUM OF 24 HOURS PRIOR TO TRENCH BACK FILL. ALL WORK DONE BELOW FINISHED GRADE SHALL BE INSPECTED BY THE CONSTRUCTION SUPERVISOR DURING THAT PERIOD.
7. GROUND TESTING:
   A. THE CONTRACTOR SHALL TEST THE GROUND ELECTRODE ROD RESISTANCE IN ACCORDANCE WITH THE METHODS OF MEASUREMENT DEFINED IN THE "FALL OF POTENTIAL METHOD".
   B. TEST INSTRUMENTS SHALL OPERATE AT A FREQUENCY OTHER THAN 60 HERTZ AND SHALL CONTAIN STRAY CURRENT AND DC FILTERS. FAULT CURRENT PROTECTION AND HAVE SENSITIVITY TO OPERATE A LOW SIGNAL STRENGTH.
   C. PRIOR TO TESTING, THE CONTRACTOR SHALL DE-ENERGIZE ALL POWER SOURCES, DISCONNECT THE ELECTRODE CONDUCTOR FROM THE GROUND ROD, WEAR HIGH VOLTAGE RUBBER SAFETY GLOVES.
   D. GROUND TESTS ARE TO BE PERFORMED BY QUALIFIED PERSONS FAMILIAR WITH THE CONSTRUCTION AND OPERATION OF THE EQUIPMENT AND THE HAZARDS INVOLVED.
   E. AN INDEPENDENT, APPROVED OUTSIDE FIRM SHALL PERFORM THE GROUND TEST AS OUTLINED. ALL TEST RESULTS SHALL BE FORWARDED TO THE CARRIER CONSTRUCTION SUPERVISOR FOR APPROVAL.

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REVISIONS

REV	DATE	DESCRIPTION	INT
4	03/02/20	REVISIONS	JPN
3	01/24/20	REVISIONS	JPN
2	12/06/19	REVISIONS	JPN
1	09/23/19	REVISIONS	JCD
0	03/18/19	100% CONSTRUCTION	JCD
B	12/19/18	ISSUED FOR REVIEW 90%	JED
A	10/25/18	ISSUED FOR REVIEW 90%	JPN

REVIEWED BY: MAW

THESE PLANS AND SPECIFICATIONS, AS INSTRUMENTS OF SERVICE ARE AND SHALL REMAIN THE PROPERTY OF POWDER RIVER DEVELOPMENT SERVICES, LLC WHETHER THE PROJECTS FOR WHICH THEY ARE MADE ARE EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANY PERSON OR ENTITY ON OTHER PROJECTS WITHOUT PRIOR WRITTEN CONSENT OF THE ENGINEER.

SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER
GN-2

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED.

FOUNDATION NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL SHORING, ETC. NECESSARY TO SUPPORT CUT AND/OR FILL BANKS DURING EXCAVATION AND FORMING AND PLACEMENT OF CONCRETE.
2. A GEOTECHNICAL ENGINEER HAS BEEN ENGAGED TO PROVIDE GEOTECHNICAL ENGINEERING SERVICES FOR THIS SITE AND SCOPE OF WORK. THE GEOTECHNICAL REPORT IN ITS ENTIRETY SHALL BE INCLUDED AS PART OF THESE CONTRACT DOCUMENTS AND SHALL SUPERSEDE ANY CONFLICTING DIRECTIVES CONTAINED WITHIN THESE NOTES. SHOULD ANY CONFLICTS BE PRESENT, FOR RECOMMENDED SOIL BEARING PRESSURE, FOUNDATION MATERIAL, FILL, FOUNDATION EXCAVATION AND SITE GRADING, REFER TO THE GEOTECHNICAL REPORT. ALL FILL AND FOUNDATION EXCAVATION SHALL BE OBSERVED AND APPROVED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO PLACING CONCRETE.
3. THE DESIGN ALLOWABLE SOIL BEARING PRESSURE IS 1500 PSF.
4. STRUCTURAL EXCAVATION:
   - A. AFTER EXCAVATION, THE EXPOSED SOILS SHALL BE INSPECTED AND TESTED. ANY UNSUITABLE DEPOSITS SHALL BE REMOVED AS DIRECTED TO REACH SUITABLE BEARING SOIL. ALL OVER-EXCAVATED AREAS SHALL BE BACK FILLED WITH SELECT STRUCTURAL FILL OR WITH LEAN CONCRETE FILL TO THE ELEVATION OF THE BOTTOM OF FOOTING OR FOUNDATION AS INDICATED ON THE DRAWINGS.
   - B. NO FOUNDATIONS OR STRUCTURES SHALL BE CONSTRUCTED UNTIL THE BASE MATERIALS HAVE BEEN INSPECTED BY THE CARRIER CONSTRUCTION SUPERVISOR.
5. BACKFILL:
   - A. FILL AND BACKFILL SHALL BE COMPACTED TO 95% OF MAX. DENSITY IN ACCORDANCE WITH ASTM TEST METHOD D-1557. FLOODING NOT PERMITTED.
   - B. BACK FILL SHALL NOT BE PLACED SOONER THAN THE FOUNDATION OR RETAINING STRUCTURE HAS REACHED THE FULL DESIGN STRENGTH UNLESS OTHERWISE DIRECTED IN WRITING BY THE ENGINEER.
   - C. PRIOR TO PLACING BACKFILL AROUND STRUCTURES, ALL FORMS SHALL HAVE BEEN REMOVED AND THE EXCAVATION CLEANED OF ALL TRASH, DEBRIS AND UNSUITABLE MATERIALS.
6. TRENCH EXCAVATION:
   - A. UTILITY TRENCHES SHALL BE EXCAVATED TO THE LINES AND GRADES SHOWN ON THE DRAWINGS OR AS DIRECTED BY THE CARRIER CONSTRUCTION SUPERVISOR. PROVIDE SHORING, SHEETING AND BRACING AS REQUIRED TO PREVENT CAVING OR SLOUGHING OF THE TRENCH WALLS.
   - B. THE TRENCH WIDTH EXTENDS A MINIMUM OF 6 INCHES BEYOND EACH OUTSIDE EDGE OF THE CONDUIT OR OUTERMOST CONDUIT, WHICHEVER IS APPLICABLE.
   - C. WHEN SOFT, YIELDING OR OTHERWISE UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED AT THE REQUIRED TRENCH BOTTOM ELEVATION, OVER-EXCAVATE THE TRENCH TO A DEPTH OF NO LESS THAN 12 INCHES BELOW THE REQUIRED ELEVATION AND BACKFILL WITH GRANULAR BEDDING MATERIAL.
7. TRENCH BACK FILL:
   - A. PROVIDE GRANULAR BEDDING MATERIAL IN ACCORDANCE WITH THE SPECIFICATIONS, DRAWINGS AND THE UTILITY REQUIREMENTS, UNLESS OTHERWISE DIRECTED BY THE GEOTECHNICAL ENGINEER.
   - B. NOTIFY THE CARRIER CONSTRUCTION SUPERVISOR 24 HOURS IN ADVANCE OF BACK FILLING.
   - C. CONDUCT UTILITY CHECK TESTS BEFORE BACK FILLING BACK FILL AND COMPACT TRENCH BEFORE ACCEPTANCE TESTING.
   - D. PLACE GRANULAR TRENCH BACKFILL UNIFORMLY ON BOTH SIDES OF THE CONDUITS IN 6-INCH UNCOMPACTED LIFTS UNTIL 12 INCHES OVER THE CONDUITS. SOLIDLY RAM AND TAMP BACKFILL INTO SPACES AROUND THE CONDUITS.
   - E. PROTECT CONDUIT FROM LATERAL MOVEMENT, DAMAGE FROM IMPACT OR UNBALANCED LOADING.
   - F. ABOVE THE CONDUIT EMBEDMENT ZONE, PLACE AND COMPACT SATISFACTORY BACKFILL MATERIAL IN 9-INCH MAXIMUM LOOSE THICKNESS LIFTS TO RESTORE THE REQUIRED FINISHED SURFACE GRADE.
   - G. COMPACT FINAL TRENCH BACKFILL TO A DENSITY EQUAL TO OR GREATER THAN THAT OF THE EXISTING UNDISTURBED MATERIAL IMMEDIATELY ADJACENT TO THE TRENCH BUT NO LESS THAN A MINIMUM OF 95% OF MAX. DENSITY IN ACCORDANCE WITH ASTM TEST METHOD D-1557.
8. AGGREGATE ACCESS ROAD:
   - A. CLEAR, GRUB, STRIP AND EXCAVATE FOR THE ACCESS ROAD AND TOWER COMPOUND TO THE LINES AND GRADES INDICATED ON THE DRAWINGS. SCARIFY TO A DEPTH OF 6 INCHES AND PROOF-ROLL ALL HOLES, RUTS, SOFT PLACES AND OTHER DEFECTS.
   - B. THE AGGREGATE SUB BASE AND BASE SHALL BE IMMEDIATELY COMPACTED TO 95% OF MAX. DENSITY IN ACCORDANCE WITH ASTM TEST METHOD D-1557.
   - C. AFTER PREPARATION OF THE SUB GRADE IS COMPLETED, THE GEOTEXTILE FABRIC SHALL BE INSTALLED TO THE LIMITS INDICATED ON THE DRAWINGS BY ROLLING THE FABRIC OUT LONGITUDINALLY ALONG THE ROADWAY OR SITE. THE FABRIC SHALL NOT BE DRAGGED ACROSS THE SUB GRADE. PLACE THE ENTIRE ROLL IN A SINGLE OPERATION, ROLLING THE MATERIAL AS SMOOTHLY AS POSSIBLE.
     - I. OVERLAPS PARALLEL TO THE ROADWAY AND SITE WILL BE PERMITTED AT THE CENTERLINE AND AT LOCATIONS BEYOND THE ROADWAY OR SITE SURFACE WIDTH (I.E. WITHIN THE SHOULDER WIDTH) ONLY. NO LONGITUDINAL OVERLAPS SHALL BE LOCATED BETWEEN THE CENTERLINE AND THE SHOULDER. PARALLEL OVERLAPS SHALL BE A MINIMUM OF 3 FEET WIDE.
     - II. TRANSVERSE (PERPENDICULAR TO THE ROADWAY) OVERLAPS AT THE END OF A ROLL SHALL OVERLAP IN THE DIRECTION OF THE AGGREGATE PLACEMENT (PREVIOUS ROLL ON TOP) AND SHALL HAVE A MINIMUM LENGTH OF 3 FEET.
     - III. ALL OVERLAPS SHALL BE PINNED WITH STAPLES OR NAILS BETWEEN 10 AND 12 INCHES LONG TO ENSURE STABLE POSITIONING DURING THE PLACEMENT OF AGGREGATE. PIN LONGITUDINAL SEAMS AT 25-FOOT CENTERS AND TRANSVERSE SEAMS EVERY 5 FEET ON CENTER.
   - D. THE AGGREGATE SUB BASE, BASE AND SURFACE COURSES SHALL BE CONSTRUCTED IN LAYERS NOT MORE THAN 4 INCHES (COMPACTED) THICKNESS. AGGREGATE TO BE PLACED ON GEOTEXTILE FABRIC SHALL BE END-DUMPED ON THE FABRIC FROM THE FREE END OF THE FABRIC OR OVER PREVIOUSLY PLACED AGGREGATE AT NO TIME SHALL EQUIPMENT, EITHER DUMPING THE AGGREGATE OR GRADING THE AGGREGATE, BE PERMITTED ON THE ROADWAY OR COMPOUND WITH LESS THAN 8 INCHES OF MATERIAL COVERING THE FABRIC.
9. FINISH GRADING:
   - A. PERFORM ALL FINISHED GRADING TO PROVIDE SMOOTH, EVEN SURFACE AND SUBSURFACE DRAINAGE OF THE ENTIRE AREA WITHIN THE LIMITS OF CONSTRUCTION. GRADING SHALL BE COMPATIBLE WITH ALL SURROUNDING TOPOGRAPHY AND STRUCTURES.
   - B. UTILIZE SATISFACTORY FILL MATERIALS RESULTING FROM THE EXCAVATION WORK IN THE CONSTRUCTION OF FILLS, EMBANKMENTS AND FOR THE REPLACEMENT OF REMOVED UNSUITABLE MATERIALS.
   - C. REPAIR ALL ACCESS ROADS AND SURROUNDING AREAS USED DURING THE COURSE OF THIS WORK TO THEIR ORIGINAL CONDITION.

CONCRETE REINFORCING STEEL

1. REINFORCING STEEL FOR CONCRETE SHALL BE DEFORMED STEEL CONFORMING TO THE REQUIREMENTS OF ASTM A-615. (DEFORMATIONS SHALL BE IN ACCORDANCE WITH ASTM A 305 AS FOLLOWS.

   GRADE 60: (#4 BARS AND LARGER)

   GRADE 40: (#3 BARS)

   THE ACTUAL YIELD STRENGTH BASED ON MILL TESTS SHALL NOT EXCEED THE SPECIFIED YIELD STRENGTH BY MORE THAN 18,000 PSI (RETESTS SHALL NOT EXCEED THIS VALUE BY MORE THAN AN ADDITIONAL 3000PSI) AND THE RATIO OF THE ACTUAL ULTIMATE TENSILE STRESS TO ACTUAL YIELD STRENGTH SHALL NOT BE LESS THAN 1.25.
2. WWF SHALL CONFORM TO ASTM A 82 AND ASTM A 185. LAP 1 1/2 SPACES (9" MIN.)
3. DETAILING, FABRICATION, AND ERECTION OF REINFORCING BARS SHALL CONFORM TO A.C.I. "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCING CONCRETE STRUCTURES."
4. MIN. COVER FOR CAST-IN-PLACE CONCRETE SHALL BE AS FOLLOWS:

CAST AGAINST EARTH	3"
CAST AGAINST FORM BELOW GRADE	2"
FORMED SLABS (#11 BAR & SMALLER)	3/4"
SLABS ON GRADE (FROM TOP OF SLAB)	1"
COLUMNS AND BEAMS (MAIN BARS)	2"
WALLS EXPOSED TO WEATHER (#6 - #18 BARS)	2"
(#5 & SMALLER)	1 1/2"
NOT EXPOSED TO WEATHER (#11 & SMALLER)	3/4"

5. BARS SHALL BE CLEAN OF RUST, GREASE OR OTHER MATERIAL LIKELY TO IMPAIR BOND. BEND SHALL BE MADE COLD.
6. PRIOR TO PLACING OF CONCRETE, REINFORCING STEEL AND EMBEDDED ITEMS SHALL BE WELL SECURED IN POSITION.
7. WHEN WELDING OF REINFORCING BARS IS REQUIRED, IN ADDITION TO THE REQUIREMENTS OF ASTM A-615, A REPORT OF MATERIAL PROPERTIES SHALL BE PROVIDED BY THE REINFORCING MANUFACTURER TO VERIFY THAT MATERIAL PROPERTIES ARE THOSE NECESSARY FOR CONFORMANCE WITH WELDING PROCEDURES SPECIFIED IN AWS D1.4, "STRUCTURAL WELDING CODE - REINFORCING STEEL". IN LIEU OF SUPPLYING A SUPPLEMENTAL REPORT, BARS CONFORMING TO ASTM A-706 MAY BE USED. E90XX ELECTRODES SHALL BE USED TO WELD REINFORCING BARS.
8. WHEN REQUIRED, CONTINUOUS INSPECTION OF CONCRETE SHALL INCLUDE INSPECTION OF REINFORCING STEEL IN ACCORDANCE WITH THE REQUIREMENTS OF IBC TABLE 1705.3 AS PRESENTED ON VERIFICATION AND INSPECTION NOTES AND TABLES - SEE SPECIAL INSPECTION NOTES. INSPECTION SHALL BE SCHEDULED SO THAT PLACEMENT OF REINFORCING STEEL, CONDUIT, SLEEVES, AND EMBEDDED ITEMS MAY BE CORRECTED PRIOR TO PLACEMENT OF OVERLYING GRIDS OF REINFORCING STEEL.
9. FOR STANDARD REBAR HOOKS, REFER TO THE STANDARD HOOK DETAIL CONTAINED HEREIN, AND FOR STANDARD REBAR SPLICE REQUIREMENTS, REFER TO THE STANDARD REBAR SPLICE DETAIL CONTAINED HEREIN.

CONCRETE NOTES

1. THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS SHALL BE AS FOLLOWS:

   F'C = 4,000 PSI - FOOTINGS, GRADE BEAMS & ALL OTHER CONCRETE, U.N.O.

   F'C = 4,000 PSI - RETAINING WALLS & PILASTERS

   F'C = 4,000 PSI - SLAB ON GRADE

2. ALL CONCRETE UNLESS NOTED OTHERWISE SHALL BE NORMAL WEIGHT TYPE (150 PCF). AGGREGATES SHALL CONFORM TO ASTM C-33 WITH PROVEN SHRINKAGE CHARACTERISTICS OF LESS THAN .05% (MAXIMUM SIZE).
3. CEMENT SHALL CONFORM TO ASTM C-150 (TYPE V) UNLESS NOTED OTHERWISE ON THE DRAWINGS.
4. CONCRETE MIX DESIGN FOR DESIGN COMPRESSIVE STRENGTH GREATER THAN 2500 P.S.I. SHALL BE PREPARED BY AN APPROVED TESTING LABORATORY AND SHALL BE STAMPED AND SIGNED BY A LICENSED ENGINEER, IN THE STATE OF JURISDICTION. THE MIX DESIGN SHALL THEN BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW. THE USE OF A POLYMER BASED WATER REDUCING ADMIXTURE IS OPTIONAL, BUT IF USED, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
5. DESIGN MIXES TO PROVIDE NORMAL WEIGHT CONCRETE WITH THE FOLLOWING REQUIREMENTS:
   - A. THE MAXIMUM ALLOWABLE CONCRETE SHRINKAGE (28 DAYS) SHALL BE AS FOLLOWS:

     .04% - WALLS

     .06% - SLABS, FOUNDATIONS AND ALL OTHER CONCRETE, U.N.O.

   - B. FLY ASH SHALL BE A MINIMUM OF 15%, MAXIMUM OF 25%, OF THE TOTAL CEMENTITIOUS MATERIAL OF ALL MIX DESIGNS FOR CONCRETE > 4000 P.S.I. FLY ASH WITH THESE SAME LIMITS MAY ALSO BE USED IN ANY OTHER MIX DESIGN FOR CONCRETE STRENGTH < 4000 P.S.I.
   - C. FLY ASH SHALL CONFORM TO ASTM C-618, CLASS F, WITH MAXIMUM LOSS ON IGNITION (L.O.I.) TO BE 3%.
   - D. MAXIMUM ALLOWABLE WATER-TO-CEMENT (W/C) RATIO SHALL INCLUDE THE TOTAL WEIGHT OF CEMENT AND FLY ASH.
6. CONCRETE SHALL BE CURED AND PROTECTED IN ACCORDANCE WITH ACI 308.1-11.
7. CONCRETE SHALL NOT FREE FALL MORE THAN FIVE FEET. USE TREMIE OR PUMP.
8. LOCATION OF CONSTRUCTION JOINTS AND OTHER TYPES OF JOINTS, OTHER THAN THOSE SPECIFIED OR DETAILED, SHALL BE APPROVED BY THE ENGINEER BEFORE PLACEMENT OF CONCRETE.
9. ALL CONCRETE WITH 28 DAY STRENGTH GREATER THAN 2500 PSI SHALL BE INSPECTED IN ACCORDANCE WITH THE REQUIREMENTS AND FREQUENCY OF INSPECTION DEFINED IN IBC TABLE 1705.3 AS PRESENTED ON VERIFICATION AND INSPECTION NOTES AND TABLES - SEE SPECIAL INSPECTION NOTES. ANY EXCEPTIONS TO THIS REQUIREMENT WILL BE STATED ON THE PLANS OR SPECIFIC DETAILS.
10. PRIOR TO PLACING CONCRETE, REINFORCING STEEL AND EMBEDDED ITEMS SHALL BE WELL-SECURED IN POSITION.
11. SLEEVES NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL BE LOCATED BY THE TRADES INVOLVED AND SHALL BE REVIEWED BY THE ENGINEER BEFORE THE CONCRETE IS PLACED. CHECK WITH ALL TRADES TO ENSURE PROPER PLACEMENT OF OPENINGS, SLEEVES, CURBS, CONDUITS, ETC., RELATED TO THE WORK. PIPES, CONDUITS OR DUCTS MAY PASS THROUGH STRUCTURAL CONCRETE IN EMBEDDED SLEEVES BUT SHALL NOT BE EMBEDDED IN STRUCTURAL SLABS, WALLS, CONTINUOUS FOOTINGS, GRADE BEAMS, SPREAD FOOTINGS, ETC. UNLESS SPECIFICALLY APPROVED BY THE ENGINEER. THE SPREAD FOOTING MAY BE LOWERED TO ALLOW THE PASSAGE OF PIPES, CONDUITS OR DUCTS THROUGH NON-STRUCTURAL SLABS. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING ELEVATIONS OF ALL FOUNDATIONS, COORDINATING WORK OF ALL TRADES PRIOR TO ANY PLACEMENT OF CONCRETE AND SHALL NOTIFY THE ENGINEER OF FIELD MODIFICATIONS.
12. SUPERIMPOSED LOADS SHALL NOT BE APPLIED TO ELEVATED STRUCTURAL CONCRETE MEMBERS PRIOR TO 7 DAYS MINIMUM AFTER CONCRETE PLACEMENT AND UNTIL 28 DAY STRENGTH HAS BEEN REACHED. SHORING SHALL REMAIN IN PLACE UNTIL CONCRETE HAS REACHED DESIGN STRENGTH. RESHORING SHALL REMAIN IN PLACE 28 DAYS MINIMUM, AT NO TIME DURING THE RESHORING PROCESS SHALL THE CONCRETE MEMBER BE UNSUPPORTED.
13. PROVIDE 3/4" CHAMFER AT EXPOSED EDGES OF CURBS, WALLS, CONCRETE BEAMS AND COLUMNS AND ALL OTHERWISE EXTERIOR CONSTRUCTION JOINTS, U.N.O.
14. NON-SHRINK GROUT, SHALL CONFORM TO ASTM C-1107. MIN F'C = 6500 P.S.I. AT 28 DAYS.
15. ALL STRUCTURAL CONCRETE IS TO BE REINFORCED, UNLESS SHOWN OTHERWISE, SLABS ARE TO HAVE A MINIMUM REINFORCEMENT PERCENTAGE OF 0.20 CONTINUOUS EACH WAY AND WALLS ARE TO HAVE MINIMUM REINFORCEMENT PERCENTAGES OF 0.25 CONTINUOUS IN THE HORIZONTAL DIRECTION AND 0.15 CONTINUOUS IN THE VERTICAL DIRECTION.
16. CONCRETE FLOOR AND SLAB ON GRADE CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF ACI 302, "GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION". FLATNESS / LEVELNESS SHALL CONFORM TO THE REQUIREMENTS OF ASTM E1155.

THE INFORMATION CONTAINED IN THIS SET OF CONSTRUCTION DOCUMENTS IS PROPRIETARY BY NATURE. ANY USE OR DISCLOSURE OTHER THAN "AS" WHICH RELATES TO CARRIER SERVICES IS STRICTLY PROHIBITED

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BUSINESS LICENSE #: N/A

REVISIONS

REV	DATE	DESCRIPTION	INT
4	02/02/20	REVISIONS	JPN
3	01/24/20	REVISIONS	JPN
2	12/06/19	REVISIONS	JPN
1	09/23/19	REVISIONS	JED
0	03/18/19	100% CONSTRUCTION	JED
B	12/19/18	ISSUED FOR REVIEW 90%	JED
A	10/25/18	ISSUED FOR REVIEW 90%	JPN

REVIEWED BY: MAW

THESE PLANS AND SPECIFICATIONS, AS INSTRUMENTS OF SERVICE, ARE AND SHALL REMAIN THE PROPERTY OF POWDER RIVER DEVELOPMENT SERVICES, LLC WHETHER THE PROJECTS FOR WHICH THEY ARE MADE ARE EXECUTED OR NOT. THESE DRAWINGS AND SPECIFICATIONS SHALL NOT BE USED BY ANY PERSON OR ENTITY ON OTHER PROJECTS WITHOUT PRIOR WRITTEN CONSENT OF THE ENGINEER.

SITE INFORMATION:
PROJECT:
NSB (LTE 1C-5C)

AT&T SITE ID:
SDL04845

43348 310TH ST
YANKTON, SD 57078
YANKTON

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-3

Exhibit 2_Geo Report

NTI
NORTHERN TECHNOLOGIES, LLC

GEOTECHNICAL EXPLORATION and ENGINEERING REVIEW

AT&T Communication Tower - #14884311

Yankton, South Dakota

NTI Project 19.FGO.09354

Prepared For:

Impact 7G

9550 Hickman Road, Suite 105

Clive, IA 50325

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Unearthing confidence™

November 5, 2019

Impact 7G
9550 Hickman Road, Suite 105
Clive, IA 50825

Attn: Mr. Jeromy Pribil, CHMM - Principal

Subject: Geotechnical Exploration and Engineering Review
AT&T Communication Tower - #14884311
Yankton, South Dakota
NTI Project 19.FGO.09354

In accordance with your authorization, Northern Technologies, LLC (NTI) conducted a Geotechnical Exploration for the above referenced project. Our services included advancement of an exploration boring and preparation of an engineering report with recommendations developed from our geotechnical services. We performed our work in general accordance with the master service agreement with Impact 7G dated May 9, 2019.

We will retain soil samples for 60 days at which time they we will discard the samples. Please advise us in writing if you wish to have us retain them for a longer period. You will be assessed an additional fee if soil samples are retained beyond 60 days.

We appreciate the opportunity to have been of service on this project. If there are any questions regarding the soils explored or our review and recommendations, please contact us at your convenience at (701) 232-1822.

Northern Technologies, LLC

Josh Holmes, P.E.
Project Engineer

Dan Gibson, P.E.
Senior Engineer

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NTI

GEOTECHNICAL EXPLORATION AND ENGINEERING REVIEW

AT&T Communications Tower #14884311

Yankton, South Dakota

NTI Project 19.FGO.09354

1.0 EXECUTIVE SUMMARY

We briefly summarize below our geotechnical recommendations for the proposed project. You must read this summary in complete context with this geotechnical exploration report.

This geotechnical exploration report conducted for Impact 7G is limited to design of foundations for a mat or drilled pier supported monopole communications tower near Yankton, South Dakota. Project services included advancement of a standard penetration soil boring, classification of soil samples, and the completion of laboratory tests for determining respective parameters for design of foundations. We conclude you may design various foundations in general accordance with the parameters provided and per discussion described within this report based on our site exploration, testing program, information provided by others, and present understanding of project.

We note herein that all findings of this report reflect ultimate soil strength unless otherwise noted. The Structural Engineer of Record is solely responsible for applying the appropriate reduction in strength to soils in their determination of parameter used in design of foundations.

The following presents a brief description of significant geotechnical issues and concerns associated with the proposed project. We present within other section of this report further discussion of such issues and other items of concern for project.

- You may support the tower using conventional drilled piers designed to accommodate presence of frost with your design based on the respective soil parameters presented within appended Table 4. Alternatively, the tower could be supported by a mat foundation designed with a maximum net allowable bearing capacity of 3,000 psf.
- Measurable groundwater was not encountered; however we recommend you anticipate groundwater 20 feet below grade for design of foundations. The presence of groundwater may require temporary casing and/or drilling fluid to prevent collapse of clay soils into drilled excavations. We present cautionary comment on groundwater impacts to project construction throughout the report.
- Our exploration indicates approximately 1.1 to 1.3 feet of topsoil at boring locations. You should anticipate similar but variable depth of topsoil across the project. We recommend additional evaluation of site soils by or other party under direction of Geotechnical Engineer of Record [GER].

2.0 INTRODUCTION

2.1 Site / Project Description

The proposed Communication Tower is to be constructed approximately 0.1 miles south and 0.5 miles west of the intersection of 810th Street and 434th Avenue in rural Yankton, South Dakota. The 195 foot mono-pole tower will likely utilize drilled concrete pier or mat slab foundations. We anticipate up to two feet of additional soil / material placement to existing grade with construction of Tower.

2.2 Scope of Services

The purpose of this report is to present a summary of our geotechnical exploration and provide generalized opinions and recommendations regarding the soil conditions and design parameters for founding of the project. Our "scope of services" was limited to the following:

1. Explore the project by means of four standard penetration borings extending to a maximum depth of 26 feet.
2. Perform laboratory tests on representative samples to characterize the engineering and index properties of the soils.
3. Prepare a report presenting our findings from our field exploration, laboratory testing, and engineering recommendations for:
    a. Foundation design by another consultant.
    b. Construction considerations for advancement of drilled shaft construction and/or structural mat foundations.
    c. Frost impact to foundations and protection of systems from corrosion.
    d. Environmental issues impact type of cement used in concrete construction.

3.0 EXPLORATION PROGRAM RESULTS

3.1 Exploration Scope

Site geotechnical drilling occurred on October 31, 2019 with borings advanced at the approximate locations presented on the diagram within the appendices. Impact 7G provided the approximate position and elevation of the tower boring which NTI referenced for location and elevation of other borings.

3.2 Surface Conditions

The Tower property is currently field used for agricultural purposes with moderate changes in elevation. We assume the present site does not include demolition material. Surface drainage appears to flow overland local depressions.

3.3 Subsurface Conditions

Please refer to the boring logs within the appendices for a detailed description and depth of stratum at each boring. The boreholes were backfilled with auger cuttings. Settlement of infill soil / material will occur. The owner is responsible for final closure of the boreholes. The upper portion of each boring is approximate due to sampling by continuous flight auger.

The overall subsurface soil profile at the borings consists of 1.1 to 1.3 feet of topsoil underlain by medium to very dense Collapsed Glacial Sediment (GLA) soils which extend to the termination depth of the borings (maximum 26 feet). The CGS soils are primarily comprised of lean clay and silty lean clay having variable color, sand and gravel content, moisture content, and unit weight. An isolated sand layer was observed within soil boring SB-02 from 6 to 7.5 feet. Attachments included within the report appendices provide further comment on the evaluation of recovered soil samples.

3.4 Groundwater Conditions

Measurable groundwater was not encountered; however we recommend you anticipate groundwater 20 feet below grade for design of foundations. The presence of groundwater may require temporary casing and/or drilling fluid to prevent collapse of clay soils into drilled excavations. We present cautionary comment on groundwater impacts to project construction throughout the report.

3.5 Laboratory Test Program

Laboratory findings are summarized on the appended soil boring log(s). Such testing included moisture content and unit weight determination, and an estimate of soil shear strength via use of hand penetrometer. We then provide our estimate of soil cohesive strength (or internal friction angle of non-cohesive soil) based on corrected penetration resistance of split spoon sampler. We direct you to appended Table 4, boring log(s), and other reports for laboratory findings.

4.0 ENGINEERING REVIEW AND RECOMMENDATIONS

We base our report recommendations on our present knowledge of project. We ask that you or your design team notify us immediately if there are significant changes made in size, location, or design of project. Such notification is necessary to facilitate review of current recommendations. This notification also allows our modification or development of differing recommendations relative to any such change(s).

4.1 Project Scope

The Tower will require foundation support to resist gravity and wind derived loads via drilled pier or mat foundation. We have not been provided loading of the Tower, but Table 1 presents summary of our *estimated design loads* for Tower components / systems.

Table 1: Foundation Loads

Parameter	*Self-Supported Tower*
Proposed Tower Height	195 feet
Reveal from Ground Surface	½ foot minimum
Estimated Max Axial Compression	300 kips
Estimated Max Leg Base Shear	30 kips
Estimated Moment on Tower	4,000 to 5,000 kip-feet

4.2 Site Preparation

We present below recommendations for site preparation. Site may include ancillary structures supported on shallow structural mat or frost depth foundations. We present within other report section discussion concerning drilled pier foundations.

You must strip site and implement corrective grading for ancillary shallow foundations and drilled piers installed for support of Tower. Our field exploration indicates removal of topsoil should result in excavations extending to approximately 1.1 to 1.3 feet below existing grade. You must oversize all earthwork improvements and excavations that include engineered fill placement below base of foundations. The minimum excavation oversize for project must extend similar to the requirements outlined on appended *Excavation Oversize Diagram*.

Your construction documents should include provisions for addressing groundwater impacts to construction. Such should include, but not be limited to, dewatering of drilled piers / excavations, use of temporary casing for protection of drilled piers, and/ or the adding of heavy drill fluid to stabilize base soils against heave associated with groundwater flow to excavation. We also recommend that construction documents define and provide clear direction concerning removal of any obstruction encountered during advancement of drilled piers [i.e. cobbles / boulders]. *Appended Table 4 provides a summary of geotechnical conditions encountered at respective soil borings.*

The Geotechnical Engineer of Record or their designated representative must review project excavations to verify removal of unsuitable material(s), and determine exposed soils provide adequate bearing support of proposed construction. All such observations must occur prior to the placement of engineered fill, or construction of footings and floor slabs.

Engineered fill installed above the natural clay subbase (below foundations) should consist of not less than two feet of well-graded sand / sand and gravel material conforming to South Dakota Department of Transportation Specification for "Aggregate Base" criteria. Engineered fill placed above any thickened edge structural mat foundation should consist of granular soils having 100 percent passing the 1 ½" sieve, no more than 40 percent passing the #40 sieve, and no more than 12 percent passing the #200 sieve. Unless otherwise directed within this report, you should temper engineered fill for correct moisture content and then place and compact individual, 8 – inch maximum depth, lifts of engineered fill to criteria presented within attachment provided within the report appendices.

4.3 Shallow Foundations (Shelter and Tower)

We understand it is likely that any shallow foundation installed for support of ancillary structure for Tower will consist of a thickened edge, structural mat foundation bearing directly on exposed engineered fill. In our opinion, you may utilize this form of shallow foundation for support of construction providing differential movement internal to any given foundation or movement between foundations does not exceed system tolerance(s), or you provide ground insulation to construction to lessen penetration depth of frost at site. You must base design of such support on vertical, horizontal and overturning moments as applied to respective equipment/ building.

In our opinion, you may design rigid, at-grade structural mat systems based on a *maximum net allowable static soil bearing* of 3,000 pounds per square foot (psf). This bearing recommendation is predicated on your removal of the topsoil as corrective earthwork at site. The above bearing recommendation should provide a three factor of safety with respect to the ultimate bearing capacity of soils supporting shallow foundations. ***This bearing capacity can also be used to support the tower at a recommended 5 foot depth for frost protection. You may increase this net allowable static bearing pressure by 25% in assessment of peak contact pressure of Tower foundation under wind loading.***

Your design must resist lateral loading of structural mat foundation. It is our opinion you may model this lateral loading as an equivalent earth pressure applied to the edge face of the structural mat providing site geometric and related conditions complies with the parameters supporting such modeling. This implies foundation and supported equipment is capable of accommodating movement due to frost action, or you provide no less than four inches of rigid insulation encapsulated by polyethylene as protection against frost action [additional analysis and design necessary to assess extent and placement of ground insulation].

We recommend use of the Table 2 "at-rest equivalent fluid weight" findings for establishment of lateral loading of foundations walls with unbalanced earthen fill. *Note that Table 2 values present ultimate soil response to loading and must not be modified by your application of reduction factors.*

Table 2: Retained Soil - Equivalent Fluid Weight / Coefficient of Friction

Soil Type	"At Rest" Condition (pcf) [1]	"Active" Condition (pcf) [1]	"Passive Condition (pcf) [1]	Coefficient of Friction [2]
Aggregate Base (SW, SWG)	55	35	300	0.55
Sand (SP, SP-SM)	62	42	250	0.45
Lean Clay (CL)	95	80	140	0.30

1 The recommendations for equivalent fluid weight based solely on assumed conditions with respect to sloping ground and/or presence of surcharge load. We caution design professional that actual loads imparted to the foundation will be dependent on soil conditions, site geometric considerations, and surcharge loads imparted to the structure.

2 The determination of resistance to sliding determined based on multiplication of the respective coefficient of friction by the effective vertical stress occurring at the elevation of interest.

4.4 Drilled Pier Foundation

Site conditions and structure type may necessitate support of project using drilled pier foundations extending to depth. The report bearing recommendations for the design of piers is based on our understanding of the project as well as understanding as to the geologic deposition and substrata conditions common to the Tower site.

It is our understanding foundation elements will impose conceptual vertical, horizontal, and translational moment as previously estimated within this report. We anticipate that a drilled pier foundation may be used for support of the Tower. You may base the vertical and horizontal design of drilled piers on the respective strength parameters outlined within appended Table 4.

The Table 4 parameters represent non-factored or ultimate strength condition. We recommend you apply the following reductions to soil strength in assessing vertical capacity: a 2.0 or greater reduction for compressive soil adhesion, a 2.7 or greater reduction for tensile uplift adhesion, and a 3.0 or greater reduction for end bearing. Note such reduction to ultimate strength generally applies to deep foundations. Lesser conservative reductions to ultimate strength may be appropriate based on loads associated with gravity and wind only. Structural Engineer of Record is solely responsible for assessing and applying the appropriate reduction in strength to the ultimate findings of appended Table 4.

It is our premise that Tower supported by drilled pier must provide a one and one half or higher factor of safety against overturning with maximum horizontal displacement under the design load not exceeding two inches. Drilled piers designed per appropriate parameters will likely have sufficient stiffness of section to minimize flexural bending of the foundation.

Drilling operations for drilled shaft foundation has a risk of encountering groundwater. We recommend that construction documents include provisions for pumping of groundwater and casing of drilled shaft as precautionary steps should you intercept the groundwater table. Such documents should also include provision for obstruction and for the removal of random cobbles and/or boulders occurring within the Glacial Sediment. Additionally, the use of drilling fluids and installation of temporary casing is likely, should you encounter an alluvium stratum of high groundwater pressure.

Note that initial concrete material placed within the cased shaft must provide additional cementitious material content to address loss of strength resulting from any groundwater becoming intermixed with casting of drilled pier. We recommend that placement of concrete be maintained at, or more than, 8 feet above the bottom of respective steel casing used for temporary containment of soils at project [i.e. provide 8 feet minimum "hydraulic head" of concrete above bottom of casing during all times].

You should be prepared for use of temporary casing of the upper six feet of drilled pier within ground and any extension above ground to reduce adhesive uplift by frost adhesion. Regardless, you should eliminate all protrusions or outward stepped concrete located within the active frost zone or at ground surface as such outward extensions assist in "frost-jacking" of drilled pier(s).

4.5 Frost Considerations

Any shallow foundations installed for ancillary systems of Tower project must be designed to accommodate ground movement due to frost or include ground insulation to reduce depth of frost occurring at site. We previously provided guidance as to minimum ground insulation necessary to reduce frost action at site. Please note that such is for guidance only. A separate assessment of ground insulation must be made pending issues relative to shallow foundation support type and of site.

Construction for structural mat foundations must extend no less than five feet below ground surface as protection against frost action. We estimate drilled bores for concrete pier will extend to significant depth below existing grade that frost influence on such elements will be minimal [for helical piers] or will be included in assessment of foundation capacity [drilled pier, providing design includes allowance for adverse frost action on structural element]. As a minimum, you should exclude any vertical or beneficial lateral support and conversely presume section of drilled pier occurring within active frost zone imparts an upward adhesive loading to Tower through frost action.

Any drilled pier construction must be formed or cased within the active frost zone to prevent excessive widening or "mushroom shaped" profile formation at or near ground surface. We present discussion of this issue within other section of this report. You should extend any ancillary shallow foundations for other critical items below frost depth to prevent impact and movement due to freeze / thaw.

4.6 Estimate of Settlement

As guidance to your design of foundations, we recommend you assess vertical and horizontal movement of foundations to limiting parameters outlined within Table 3. Furthermore, total and differential movement of the Tower could be significantly greater if you support construction on frozen soils, the moisture content of the bearing soils significantly changes from insitu conditions, and snow or ice lenses become incorporated within earthwork.

Table 3: NTI Recommendation for Assessing Tower Foundation Movement / Settlement

Parameter / Loading Situation	*Estimated Movement*
Horizontal Deflection at Ground Line	The lesser of 3/4 inch or 10% of the drilled pier shaft diameter
Vertical Deflection at Ground Line	No more than 1 ½ inch.

4.7 Exterior Backfill

Exterior fill placement around the permanently sleeved portion of drilled pier and fill placement against "dead man" anchorage (if occurring) must provide competent passive resistance to respective foundation element. Conceptually, it is our premise backfill of drilled piers (upper 3 ½ to 4 ½ feet from ground surface) should be made using native soils removed from excavation, clear stone tamped in-place, or a high slump, cementitious slurry. The slurry concrete mix should provide a nominal 1,000 pounds per square inch (psi) compressive strength when based on a "pre-treated" slump of four to five inches. As placed, it may be necessary that you modify the slurry concrete with admixtures to increase slump, modify viscosity, and/or limit segregation of aggregate during placement of material.

4.8 Surface Drainage

You should maintain positive drainage during and after construction of project and eliminate ponding of water on site soils. We recommend you include provisions within construction documents for positive drainage of site. You should install sumps at critical areas around project to assist in removal of seepage and runoff from site. We present recommendations for sump construction within the appendices.

We understand local site conditions will provide positive gradient for drainage of runoff from Tower. As a guide, we recommend that you provide a five percent gradient within 10 feet, and two percent minimum gradient for 10 to 100 feet beyond structure for directing drainage from Tower. Similarly, you should maintain no less than 3 percent gradient of the overall Tower bearing pad for positive drainage of surface runoff. Finally, you should isolate equipment and/or building pads exposing foundations by a minimum of six inches above the graded surface, as further separation from surface runoff.

4.9 Protection from Corrosion

Authorized services of NTI did not include the determination of chloride or sulfate content of site soils. However, we believe the silt and sand soil at the site likely have low corrosive potential.

You may supplement concrete with "fly ash" as a secondary cementitious material thus lessening corrosive attack of construction. You may further supplement resistance to corrosive attack via use of sulfate resistant Portland cement. Per present findings and general knowledge of site soils, we recommend you include use of "fly ash" cementitious materials as supplement to all project concrete construction.

Where necessary, epoxy coated reinforcement will improve performance of installed foundations. For this project, we recommend you utilize galvanized steel, cable, and anchor bolts for all below ground installation. Where appropriate, we recommend you extend drilled pier construction to additional height above final grade to prevent any ponding of water on the top of the drilled pier.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Excavation Stability / Person in Charge

Excavation depth and sidewall inclination should not exceed those specified in local, state or federal regulations. You may need to widen and slope, or temporarily brace excavations to maintain or develop a safe work environment. An independently retained licensed Professional Engineer must design temporary shoring for project with such design conforming to applicable regulatory requirements.

All report discussion is based on premise with respect to loading, site conditions, groundwater issues, and likely extent of work / surcharge conditions as listed. We do not imply that excavations advanced for Tower foundations are stable, safe, or comply with findings relative to 29 CFR 1926.6 as referenced above. *Contractor is solely responsible per "means and methods" for ascertaining stability of embankments / excavations, or any other work occurring on site.*

5.2 Engineered Fill / Winter Construction

The Geotechnical Engineer of Record or their designated representative must observe and evaluate excavations to verify removal of uncontrolled fills, topsoil and/or unsuitable material(s), and adequacy of bearing support of exposed soils. Such observation should occur prior to construction of foundations or placement of engineered fill supporting excavations.

The above - designated representative must evaluate engineered fill for moisture content, mechanical analysis and/or Atterberg limits prior to placement. You must also temper engineered fill for correct moisture content and then place and compact individual lifts of engineered fill to report criteria.

You should never use frozen soil as engineered fill, nor should you support foundations on frozen soils. Moisture freezing within the soil matrix of fine grained and/or cohesive soils produces ice lenses. Such soils gain moisture from capillary action and, with continued growth, heave with formation of ice lenses within the soil matrix. Foundations constructed on frozen soils settle after thaw of ice lenses causing distress at minimum, or failure of construction. The replacement of frozen soils should consist of similar materials as those removed from the excavation with moisture content, placement and compaction conforming to report criteria.

5.3 Operation of Project Sumps

We previously noted the importance of removal of seepage and runoff from project excavations. You must maintain temporary drainage of project excavations until such time that the Geotechnical Engineer of Record determines excess groundwater pore pressure, seepage, and/or runoff no longer influences the strength or support of construction.

We presented within the appendices typical recommendations for temporary project sumps. Such provides general guideline of the minimum temporary drainage of project. It is our premise the Contractor is solely responsible for establishing the magnitude, type, and operation of subsurface drainage for project.

6.0 CLOSURE

Our conclusions and recommendations are predicated NTI's Geotechnical Engineer of Record or their designated representative observes excavations and reviews testing of engineered fill. We arrived at our opinions based on presumptive data collected from the site. Note that such data collected results from limited sampling of site conditions typical of geotechnical explorations performed for projects of similar scope. For this and other reasons, we do not warrant conditions between or below the depth of our borings, or that the strata logged from our borings are necessarily typical of the site. It shall be understood that any deviation(s) from our recommendations by plans, written specifications, or field applications shall relieve us of responsibility unless you have established our written concurrence of such change(s).

We have prepared this report for Impact 7G for specific application to the proposed AT&T Communications Tower – Yankton, South Dakota. Northern Technologies, LLC has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Northern Technologies, LLC makes no other warranty, expressed or implied.

Northern Technologies, LLC

Josh Holmes, P.E.
Project Engineer

Dan Gibson, P.E.
Senior Engineer

This document originally issued and sealed by Josh Holmes [SD Reg. No.13282] on November 5, 2019. This media should not be considered a certified document.

DG: jh

Attachments

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APPENDIX A

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GEOTECHNICAL EVALUATION OF RECOVERED SOIL SAMPLES

We visually examined recovered soil samples to estimate color, distribution of grain sizes, plasticity, consistency, moisture condition, the presence of lenses and seams, and apparent geologic origin. We then classified the soils according to the Unified Soil Classification System (ASTM D2488). We present chart describing this classification system and general notes explaining soil-sampling procedures [within appendices].

The stratification depth lines between soil types on the logs are estimated based on the available data. Insitu, the transition between type(s) may be distinct or gradual in direction. The soil conditions have been established at our specific boring locations only. Variations in the soil stratigraphy may occur between and around the borings, with the nature and extent of such change not readily evident until exposed by excavation. These variations must be properly assessed when utilizing information presented on the boring logs.

We request that you, your design team or contractors contact NTI immediately if local conditions differ from those assumed by this report, as we would need to review how such changes impact our recommendations. Such contact would also allow us to revise our recommendations as necessary to account for the changed site conditions.

FIELD EXPLORATION PROCEDURES

Soil Sampling – Standard Penetration Boring:

Soil sampling was performed according to the procedures described by ASTM D-1586. Using this procedure, a 2-inch outside diameter "split barrel sampler" is driven into the soil by a 140-pound weight falling 30 inches. After an initial set of six inches, the number of blows required to drive the sampler an additional 12 inches is recorded (known as the penetration resistance (i.e. "N-value") of the soil at the point of sampling. This N-value, as corrected for efficient of equipment operation is an index of the relative density of cohesionless soils and an approximation of the consistency of cohesive soils [i.e. N_{60}].

Soil Sampling – Power Auger Boring:

The boring(s) was/were advanced with a 6-inch nominal diameter continuous flight auger. As a result, samples recovered from the boring are disturbed, and our determination of the depth, extend of various stratum and layers, and relative density or consistency of the soils is approximate.

Soil Classification:

Soil samples were visually and manually classified in general conformance with ASTM D-2488 as they were removed from the sampler(s). Representative fractions of soil samples were then sealed within respective containers and returned to the laboratory for further examination and verification of the field classification. In addition, select samples were submitted for laboratory tests. Individual sample information, identification of sampling methods, method of advancement of the samples and other pertinent information concerning the soil samples are presented on boring logs and related report attachments.

NTI

General Notes

DRILLING & SAMPLING SYMBOLS

SYMBOL	DEFINITION
C.S.	Continuous Sampling
P.D.	2-3/8" Pipe Drill
C.O.	Cleanout Tube
3 HSA	3 ¼" I.D. Hollow Stem Auger
4 FA	4" Diameter Flight Auger
6 FA	6" Diameter Flight Auger
2 ½ C	2 ½" Casing
4 C	4" Casing
D.M.	Drilling Mud
J.W.	Jet Water
H.A.	Hand Auger
NXC	Size NX Casing
BXC	Size BX Casing
AXC	Size AX casing
SS	2" O.D. Split Spoon Sample
2T	2" Thin Wall Tube Sample
3T	3" Thin Wall Tube Sample

LABORATORY TEST SYMBOLS

SYMBOL	DEFINITION
W	Moisture content-percent of dry weight
D	Dry Density-pounds per cubic foot
LL, PL	Liquid and plastic limits determined in accordance with ASTM D 423, ASTM D 424
Qu	Unconfined compressive strength-pounds per square foot in accordance with ASTM D 2166-66

Additional Insertions in Qu Column

Pq	Penetrometer reading-tons/square foot
S	Torvane reading-tons/square foot
G	Specific Gravity – ASTM D 854-58
SL	Shrinkage limit – ASTM 427-61
pH	Hydrogen ion content-meter method
O	Organic content-combustion method
M.A.*	Grain size analysis
C*	One dimensional consolidation
Qc*	Triaxial Compression

* See attached data Sheet and/or graph

Water Level Symbol

Water levels shown on the boring logs were determined at the time and under the conditions indicated. In sand, the indicated levels can be considered reliable for most site conditions. In clay soils, it is not possible to determine the groundwater level within the normal scope of a test boring investigation, except where lenses or layers of more pervious water bearing soil are present; and then a long period may be necessary to reach equilibrium. Therefore, the position of the water level symbol for cohesive or mixed soils may not indicate the true level of the groundwater table. The available water level information is given at the bottom of the log sheet.

Descriptive Terminology

DENSITY TERM	"N_{60}" VALUE	*CONSISTENCY* TERM	"N_{60}" VALUE
Very Loose	0-4	Soft	0-4
Loose	5-8	Medium	5-8
Medium Dense	9 – 15	Rather Stiff	9 – 15
Dense	16 – 30	Stiff	16 – 30
Very Dense	Over 30	Very Stiff	Over 30

Standard "N_{60}" Penetration: Blows per foot of a mechanical hammer using nominal 2-inch OD split spoon as corrected to reflect similar sampling using a Standard Safety Hammer.

Relative Proportions

TERMS	RANGE
Trace	0-5%
A little	5-15%
Some	15-30%
With	30-50%

Particle Sizes

MATERIAL	DESTRIPTION	US SIEVE SIZE
Boulders		Over 3"
Gravel -	Coarse	¾" – 3"
	Medium	#4 – ¾"
Sand -	Coarse	#4 - #10
	Medium	#10 - #40
	Fine	#40 - #200
Silt and Clay	Determined by plasticity characteristics.	

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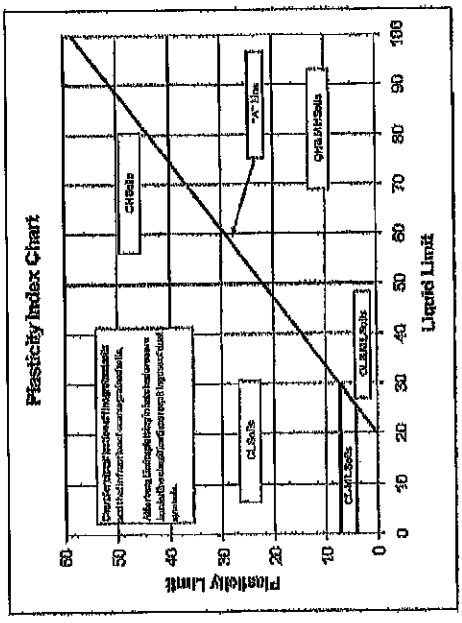
Classification of Soils for Engineering Purposes

ASTM Designation D-2487 and D 2488 (Unified Soil Classification System)

Major Divisions			Group Symbol	Typical Name	Classification Criteria	
Course Grained Soils: More than 50% retained on No. 200 sieve *	Gravels: 50% or more of coarse fraction retained on No. 4 sieve.	Clean Gravels	GW	Well –graded gravels and gravel-sand mixtures, little or no fines.	Classification on basis of percentage of fines. Less than 5% passing No. 200 Sieve: GW, GP, SW, SP. More than 12% passing No. 200 Sieve: GM, GC, SM, SC. From 5% to 12% passing No. 200 Sieve: Borderline Classification requiring use of dual symbols.	Cu = D60 / D10 greater than 4. Cz = (D30)2 / (D10 x D60) between 1 & 3.
			GP	Poorly graded gravels and gravel-sand mixtures, little or no fines.		Not meeting both criteria for GW materials.
		Gravels with Fines	GM	Silty gravels, gravel-sand-silt mixtures.		Atterberg limits below "A" line, or P.I. less than 4. / Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols.
			GC	Clayey gravels, gravel-sand-clay mixtures.		Atterberg limits above "A" line with P.I. greater than 7.
	Sands: More than 50% of coarse fraction passes No 4 sieve.	Clean Sands	SW	Well-graded sands and gravelly sands, little or no fines.		Cu = D60 / D10 greater than 6. Cz = (D30)2 / (D10 x D60) between 1 & 3.
			SP	Poorly-graded sands and gravelly sands, little or no fines.		Not meeting both criteria for SW materials.
		Sands with Fines	SM	Silty sands, sand-silt mixtures.		Atterberg limits below "A" line, or P.I. less than 4. / Atterberg limits plotting in hatched area are borderline classifications requiring use of dual symbols.
			SC	Clayey sands, sand-clay mixtures.		Atterberg limits above "A" line with P.I. greater than 7.
Fine Grained Soils: More than 50% passes No. 200 sieve *	Silts and Clays: Liquid Limit of 50% or less		ML	Inorganic silts, very fine sands, rock flour, silty or clayey fine sands.		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.		
			OL	Organic silts and organic silty clays of low plasticity.		
	Silts and Clays: Liquid Limit greater than 50%.		MH	Inorganic silts, micaceous or diatomaceous fine sands or silts, elastic silts.		
			CH	Inorganic clays of high plasticity, fat clays.		
			OH	Organic clays of medium to high plasticity.		
	Highly Organic Soils		Pt	Peat, muck and other highly organic soils.		



Excavation Oversize

Excavation oversize facilitates distribution of load-induced stress within supporting soils. Unless otherwise superseded by report specific requirements, all construction should conform to the minimum oversize and horizontal offset requirements as presented within the diagram and associated chart.

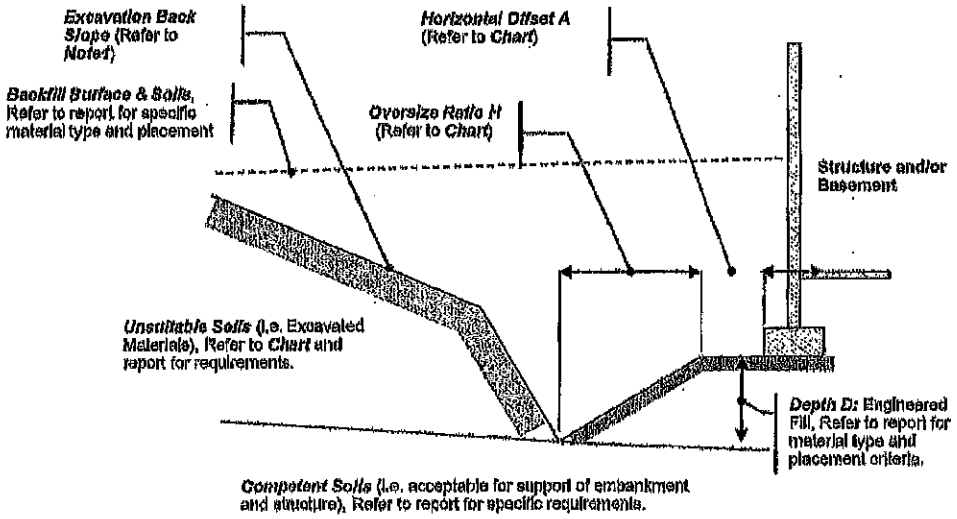


Figure 1: Excavation Oversize

Definitions

Oversize Ratio H: The ratio of the horizontal distance divided by the engineered fill depth (i.e. # Horizontal / Depth D). Refer to Chart for specific requirements.

Horizontal Offset A: The horizontal distance between the outside edge of footing or critical position and the crest of the engineered fill section. Refer to Chart for specific requirements.

Note 1: Excavation depth and sidewall inclination should not exceed those specified in local, state or federal regulations including those defined by Subpart P of Chapter 27, 29 CFR Part 1926 (of Federal Register). Excavations may need to be widened and sloped, or temporarily braced, to maintain or develop a safe work environment. Contractor is solely responsible for assessing stability under "means and methods".

Condition	Unsuitable Soil Type	Horizontal Offset A	Oversize Ratio H
Foundation Unit Load equal to or less than 3,000 psf.	SP, SM soils, CL & CH soils with cohesion greater than 1,000 psf	2 feet or width of footing, whichever is greater	Equal to or greater than one (1) times Depth D
Foundation Unit Load greater than 3,000 psf	SP, SM soils, CL & CH soils with cohesion less than 1,000 psf	5 feet or width of footing, whichever is greater	Equal to or greater than one (1) times Depth D
Foundation Unit Load equal to or less than 3,000 psf.	Topsoil or Peat	2 feet or width of footing, whichever is greater	Equal to or greater than two (2) times Depth D
Foundation Unit Load greater than 3,000 psf	Topsoil or Peat	5 feet or width of footing, whichever is greater	Equal to or greater than two (3) times Depth D

APPENDIX B

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GROUNDWATER ISSUES

The following presents additional comment and soil specific issues related to measurement of groundwater conditions at your project site.

Note that our groundwater measurements, or lack thereof, will vary depending on the time allowed for equilibrium to occur in the borings. Extended observation time was not available during the scope of the field exploration program and, therefore, groundwater measurements as noted on the borings logs may or may not accurately reflect actual conditions at your site.

Seasonal and yearly fluctuations of the groundwater level, if any, occur. Perched groundwater may be present within sand and silt lenses bedded within cohesive soil formations. Groundwater typically exists at depth within cohesive and cohesionless soils.

Documentation of the local groundwater surface and any perched groundwater conditions at the project site would require installation of temporary piezometers and extended monitoring due to the relatively low permeability exhibited by the site soils. We have not performed such groundwater evaluation due to the scope of services authorized for this project.

We anticipate pumps installed within temporary sumps should control subsurface seepage from perched conditions. However, we caution seepage from such formations and any water entry from excavations below the groundwater table may be heavy, will vary based on seasonal and annual precipitation, and ground conditions near project.

GEOTEXTILE FABRIC and GEOGRID REINFORCEMENT

Unless otherwise amended by report, we recommend installation of a geotextile separation fabric between the native soils and the engineered fill section below project foundations, floors and/or between a clay subgrade and aggregate base of pavement construction. It is our opinion this geotextile should consist of a non-woven, needle punched or woven, fabric conforming to the following tabulated parameters.

GEOTEXTILE SEPARATION FABRIC PROPERTIES [1]

Parameter	Requirement
Base Yarn	Polypropylene
Apparent Opening Size [AOS, US. Sieve]	40 – 70
Permittivity [gal/min/sq. ft CH, ASTM D 4491]	110
Grab Tensile Strength [lbs, %, ASTM D 4632]	160 lbs by 160 lbs at 50% by 50% strain

All physical strength properties are minimum average roll values [MARV], unless noted otherwise.

We recommend that the geotextile panels be oriented parallel with proposed aggregate placement activities and occur in such a manner that the overall number of individual panels are kept to a minimum. As placed, individual panels of geotextile should have a width equal to or greater than 12 feet. We recommend that the Contractor overlap longitudinal and butt seam of adjacent panels a minimum of 18 inches with such joints oriented to follow initial construction traffic (shingles profile with traffic).

Geogrid Reinforcement provided for support of permanent structural loads requires separate evaluation based on project specific conditions and applied loading. Such work is beyond the scope of findings as presented by this report.

Unless otherwise amended by report, Geogrid Reinforcement for placement below pavements should consist of material and provide properties as outlined within the following tabulation.

GEOGRID REINFORCEMENT OF AGGREGATE BASE SECTION [1]

Parameter	Requirement
Base Yarn	Polypropylene
Aperture Size [inch by inch]	Minimum 1.5 by 1.5, Maximum 1.75 by 1.75
Wide Width Tensile Strength [lbs/ft, ASTM D 6637]	Minimum 800 MD by 800 CD at 2% strain Minimum 1600 MD by 1,600 CD at 5% strain Minimum 2,000 MD by 2,000 CD at ultimate strain
Tensile Modulus [lb/ft, ASTM D 6637	Minimum 41,000 MD by 41,000 CD at 2% strain Minimum 32,000 MD by 32,000 CD at 5% strain

All physical strength properties are minimum average roll values [MARV], unless noted otherwise.

The Table B geogrid should be placed above the above recommended geotextile separation fabric with individual 12-foot minimum width individual panels of geogrid reinforcement oriented parallel to major traffic movement. Side seams of geogrid reinforcement must be overlapped no less than 12 inches while butt seams of geogrid should be overlapped no less than 24 inches.

PLACEMENT and COMPACTION OF ENGINEERED FILL

Unless otherwise superseded within the body of the Geotechnical Exploration Report, the following criteria shall be utilized for placement of engineered fill on project. This includes but is not limited to earthen fill placement to improve site grades, fill placed below structural footings, fill placed interior of structure, and fill placed as backfill of foundations.

Engineered fill placed for construction, if necessary, should consist of natural, non-organic, competent soils native to the project area. Such soils may include, but are not limited to gravel, sand, or clays with Unified Soil Classification System (ASTM D2488) classifications of GW, SP, SM, CL or CH. Use of silt or clayey silt as project fill will require additional review and approval of project Geotechnical Engineer of Record. Such soils have USCS classifications of ML, MH, ML-CL, MH-CH. Use of topsoil, marl, peat, other organic soils construction debris and/or other unsuitable materials as fill is not allowed. Such soils have USCS classifications of OL, OH, Pt.

Engineered fill, classified as clay, should be tempered such that the moisture content at the time of placement is equal to and no more than 4 percent above the optimum content for as defined by the appropriate proctor test. Likewise, engineered fill classified as gravel or sand should be tempered such that the moisture content at the time of placement is within 3 percent of the optimum content.

All engineered fill for construction should be placed in individual 8-inch maximum depth lifts. Each lift of fill should be compacted by large vibratory equipment until the in-place soil density is equal to or greater than the criteria established within the following tabulation.

Type of Construction	Compaction Criteria (% respective Proctor) [1]	
	Clay	Sand or Gravel
General Embankment Fill	95 to 100	Min. 95
Engineered Fill below Foundations	Min. 95	Min. 98
Engineered Fill below Floor Slabs	95 to 98	Min. 95
Engineered Fill placed against Foundation Walls	95 to 98	95 to 100
Engineered Fill placed as Pavement Subgrade	Min. 95	Min. 95
Engineered Fill placed as Pavement Aggregate Base	NA	Min. 98
Engineered Fill placed within Utility Trench (to within 3 feet of pavement aggregate base or final grade	Min. 95	Min. 95
Engineered Fill placed as Utility Trench Fill (within 3 feet of pavement aggregate base or final grade	Min. 98	Min. 98

1 Unless otherwise required, compaction criteria shall be based on the Standard Proctor Test (ASTM D698).

Density tests should be taken during engineered fill placement to document earthwork has achieved necessary compaction of the material(s). Recommendations for interior fill placement and backfill of foundation walls are presented within other sections of this report.

PROJECT SUMPS

The collection, control and removal of seepage and runoff from within project excavations is critical in maintaining the bearing capacity of native soils, in-place density of engineered fill and stability of embankments at project excavations.

As constructed, it is our opinion all sumps should consist of a 2 foot by 2 foot or larger plan dimension excavation(s) located adjacent to and directly exterior to the excavation oversize limit for structural engineered fill [see appended Figure 1]. Sump excavations should extend a minimum of 2 feet below the base of the excavation for collection of seepage and runoff.

All sumps should be lined with a non-woven, needle-punched, geotextile having a grab tensile strength equal to or greater than 70 pounds per square inch (psi). A standpipe of 12 inches in diameter or larger should be centered within the sump excavation. This pipe should include sufficient openings for entry of seepage. We recommend that the standpipe extend to the ground surface to facilitate pumping during project construction. Infill within the sump area should consist of a 1½ to ¾ inch clear rock placed between the standpipe and walls of the sump excavation.

You must continue pumping of sump(s) until completion of construction, or until the Geotechnical Engineer of Record indicates such pumping is no longer necessary for stability of the project footings and related construction. Abandon sumps per methods required by the Geotechnical Engineer of Record and per Federal, State and local governmental statutes.

Discharge from sumps should be directed away from site and be disposed within storm water systems or other systems which comply with Federal, State and local governmental statute. As constructed and operated, the General Contractor should be responsible for all permits, operation and abandonment of sumps or other temporary dewatering systems.

APPENDIX C

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AT&T Communications Tower #14884311 - Yankton
Project #19FC009354.000
Yankton, South Dakota
Legend:
Soil Boring
Temporary Benchmark
SB-04
SB-03
TBM
SB-01
SB-02
Google Earth
300 ft
N

Northern Technologies, LLC
3522 4th Ave S.
Fargo, ND 58103
P: 701-232-1822 F: 701-232-1864
www.ntlgeo.com

BORING NUMBER SB-01

Long: -97° 31' 32.844"
Lat: 42° 53' 34.26"

CLIENT Impact 7G
PROJECT NAME AT&T Communications Tower #14864311 - Yankton
PROJECT NUMBER 19.FGO09364.000
PROJECT LOCATION Yankton, South Dakota
DATE STARTED 10/31/19 COMPLETED 10/31/19
GROUND ELEVATION 1523.5 feet HOLE SIZE 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING --- No Groundwater Encountered
LOGGED BY Chris Nelson CHECKED BY Dan Gibson
AT END OF DRILLING ---
CAVE IN (ft) NR FROST DEPTH (ft) NA
AFTER DRILLING ---
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION		SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		TOPSOIL, ORGANIC CLAY, (OL) dark brown	1522.2	AU 1									
		1.3 LEAN CLAY, (CL) brown, medium to rather stiff, little sand, trace gravel		SS 2	44	6-3-4 (7)	6.0	116	13				
				SS 3	76	4-5-5 (10)	4.6	114	16				
5													
		9.5 LEAN CLAY, (CL) brown, rather stiff to stiff, trace sand, trace gravel	1517.0	SS 4	111	4-6-8 (14)	4.3	114	18				
				SS 6	100	4-5-7 (12)	3.5	112	19				
10				SS 6	111	4-6-9 (15)	2.9		17				
				SS 7	111	5-8-8 (16)	6.0	116	16				
15				SS 8	111	6-8-12 (20)	4.2	120	17				
		19.0 LEAN CLAY, (CL) brown to dark brown, very stiff, trace sand, trace gravel	1504.5	SS 9	50	9-16-17 (33)	4.5	113	17				
20													
		24.0 LEAN CLAY, (CL) dark gray, stiff, trace sand, trace gravel	1499.5	SS 10	133	7-12-15 (27)	3.5	120	15				
25		26.0	1497.5										

Bottom of borehole at 26.0 feet.
Borehole backfilled with auger cuttings.

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Fargo, ND 58103
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www.ntigeo.com

BORING NUMBER SB-02

Long: -97° 31' 32.736"
Lat: 42° 58' 32.064"

CLIENT Impact 7G
PROJECT NAME AT&T Communications Tower #14884311 - Yankton
PROJECT NUMBER 19.FGO09354.000
PROJECT LOCATION Yankton, South Dakota
DATE STARTED 10/31/19 COMPLETED 10/31/19
GROUND ELEVATION 1521.3 feet HOLE SIZE 6 1/2 in
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A.
AT TIME OF DRILLING --- No Groundwater Encountered
LOGGED BY Chris Nelson CHECKED BY Dan Gibson
AT END OF DRILLING ---
CAVE IN (ft) NR FROST DEPTH (ft) NA
AFTER DRILLING ---
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		TOPSOIL, ORGANIC CLAY, (CL) dark brown	AU 1									
1.5		1520.0										
		LEAN CLAY, (CL) brown, stiff, trace sand, trace gravel	SS 2	67	6-7-8 (15)	5.7						
4.0		1517.3										
5		LEAN CLAY, (CL) brown, medium, little sand	SS 3	61	4-4-4 (8)	4.6						
6.0		1515.3										
		SILTY SAND, (SM) brown, fine grained										
7.5		1513.8	SS 4	94	4-6-5 (11)	2.4						
		LEAN CLAY, (CL/CH) brown, rather stiff to medium										
10			SS 5	106	4-5-6 (11)	3.0						
			SS 6	83	2-4-4 (8)	6.5						
15			SS 7	89	3-4-5 (9)	2.2						
16.5		1504.8										
		SILTY LEAN CLAY, (CL) brown, medium	SS 8	94	3-4-4 (8)	0.9						
20			SS 9	94	3-3-4 (7)	1.1						
21.0		1500.3										

Bottom of borehole at 21.0 feet.
Borehole backfilled with auger cuttings.

Northern Technologies, LLC
3622 4th Ave S.
Fargo, ND 58103
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www.ntigeo.com

BORING NUMBER SB-03

Long: -97° 31' 30.432"
Lat: 42° 53' 36.376"

CLIENT Impact 7G
PROJECT NAME AT&T Communications Tower #14884311 - Yankton
PROJECT NUMBER 19.FGO09354.000
PROJECT LOCATION Yankton, South Dakota
DATE STARTED 10/31/19 COMPLETED 10/31/19
GROUND ELEVATION 1516.4 feet HOLE SIZE 6 1/2 in.
DRILLING CONTRACTOR NTI
GROUND WATER LEVELS:
DRILLING METHOD 3 1/4 in H.S.A
AT TIME OF DRILLING — No Groundwater Encountered
LOGGED BY Chris Nelson CHECKED BY Dan Gibson
AT END OF DRILLING —
CAVE IN (ft) NR FROST DEPTH (ft) NA
AFTER DRILLING —
NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		TOPSOIL, ORGANIC CLAY, (OL) dark brown to black	AU 1									
		1.3 1515.1										
		LEAN CLAY, (CL) brown, rather stiff to stiff, trace sand, trace gravel	SS 2	39	5-5-5 (10)	4.4						
5			SS 3	94	5-6-10 (16)	3.1						
			SS 4	111	5-7-8 (15)	3.2						
10			SS 5	100	4-6-9 (15)	4.4						
			SS 6	122	5-6-9 (17)	2.3						
15			SS 7	111	5-6-9 (15)	2.7						
		16.6 1499.9										
		LEAN CLAY, (CL) brown to dark brown, rather stiff, trace sand, trace gravel	SS 8	122	5-6-8 (14)	5.3						
20			SS 9	122	5-5-5 (10)	4.2						
		21.0 1496.4										

Bottom of borehole at 21.0 feet.
Borehole backfilled with auger cuttings.

NTI LOG - GENERAL (USE THIS ONE) - NTI 2017-08-14.GDT - 11/7/19 10:24 - S:\PROJECTS\2019\AT&T CELL TOWER\19.FGO09354.000 AT&T CELL TOWER #14884311 - YANKTON, SD\GINT\CHANGE ORDER\CHANGE ORDER #1\14884311 - YANKTON.GPJ

Northern Technologies, LLC
3522 4th Ave S,
Fargo, ND 58103
P: 701-232-1822 F: 701-232-1884
www.ntlgeo.com

BORING NUMBER SB-04

Long: -97° 31' 35.256"
Lat: 42° 53' 35.412"

CLIENT Impact 7G
PROJECT NUMBER 19.FGO08354.000
DATE STARTED 10/31/19 COMPLETED 10/31/19
DRILLING CONTRACTOR NTI
DRILLING METHOD 3 1/4 in H.S.A.
LOGGED BY Chris Nelson CHECKED BY Dan Gibson
CAVE IN (ft) NR FROST DEPTH (ft) NA

PROJECT NAME AT&T Communications Tower #14884311 - Yankton
PROJECT LOCATION Yankton, South Dakota
GROUND ELEVATION 1528.5 feet HOLE SIZE 6 1/2 in.
GROUND WATER LEVELS:
AT TIME OF DRILLING --- No Groundwater Encountered
AT END OF DRILLING ---
AFTER DRILLING ---

NOTES

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	POCKET PEN. (tsf)	DRY UNIT WT. (pcf)	MOISTURE CONTENT (%)	ATTERBERG LIMITS: LIQUID LIMIT	ATTERBERG LIMITS: PLASTIC LIMIT	ATTERBERG LIMITS: PLASTICITY INDEX	FINES
0		TOPSOIL, ORGANIC CLAY, (OL) dark brown to black	AU 1									
		1527.4										
1.1		SANDY LEAN CLAY, (CL) brown, stiff to rather stiff	SS 2	83	9-10-10 (20)	6.0						
			SS 3	72	5-7-8 (15)	6.0						
5												
		1521.0	SS 4	78	4-5-6 (10)	2.3						
7.5		SILTY LEAN CLAY, (CL) brown to gray, rather stiff										
		1519.5										
9.0		LEAN CLAY, (CL) brown, medium	SS 5	83	4-4-4 (8)	3.1						
10			SS 6	78	3-3-5 (8)							
		1514.5										
14.0		SILTY LEAN CLAY, (CL-ML) brown, medium to rather stiff	SS 7	78	4-3-5 (8)	2.1						
15			SS 8	72	3-4-5 (9)	2.1						
20			SS 9	78	4-5-5 (10)	2.1						
		1507.5										
21.0		Bottom of borehole at 21.0 feet. Borehole backfilled with auger cuttings.										

Table 4: Soil Parameters for Cell Tower #14884511
rural Yankton, South Dakota

Cohesion (pcf)	Internal Friction Angle (deg)	Effective Stress: Est. Internal Friction Angle Φ (deg) 35°C = 0	Concrete Pier (ultimate value): Adhesion Compressive (psf)	Adhesion Tension Uplift (psf)	End Bearing (psf)	Lateral Soil Modulus (lbs/inch deflection) ultimate load deflection	Strain (%)

a, or related secondary correlations. Values in "Bold Italic" represent estimated value based on listed trend of soil boring.
H VALUES REPRESENT ULTIMATE VALUES. WHILE SOILS INDICATE HIGH END BEARING CAPACITIES WITH DEPTH, WE
GINEER OF RECORD MUST REDUCE STRENGTH VALUES IN THEIR DETERMINATION OF SAFE DESIGN STRENGTH. See

			Frost	*Frost*	*NA*	*NA*	*NA*
4800	0	21.8	*Frost*	*Frost*	*Frost*	*NA*	*NA*
3680	0	21.8	1160	870	18400	1880	0.005
3440	0	21.2	1130	850	17200	1630	0.006
2800	0	21.2	1060	800	14000	1070	0.006
2320	0	21.2	1000	750	11600	740	0.007
4000	0	21.2	1200	900	20000	2240	0.005
3360	0	21.2	1120	840	16800	1560	0.006
5600	0	21.2	1150	860	18000	1800	0.006
2800	0	21.2	1060	800	14000	1070	0.006

			Frost	*Frost*	*NA*	*NA*	*NA*
4560	0	21.2	*Frost*	*Frost*	*Frost*	*NA*	*NA*
3680	0	21.8	1160	870	18400	1880	0.005
0	31	31.0	400	300	11630	199	-
2400	0	21.2	1010	760	12000	790	0.007
4400	0	21.2	1240	930	22000	2750	0.005
1760	0	21.2	910	680	8800	430	0.008
720	0	20.5	570	430	3600	90	0.014
880	0	20.5	650	490	4400	120	0.012

			Frost	*Frost*	*NA*	*NA*	*NA*
3520	0	21.2	*Frost*	*Frost*	*Frost*	*NA*	*NA*
2480	0	21.2	1020	770	12400	840	0.007
2560	0	21.2	1030	770	12800	900	0.007
3520	0	21.2	1140	860	17600	1710	0.006
1840	0	21.2	920	690	9200	470	0.008
2160	0	21.2	970	730	10800	640	0.007
4240	0	21.2	1230	920	21200	2540	0.005
3360	0	21.2	1120	840	16800	1560	0.006

Table 4: Soil Parameters for Cell Tower #14984311
rural Yankton, South Dakota

Cohesion (psf)	Internal Friction Angle (deg)	Effective Stress Est. Internal Friction Angle Φ (deg) 3 C = 0	Concrete Pier (ultimate value) Adhesion Compressive (psf)	Adhesion Tension Uplift (psf)	End Bearing (psf)	Lateral Soil Modulus (psi / inch deflection) ultimate load deflection	Strain (%)
			Frost	*Frost*	*NA*	*NA*	*NA*
4800	0	21.4	*Frost*	*Frost*	*Frost*	*NA*	*NA*
4800	0	21.4	1280	960	24000	3310	0.005
1840	0	20.5	920	690	9200	470	0.008
2480	0	21.2	1020	770	12400	840	0.007
2000	0	21.2	950	710	10000	550	0.008
1680	0	20.5	890	670	8400	400	0.009
1680	0	20.5	890	670	8400	400	0.009
1680	0	20.5	890	670	8400	400	0.009

e, or related secondary correlations. Values in "Bold Italic" represent estimated value based on listed trend of soil boring.
H VALUES REPRESENT ULTIMATE VALUES. WHILE SOILS INDICATE HIGH END BEARING CAPACITIES WITH DEPTH, WE
GINEER OF RECORD MUST REDUCE STRENGTH VALUES IN THEIR DETERMINATION OF SAFE DESIGN STRENGTH. See

Exhibit 2_Geo Report

GEOTECHNICAL EXPLORATION and ENGINEERING REVIEW

AT&T Communication Tower - #14884311

Yankton, South Dakota

NTI Project 19.FGO.09354

Prepared For:

Impact 7G

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Unearthing confidence™

November 5, 2019

Impact 7G
9550 Hickman Road, Suite 105
Clive, IA 50325

Attn: Mr. Jeromy Pribil, CHMM - Principal

Subject: Geotechnical Exploration and Engineering Review
AT&T Communication Tower - #14884311
Yankton, South Dakota
NTI Project 19.FGO.09354

In accordance with your authorization, Northern Technologies, LLC (NTI) conducted a Geotechnical Exploration for the above referenced project. Our services included advancement of an exploration boring and preparation of an engineering report with recommendations developed from our geotechnical services. We performed our work in general accordance with the master service agreement with Impact 7G dated May 9, 2019.

We will retain soil samples for 60 days at which time they we will discard the samples. Please advise us in writing if you wish to have us retain them for a longer period. You will be assessed an additional fee if soil samples are retained beyond 60 days.

We appreciate the opportunity to have been of service on this project. If there are any questions regarding the soils explored or our review and recommendations, please contact us at your convenience at (701) 232-1822.

Northern Technologies, LLC

Josh Holmes, P.E.
Project Engineer

Dan Gibson, P.E.
Senior Engineer

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GEOTECHNICAL EXPLORATION AND ENGINEERING REVIEW

AT&T Communications Tower #14884311

Yankton, South Dakota

NTI Project 19.FGO.09354

1.0 EXECUTIVE SUMMARY

We briefly summarize below our geotechnical recommendations for the proposed project. You must read this summary in complete context with this geotechnical exploration report.

This geotechnical exploration report conducted for Impact 7G is limited to design of foundations for a mat or drilled pier supported monopole communications tower near Yankton, South Dakota. Project services included advancement of a standard penetration soil boring, classification of soil samples, and the completion of laboratory tests for determining respective parameters for design of foundations. We conclude you may design various foundations in general accordance with the parameters provided and per discussion described within this report based on our site exploration, testing program, information provided by others, and present understanding of project.

We note herein that all findings of this report reflect ultimate soil strength unless otherwise noted. The Structural Engineer of Record is solely responsible for applying the appropriate reduction in strength to soils in their determination of parameter used in design of foundations.

The following presents a brief description of significant geotechnical issues and concerns associated with the proposed project. We present within other section of this report further discussion of such issues and other items of concern for project.

- You may support the tower using conventional drilled piers designed to accommodate presence of frost with your design based on the respective soil parameters presented within appended Table 4. Alternatively, the tower could be supported by a mat foundation designed with a maximum net allowable bearing capacity of 3,000 psf.
- Measurable groundwater was not encountered; however we recommend you anticipate groundwater 20 feet below grade for design of foundations. The presence of groundwater may require temporary casing and/or drilling fluid to prevent collapse of clay soils into drilled excavations. We present cautionary comment on groundwater impacts to project construction throughout the report.
- Our exploration indicates approximately 1.1 to 1.3 feet of topsoil at boring locations. You should anticipate similar but variable depth of topsoil across the project. We recommend additional evaluation of site soils by or other party under direction of Geotechnical Engineer of Record [GER].

2.0 INTRODUCTION

2.1 Site / Project Description

The proposed Communication Tower is to be constructed approximately 0.1 miles south and 0.5 miles west of the intersection of 310th Street and 434th Avenue in rural Yankton, South Dakota. The 195 foot mono-pole tower will likely utilize drilled concrete pier or mat slab foundations. We anticipate up to two feet of additional soil / material placement to existing grade with construction of Tower.

2.2 Scope of Services

The purpose of this report is to present a summary of our geotechnical exploration and provide generalized opinions and recommendations regarding the soil conditions and design parameters for founding of the project. Our "scope of services" was limited to the following:

1. Explore the project by means of four standard penetration borings extending to a maximum depth of 26 feet.
2. Perform laboratory tests on representative samples to characterize the engineering and index properties of the soils.
3. Prepare a report presenting our findings from our field exploration, laboratory testing, and engineering recommendations for:
    a. Foundation design by another consultant.
    b. Construction considerations for advancement of drilled shaft construction and/or structural mat foundations.
    c. Frost impact to foundations and protection of systems from corrosion.
    d. Environmental issues impact type of cement used in concrete construction.

3.0 EXPLORATION PROGRAM RESULTS

3.1 Exploration Scope

Site geotechnical drilling occurred on October 31, 2019 with borings advanced at the approximate locations presented on the diagram within the appendices. Impact 7G provided the approximate position and elevation of the tower boring which NTI referenced for location and elevation of other borings.

3.2 Surface Conditions

The Tower property is currently field used for agricultural purposes with moderate changes in elevation. We assume the present site does not include demolition material. Surface drainage appears to flow overland local depressions.

3.3 Subsurface Conditions

Please refer to the boring logs within the appendices for a detailed description and depth of stratum at each boring. The boreholes were backfilled with auger cuttings. Settlement of infill soil / material will occur. The owner is responsible for final closure of the boreholes. The upper portion of each boring is approximate due to sampling by continuous flight auger.

The overall subsurface soil profile at the borings consists of 1.1 to 1.3 feet of topsoil underlain by medium to very dense Collapsed Glacial Sediment (GLA) soils which extend to the termination depth of the borings (maximum 26 feet). The CGS soils are primarily comprised of lean clay and silty lean clay having variable color, sand and gravel content, moisture content, and unit weight. An isolated sand layer was observed within soil boring SB-02 from 6 to 7.5 feet. Attachments included within the report appendices provide further comment on the evaluation of recovered soil samples.

3.4 Groundwater Conditions

Measurable groundwater was not encountered; however we recommend you anticipate groundwater 20 feet below grade for design of foundations. The presence of groundwater may require temporary casing and/or drilling fluid to prevent collapse of clay soils into drilled excavations. We present cautionary comment on groundwater impacts to project construction throughout the report.

3.5 Laboratory Test Program

Laboratory findings are summarized on the appended soil boring log(s). Such testing included moisture content and unit weight determination, and an estimate of soil shear strength via use of hand penetrometer. We then provide our estimate of soil cohesive strength (or internal friction angle of non-cohesive soil) based on corrected penetration resistance of split spoon sampler. We direct you to appended Table 4, boring log(s), and other reports for laboratory findings.

4.0 ENGINEERING REVIEW AND RECOMMENDATIONS

We base our report recommendations on our present knowledge of project. We ask that you or your design team notify us immediately if there are significant changes made in size, location, or design of project. Such notification is necessary to facilitate review of current recommendations. This notification also allows our modification or development of differing recommendations relative to any such change(s).

4.1 Project Scope

The Tower will require foundation support to resist gravity and wind derived loads via drilled pier or mat foundation. We have not been provided loading of the Tower, but Table 1 presents summary of our *estimated design loads* for Tower components / systems.

Table 1: Foundation Loads

Parameter	*Self-Supported Tower*
Proposed Tower Height	195 feet
Reveal from Ground Surface	½ foot minimum
Estimated Max Axial Compression	300 kips
Estimated Max Leg Base Shear	30 kips
Estimated Moment on Tower	4,000 to 5,000 kip-feet

4.2 Site Preparation

We present below recommendations for site preparation. Site may include ancillary structures supported on shallow structural mat or frost depth foundations. We present within other report section discussion concerning drilled pier foundations.

You must strip site and implement corrective grading for ancillary shallow foundations and drilled piers installed for support of Tower. Our field exploration indicates removal of topsoil should result in excavations extending to approximately 1.1 to 1.3 feet below existing grade. You must oversize all earthwork improvements and excavations that include engineered fill placement below base of foundations. The minimum excavation oversize for project must extend similar to the requirements outlined on appended *Excavation Oversize Diagram*.

Your construction documents should include provisions for addressing groundwater impacts to construction. Such should include, but not be limited to, dewatering of drilled piers / excavations, use of temporary casing for protection of drilled piers, and/ or the adding of heavy drill fluid to stabilize base soils against heave associated with groundwater flow to excavation. We also recommend that construction documents define and provide clear direction concerning removal of any obstruction encountered during advancement of drilled piers [i.e. cobbles / boulders]. *Appended Table 4 provides a summary of geotechnical conditions encountered at respective soil borings.*

The Geotechnical Engineer of Record or their designated representative must review project excavations to verify removal of unsuitable material(s), and determine exposed soils provide adequate bearing support of proposed construction. All such observations must occur prior to the placement of engineered fill, or construction of footings and floor slabs.

Engineered fill installed above the natural clay subbase (below foundations) should consist of not less than two feet of well-graded sand / sand and gravel material conforming to South Dakota Department of Transportation Specification for "Aggregate Base" criteria. Engineered fill placed above any thickened edge structural mat foundation should consist of granular soils having 100 percent passing the 1 ½" sieve, no more than 40 percent passing the #40 sieve, and no more than 12 percent passing the #200 sieve. Unless otherwise directed within this report, you should temper engineered fill for correct moisture content and then place and compact individual, 8 – inch maximum depth, lifts of engineered fill to criteria presented within attachment provided within the report appendices.

4.3 Shallow Foundations (Shelter and Tower)

We understand it is likely that any shallow foundation installed for support of ancillary structure for Tower will consist of a thickened edge, structural mat foundation bearing directly on exposed engineered fill. In our opinion, you may utilize this form of shallow foundation for support of construction providing differential movement internal to any given foundation or movement between foundations does not exceed system tolerance(s), or you provide ground insulation to construction to lessen penetration depth of frost at site. You must base design of such support on vertical, horizontal and overturning moments as applied to respective equipment/ building.

In our opinion, you may design rigid, at-grade structural mat systems based on a *maximum net allowable static soil bearing* of 3,000 pounds per square foot (psf). This bearing recommendation is predicated on your removal of the topsoil as corrective earthwork at site. The above bearing recommendation should provide a three factor of safety with respect to the ultimate bearing capacity of soils supporting shallow foundations. ***This bearing capacity can also be used to support the tower at a recommended 5 foot depth for frost protection. You may increase this net allowable static bearing pressure by 25% in assessment of peak contact pressure of Tower foundation under wind loading.***

Your design must resist lateral loading of structural mat foundation. It is our opinion you may model this lateral loading as an equivalent earth pressure applied to the edge face of the structural mat providing site geometric and related conditions complies with the parameters supporting such modeling. This implies foundation and supported equipment is capable of accommodating movement due to frost action, or you provide no less than four inches of rigid insulation encapsulated by polyethylene as protection against frost action [additional analysis and design necessary to assess extent and placement of ground insulation].

We recommend use of the Table 2 "at-rest equivalent fluid weight" findings for establishment of lateral loading of foundations walls with unbalanced earthen fill. *Note that Table 2 values present ultimate soil response to loading and must not be modified by your application of reduction factors.*

Table 2: Retained Soil - Equivalent Fluid Weight / Coefficient of Friction

Soil Type	"At Rest" Condition (pcf) [1]	"Active" Condition (pcf) [1]	"Passive Condition (pcf) [1]	Coefficient of Friction [2]
Aggregate Base (SW, SWG)	55	35	300	0.55
Sand (SP, SP-SM)	62	42	250	0.45
Lean Clay (CL)	95	80	140	0.30

1. The recommendations for equivalent fluid weight based solely on assumed conditions with respect to sloping ground and/or presence of surcharge load. We caution design professional that actual loads imparted to the foundation will be dependent on soil conditions, site geometric considerations, and surcharge loads imparted to the structure.
2. The determination of resistance to sliding determined based on multiplication of the respective coefficient of friction by the effective vertical stress occurring at the elevation of interest.

4.4 Drilled Pier Foundation

Site conditions and structure type may necessitate support of project using drilled pier foundations extending to depth. The report bearing recommendations for the design of piers is based on our understanding of the project as well as understanding as to the geologic deposition and substrata conditions common to the Tower site.

It is our understanding foundation elements will impose conceptual vertical, horizontal, and translational moment as previously estimated within this report. We anticipate that a drilled pier foundation may be used for support of the Tower. You may base the vertical and horizontal design of drilled piers on the respective strength parameters outlined within appended Table 4.

The Table 4 parameters represent non-factored or ultimate strength condition. We recommend you apply the following reductions to soil strength in assessing vertical capacity: a 2.0 or greater reduction for compressive soil adhesion, a 2.7 or greater reduction for tensile uplift adhesion, and a 3.0 or greater reduction for end bearing. Note such reduction to ultimate strength generally applies to deep foundations. Lesser conservative reductions to ultimate strength may be appropriate based on loads associated with gravity and wind only. Structural Engineer of Record is solely responsible for assessing and applying the appropriate reduction in strength to the ultimate findings of appended Table 4.

It is our premise that Tower supported by drilled pier must provide a one and one half or higher factor of safety against overturning with maximum horizontal displacement under the design load not exceeding two inches. Drilled piers designed per appropriate parameters will likely have sufficient stiffness of section to minimize flexural bending of the foundation.

Drilling operations for drilled shaft foundation has a risk of encountering groundwater. We recommend that construction documents include provisions for pumping of groundwater and casing of drilled shaft as precautionary steps should you intercept the groundwater table. Such documents should also include provision for obstruction and for the removal of random cobbles and/or boulders occurring within the Glacial Sediment. Additionally, the use of drilling fluids and installation of temporary casing is likely, should you encounter an alluvium stratum of high groundwater pressure.

Note that initial concrete material placed within the cased shaft must provide additional cementitious material content to address loss of strength resulting from any groundwater becoming intermixed with casting of drilled pier. We recommend that placement of concrete be maintained at, or more than, 8 feet above the bottom of respective steel casing used for temporary containment of soils at project [i.e. provide 8 feet minimum "hydraulic head" of concrete above bottom of casing during all times].

You should be prepared for use of temporary casing of the upper six feet of drilled pier within ground and any extension above ground to reduce adhesive uplift by frost adhesion. Regardless, you should eliminate all protrusions or outward stepped concrete located within the active frost zone or at ground surface as such outward extensions assist in "frost-jacking" of drilled pier(s).

4.5 Frost Considerations

Any shallow foundations installed for ancillary systems of Tower project must be designed to accommodate ground movement due to frost or include ground insulation to reduce depth of frost occurring at site. We previously provided guidance as to minimum ground insulation necessary to reduce frost action at site. Please note that such is for guidance only. A separate assessment of ground insulation must be made pending issues relative to shallow foundation support type and of site.

Construction for structural mat foundations must extend no less than five feet below ground surface as protection against frost action. We estimate drilled bores for concrete pier will extend to significant depth below existing grade that frost influence on such elements will be minimal [for helical piers] or will be included in assessment of foundation capacity [drilled pier, providing design includes allowance for adverse frost action on structural element]. As a minimum, you should exclude any vertical or beneficial lateral support and conversely presume section of drilled pier occurring within active frost zone imparts an upward adhesive loading to Tower through frost action.

Any drilled pier construction must be formed or cased within the active frost zone to prevent excessive widening or "mushroom shaped" profile formation at or near ground surface. We present discussion of this issue within other section of this report. You should extend any ancillary shallow foundations for other critical items below frost depth to prevent impact and movement due to freeze / thaw.

4.6 Estimate of Settlement

As guidance to your design of foundations, we recommend you assess vertical and horizontal movement of foundations to limiting parameters outlined within Table 3. Furthermore, total and differential movement of the Tower could be significantly greater if you support construction on frozen soils, the moisture content of the bearing soils significantly changes from insitu conditions, and snow or ice lenses become incorporated within earthwork.

Table 3: NTI Recommendation for Assessing Tower Foundation Movement / Settlement

Parameter / Loading Situation	*Estimated Movement*
Horizontal Deflection at Ground Line	The lesser of 3/4 inch or 10% of the drilled pier shaft diameter
Vertical Deflection at Ground Line	No more than 1 ½ inch.

4.7 Exterior Backfill

Exterior fill placement around the permanently sleeved portion of drilled pier and fill placement against "dead man" anchorage (if occurring) must provide competent passive resistance to respective foundation element. Conceptually, it is our premise backfill of drilled piers (upper 3 ½ to 4 ½ feet from ground surface) should be made using native soils removed from excavation, clear stone tamped in-place, or a high slump, cementitious slurry. The slurry concrete mix should provide a nominal 1,000 pounds per square inch (psi) compressive strength when based on a "pre-treated" slump of four to five inches. As placed, it may be necessary that you modify the slurry concrete with admixtures to increase slump, modify viscosity, and/or limit segregation of aggregate during placement of material.

4.8 Surface Drainage

You should maintain positive drainage during and after construction of project and eliminate ponding of water on site soils. We recommend you include provisions within construction documents for positive drainage of site. You should install sumps at critical areas around project to assist in removal of seepage and runoff from site. We present recommendations for sump construction within the appendices.

We understand local site conditions will provide positive gradient for drainage of runoff from Tower. As a guide, we recommend that you provide a five percent gradient within 10 feet, and two percent minimum gradient for 10 to 100 feet beyond structure for directing drainage from Tower. Similarly, you should maintain no less than 3 percent gradient of the overall Tower bearing pad for positive drainage of surface runoff. Finally, you should isolate equipment and/or building pads exposing foundations by a minimum of six inches above the graded surface, as further separation from surface runoff.

4.9 Protection from Corrosion

Authorized services of NTI did not include the determination of chloride or sulfate content of site soils. However, we believe the silt and sand soil at the site likely have low corrosive potential.

You may supplement concrete with "fly ash" as a secondary cementitious material thus lessening corrosive attack of construction. You may further supplement resistance to corrosive attack via use of sulfate resistant Portland cement. Per present findings and general knowledge of site soils, we recommend you include use of "fly ash" cementitious materials as supplement to all project concrete construction.

Where necessary, epoxy coated reinforcement will improve performance of installed foundations. For this project, we recommend you utilize galvanized steel, cable, and anchor bolts for all below ground installation. Where appropriate, we recommend you extend drilled pier construction to additional height above final grade to prevent any ponding of water on the top of the drilled pier.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Excavation Stability / Person in Charge

Excavation depth and sidewall inclination should not exceed those specified in local, state or federal regulations. You may need to widen and slope, or temporarily brace excavations to maintain or develop a safe work environment. An independently retained licensed Professional Engineer must design temporary shoring for project with such design conforming to applicable regulatory requirements.

All report discussion is based on premise with respect to loading, site conditions, groundwater issues, and likely extent of work / surcharge conditions as listed. We do not imply that excavations advanced for Tower foundations are stable, safe, or comply with findings relative to 29 CFR 1926.6 as referenced above. *Contractor is solely responsible per "means and methods" for ascertaining stability of embankments / excavations, or any other work occurring on site.*

5.2 Engineered Fill / Winter Construction

The Geotechnical Engineer of Record or their designated representative must observe and evaluate excavations to verify removal of uncontrolled fills, topsoil and/or unsuitable material(s), and adequacy of bearing support of exposed soils. Such observation should occur prior to construction of foundations or placement of engineered fill supporting excavations.

The above - designated representative must evaluate engineered fill for moisture content, mechanical analysis and/or Atterberg limits prior to placement. You must also temper engineered fill for correct moisture content and then place and compact individual lifts of engineered fill to report criteria.

You should never use frozen soil as engineered fill, nor should you support foundations on frozen soils. Moisture freezing within the soil matrix of fine grained and/or cohesive soils produces ice lenses. Such soils gain moisture from capillary action and, with continued growth, heave with formation of ice lenses within the soil matrix. Foundations constructed on frozen soils settle after thaw of ice lenses causing distress at minimum, or failure of construction. The replacement of frozen soils should consist of similar materials as those removed from the excavation with moisture content, placement and compaction conforming to report criteria.

5.3 Operation of Project Sumps

We previously noted the importance of removal of seepage and runoff from project excavations. You must maintain temporary drainage of project excavations until such time that the Geotechnical Engineer of Record determines excess groundwater pore pressure, seepage, and/or runoff no longer influences the strength or support of construction.

We presented within the appendices typical recommendations for temporary project sumps. Such provides general guideline of the minimum temporary drainage of project. It is our premise the Contractor is solely responsible for establishing the magnitude, type, and operation of subsurface drainage for project.

6.0 CLOSURE

Our conclusions and recommendations are predicated NTI's Geotechnical Engineer of Record or their designated representative observes excavations and reviews testing of engineered fill. We arrived at our opinions based on presumptive data collected from the site. Note that such data collected results from limited sampling of site conditions typical of geotechnical explorations performed for projects of similar scope. For this and other reasons, we do not warrant conditions between or below the depth of our borings, or that the strata logged from our borings are necessarily typical of the site. It shall be understood that any deviation(s) from our recommendations by plans, written specifications, or field applications shall relieve us of responsibility unless you have established our written concurrence of such change(s).

We have prepared this report for Impact 7G for specific application to the proposed AT&T Communications Tower – Yankton, South Dakota. Northern Technologies, LLC has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Northern Technologies, LLC makes no other warranty, expressed or implied.

Northern Technologies, LLC

Josh Holmes, P.E.
Project Engineer

Dan Gibson, P.E.
Senior Engineer

This document originally issued and sealed by Josh Holmes [SD Reg. No.13282] on November 5, 2019. This media should not be considered a certified document.

DG: jh

Attachments

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