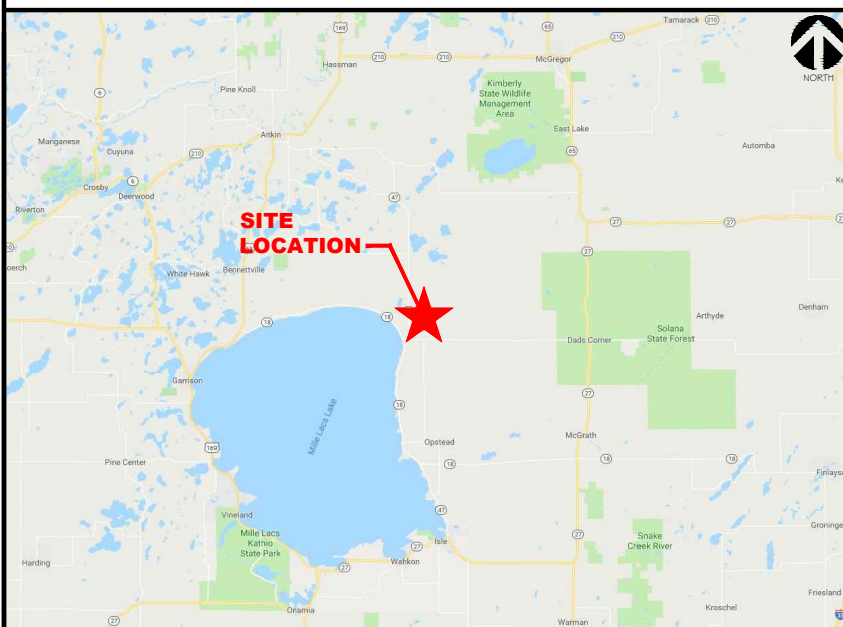




PROJECT: NEW SITE BUILD
TILLMAN SITE NAME: TI-OPP-13245-B
SITE ADDRESS: UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
SITE TYPE: 260' SELF SUPPORT



VICINITY MAP:



PROJECT INFORMATION:

SITE ADDRESS
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SITE COORDINATES
 LATITUDE: 46° 20' 25.51" (46.340419)
 LONGITUDE: 93° 29' 42.26" (-93.495072)

MUNICIPAL ID
 PARCEL: #21-0-053600
 ZONE: FR - FARM RESIDENTIAL

PROPERTY OWNER
 NORMAN WESTERLUND
 30517 270TH LANE
 AITKIN, MN 56431

TOWER OWNER
 TILLMAN INFRASTRUCTURE
 152 W. 57TH STREET, 8TH FLOOR
 NEW YORK, NY 10019
 PHONE: (646) 578-8394

A&E FIRM
 RAMAKER & ASSOCIATES, INC.
 855 COMMUNITY DRIVE
 SAUK CITY, WI 53583
 CONTACT: MIKE REEVE
 EMAIL: mreeve@ramaker.com
 PHONE: (608) 643-4100

SITE ACQUISITION
 FAULK & FOSTER
 NORTHWEST REGIONAL OFFICE
 678 FRONT AVENUE NW, SUITE 215
 GRAND RAPIDS, MI 49504
 PHONE: (248) 891-9214
 FAX: (616) 647-8614
 CONTACT: BEN HERRICK

ELECTRIC PROVIDER
 MILLE LACS ELECTRIC COOP
 PHONE: (800) 450-2191

TELCO PROVIDER
 FRONTIER
 PHONE: (952) 891-7712

APPROVALS:

CONSTRUCTION MANAGER:	
DESIGN ENGINEER:	
OPERATIONS MANAGER:	
IMPLEMENTATION MANAGER:	
REAL ESTATE MANAGER:	
LANDLORD:	

SHEET INDEX

SHEET NUMBER	SHEET DESCRIPTION
T-1	COVER SHEET
SP-1 & SP-2	SPECIFICATIONS
A-1	OVERALL SITE PLAN
A-2	ENLARGED SITE PLAN
A-3	TOWER ELEVATION
A-4	COMPOUND SITE DETAILS
A-5	COMPOUND SITE DETAILS
A-6	COMPOUND SITE DETAILS
E-1	COMPOUND UTILITY PLAN
E-2	COMPOUND UTILITY DETAILS
E-3	TYPICAL COMPOUND GROUNDING PLAN
E-4	TYPICAL GROUNDING DETAILS
E-5	TYPICAL GROUNDING DETAILS
VZW-1	VERIZON COVER SHEET
VZW-2	VERIZON ANTENNA CONFIGURATION
VZW-3	VERIZON ANTENNA CONFIGURATION
VZW-4	VERIZON RFDS
VZW-5	VERIZON RFDS
VZW-6	VERIZON TOWER EQUIPMENT SPECIFICATIONS
VZW-7	VERIZON EQUIPMENT SHELTER LAYOUT
VZW-8	VERIZON EQUIPMENT SHELTER ELEVATIONS
VZW-9	VERIZON EQUIPMENT SHELTER ELEVATION & ICE BRIDGE DETAIL
VZW-10	VERIZON EQUIPMENT SHELTER FOUNDATION PLAN & DETAILS
VZW-11	VERIZON GENERATOR DETAILS
VZW-12	VERIZON GENERATOR DETAILS
VZW-13	VERIZON GROUNDING PLAN
VZW-14	VERIZON UTILITY PLAN

AERIAL MAP:



CODE COMPLIANCE:

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

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



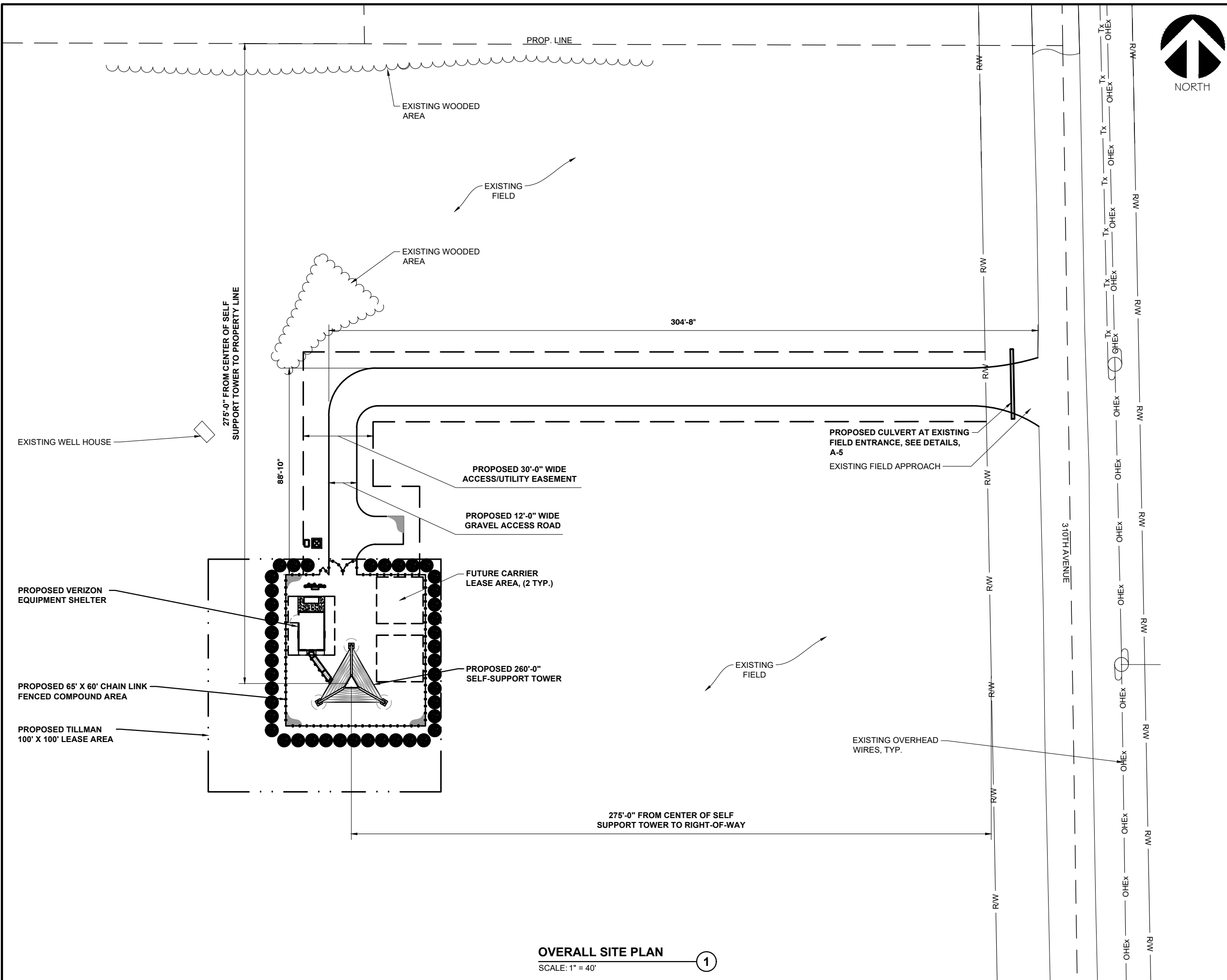
MARK	DATE	DESCRIPTION
ISSUE PHASE	PRELIMINARY	DATE ISSUED 01/30/2020

PROJECT TITLE:
TI-OPP-13245-B (VZW LOC. 556453)
 PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:
TITLE SHEET

SCALE: NONE

PROJECT NUMBER	40742
SHEET NUMBER	T-1



TILLMAN
INFRASTRUCTURE

Faulk & Foster

NORTHWEST REGIONAL OFFICE
 678 FRONT AVE NW, SUITE 215
 GRAND RAPIDS, MI 49504

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 855 Community Dr, Sauk City, WI 53583
 608-643-4100 www.Ramaker.com
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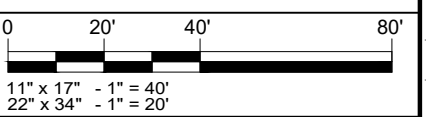
Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE PHASE	PRELIMINARY	DATE ISSUED 01/30/2020

PROJECT TITLE:
TI-OPP-13245-B
(VZW LOC. 556453)

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:
OVERALL SITE PLAN



PROJECT NUMBER: 40742
 SHEET NUMBER: A-1

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



TILLMAN
INFRASTRUCTURE



Faulk & Foster

NORTHWEST REGIONAL OFFICE

678 FRONT AVE NW, SUITE 215
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 & ASSOCIATES, INC.

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TI-OPP-13245-B
(VZW LOC. 556453)

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:

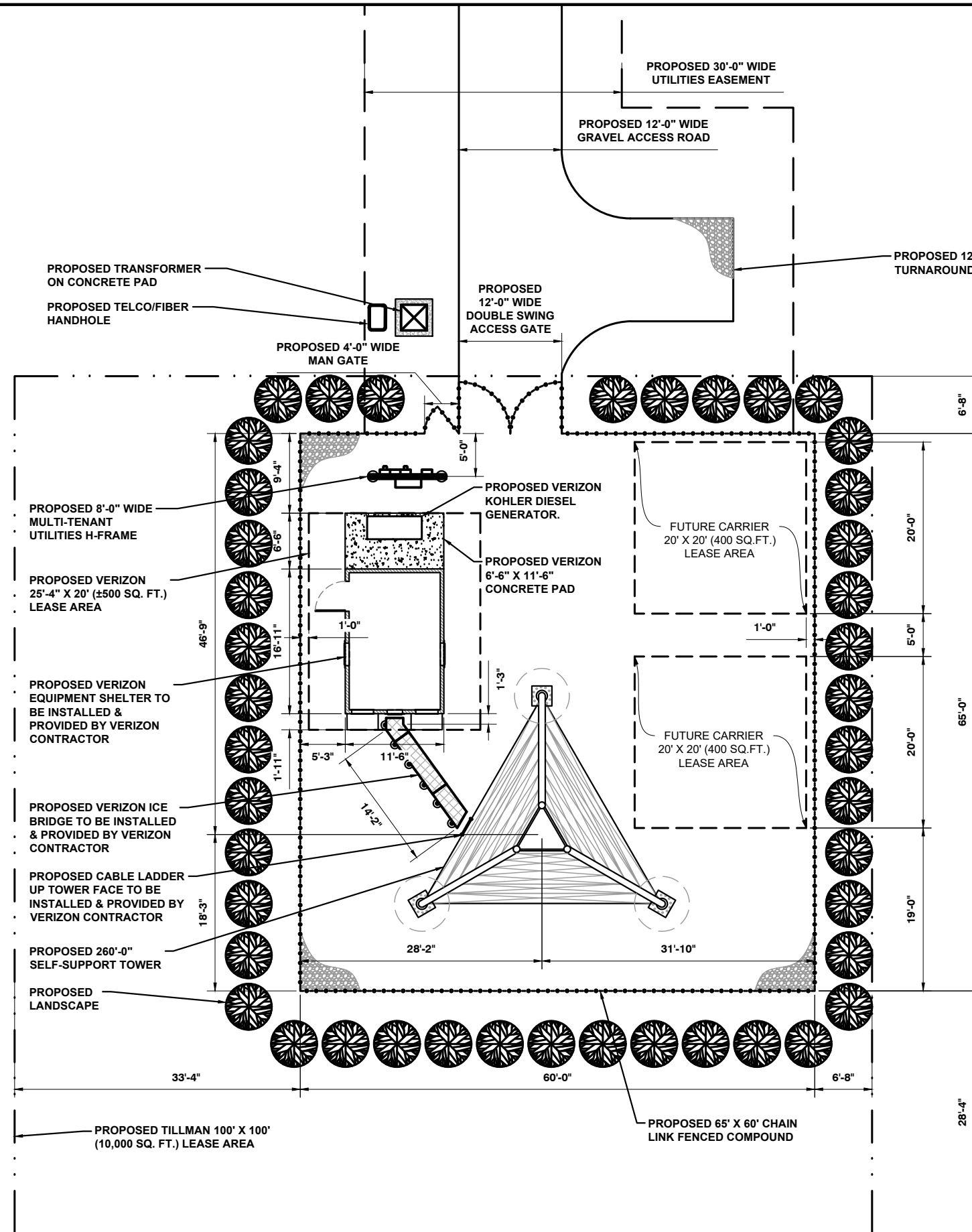
ENLARGED SITE PLAN



11" x 17" - 1" = 15'
 22" x 34" - 1" = 7.5'

PROJECT NUMBER 40742

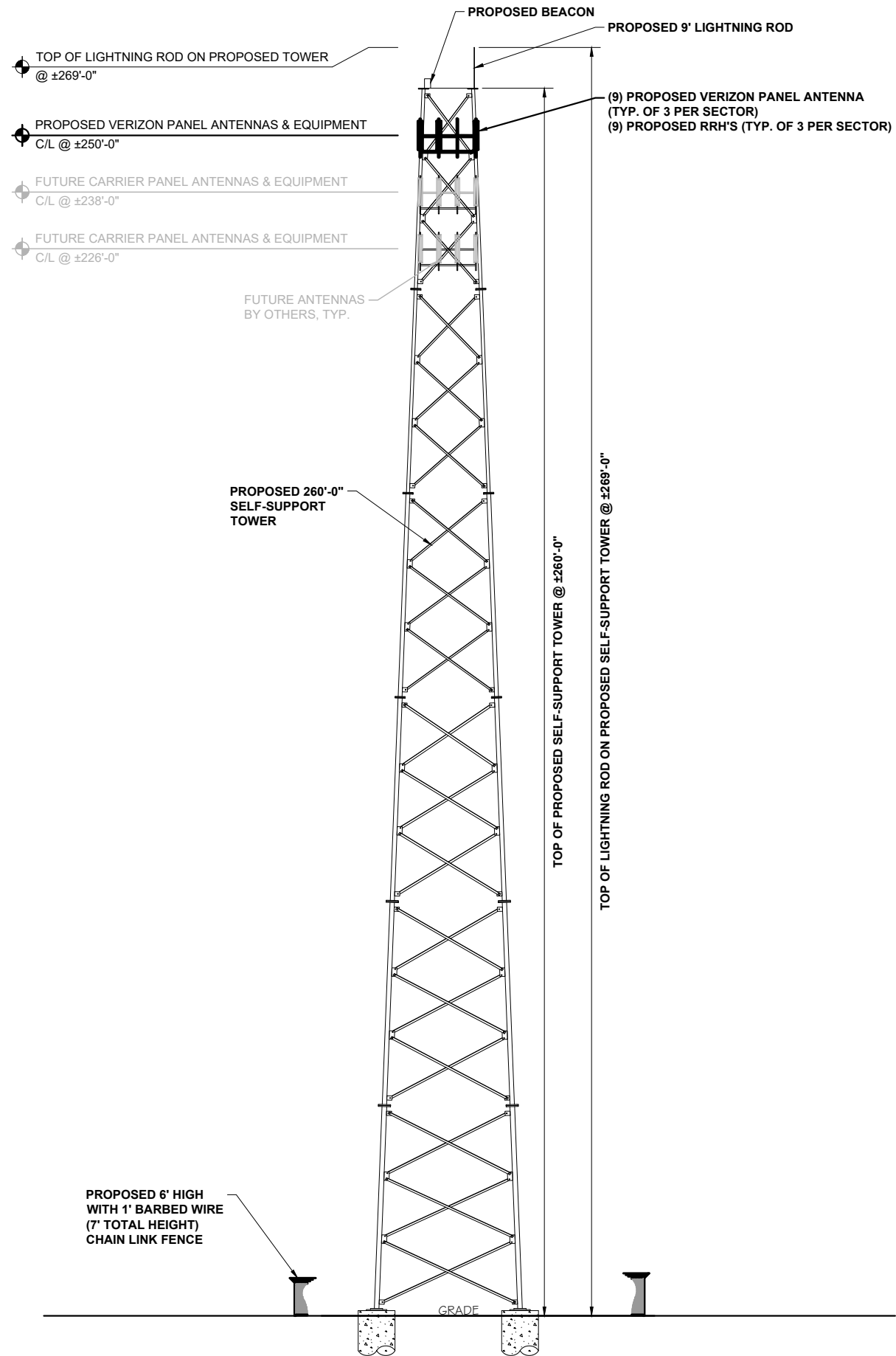
SHEET NUMBER A-2



ENLARGED SITE PLAN

SCALE: 1" = 15'

1



TOWER ELEVATION

SCALE: 1" = 30'

1



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 GRAND RAPIDS, MI 49504



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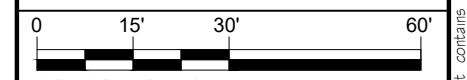
PROJECT TITLE:

**TI-OPP-13245-B
 (VZW LOC. 556453)**

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:

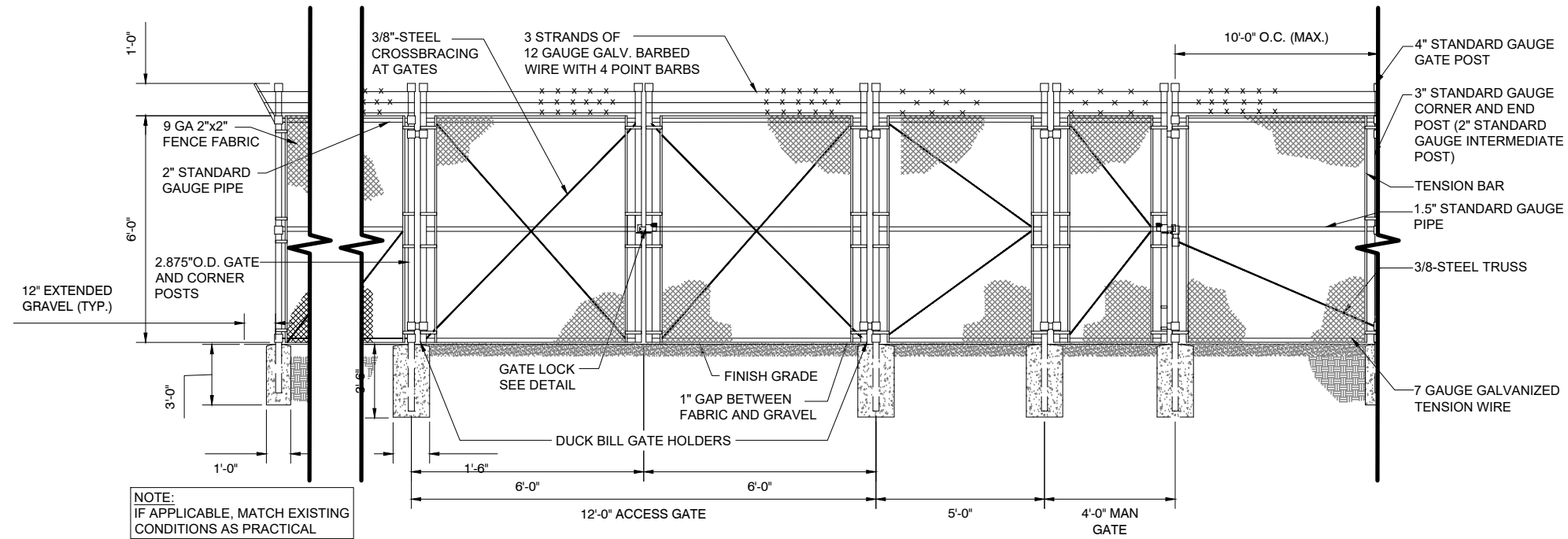
TOWER ELEVATION



11" x 17" - 1" = 30'
 22" x 34" - 1" = 15'

PROJECT NUMBER 40742

SHEET NUMBER A-3



NOTE:
 IF APPLICABLE, MATCH EXISTING
 CONDITIONS AS PRACTICAL

1. SCOPE:

1.1 THIS SECTION COVERS THE REQUIREMENTS FOR THE MATERIALS AND THE CONSTRUCTION OF SITE FENCING, GUY AREA FENCING, ACCESS ROAD GATES AND CATTLE GUARDS. SEE SITE PLAN AND DRAWINGS FOR DETAILS.

2. SPECIAL REQUIREMENTS:

- 2.1 ALL WIRE, FABRIC, FITTINGS, HARDWARE AND STEEL MEMBERS USED FOR SITE AREA FENCING, GUY ANCHOR FENCING AND ACCESS ROAD GATES SHALL BE HOT DIPPED GALVANIZED OR OTHER APPROVED NON-CORROSIVE MATERIAL.
- 2.2 ALL NON-CORROSIVE MATERIAL SHALL BE APPROVED BY THE PROJECT MANAGER.
- 2.3 ANY DAMAGE TO GALVANIZING OR NON-CORROSIVE COATING DURING CONSTRUCTION SHALL BE REPAIRED ACCORDING TO MANUFACTURER'S RECOMMENDED METHODS.

3. FENCE POSTS:

- 3.1 LOCATION OF CORNER POSTS SHALL BE DETERMINED FROM STAKES AND PROPERTY PINS INSTALLED BY THE REGISTERED LAND SURVEYOR UNDER CONTRACT. IF THE STAKES ARE NOT PRESENT OR DO NOT CONFORM TO THE SITE PLAN, CONSULT WITH THE PROJECT MANAGER.
- 3.2 CORNERS AND GATE POST FOR SITE SHALL BE 2.5" O.D. GALVANIZED PIPE. UNLESS SPECIFIED OTHERWISE
- 3.3 CORNER POSTS SHALL BE SET WITHIN ONE INCH (1") OF DIMENSIONS INDICATED ON THE SITE PLAN.
- 3.4 FENCE POSTS SHALL BE VERTICALLY PLUMB IN ALL PLANES WITHIN 1/2" INCH.
- 3.5 CORNER & GATE POST FOUNDATIONS SHALL BE A MINIMUM FOUR FEET (4') DEEP OR SIX INCHES (6") BELOW THE FROST LINE, WHICHEVER IS GREATER. WITH MINIMUM SIX INCH (6") CLEARANCE BETWEEN BOTTOM OF POST AND BOTTOM OF THE HOLE.
- 3.6 CORNER POSTS AND GATE POSTS SPACING SHALL BE EQUAL WITH A TEN FOOT (10') MAXIMUM SPACING. GATE POST SPACING AND SPECIFIC LOCATIONS SHALL BE IN ACCORDANCE WITH SITE PLAN AND SHALL BE VERIFIED WITH THE PROJECT MANAGER.
- 3.7 ALL POSTS EXCEPT GATE POSTS SHALL BE CAPPED WITH A COMBINATION CAP AND BARB WIRE SUPPORTING ARM. GATE POSTS SHALL BE TWELVE INCHES (12") HIGHER THAN CORNER OR LINE POSTS TO PROVIDE FOR TERMINATION OF BARBED WIRE. GATE POSTS SHALL BE CAPPED WITH STANDARD CAP.
- 3.8 ALL CORNER, GATE AND END PANELS SHALL HAVE MINIMUM 3/8" DIAMETER DIAGONAL TRUSS RODS WITH TURNBUCKLES. HORIZONTAL BRACE RODS, 1 1/2" INSIDE DIMENSION PIPE, SHALL BE INSTALLED BETWEEN POSTS.
- 3.9 A TOP RAIL (1 1/4" I.D.) GALVANIZED PIPE SHALL BE INSTALLED BETWEEN POSTS.
- 3.10 ALL FOUR CORNERS POSTS AND BOTH GATE POSTS SHALL BE CONNECTED TO THE SITE GROUNDING SYSTEM (REFER TO GROUNDING SYSTEM STANDARD).
- 3.11 ALTERNATE FOOTINGS FOR ALL FENCE POSTS IN LEDGE: IF LEDGE IS ENCOUNTERED AT GRADE, OR AT A DEPTH SHALLOWER THAN 3'-6", CORE DRILL AN 8" DIA. HOLE 18" INTO THE LEDGE. CENTER POST IN THE HOLE AND FILL WITH CONCRETE OR GROUT. IF LEDGE IS BELOW FINISH GRADE, COAT BACKFILLED SECTION OF POST WITH COAL TAR, AND BACKFILL WITH WELL-DRAINING GRAVEL.

4. FABRIC:

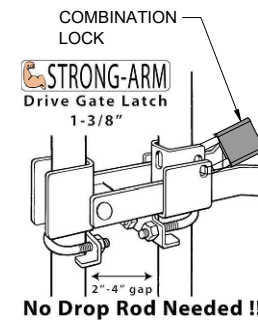
- 4.1 FENCE FABRIC SHALL BE EIGHT FOOT (8') HIGH, UNLESS OTHERWISE SPECIFIED, #9 GAUGE, GALVANIZED CHAIN LINK FABRIC WITH TWISTED TOP SELVAGE AND KNUCKLED BOTTOM SELVAGE.
- 4.2 FABRIC SHALL BE TENSIONED PER MANUFACTURER'S RECOMMENDATIONS TO PRESENT A NEAT APPEARANCE. NO GAP SHALL BE PERMITTED BETWEEN FABRIC AND FINAL GRADE.

4.3 FABRIC SHALL BE SECURED AT CORNER AND GATE POSTS USING STRETCHER BARS AND TENSION BAND CLIPS.

- 4.4 FABRIC SHALL BE SECURED TO THE TOP RAIL AND BRACE RODS USING TIE CLIPS.
- 4.5 THREE (3) RUNS OF 4-POINT GALVANIZED BARBED WIRE SHALL BE INSTALLED ALONG TOP OF FENCE. BARBED WIRE SHALL BE TENSIONED PER MANUFACTURER'S RECOMMENDATIONS TO PRESENT A NEAT APPEARANCE.

5. GATE:

- 5.1 LOCATION OF GATE SHALL CONFORM TO THE SITE PLAN.
- 5.2 ALL JOINTS BETWEEN TUBULAR GATE MEMBERS SHALL BE WELDED OR HEAVY FITTINGS PROVIDING RIGID AND WATERTIGHT CONNECTIONS.
- 5.3 GATE HINGES SHALL PROVIDE FOR 180 DEGREE RADIUS GATE SWING. ALL HINGE NUTS SHALL BE ON THE INSIDE AND DOUBLE-NUT TO DETER UNAUTHORIZED ENTRY.
- 5.4 GATE STOPS SHALL BE INSTALLED AND SHALL HOLD GATE IN "OPEN" POSITION.
- 5.5 BARBED WIRE GUARD SHALL BE INSTALLED ON TOP OF GATES. ADEQUATE CLEARANCE SHALL BE MAINTAINED TO ALLOW GATE OPERATION.
- 5.6 GATE SHALL BE INSTALLED PLUMB AND SHALL OPEN AND CLOSE FREELY.
- 5.7 GATE POSTS SHALL NOT BE SHARED AS A CORNER POST.



FENCE AND GATE DETAIL

SCALE: NTS

1



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678 FRONT AVE NW, SUITE 215
 GRAND RAPIDS, MI 49504



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855 Community Dr, Sauk City, WI 53583
 608-643-4100 www.Ramaker.com

Sauk City, WI • Willmar, MN
 Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE PHASE	PRELIMINARY	DATE ISSUED 01/30/2020

PROJECT TITLE:

**TI-OPP-13245-B
 (VZW LOC. 556453)**

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

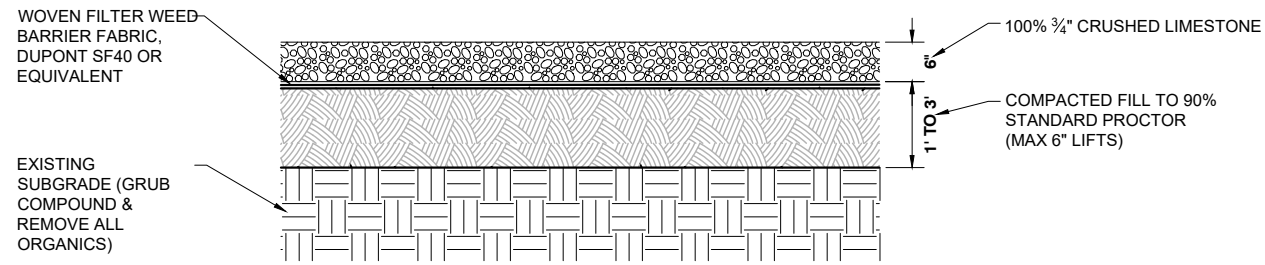
SHEET TITLE:

COMPOUND SITE DETAILS

SCALE: NONE

PROJECT NUMBER 40742

SHEET NUMBER A-4



NOTES:

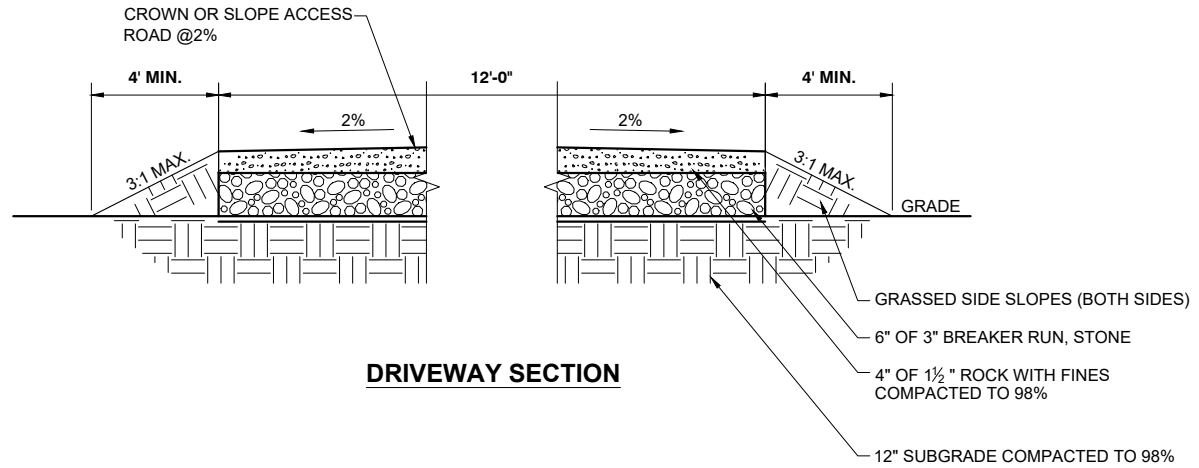
THE FABRIC SHOULD BE PLACED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. INTERSECTIONS OF SHEETS MUST BE SEWN OR SUFFICIENTLY OVERLAPPED (AT LEAST 24 INCHES OR AS SPECIFIED BY THE MANUFACTURER). THE GEOTEXTILE SHEETS SHOULD ALSO BE PLACED TAUT TO REDUCE WRINKLES OR FOLDS. CARE MUST BE EXERCISED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

COMPOUND SECTION

COMPOUND GRAVEL

SCALE: NTS

1

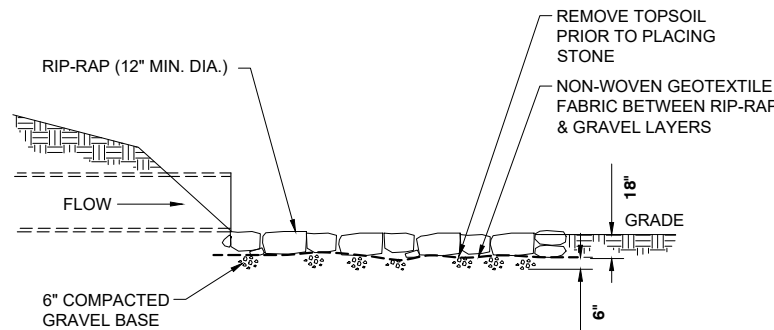


DRIVEWAY SECTION

TYPICAL GRAVEL DRIVEWAY

SCALE: NTS

2

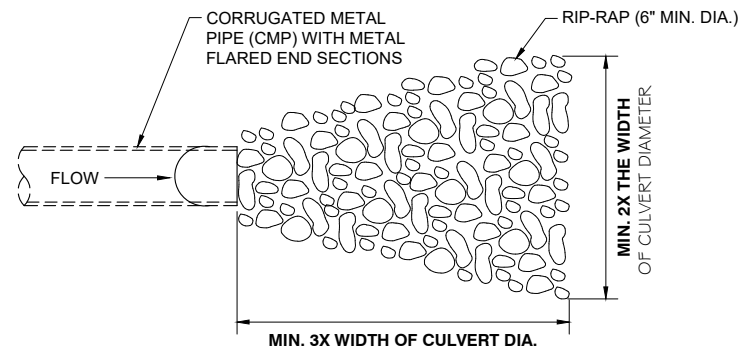


RIP-RAP SECTION

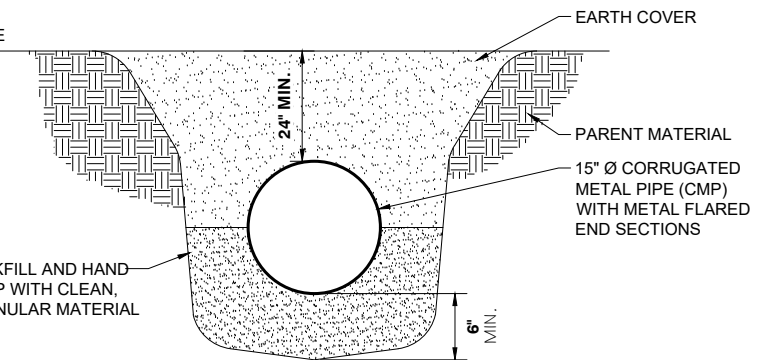
TYPICAL RIP-RAP DETAIL

SCALE: NTS

3



RIP-RAP PLAN



CULVERT SECTION

TYPICAL PIPE CULVERT RIP-RAP DETAIL

SCALE: NTS

4



NORTHWEST REGIONAL OFFICE

678 FRONT AVE NW, SUITE 215
 GRAND RAPIDS, MI 49504



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ISSUE PHASE	PRELIMINARY	DATE ISSUED 01/30/2020

PROJECT TITLE:

**TI-OPP-13245-B
 (VZW LOC. 556453)**

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

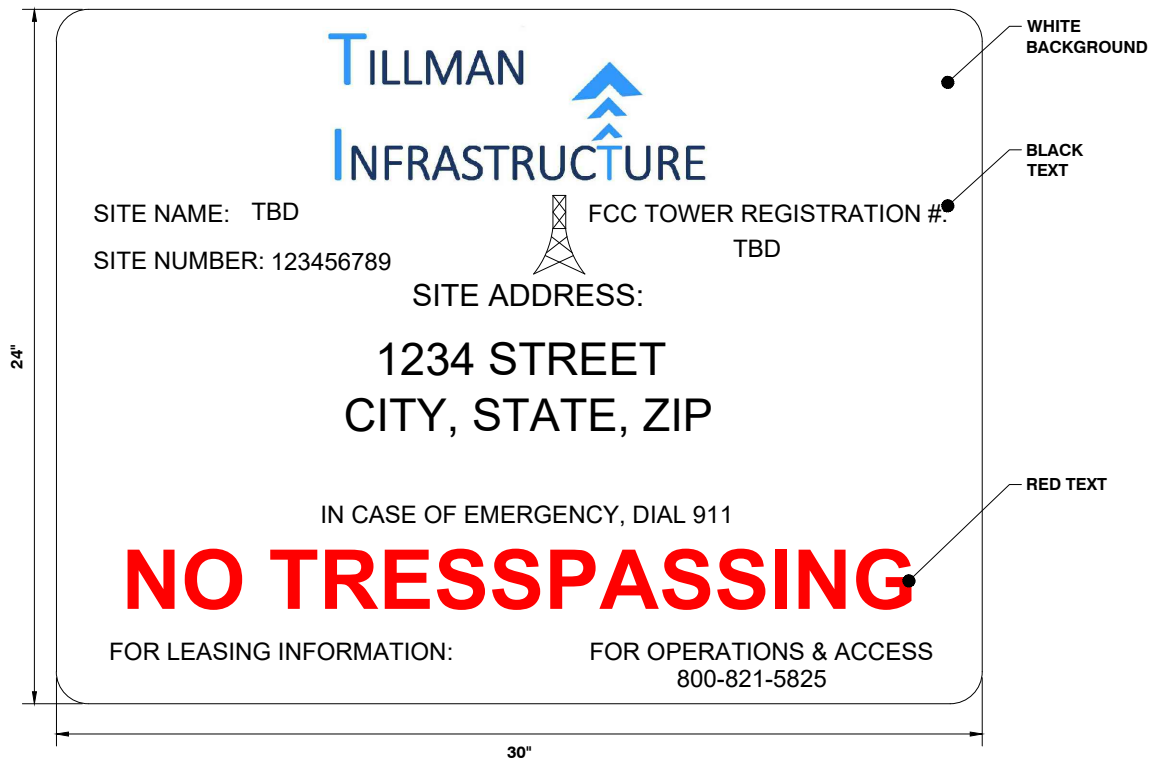
SHEET TITLE:

COMPOUND SITE DETAILS

SCALE: NONE

PROJECT NUMBER 40742

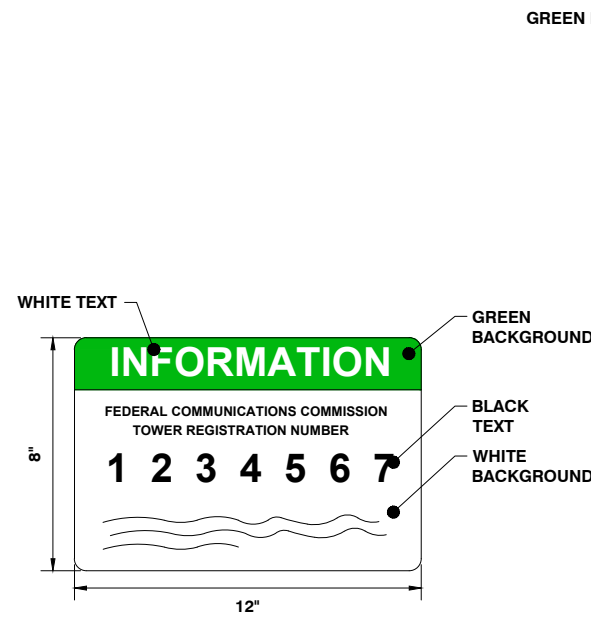
SHEET NUMBER A-5



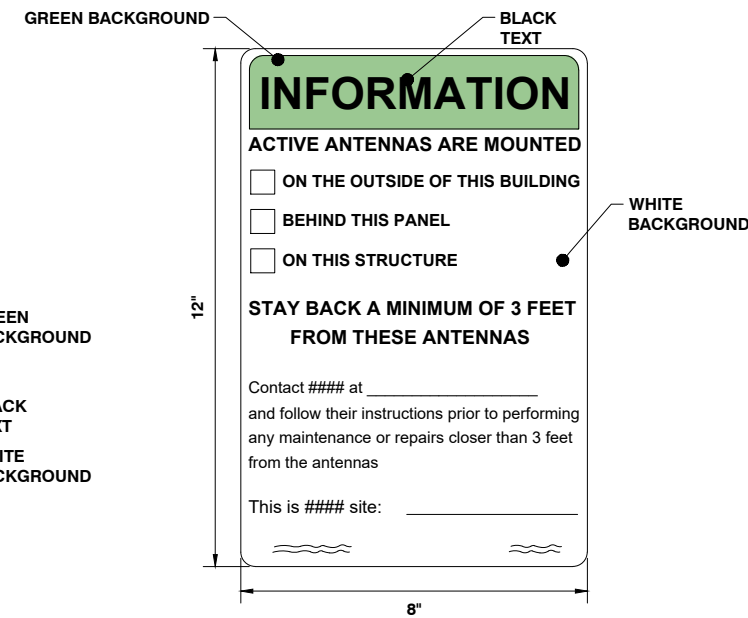
PROPERTY OF TILLMAN INFRASTRUCTURE
SCALE: NTS

SIGNAGE NOTES:

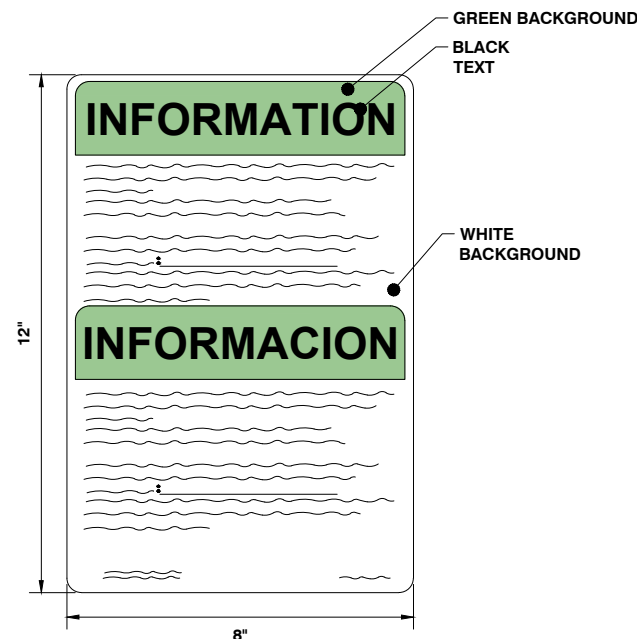
- SIGNS SHALL BE FABRICATED FROM CORROSION RESISTANT PRESSED METAL & PAINTED WITH LONG LASTING UV RESISTANT COATINGS
- SIGNS (EXCEPT WHERE NOTED OTHERWISE) SHALL BE MOUNTED TO THE TOWER, GATE & FENCE USING A MINIMUM OF 9 GAUGE ALUMINUM WIRE HOG RINGS (FENCE) OR BRACKETS, WHERE NECESSARY, BRACKETS SHALL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



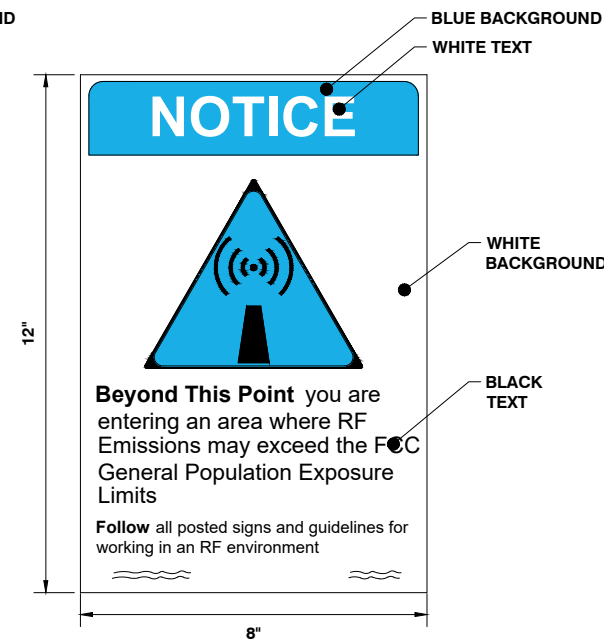
FCC REGISTRATION SIGN
SCALE: NTS



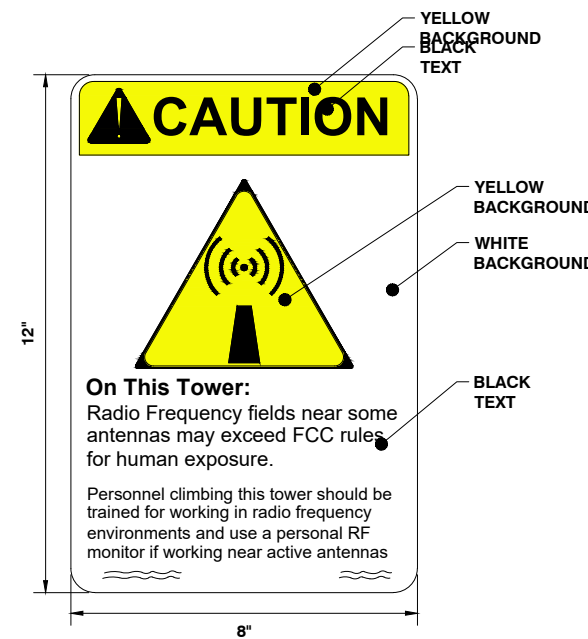
RF EXPOSURE INFORMATION SIGN
SCALE: NTS



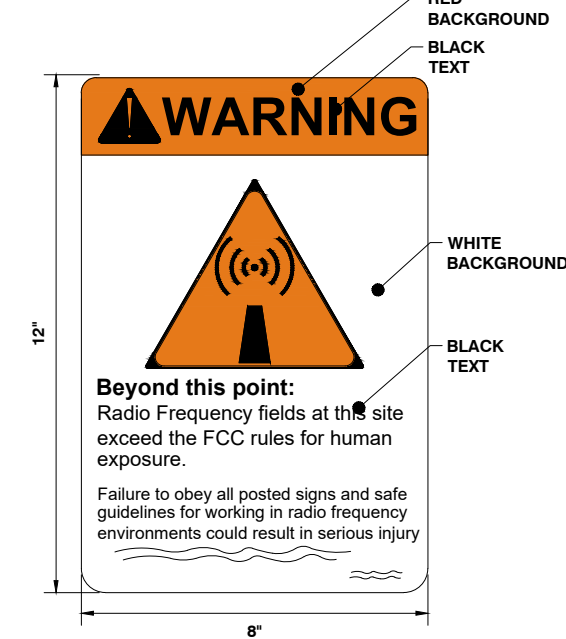
RF EXPOSURE INFORMATION SIGN
SCALE: NTS



RF EXPOSURE NOTICE SIGN
SCALE: NTS



RF EXPOSURE CAUTION SIGN
SCALE: NTS



RF EXPOSURE WARNING SIGN
SCALE: NTS

TILLMAN INFRASTRUCTURE

Faulk & Foster
NORTHWEST REGIONAL OFFICE
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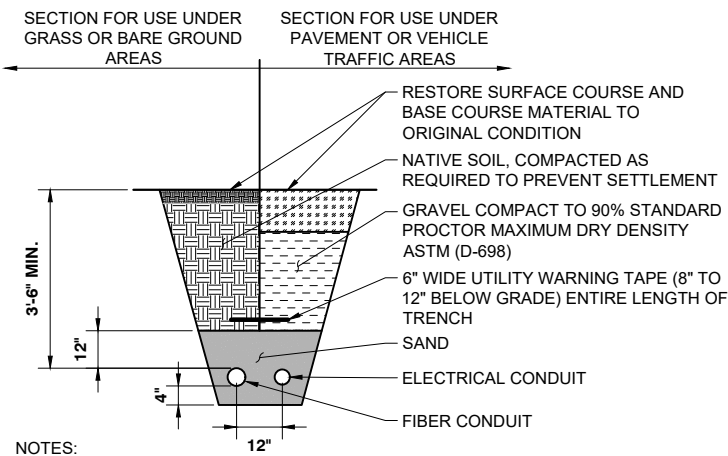
Certification & Seal:

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PROJECT TITLE: TI-OPP-13245-B (VZW LOC. 556453)		
UNASSIGNED: ALONG 310TH AVE. AITKIN, MN 56431 AITKIN COUNTY		

COMPOUND SITE DETAILS

SCALE: NONE

PROJECT NUMBER	40742
SHEET NUMBER	A-6



- NOTES:**
1. CONTRACTOR TO VERIFY LOCAL UTILITY REQUIREMENTS FOR DEPTH, SIZE, & SEPARATION OF CONDUITS PRIOR TO INSTALLATION. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES.
 2. CONTRACTOR TO CALL DIGGERS HOTLINE (1-800-242-8511) 48 HOURS PRIOR TO EXCAVATING FOR UNDERGROUND UTILITY LOCATIONS. LOCATION SURROUNDING EXCAVATED AREA MUST BE PRIVATELY LOCATED FOR NON-PUBLIC UTILITIES.

TYPICAL UTILITY TRENCH DETAIL

SCALE: NTS

2



TILLMAN
INFRASTRUCTURE

Faulk & Foster

NORTHWEST REGIONAL OFFICE

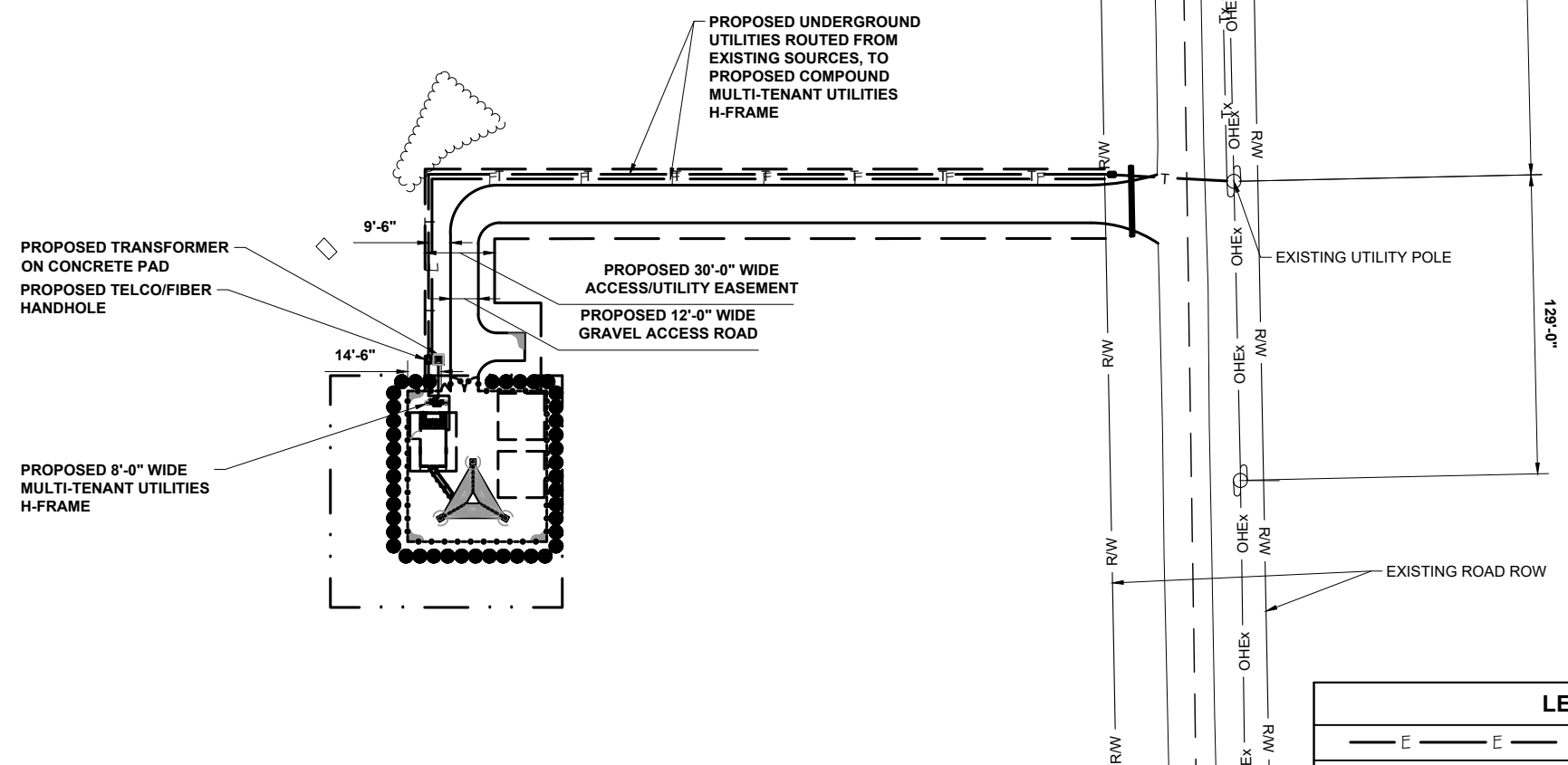
678 FRONT AVE NW, SUITE 215
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Certification & Seal:



EQUIPMENT UTILITY PLAN

SCALE: 1" = 75'

1

LEGEND:

	PROPOSED ELECTRIC
	PROPOSED TELCO
	PROPOSED FIBER

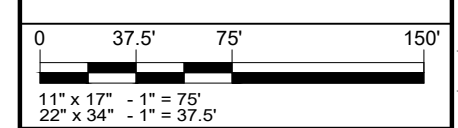
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(VZW LOC. 556453)

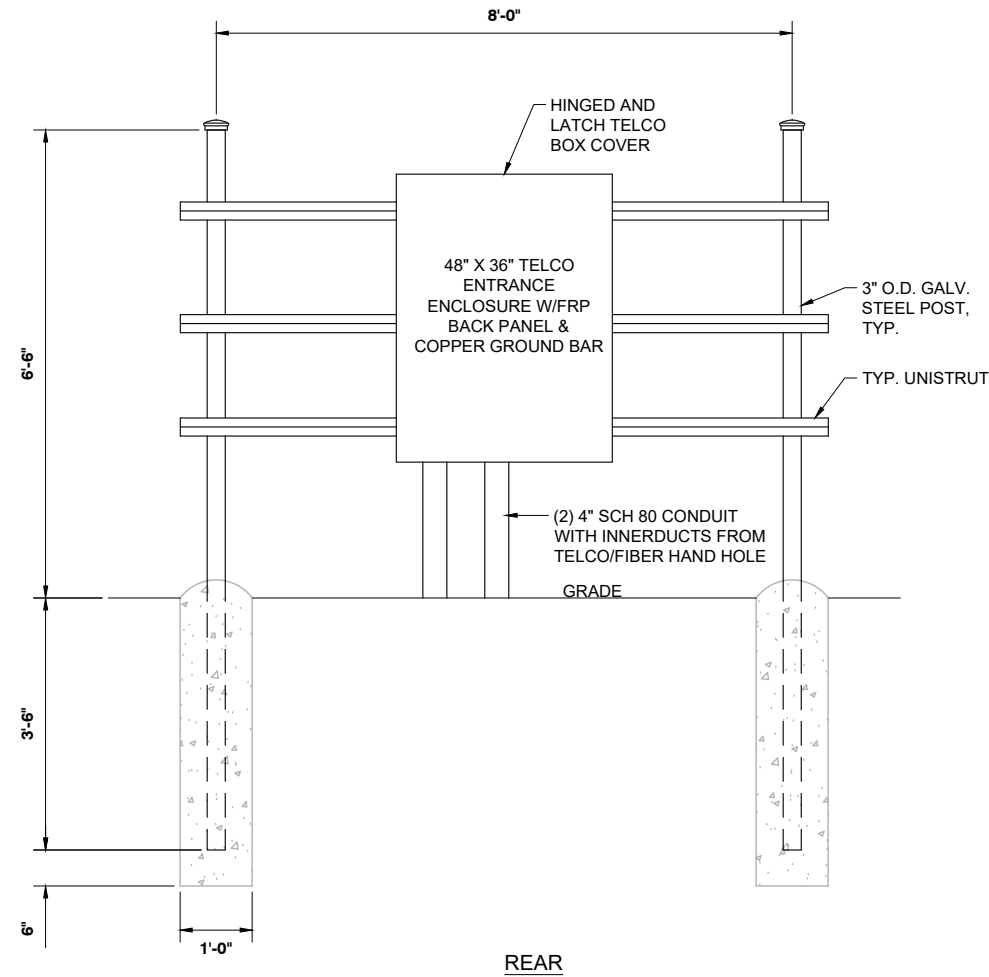
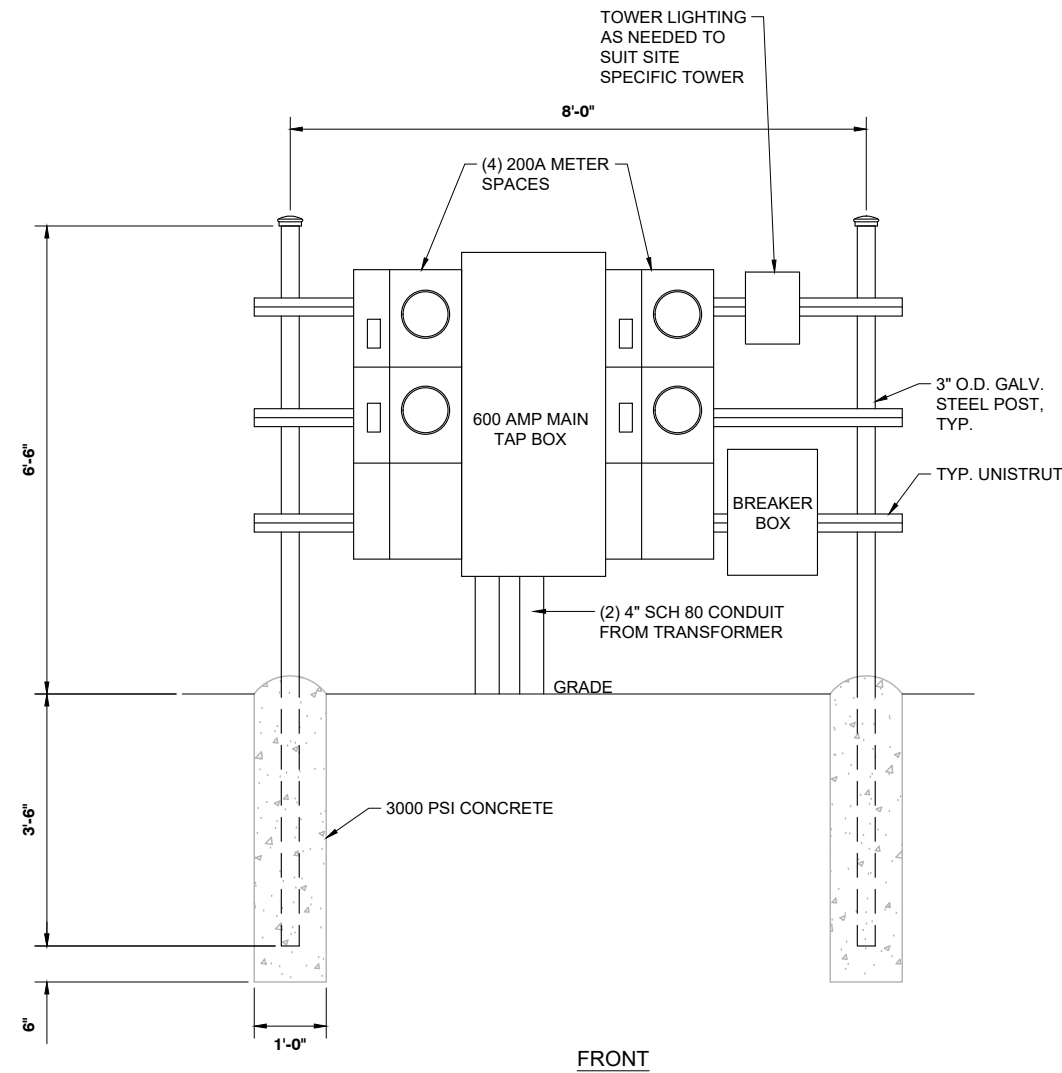
PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:

COMPOUND UTILITY PLAN



PROJECT NUMBER: 40742
 SHEET NUMBER: E-1



NOTE:
 FINAL LAYOUT & DESIGN
 DETERMINED BY
 CONTRACTOR/UTILITY PROVIDER.
 VERIFY DESIGN WITH
 CONSTRUCTION MANAGER.

UTILITY STAND DETAIL

SCALE: NTS

1

Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE	PRELIMINARY	DATE ISSUED 01/30/2020
PHASE		

PROJECT TITLE:

TI-OPP-13245-B
 (VZW LOC. 556453)

PROJECT INFORMATION:
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 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:

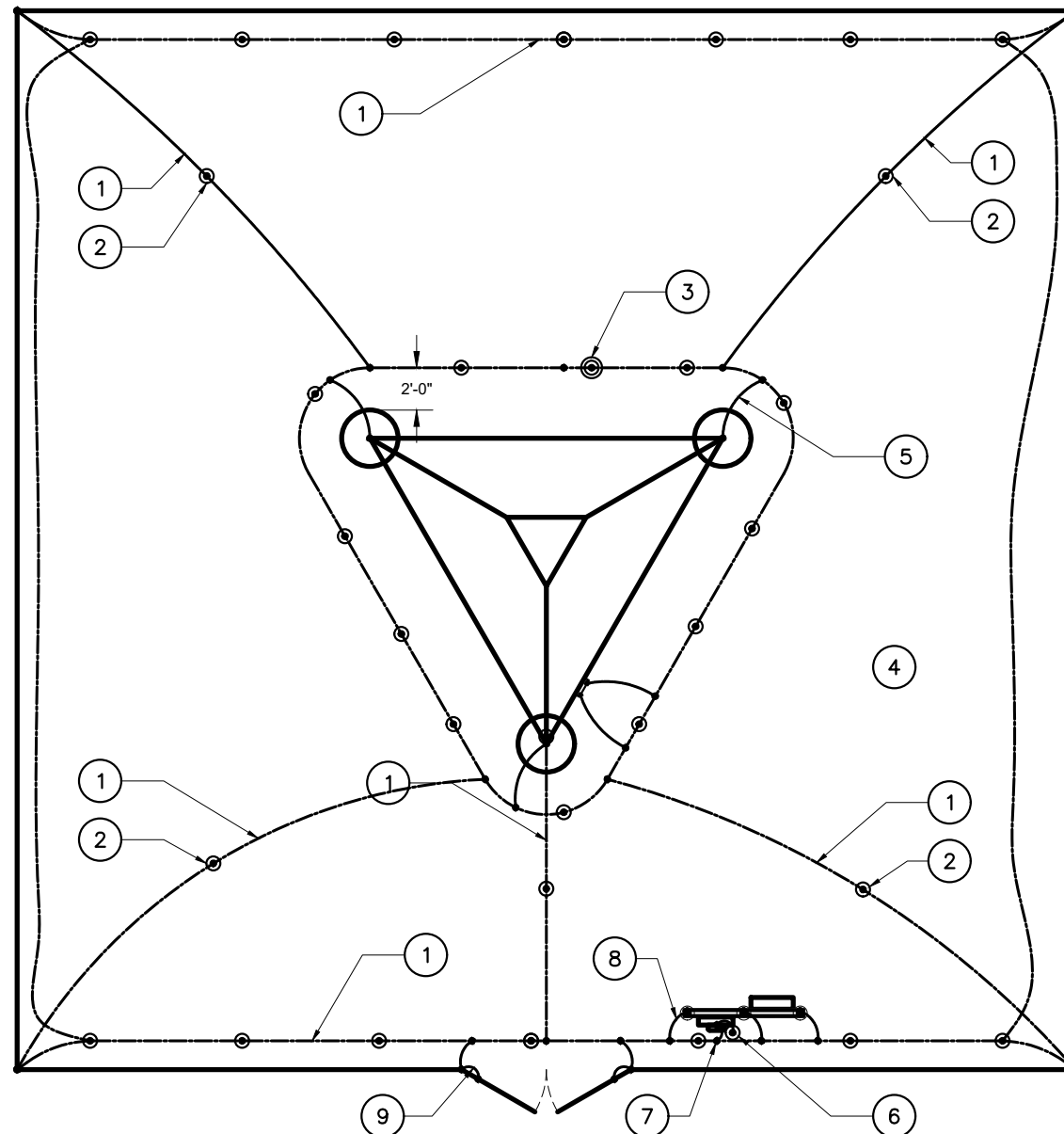
COMPOUND UTILITY DETAILS

SCALE: NONE

PROJECT NUMBER 40742

SHEET NUMBER E-2

1. GROUND RING, #2 SOLID TINNED, BARE COPPER WIRE
2. 5/8"Ø x 10'-0" COPPER CLAD STEEL GROUND ROD SPACED MIN. 10'-0", MAX 15'-0" APART
3. GROUND SYSTEM TEST WELL
4. #2 SOLID TINNED, BARE COPPER GROUND WIRE FROM LOWER TOWER GROUND BAR TO NEW GROUND RING (2 REQ'D)
5. #2 SOLID TINNED, BARE COPPER GROUND WIRE FROM TOWER BASE PLATE TO NEW GROUND RING
6. 5/8"Ø x10'-0" COPPER CLAD GROUND ROD FOR ELECTRICAL SERVICE GROUND
7. #2 SOLID TINNED, BARE COPPER GROUND WIRE FROM ELECTRICAL SERVICE GROUND TO LIGHTNING PROTECTION GROUND RING
8. #2 SOLID TINNED, BARE COPPER GROUND WIRE, BOND UTILITY POST W/ VS TYPE CADWELD. (1 PER POST REQ'D)
9. A.L.T. OR EQUAL 2/0 GROUNDING CONDUCTOR W/ BLACK NEOPRENE INSULATION & PRE-CAPPED ENDS ATTACHED TO GATE POST AND GATE FRAME W/ VS TYPE EXOTHERMIC. INSTALL W/ WELDS 18" ABOVE FINISH GRADE
10. IN THE EVENT A PAD/PIER FOUNDATION IS INSTALLED THE BURIED GROUND RING SHALL BE INSTALLED A MINIMUM 2 FT. FROM THE EDGE OF CONCRETE



NOTE:
 SEE COMPOUND PLAN FOR COMPOUND ORIENTATION,
 UTILITY H-FRAME, GATE AND TOWER LOCATION

TYPICAL COMPOUND GROUNDING PLAN

SCALE: NTS

1



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 Woodcliff Lake, NJ • Bayamon, PR

Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE PHASE	PRELIMINARY	DATE ISSUED 01/30/2020

PROJECT TITLE:

**TI-OPP-13245-B
 (VZW LOC. 556453)**

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

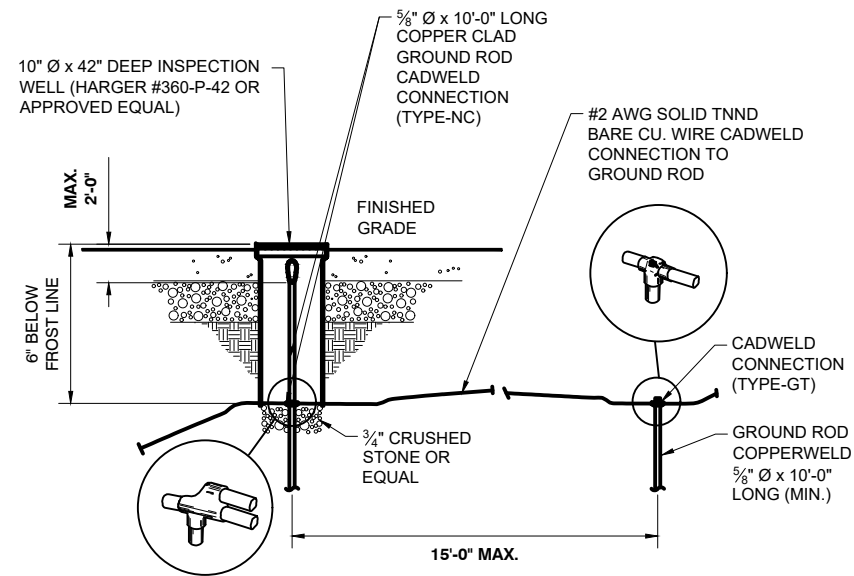
SHEET TITLE:

**TYPICAL COMPOUND
 GROUNDING PLAN**

SCALE: NONE

PROJECT NUMBER 40742

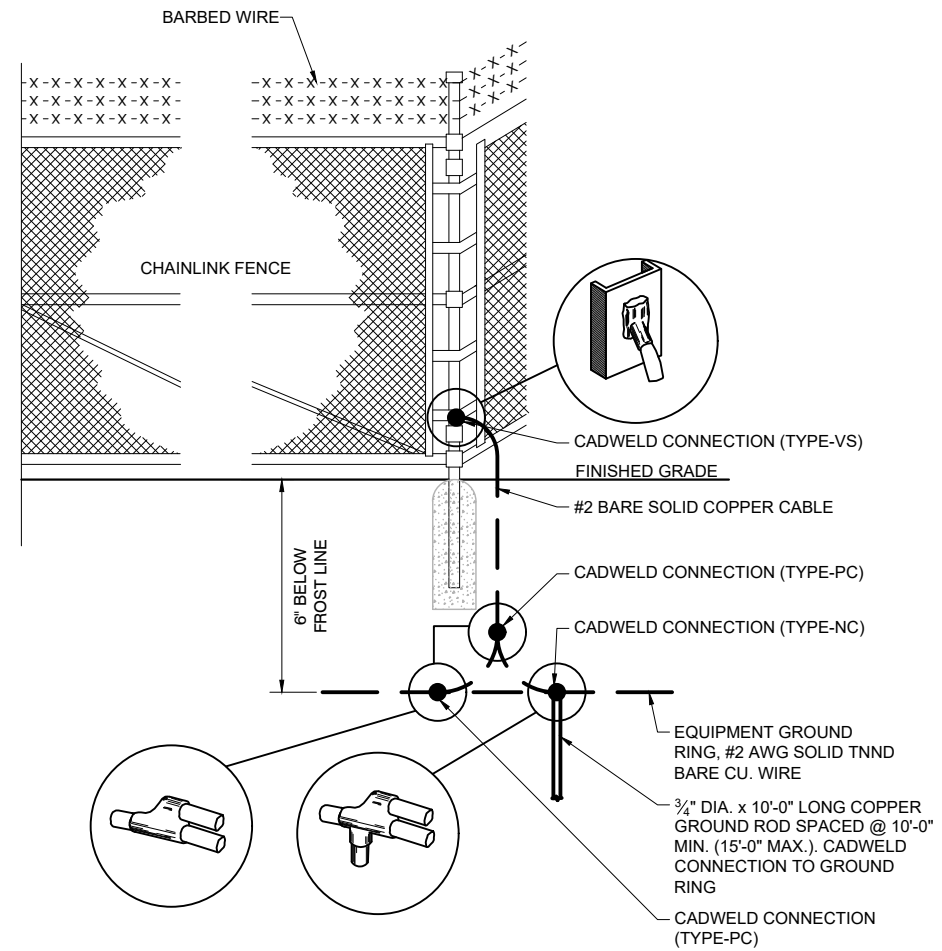
SHEET NUMBER E-3



INSPECTION WELL & GROUND ROD DETAIL

SCALE: NTS

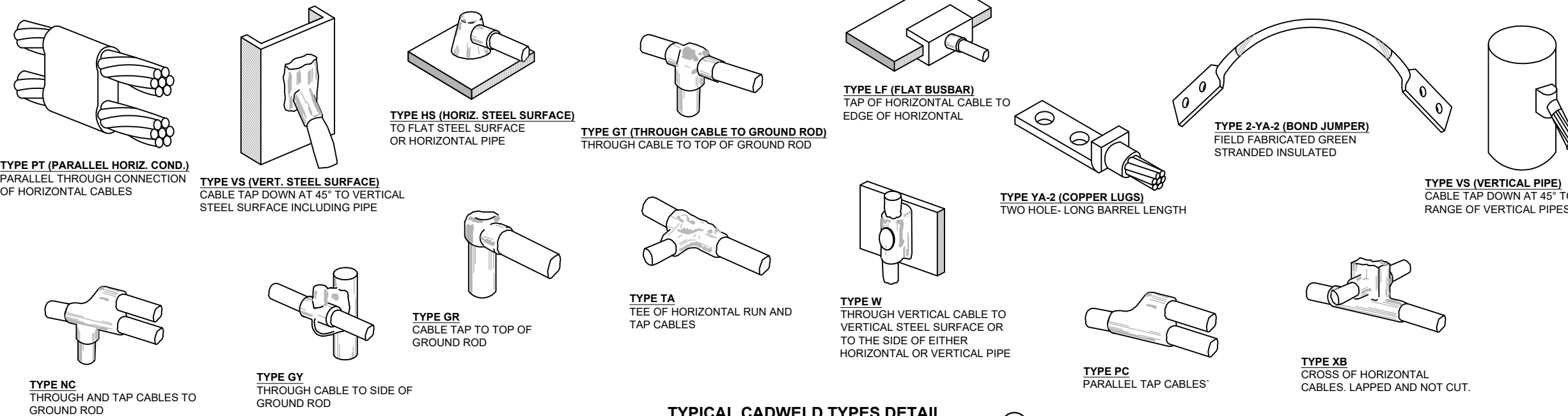
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FENCE CORNER POST GROUNDING DETAIL

SCALE: NTS

2



TYPICAL CADWELD TYPES DETAIL

SCALE: NTS

3

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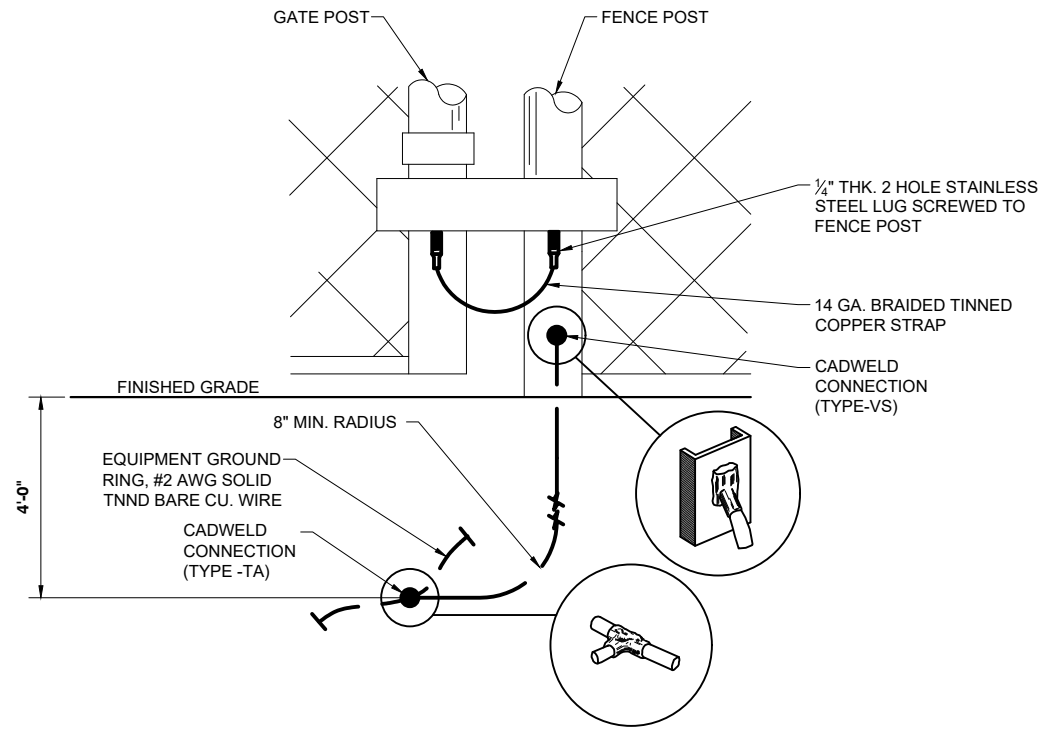
SHEET TITLE:

TYPICAL GROUNDING DETAILS

SCALE: NONE

PROJECT NUMBER 40742

SHEET NUMBER E-4



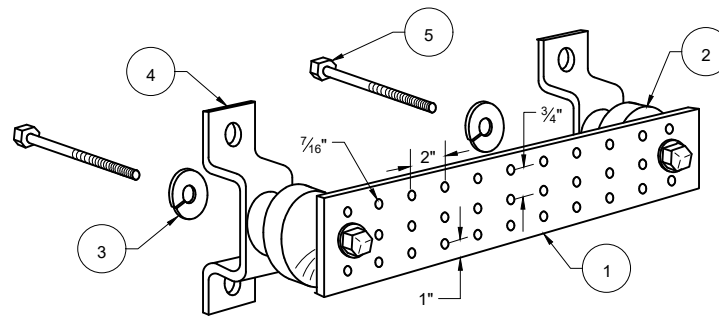
GATE POST GROUNDING DETAIL

SCALE: NTS

1

NOTES:

1. ALL MOUNTING HARDWARE CAN BE USED 6", 12", 18", ETC. GROUND BARS
2. ENTIRE ASSEMBLY AVAILABLE FROM NEWTON INSTRUMENT CO. CAT. NO. 2106060010 OR AS HARGER TGBI14420M.



LEGEND

1. TINNED COPPER GROUND BAR, 1/4" x 4" x 20", NEWTON CO., HARGER TGBI14420M, OR EQUIVALENT. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
2. INSULATORS. INSTRUMENT CO. CAT. NO. 3061-4 OR HARGER EQUIVALENT.
3. 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8 OR EQUIVALENT.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056 OR HARGER EQUIVALENT.
5. 5/8" x 1" H.H.C.S. BOLTS, NEWTON INSTRUMENT CO. CAT. NO. 3012-1 OR HARGER EQUIVALENT.

TYPICAL GROUND BAR DETAIL

SCALE: NTS

2



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 (VZW LOC. 556453)**

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 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:
TYPICAL GROUNDING DETAILS

SCALE: NONE

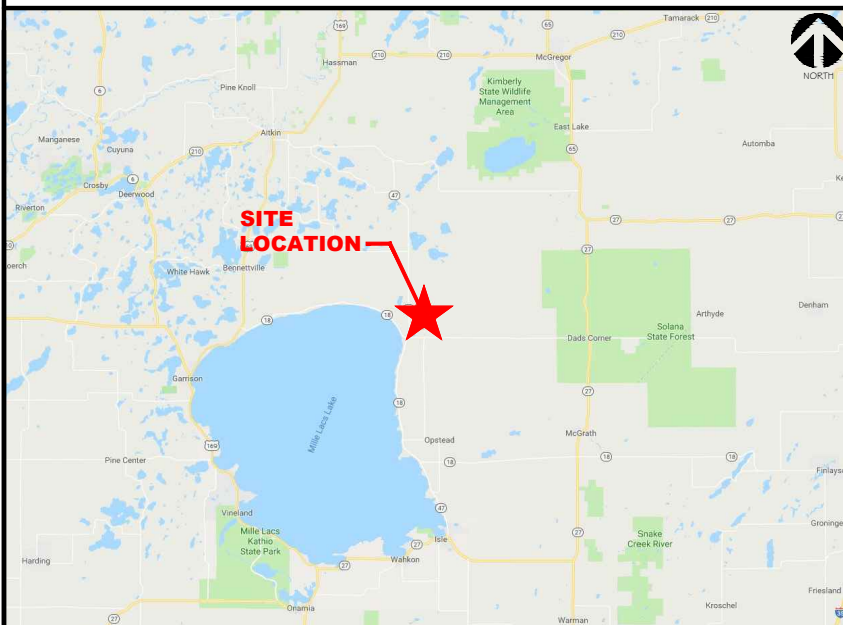
PROJECT NUMBER	40742
SHEET NUMBER	E-5



PROJECT: NEW SITE BUILD
VERIZON SITE NAME: MN06 MILLY - B
VERIZON LOCATION CODE: 556453
SITE ADDRESS: UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
SITE TYPE: 260' SELF SUPPORT



VICINITY MAP:



AERIAL MAP:



PROJECT INFORMATION:

SITE ADDRESS
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SITE COORDINATES
 LATITUDE: 46° 20' 25.51" (46.340419)
 LONGITUDE: 93° 29' 42.26" (-93.495072)

MUNICIPAL ID
 PARCEL: #21-0-053600
 ZONE: FR - FARM RESIDENTIAL

PROPERTY OWNER
 NORMAN WESTERLUND
 30517 270TH LANE
 AITKIN, MN 56431

TOWER OWNER
 TILLMAN INFRASTRUCTURE
 152 W. 57TH STREET, 8TH FLOOR
 NEW YORK, NY 10019
 PHONE: (646) 578-8394

A&E FIRM
 RAMAKER & ASSOCIATES, INC.
 855 COMMUNITY DRIVE
 SAUK CITY, WI 53583
 CONTACT: MIKE REEVE
 EMAIL: mreeve@ramaker.com
 PHONE: (608) 643-4100

SITE ACQUISITION
 FAULK & FOSTER
 NORTHWEST REGIONAL OFFICE
 678 FRONT AVENUE NW, SUITE 215
 GRAND RAPIDS, MI 49504
 PHONE: (248) 891-9214
 FAX: (616) 647-8614
 CONTACT: BEN HERRICK

ELECTRIC PROVIDER
 MILLE LACS ELECTRIC COOP
 PHONE: (800) 450-2191

TELCO PROVIDER
 FRONTIER
 PHONE: (952) 891-7712

APPROVALS:

CONSTRUCTION MANAGER:
DESIGN ENGINEER:
OPERATIONS MANAGER:
IMPLEMENTATION MANAGER:
REAL ESTATE MANAGER:
LANDLORD:

SHEET INDEX

SHEET NUMBER	SHEET DESCRIPTION
VZW-1	VERIZON COVER SHEET
VZW-2	VERIZON ANTENNA CONFIGURATION
VZW-3	VERIZON ANTENNA CONFIGURATION
VZW-4	VERIZON RFDS
VZW-5	VERIZON RFDS
VZW-6	VERIZON TOWER EQUIPMENT SPECIFICATIONS
VZW-7	VERIZON EQUIPMENT SHELTER LAYOUT
VZW-8	VERIZON EQUIPMENT SHELTER ELEVATIONS
VZW-9	VERIZON EQUIPMENT SHELTER ELEVATION & ICE BRIDGE DETAIL
VZW-10	VERIZON EQUIPMENT SHELTER FOUNDATION PLAN & DETAILS
VZW-11	VERIZON GENERATOR DETAILS
VZW-12	VERIZON GENERATOR DETAILS
VZW-13	VERIZON GROUNDING PLAN
VZW-14	VERIZON UTILITY PLAN

CODE COMPLIANCE:

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

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



MARK	DATE	DESCRIPTION
ISSUE PHASE	PRELIMINARY	DATE ISSUED 01/30/2020

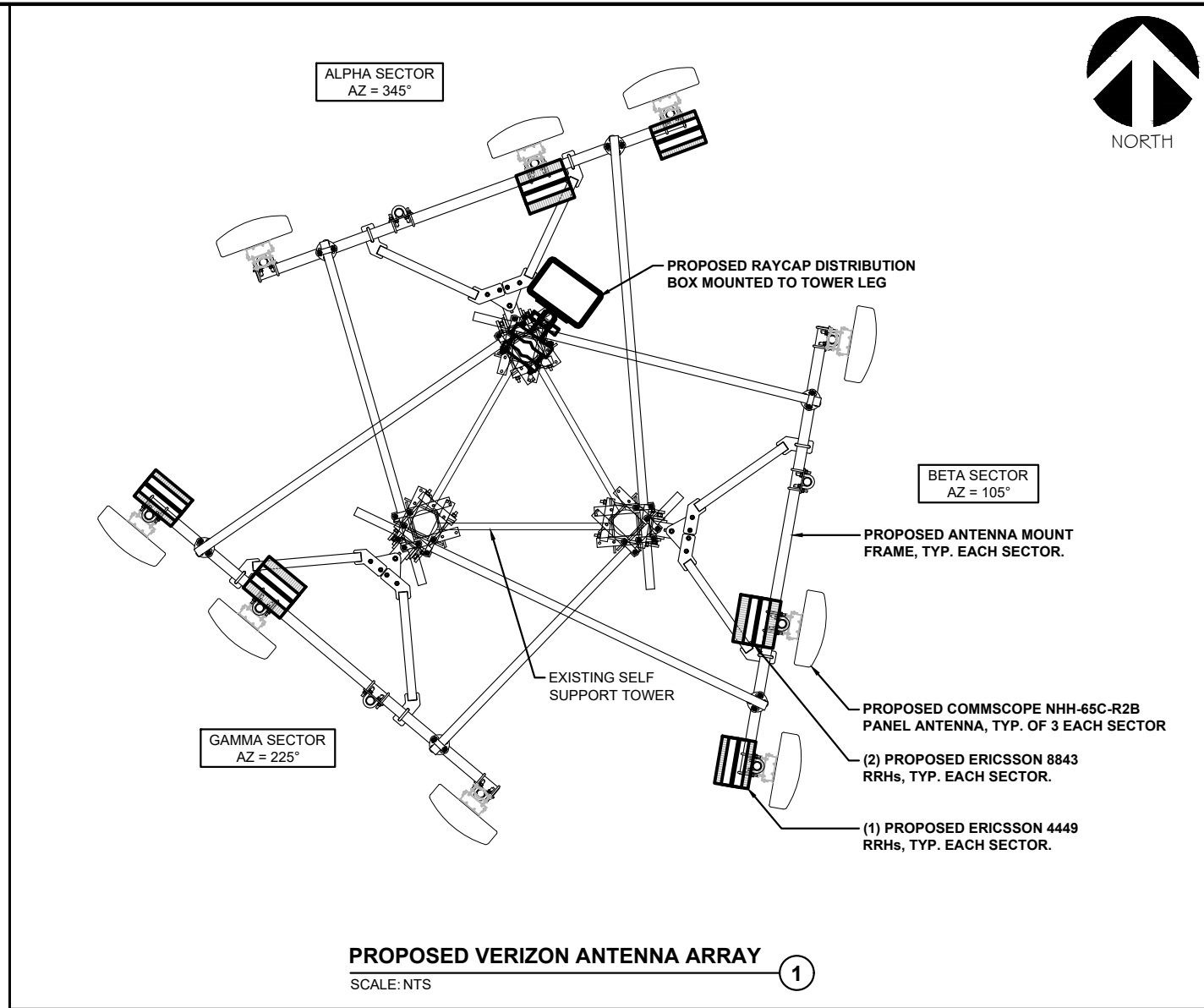
PROJECT TITLE:
**TI-OPP-13245-B
 (VZW LOC. 556453)**

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:
VERIZON COVER SHEET

SCALE: NONE

PROJECT NUMBER	40742
SHEET NUMBER	VZW-1



PROPOSED VERIZON ANTENNA ARRAY

SCALE: NTS

1

SECTOR	ANTENNA	ANTENNA MAKE	ANTENNA MODEL	FREQ. BAND	ANTENNA C/L	MECH DT	ELEC DT	AZIMUTH	RRH MAKE	RRH MODEL	CABLE LENGTH	JUMPER TYPE
ALPHA	1	COMMSCOPE	NHH-65C-R2B	850 CDMA	250'	0	0	345°	-	-	±260'	(6) COAX
	2	COMMSCOPE	NHH-65C-R2B	700 LTE/850 LTE/AWS LTE	250'	0	0	345°	(2) ERICSSON	8843		(6) COAX
	3	COMMSCOPE	NHH-65C-R2B	700 LTE/850 LTE/PCS LTE	250'	4	0	345°	ERICSSON	4449		-
BETA	1	COMMSCOPE	NHH-65C-R2B	850 CDMA	250'	0	0	105°	-	-		(6) COAX
	2	COMMSCOPE	NHH-65C-R2B	700 LTE/850 LTE/AWS LTE	250'	0	0	105°	(2) ERICSSON	8843		(6) COAX
	3	COMMSCOPE	NHH-65C-R2B	700 LTE/850 LTE/PCS LTE	250'	4	0	105°	ERICSSON	4449		-
GAMMA	1	COMMSCOPE	NHH-65C-R2B	850 CDMA	250'	0	0	225°	-	-		(6) COAX
	2	COMMSCOPE	NHH-65C-R2B	700 LTE/850 LTE/AWS LTE	250'	0	0	225°	(2) ERICSSON	8843		(6) COAX
	3	COMMSCOPE	NHH-65C-R2B	700 LTE/850 LTE/PCS LTE	250'	4	0	225°	ERICSSON	4449		-

ADDITIONAL:

- (1) RAYCAP RVZDC-6627-PF-48 DISTRIBUTION BOX ON TOWER
- (1) RAYCAP RVZDC-6627-PF-48 DISTRIBUTION BOX AT EQUIPMENT
- (2) HYBRID CABLES (GROUND DISTRIBUTION BOX TO TOWER DISTRIBUTION BOX) COMMSCOPE HFT1206-24S49-275
- (8) ANDREW AVA7-50 1-5/8" COAX LINES FOR 850 CDMA

VERIZON EQUIPMENT/ANTENNA SCHEDULE

SCALE: NTS

2



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PROJECT TITLE:

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 (VZW LOC. 556453)**

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

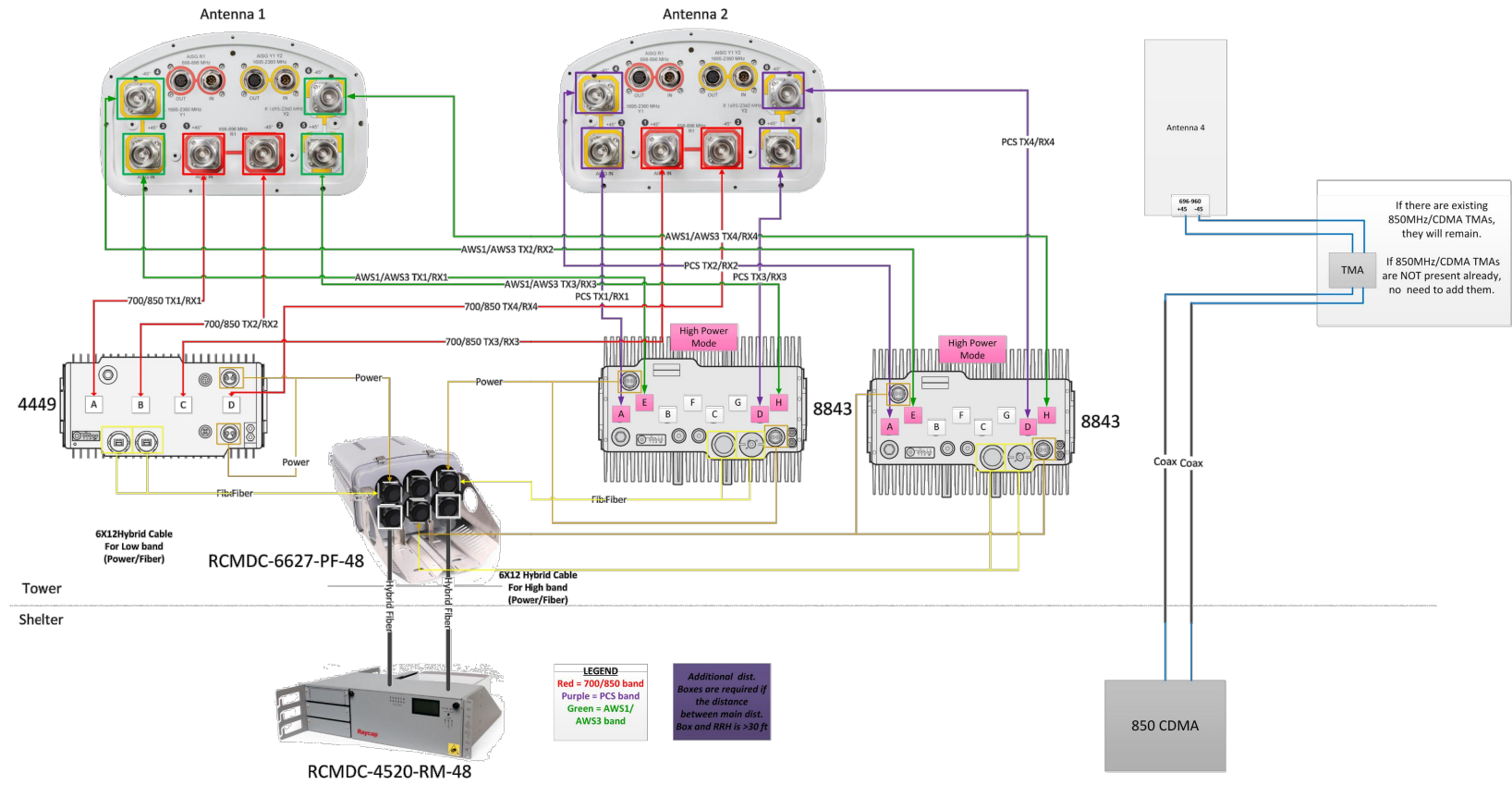
SHEET TITLE:

**VERIZON ANTENNA
 CONFIGURATION**

SCALE: NONE

PROJECT NUMBER 40742

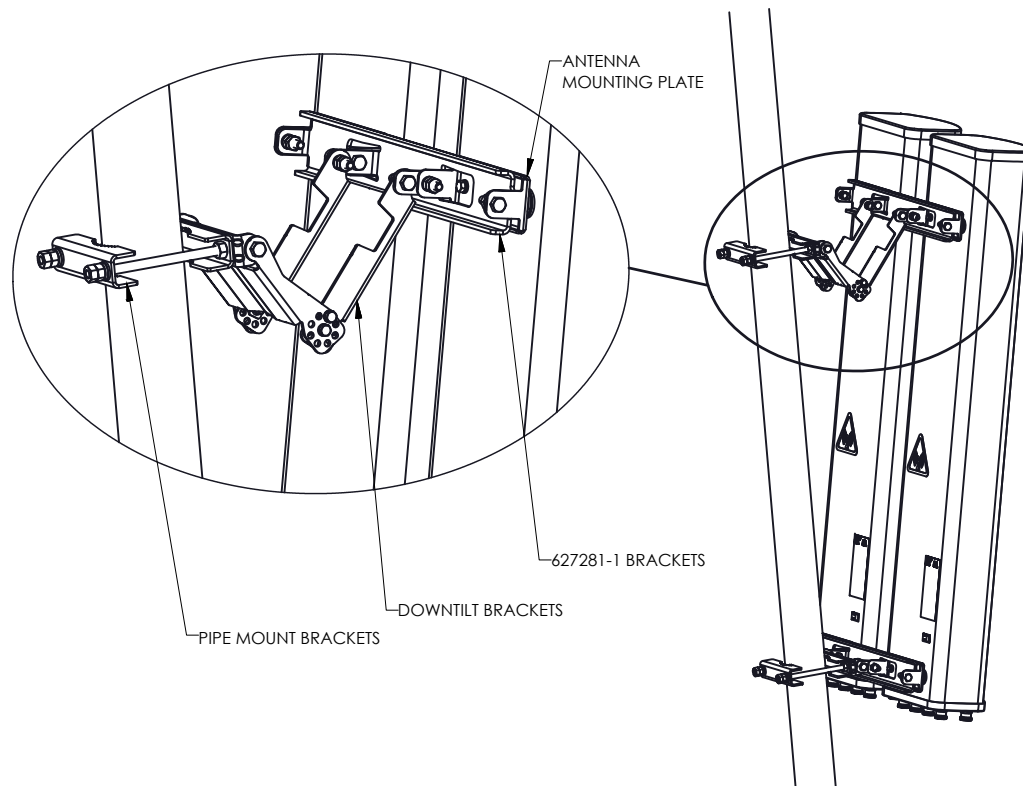
SHEET NUMBER VZW-2



VERIZON PLUMBING DIAGRAM

SCALE: NTS

1



ANTENNA ASSEMBLY ATTACHED TO MAST USING BSAMNT-SBS-1-2 MOUNTING KITS.

VERIZON ANTENNA MOUNT DETAIL

SCALE: NTS

2

TILLMAN
 INFRASTRUCTURE



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PROJECT TITLE:

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 (VZW LOC. 556453)

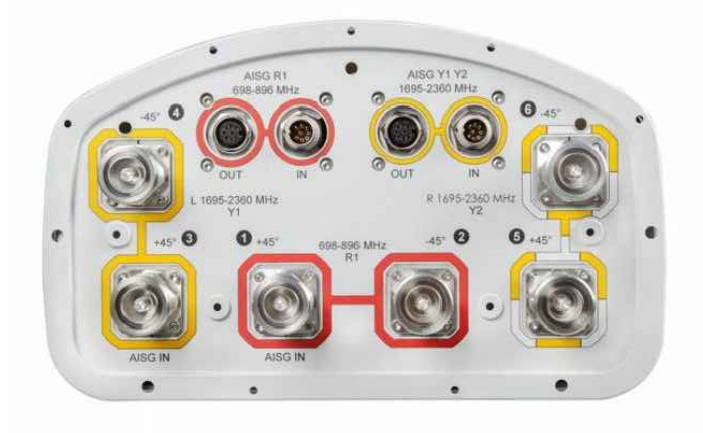
PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:

VERIZON ANTENNA
 CONFIGURATION

SCALE: NONE

PROJECT NUMBER	40742
SHEET NUMBER	VZW-3



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

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



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

ERICSSON 8843 RRH ②
 SCALE: NTS



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

ERICSSON 4449 RRH ③
 SCALE: NTS



RAYCAP OVP BOX
 MODEL NUMBER: RVZDC-6627-PF-48
 29.50" (LENGTH) X 16.50" (WIDTH) X 12.60" (DEPTH)
 WEIGHT: 31.50 LBS.

RAYCAP OVP BOX ④
 SCALE: NTS

MARK	DATE	DESCRIPTION
ISSUE	PRELIMINARY	DATE ISSUED 01/30/2020

PROJECT TITLE:

**TI-OPP-13245-B
 (VZW LOC. 556453)**

PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:
**VERIZON TOWER
 EQUIPMENT SPECIFICATIONS**

SCALE: NONE

PROJECT NUMBER	40742
SHEET NUMBER	VZW-6



TILLMAN
 INFRASTRUCTURE



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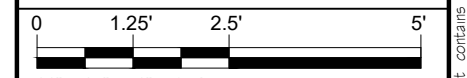
Certification & Seal:

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PROJECT TITLE:
TI-OPP-13245-B
(VZW LOC. 556453)

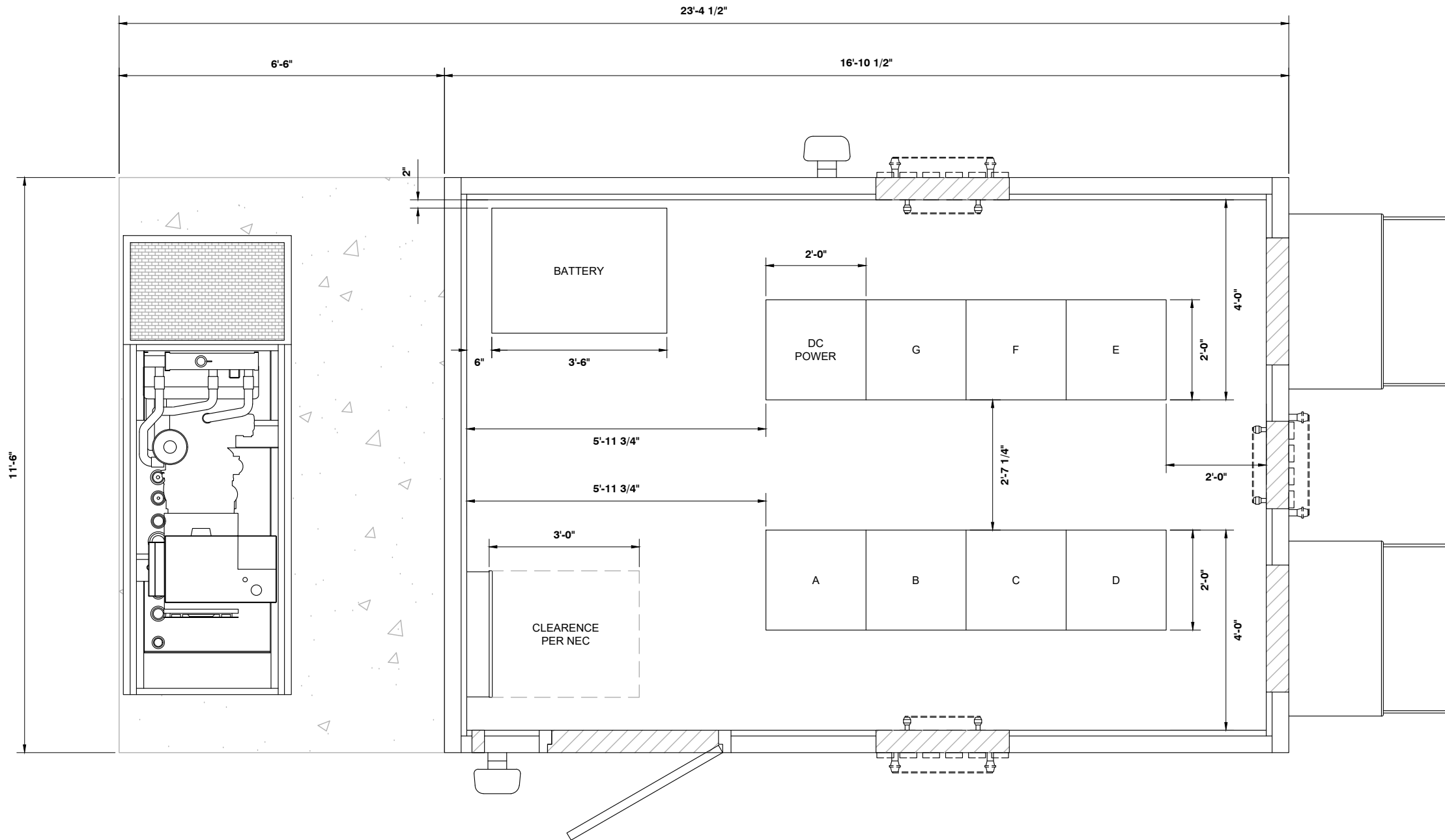
PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:
VERIZON EQUIPMENT SHELTER LAYOUT



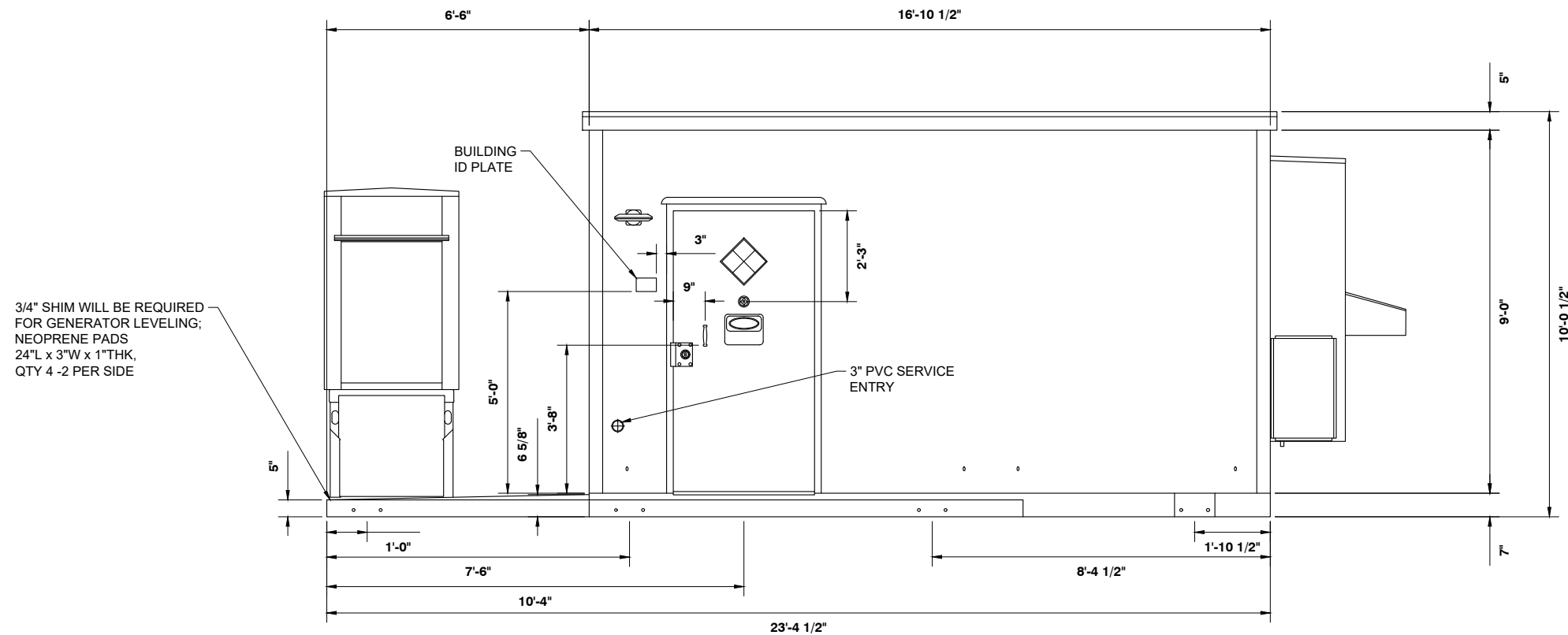
11" x 17" - 1" = 2.5'
 22" x 34" - 1" = 1.25'

PROJECT NUMBER	40742
SHEET NUMBER	VZW-7

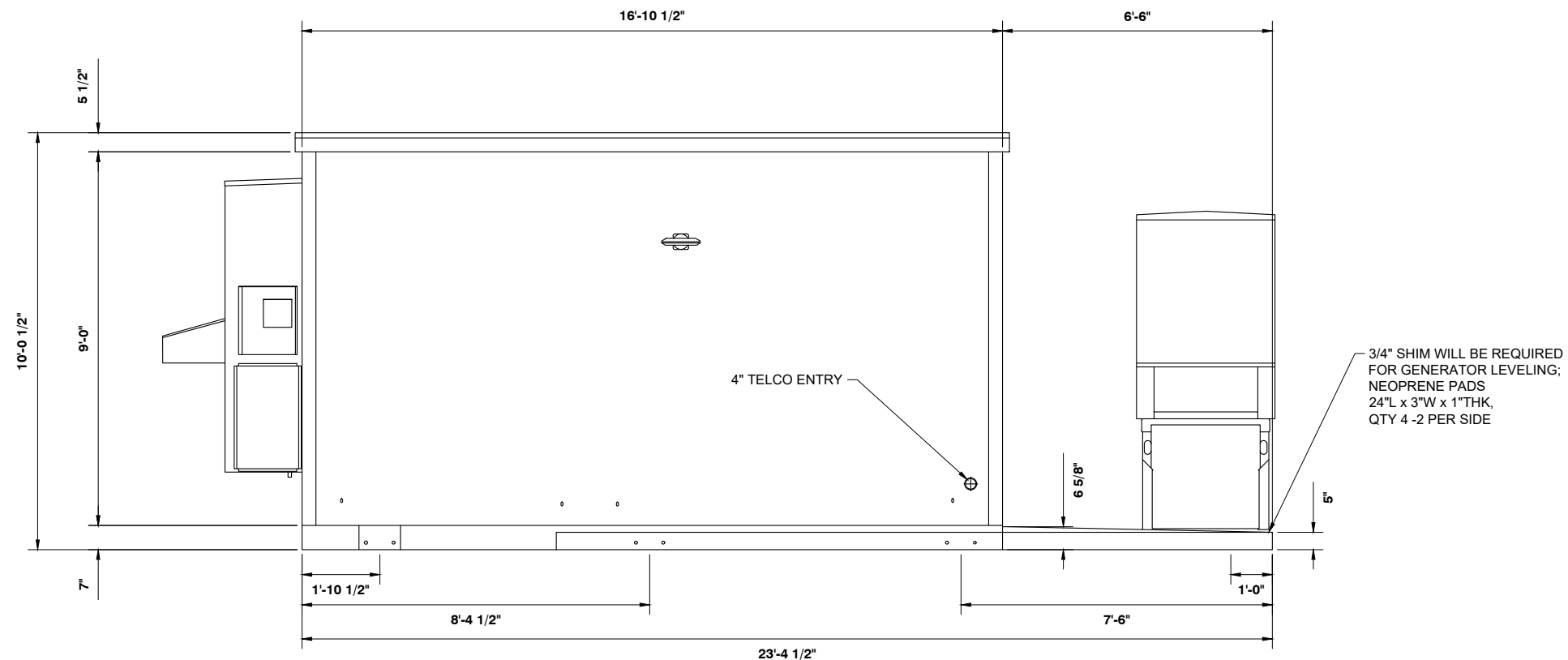


VERIZON EQUIPMENT SHELTER LAYOUT

SCALE: 1" = 2.5'



EQUIPMENT SHELTER EXTERIOR ELEVATION ①
 SCALE: 1" = 3.75'



EQUIPMENT SHELTER EXTERIOR ELEVATION ②
 SCALE: 1" = 3.75'

Certification & Seal:

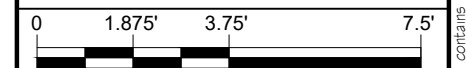
MARK	DATE	DESCRIPTION
ISSUE	PRELIMINARY	DATE ISSUED 01/30/2020

PROJECT TITLE:

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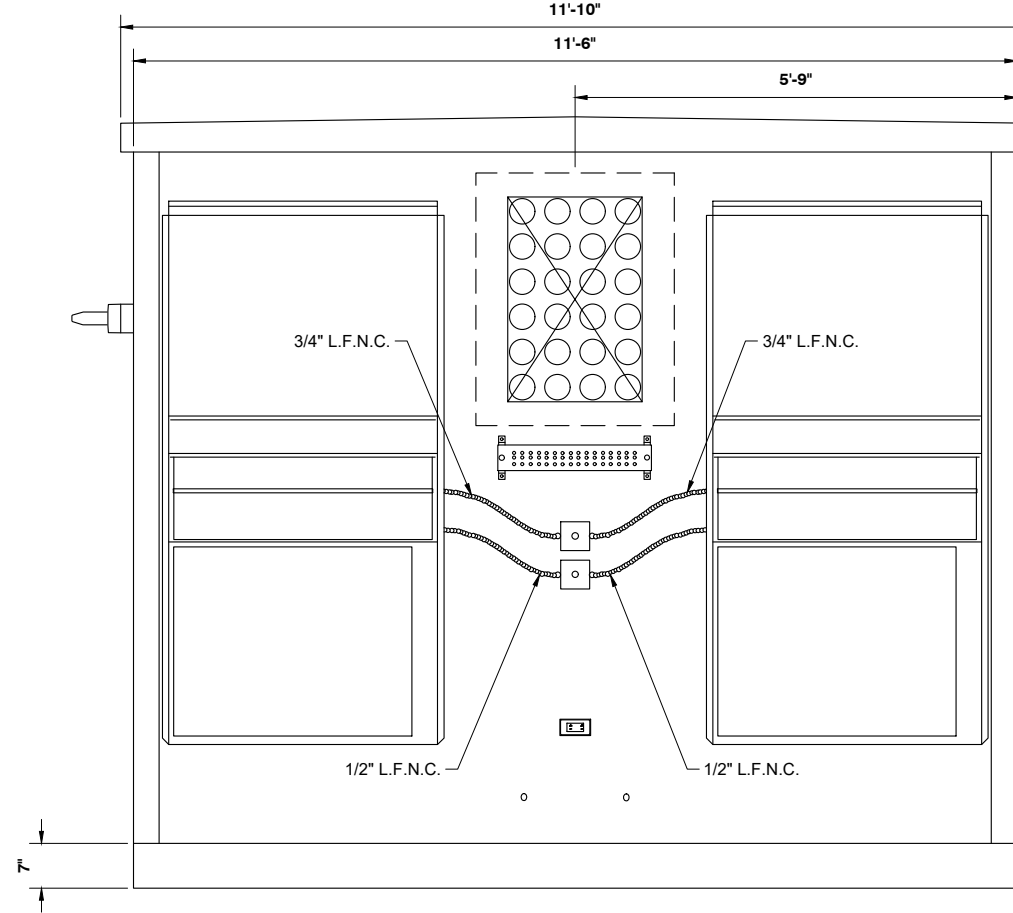
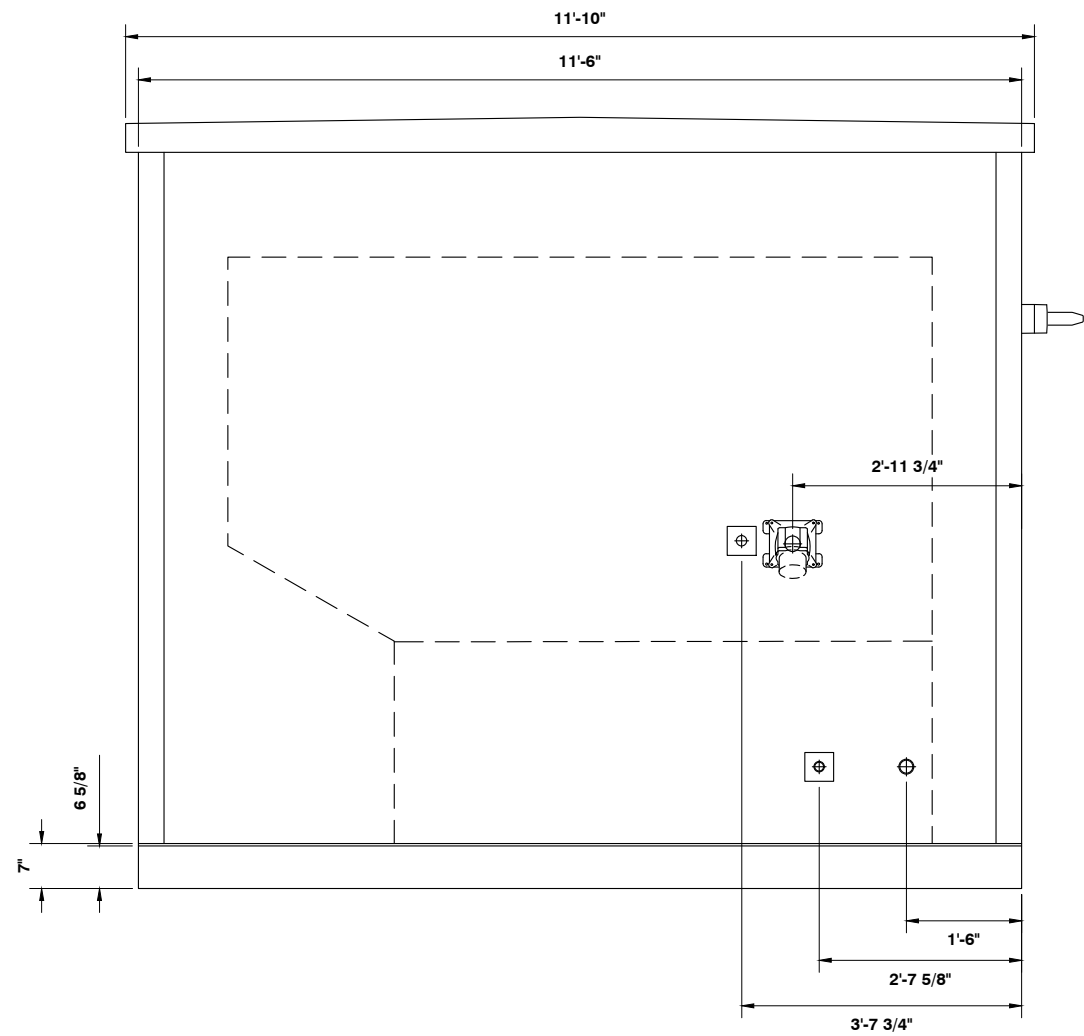
PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:
**VERIZON EQUIPMENT
 SHELTER ELEVATIONS**



11" x 17" - 1" = 3.75'
 22" x 34" - 1" = 1.875'

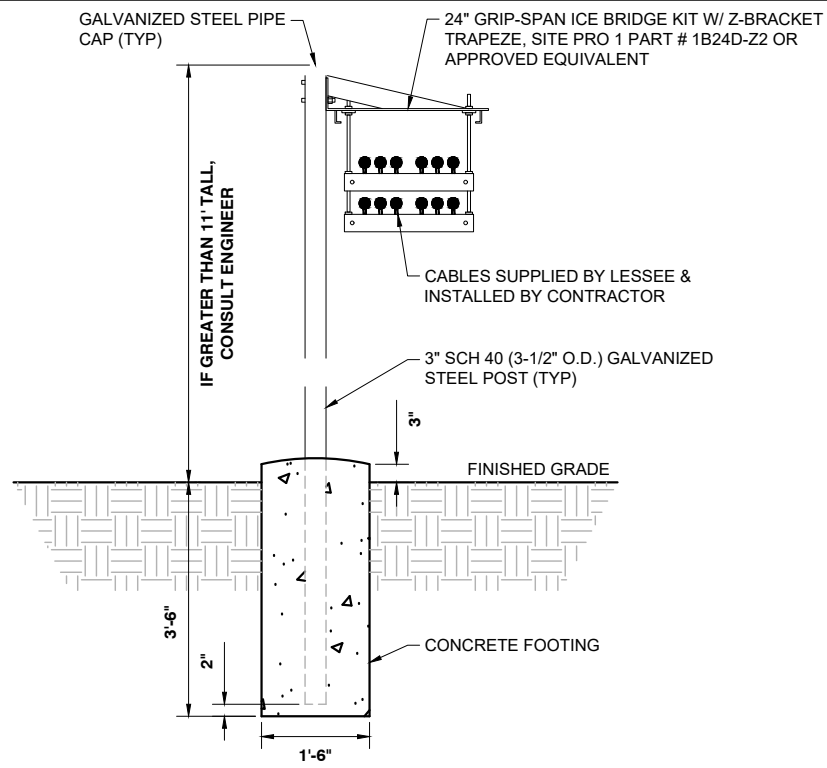
PROJECT NUMBER: 40742
 SHEET NUMBER: VZW-8



VERIZON EQUIPMENT SHELTER ELEVATIONS

SCALE: 1" = 2.5'

1



VERIZON ICE BRIDGE POST DETAIL

SCALE: NTS

2



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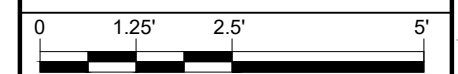
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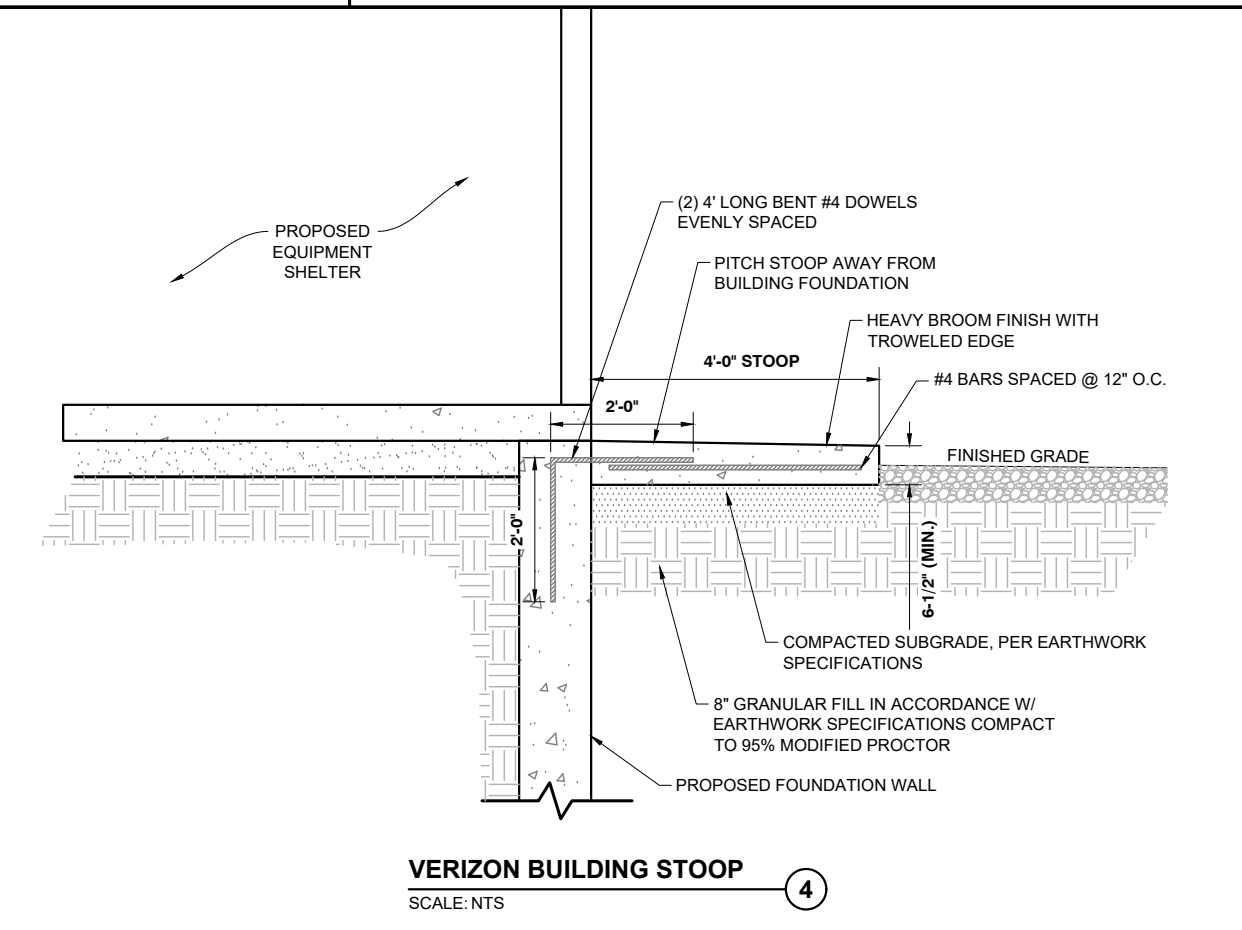
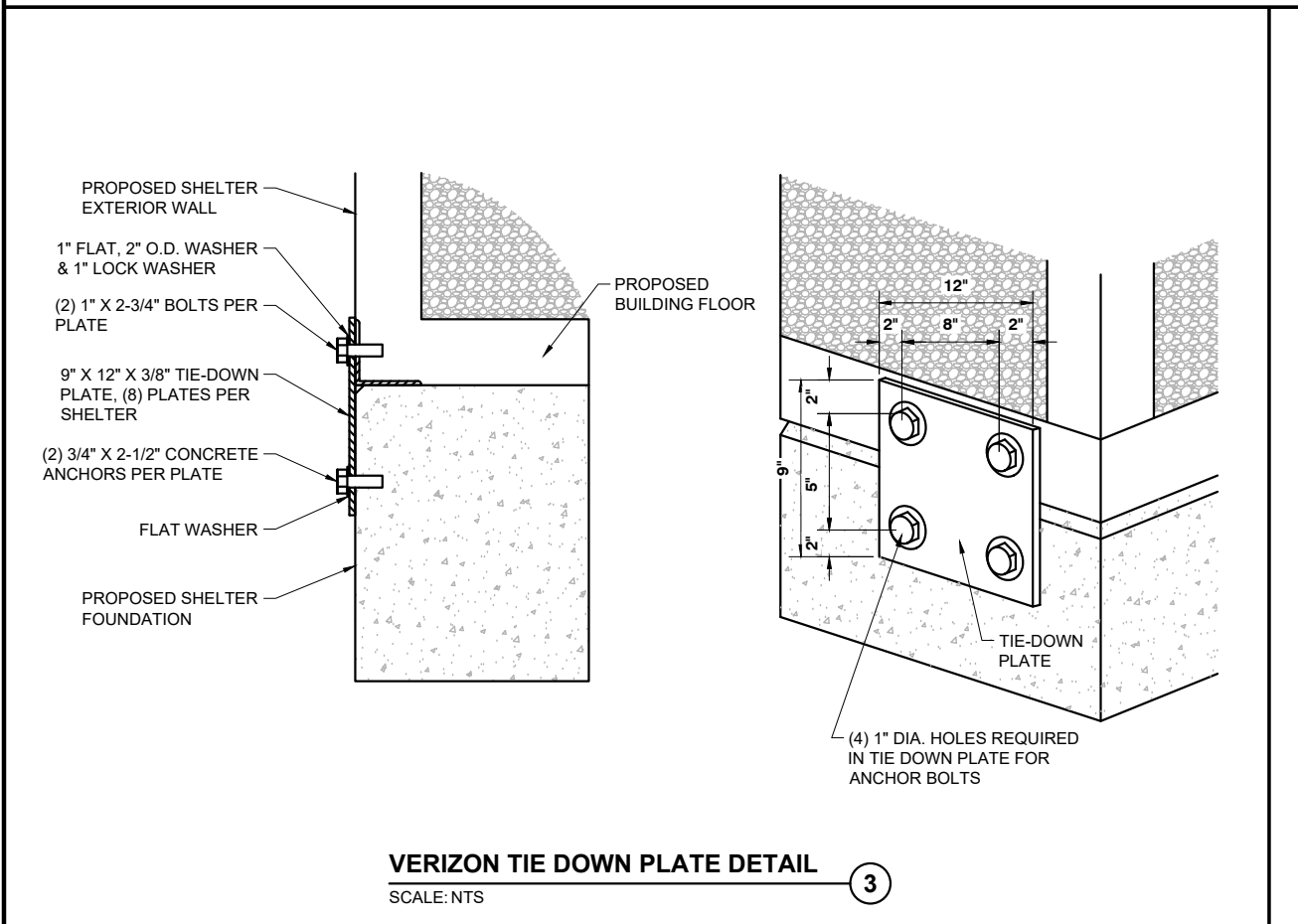
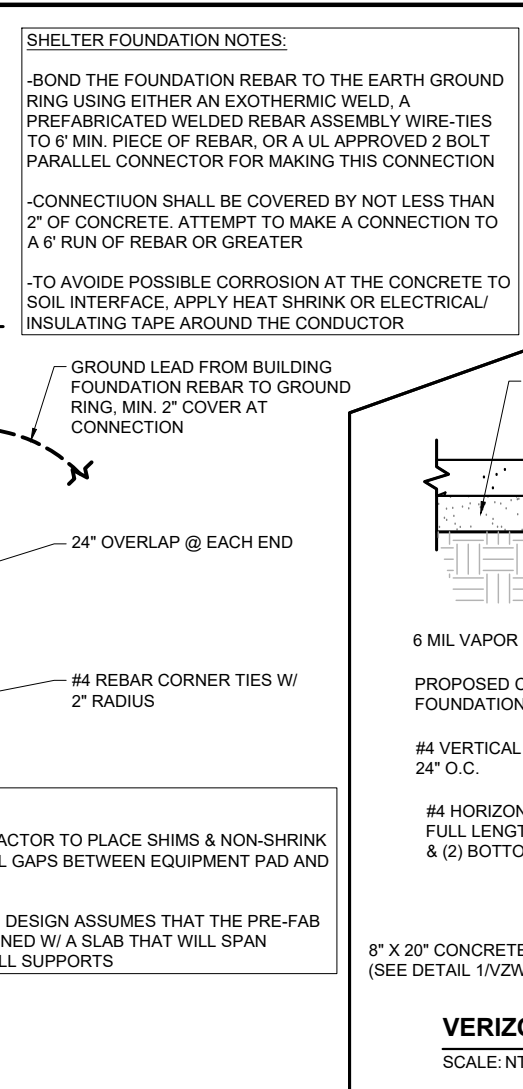
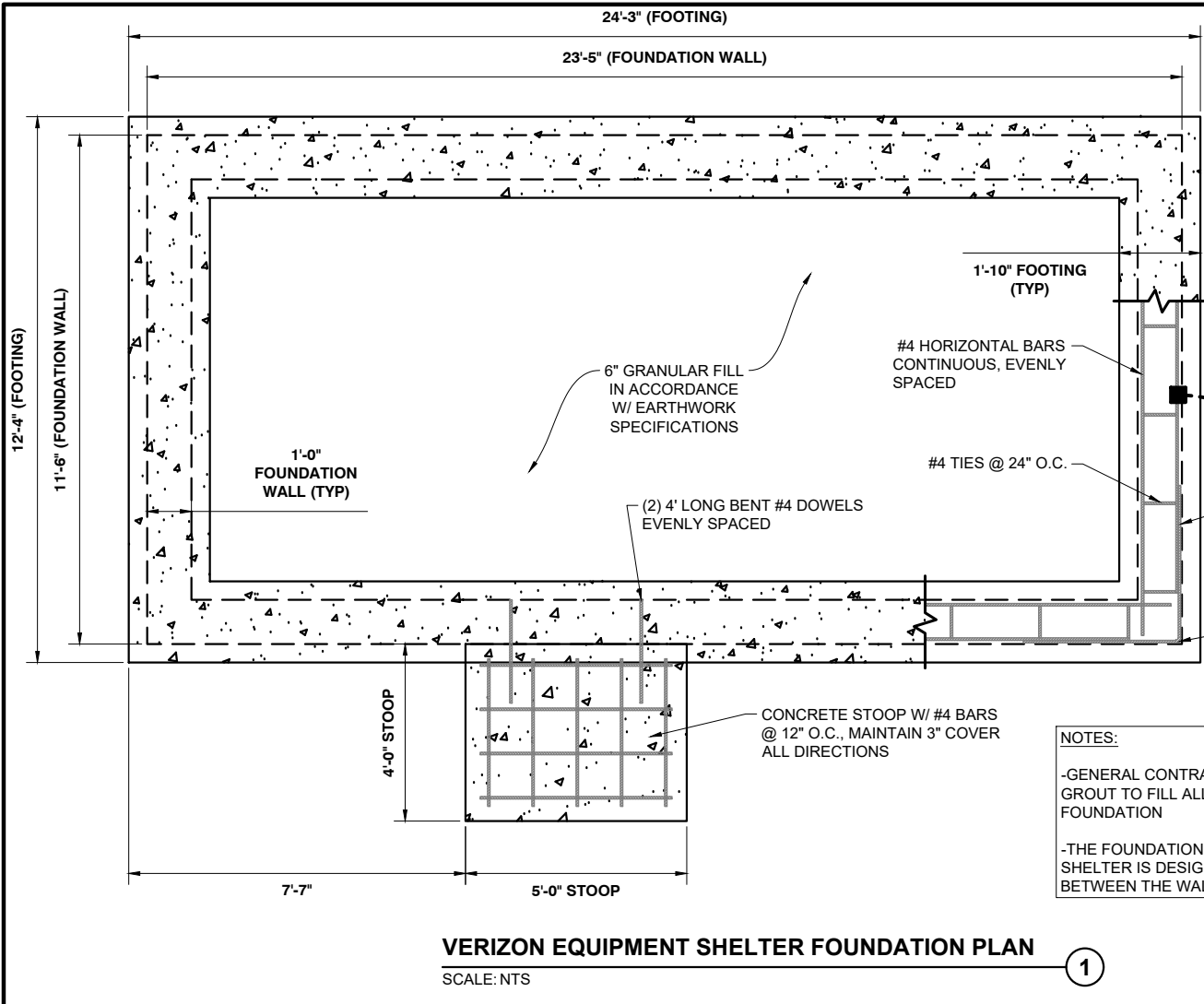
PROJECT INFORMATION:
 UNASSIGNED: ALONG 310TH AVE.
 AITKIN, MN 56431
 AITKIN COUNTY

SHEET TITLE:
**VERIZON EQUIPMENT SHELTER
 ELEVATION & ICE BRIDGE DETAIL**



11" x 17" - 1" = 2.5'
 22" x 34" - 1" = 1.25'

PROJECT NUMBER: 40742
 SHEET NUMBER: VZW-9



TILLMAN INFRASTRUCTURE

Faulk & Foster
 NORTHWEST REGIONAL OFFICE
 678 FRONT AVE NW, SUITE 215
 GRAND RAPIDS, MI 49504

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TI-OPP-13245-B (VZW LOC. 556453)		
PROJECT INFORMATION:		
UNASSIGNED: ALONG 310TH AVE. AITKIN, MN 56431 AITKIN COUNTY		
SHEET TITLE:		
VERIZON EQUIPMENT SHELTER FOUNDATION DETAILS		
SCALE: NONE		
PROJECT NUMBER	40742	
SHEET NUMBER	VZW-10	

KOHLER Power Systems

Model: **30REOZK**

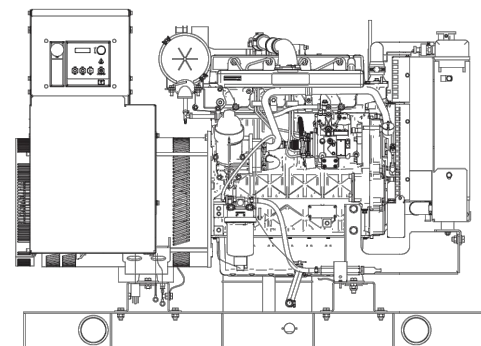
208-600 V

Diesel

9001 Tier 4i EPA-Certified for Stationary
Emergency Applications

Ratings Range

		60 Hz
Standby:	kW	23-31
	kVA	23-39
Prime:	kW	21-28
	kVA	21-35



Generator Set Ratings

Alternator	Voltage	Ph	Hz	130°C Rise Standby Rating		105°C Rise Prime Rating	
				kW/kVA	Amps	kW/kVA	Amps
4D5.6	120/208	3	60	29/36	101	26/33	90
	127/220	3	60	29/36	95	26/33	85
	120/240	3	60	29/36	87	26/33	78
	120/240	1	60	23/23	96	21/21	88
	139/240	3	60	29/36	87	26/33	78
	220/380	3	60	27/34	51	25/31	47
	277/480	3	60	29/36	44	26/33	39
347/600	3	60	29/36	35	26/33	31	
4D8.3	120/208	3	60	31/39	108	28/35	97
	127/220	3	60	31/39	102	28/35	92
	120/240	3	60	31/39	93	28/35	84
	120/240	1	60	29/29	121	26/26	108
	139/240	3	60	31/39	93	28/35	84
	220/380	3	60	31/39	59	28/35	53
	277/480	3	60	31/39	47	28/35	42
347/600	3	60	31/39	37	28/35	34	
4E5.6	120/240	1	60	29/29	121	26/26	108
4E8.3	120/240	1	60	31/31	129	27/27	113

RATINGS: All three-phase units are rated at 0.8 power factor. All single-phase units are rated at 1.0 power factor. **Standby Ratings:** Standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. **Prime Power Ratings:** At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1 and ISO-3046-1. For limited running time and continuous ratings, consult the factory. Obtain the technical information bulletin (TIB-101) for ratings guidelines, complete ratings definitions, and site condition derates. The generator set manufacturer reserves the right to change the design or specifications without notice and without any obligation or liability whatsoever.
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Standard Features

- Kohler Co. provides one-source responsibility for the generating system and accessories.
- The generator set and its components are prototype-tested, factory-built, and production-tested.
- The 60 Hz generator set offers a UL 2200 listing.**
- The generator set accepts rated load in one step.
- The 60 Hz generator set meets NFPA 110, Level 1, when equipped with the necessary accessories and installed per NFPA standards.
- The generator set engine is certified to meet the Environmental Protection Agency (EPA) emergency stationary emissions requirements.
- A one-year limited warranty covers all generator set systems and components. Two- and five-year extended limited warranties are also available.
- Alternator features:
 - Kohler's wound field excitation system with its unique PowerBoost™ design delivers great voltage response and short-circuit capability.
 - The brushless, rotating-field alternator has broadrange reconnectability.
- Other features:
 - Kohler designed controllers for guaranteed system integration and remote communication. See Controllers on page 3.
 - The low coolant level shutdown prevents overheating (standard on radiator models only).
 - Integral vibration isolation eliminates the need for under-unit vibration spring isolators.

Alternator Specifications

Specifications	Alternator
Manufacturer	Kohler
Type	4-Pole, Rotating-Field
Exciter type	Brushless, Wound Field
Leads: quantity, type	12, Reconnectable 4, 110-120/220-240
Voltage regulator	Solid State, Volts/Hz
Insulation:	NEMA MG1
Material	Class H
Temperature rise	130°C, Standby
Bearing: quantity, type	1, Sealed
Coupling	Flexible Disc
Amortisseur windings	Full
Voltage regulation, no-load to full-load	Controller Dependent
One-step load acceptance	100% of Rating
Unbalanced load capability	100% of Rated Standby Current

- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting.
- Sustained short-circuit current of up to 300% of the rated current for up to 10 seconds.
- Sustained short-circuit current enabling downstream circuit breakers to trip without collapsing the alternator field.
- Self-ventilated and drip-proof construction.
- Windings are vacuum-impregnated with epoxy varnish for dependability and long life.
- Superior voltage waveform from a two-thirds pitch stator and skewed rotor.

Specifications	Alternator
Peak motor starting kVA:	(35% dip for voltages below)
480 V 4D5.6 (12 lead)	75
480 V 4D8.3 (12 lead)	120
240 V 4E5.6 (4 lead)	44
240 V 4E8.3 (4 lead)	74

Application Data

Engine

Engine Specifications	
Manufacturer	Kohler Diesel
Engine model	KD12504TM
Engine type	4-Cycle, Turbocharged
Cylinder arrangement	4 Inline
Displacement, L (cu. in.)	2.5 (158)
Bore and stroke, mm (in.)	88 x 102 (3.46 x 4.02)
Compression ratio	16:1
Piston speed, m/min. (ft./min.)	367 (1206)
Main bearings: quantity, type	5, Sleeve
Rated rpm	1800
Max. power at rated rpm, kWm (BHP)	36.4 (48.8)
Cylinder head material	Cast Iron
Crankshaft material	Cast Iron
Valve material:	
Intake	Stainless Steel
Exhaust	Stainless Steel
Governor: type, make/model	Stanadyne/Mechanical (or Electronic *)
	Droop, 5% (or Isochronous *)
Frequency regulation, no-load to full-load	
Frequency regulation, steady state	±0.5%
Frequency	Fixed
Air cleaner type, all models	Dry
* Requires available electronic governor option	

Exhaust

Exhaust System	
Exhaust manifold type	Dry
Exhaust flow at rated kW, m ³ /min. (cfm)	7.8 (275)
Exhaust temperature at rated kW, dry exhaust, °C (°F)	543 (1009)
Maximum allowable back pressure, kPa (in. Hg)	8 (2.4)
Exhaust outlet size at engine hookup, mm (in.)	76.5 (3.0)

Engine Electrical

Engine Electrical System	
Battery charging alternator:	
Ground (negative/positive)	Negative
Volts (DC)	12
Ampere rating	50
Starter motor rated voltage (DC)	12
Battery, recommended cold cranking amps (CCA):	
Quantity, CCA rating	One, 650
Battery voltage (DC)	12

Fuel

Fuel System	
Fuel supply line, min. ID, mm (in.)	8.0 (0.31)
Fuel return line, min. ID, mm (in.)	6.0 (0.25)
Max. lift, engine-driven fuel pump, m (ft.)	3.0 (10.0)
Max. fuel flow, Lph (gph)	46 (12.2)
Max. return line restriction, kPa (in. Hg)	20 (5.9)
Fuel filter	
Prefilter	74 Microns
Primary/Water Separator	5 Microns @ 98% Efficiency
Recommended fuel	#2 Ultra Low Sulfur Diesel

Lubrication

Lubricating System	
Type	Full Pressure
Oil pan capacity, L (qt.)	10.7 (11.3)
Oil pan capacity with filter, L (qt.)	11 (11.6)
Oil filter: quantity, type	1, Cartridge
Oil cooler	—

KOHLER GENERATOR SPECIFICATIONS

SCALE: NTS

1

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Certification & Seal:

MARK	DATE	DESCRIPTION
ISSUE PHASE	PRELIMINARY	DATE ISSUED 01/30/2020

PROJECT TITLE:
**TI-OPP-13245-B
(VZW LOC. 556453)**

PROJECT INFORMATION:
UNASSIGNED: ALONG 310TH AVE.
AITKIN, MN 56431
AITKIN COUNTY

SHEET TITLE:
VERIZON GENERATOR DETAILS

SCALE: NONE

PROJECT NUMBER: 40742
SHEET NUMBER: VZW-11

Application Data

Cooling

Radiator System	
Ambient temperature, °C (°F) *	50 (122)
Engine jacket water capacity, L (gal.)	4.4 (1.6)
Radiator system capacity, including engine, L (gal.)	11.4 (3)
Engine jacket water flow, Lpm (gpm)	59.0 (15.6)
Heat rejected to cooling water at rated kW, dry exhaust, kW (Btu/min.)	27.0 (1536)
Water pump type	Centrifugal
Fan diameter, including blades, mm (in.)	406 (16.0)
Fan, kWm (HP)	0.6 (0.8)
Max. restriction of cooling air, intake and discharge side of radiator, kPa (in. H ₂ O)	0.125 (0.5)

* Enclosure reduces ambient temperature capability by 5°C (9°F).

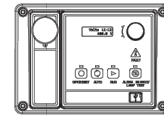
Operation Requirements

Air Requirements	
Radiator-cooled cooling air, m ³ /min. (scfm) †	53.8 (1900)
Combustion air, m ³ /min. (cfm)	2.7 (96.9)
Heat rejected to ambient air:	
Engine, kW (Btu/min.)	10.3 (587)
Alternator, kW (Btu/min.)	6.7 (381)
Max. air intake restriction, kPa (in. Hg)	3.0 (0.89)

† Air density = 1.20 kg/m³ (0.075 lbm/ft³)

Fuel Consumption	
Diesel, Lph (gph) at % load	Standby Rating
100%	9.8 (2.6)
75%	7.9 (2.1)
50%	5.7 (1.5)
25%	3.4 (0.9)
Diesel, Lph (gph) at % load	Prime Rating
100%	9.1 (2.4)
75%	7.2 (1.9)
50%	5.3 (1.4)
25%	3.0 (0.8)

Controller



Decision-Maker® 3000 Controller

Provides advanced control, system monitoring, and system diagnostics for optimum performance and compatibility.

- Digital display and menu control provide easy local data access
- Measurements are selectable in metric or English units
- Remote communication thru a PC via network or serial configuration
- Controller supports Modbus® protocol
- Integrated hybrid voltage regulator with ±0.5% regulation
- Built-in alternator thermal overload protection
- NFPA 110 Level 1 capability

Refer to G6-100 for additional controller features and accessories.

Modbus® is a registered trademark of Schneider Electric.

KOHLER CO., Kohler, Wisconsin 53044 USA
Phone 920-457-4441, Fax 920-459-1646
For the nearest sales and service outlet in the US and Canada, phone 1-800-544-2444
KOHLERPower.com

Kohler Power Systems
Asia Pacific Headquarters
7 Jurong Pier Road
Singapore 619159
Phone (65) 6264-6422, Fax (65) 6264-6455

Additional Standard Features

- Air Cleaner, Heavy Duty
- Alternator Protection
- Battery Rack and Cables
- Closed Crankcase Ventilation
- Oil Drain and Coolant Drain with Hose Barb
- Oil Drain Extension (with enclosure models only)
- Operation and Installation Literature
- Stainless Steel Fasteners on Enclosure (with enclosure models only)
- Rodent Guards
- Stainless Steel Fasteners on Enclosures

Available Options

Approvals and Listings

- CSA Approval
- UL2200 Listing

Enclosed Unit

- Sound Enclosure (with enclosed critical silencer)
- Weather Enclosure (with enclosed critical silencer)
- Stainless Steel Latches and Hinges

Open Unit

- Exhaust Silencer, Critical (kit: PA-352663)
- Flexible Exhaust Connector, Stainless Steel

Fuel System

- Flexible Fuel Lines
- Fuel Pressure Gauge
- Subbase Fuel Tanks

Controller

- Common Failure Relay
- Input/Output Module
- Manual Speed Adjust (requires Electronic Governor)
- Remote Annunciator Panel
- Remote Emergency Stop
- Run Relay

Cooling System

- Block Heater (700 W, 110-120 V)
Recommended for ambient temperatures below 0°C (32°F).
- Radiator Duct Flange

Electrical System

- Alternator Strip Heater
- Battery
- Battery Charger, Equalize/Float Type
- Battery Heater
- Electronic Governor
- Line Circuit Breaker (NEMA type 1 enclosure)
- Line Circuit Breaker with Shunt Trip (NEMA type 1 enclosure)

Miscellaneous

- Air Cleaner Restriction Indicator
- Engine Fluids Added
- Rated Power Factor Testing

Literature

- General Maintenance
- NFPA 110
- Overhaul
- Production

Warranty

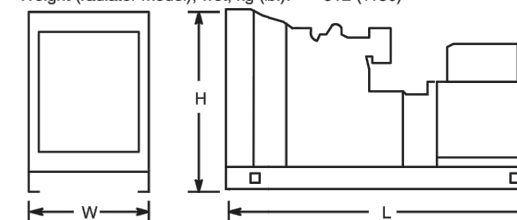
- 2-Year Basic Limited
- 5-Year Basic Limited
- 5-Year Comprehensive Limited

Other Options

- _____
- _____
- _____
- _____
- _____

Dimensions and Weights

Overall Size, L x W x H, mm (in.):
Open Unit Skid: 1400 x 813 x 1024 (55.1 x 32.0 x 40.3)
Enclosure Skid: 1938 x 813 x 1174 (76.5 x 32.0 x 47.0)
Weight (radiator model), wet, kg (lb.): 512 (1130)



NOTE: This drawing is provided for reference only and should not be used for planning installation. Contact your local distributor for more detailed information.

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G5-436 (30RE0ZK) 8/15a

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(VZW LOC. 556453)**

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AITKIN, MN 56431
AITKIN COUNTY

SHEET TITLE:
VERIZON GENERATOR DETAILS

SCALE: NONE

PROJECT NUMBER 40742
SHEET NUMBER VZW-12

KOHLER GENERATOR SPECIFICATIONS

SCALE: NTS

GROUNDING SCHEDULE

---	#2 TINNED SOLID COPPER WIRE
▲	EXOTHERMIC CONNECTION
⊗	GROUND ROD
⊗	GROUND TEST WELL
MIGB	MASTER ISOLATED GROUND BAR
CIGBE	COAX ISOLATED GROUND BAR EXTERNAL

NOTE:
 1. ONLY HYDRD EXCAVATE FOR ALL REQUIRED GROUND DISTURBANCE
 2. GROUNDING SYSTEM TO COMPLY WITH MOTOROLA R56 GUIDELINES



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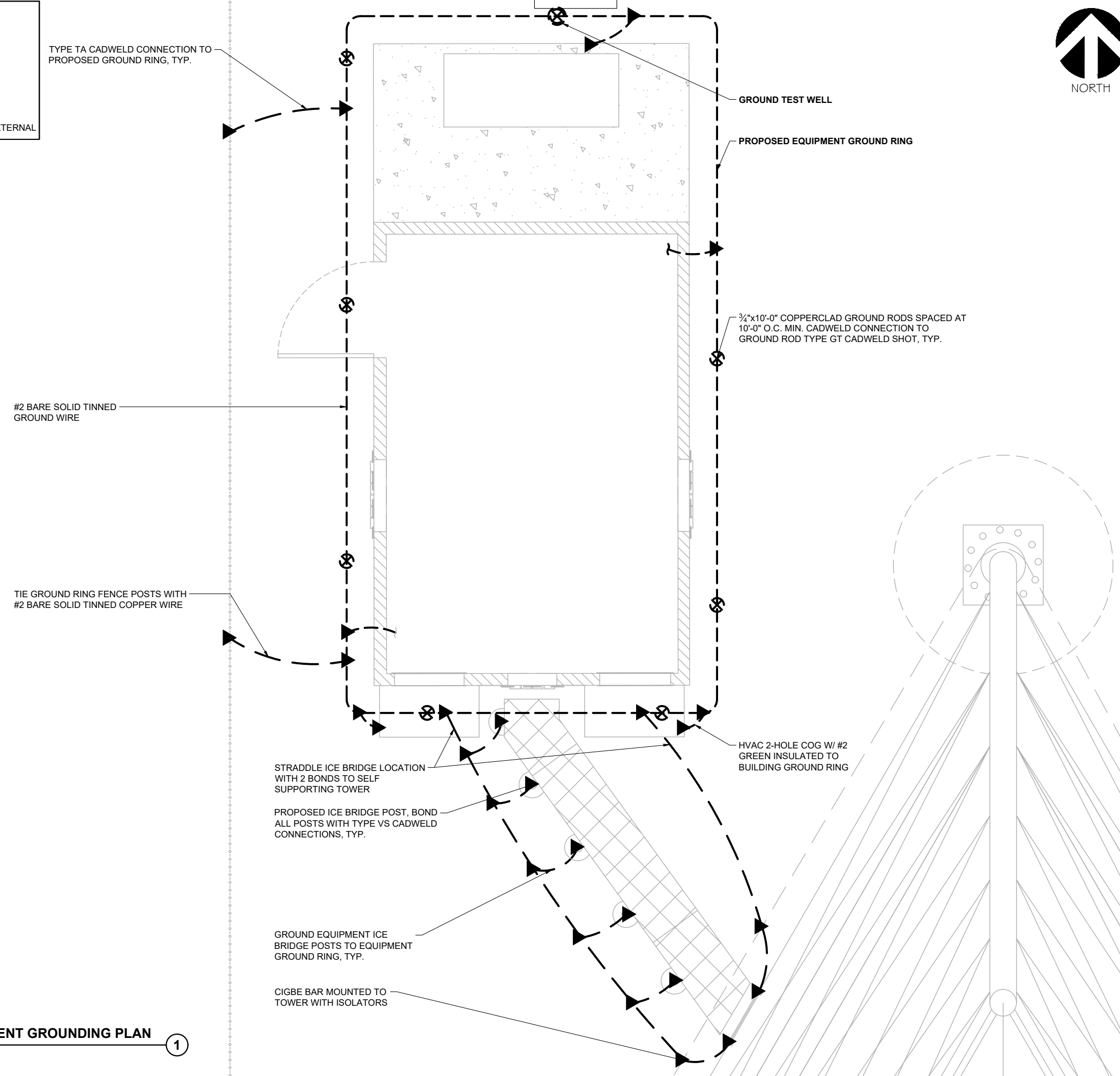
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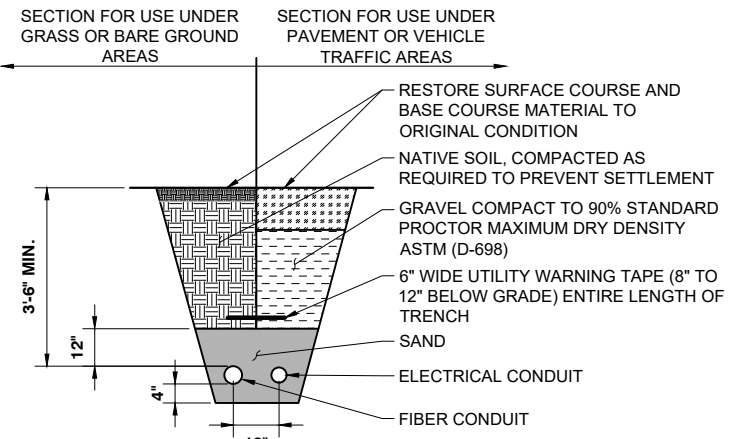
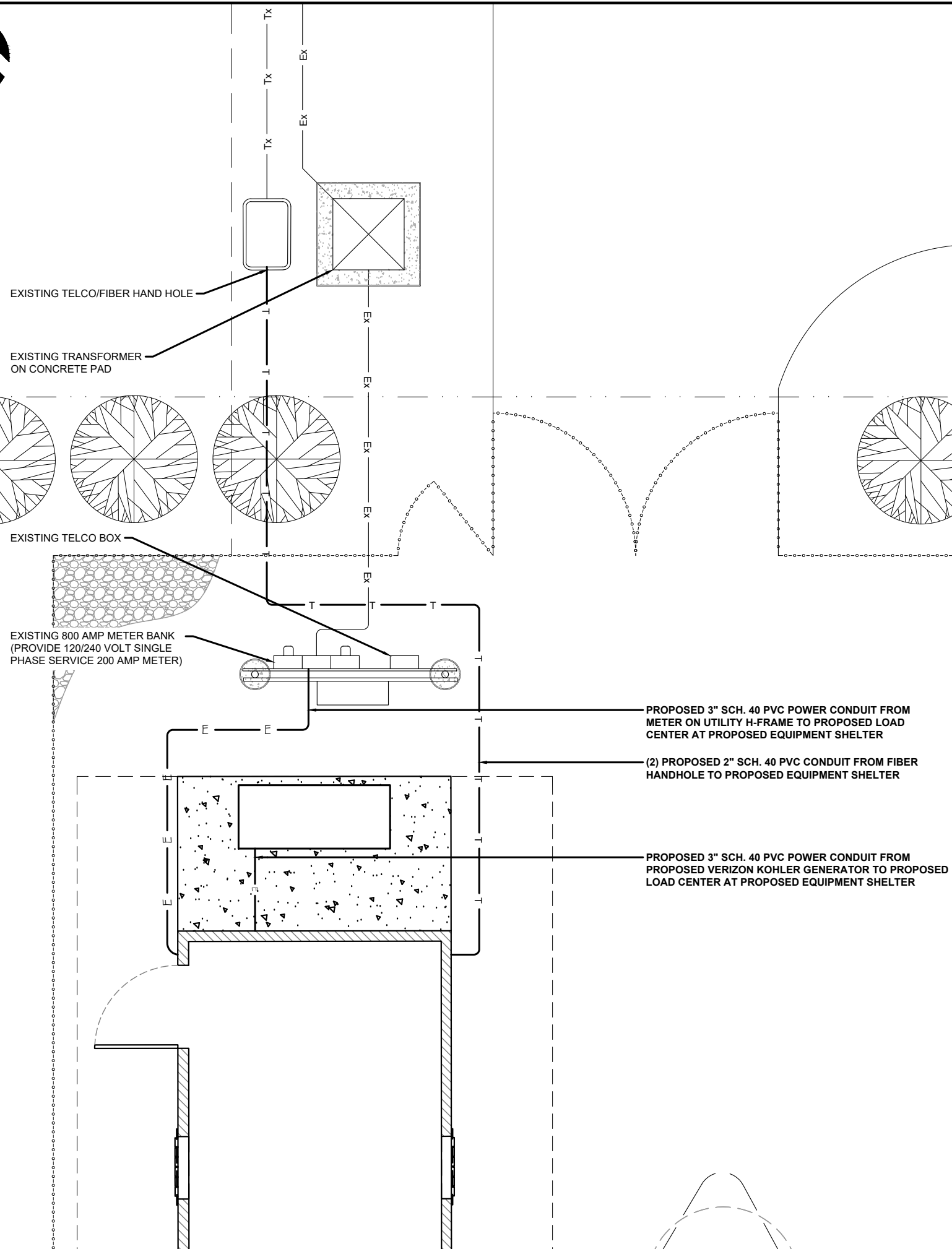
PROJECT INFORMATION:
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 AITKIN COUNTY

SHEET TITLE:
**VERIZON EQUIPMENT SHELTER
 GROUNDING PLAN**

PROJECT NUMBER: 40742
 SHEET NUMBER: VZW-13

VERIZON EQUIPMENT GROUNDING PLAN ①
 SCALE: 1" = 3.75'





- NOTES:
1. CONTRACTOR TO VERIFY LOCAL UTILITY REQUIREMENTS FOR DEPTH, SIZE, & SEPARATION OF CONDUITS PRIOR TO INSTALLATION. NOTIFY CONSTRUCTION MANAGER IMMEDIATELY OF ANY DISCREPANCIES.
 2. CONTRACTOR TO CALL DIGGERS HOTLINE (1-800-242-8511) 48 HOURS PRIOR TO EXCAVATING FOR UNDERGROUND UTILITY LOCATIONS. LOCATION SURROUNDING EXCAVATED AREA MUST BE PRIVATELY LOCATED FOR NON-PUBLIC UTILITIES.

TYPICAL UTILITY TRENCH DETAIL ②
 SCALE: NTS

LEGEND:		
— E — E —	PROPOSED ELECTRIC	
— T — T —	PROPOSED TELCO	
— FO —	PROPOSED FIBER	

VERIZON UTILITY PLAN ①
 SCALE: 1" = 5'



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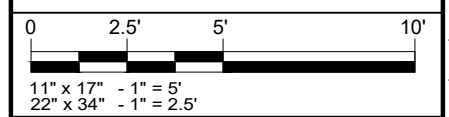
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 AITKIN COUNTY

SHEET TITLE:
VERIZON UTILITY PLAN



PROJECT NUMBER: 40742
 SHEET NUMBER: VZW-14